

International Encyclopedia of Communications

ERIK BARNOUW

Editor in Chief

GEORGE GERBNER

Chair, Editorial Board

WILBUR SCHRAMM

Consulting Editor

TOBIA L. WORTH

Editorial Director

LARRY GROSS

Associate Editor

Volume 1

Published jointly with
THE ANNENBERG SCHOOL OF COMMUNICATIONS,
University of Pennsylvania



OXFORD UNIVERSITY PRESS

New York Oxford

Oxford University Press

Oxford New York Toronto
Delhi Bombay Calcutta Madras Karachi
Petaling Jaya Singapore Hong Kong Tokyo
Nairobi Dar es Salaam Cape Town
Melbourne Auckland
and associated companies in
Berlin Ibadan

Copyright © 1989 by the Trustees of the University of Pennsylvania

Published jointly by
The Annenberg School of Communications,
University of Pennsylvania,
and Oxford University Press, Inc.,
200 Madison Avenue, New York, New York 10016

Oxford is a registered trademark of Oxford University Press

All rights reserved. No part of this publication may be reproduced,
stored in a retrieval system, or transmitted, in any form or by any means,
electronic, mechanical, photocopying, recording, or otherwise,
without the prior permission of Oxford University Press.

Library of Congress Cataloging-in-Publication Data

International encyclopedia of communications / Erik Barnouw, editor-in-chief . . . [et al.].

p. cm.

Bibliography: p.

Includes index.

1. Communication—Dictionaries. I. Barnouw, Erik, 1908–
P87.5.I5 1989 001.51'0321—dc19 88-18132 CIP

ISBN 0-19-504994-2 (set)

ISBN 0-19-505802-X (vol. 1)

ISBN 0-19-505803-8 (vol. 2)

ISBN 0-19-505804-6 (vol. 3)

ISBN 0-19-505805-4 (vol. 4)

Acknowledgments of sources of illustrative materials appear in captions
throughout this work. Conscientious efforts have been made to locate owners
of copyrights on illustrative materials and to secure their permission to use
them herein. If any illustration has been inadvertently used without proper
acknowledgment of its source, the publishers invite notification by copyright
owners so that a correction can be made in future printings.

2 4 6 8 9 7 5 3 1

Printed in the United States of America
on acid-free paper

International
Encyclopedia of
Communications



THE UNIVERSITY OF PENNSYLVANIA

The International Encyclopedia of Communications
was conceived, developed, and edited at
The Annenberg School of Communications,
University of Pennsylvania.

Editorial Board

GEORGE GERBNER, *Chair*

Professor of Communications and Dean, The Annenberg School of Communications,
University of Pennsylvania

DAVID ATTWOOLL

Editorial Director, Reference and General Books,
Oxford University Press, Oxford

ERIK BARNOUW

Professor Emeritus of Dramatic Arts, Columbia University

PETER CLARKE

Professor of Communications and Dean, The Annenberg School of Communications,
University of Southern California

LARRY GROSS

Professor of Communications, The Annenberg School of Communications,
University of Pennsylvania

SHELDON MEYER

Senior Vice-President, Editorial, Oxford University Press, New York

MAURICE B. MITCHELL

Former President and Editorial Director,
Encyclopaedia Britannica, Inc., Chicago

WILBUR SCHRAMM

Director Emeritus, Institute for Communications Research, Stanford University,
and Distinguished Center Researcher Emeritus, East-West Center, Honolulu

TOBIA L. WORTH

Former Editor, Encyclopedia Section, Professional and Reference Book Division,
McGraw-Hill Book Company, New York

Editorial and Production Staff

AT THE UNIVERSITY OF PENNSYLVANIA

Editorial Director
Tobia L. Worth

Assistant Editors
Harold Branam Lee Ann Draud Pedro F. Hernández-Ramos
Catherine E. Kirkland Deborah Rohr John Ziff

Editing Coordinator
Lee Ann Draud

Project Manager
Robinette M. Dasher-Alston

Art Editor
Gillian M. L. Speeth

Executive Assistant
Carol Welty Faris

Bibliographic Researcher
Michele A. Belluomini

Assistant to the Project Manager
Debra D. Williams

Indexers
Cheryl Cutrona, *Director*
Michele A. Belluomini
Pedro F. Hernández-Ramos
Deborah Rohr

*Administrative Staff and
Computer Operations*
Lessie V. Boyd Sharon Cothran
Rebekah A. Hendricks

AT OXFORD UNIVERSITY PRESS, NEW YORK

Executive Editor
William Mitchell

Senior Project Editor
Marion E. Britt

Production Coordinator
Sarah Flanagan

Managing Editor
Ellen B. Fuchs

Book Designer
Victoria Wong

Copyeditor
Wendy Warren Keebler

Graphic Artist
Jeanyee Wong

Permissions Assistants
Allan E. Bulley Sydney G. Recht

Layout Artists
Woods End Studio, Yonkers, N.Y.

Contents

SECTION EDITORS	VOLUME 1 xi
EDITORIAL ADVISERS	xiii
PREFACE, <i>by Erik Barnouw</i>	xix
FOREWORD, <i>by George Gerbner</i>	xxi
INTRODUCTION, <i>by Tobia L. Worth</i>	xxiii

International Encyclopedia of Communications

DIRECTORY OF CONTRIBUTORS	VOLUME 4 343
TOPICAL GUIDE	361
INDEX	369

Section Editors

TINO BALIO

Professor of Communication Arts,
University of Wisconsin–Madison

ERIK BARNOUW

Professor Emeritus of Dramatic Arts,
Columbia University

RICHARD BAUMAN

Professor of Folklore and Anthropology
and Chair, Folklore Institute, Indiana
University

LEO BOGART

Executive Vice-President and General
Manager, Newspaper Advertising
Bureau, New York

NOLAN A. BOWIE

Assistant Professor of Communication,
Temple University

DEIRDRE BOYLE

Senior Faculty Member in Media
Studies, New School for Social
Research, New York; Adjunct Lecturer,
Fordham University, College of Lincoln
Center

ASA BRIGGS

Provost, Worcester College, University
of Oxford

PETER CLARKE

Professor of Communications and
Dean, The Annenberg School of
Communications, University of
Southern California

GEORGE COMSTOCK

S. I. Newhouse Professor of Public
Communications, Syracuse University

JERROLD S. COOPER

Professor of Near Eastern Studies,
Johns Hopkins University

SUSAN EVANS

Director of Academic Development,
The Annenberg School of
Communications, University of
Southern California

STEVEN FELD

Associate Professor of Anthropology
and Music and Director, Center for
Intercultural Studies in Folklore and
Ethnomusicology, University of Texas
at Austin

GEORGE GERBNER

Professor of Communications and
Dean, The Annenberg School of
Communications, University of
Pennsylvania

LARRY GROSS

Professor of Communications,
The Annenberg School of
Communications, University of
Pennsylvania

ADAM KENDON

Anthropologist

MARK L. KNAPP

Professor of Speech Communication,
University of Texas at Austin

WILLIAM J. MCGUIRE

Professor of Psychology, Yale
University

GAVRIEL SALOMON

Professor of Education and
Communication, Tel-Aviv University
and the University of Arizona

DAN SCHILLER

Associate Professor of Library and
Information Science, University of
California, Los Angeles

WILBUR SCHRAMM

Director Emeritus, Institute for
Communications Research, Stanford
University; Distinguished Center
Researcher Emeritus, East-West Center,
Honolulu

MICHAEL SILVERSTEIN

Samuel N. Harper Professor,
Departments of Anthropology,
Linguistics, and Behavioral Sciences
(Cognition and Communication) and
Committee on Ideas and Methods,
University of Chicago

ELEANOR SINGER

Senior Research Scholar, Center for the
Social Sciences, Columbia University

W. JOHN SMITH

Professor of Biology and Psychology,
University of Pennsylvania

JOEL SNYDER

Professor of Humanities, University of
Chicago

JOHN STURROCK

Editor, *Times Literary Supplement*,
London

Editorial Advisers

ELIE ABEL

Harry and Norman Chandler Professor
of Communication, Stanford University

YEHIA ABOUBAKR

President, International Information
and Communications Consultants,
Cairo, Egypt, and West Windsor, N.J.

BINOD C. AGRAWAL

Scientist, Development and Educational
Communication Unit, Space
Application Centre, Indian Space
Research Organisation, Ahmedabad

RUDOLF ARNHEIM

Professor Emeritus of the Psychology of
Art, Harvard University

WALTER S. BAER

Director of Advanced Technology,
Times Mirror Company, Los Angeles

BEN H. BAGDIKIAN

Dean, Graduate School of Journalism,
University of California, Berkeley

BISHARA A. BAHBAH

Adjunct Professor of Political Science,
Brigham Young University; former
Editor in Chief, *Al-Fajr*, Jerusalem

FRANCIS BALLE

Professor of Political Science, Université
de Paris II (Université de Droit,
d'Économie et des Sciences Sociales);
Vice-Chancellor, Universités de Paris

ALBERT BANDURA

David Starr Jordan Professor of Social
Science in Psychology, Stanford
University

GIOVANNI BECHELLONI

Professor of Sociology of Cultural
Processes, Università degli Studi,
Florence

HOWARD S. BECKER

MacArthur Professor of Arts and
Sciences, Northwestern University

JÖRG BECKER

Professor of Political Sciences,
Technische Hochschule Darmstadt;
Director, KomTech. Center for
Communication and Technology
Research, Frankfurt

DANIEL BELL

Henry Ford II Professor of Social
Sciences, Harvard University

LEONARD BERKOWITZ

Vilas Research Professor in Psychology,
University of Wisconsin-Madison

BASIL BERNSTEIN

Karl Mannheim Professor in the
Sociology of Education, Institute of
Education, University of London

JOHN BLACKING

Professor of Social Anthropology,
Queen's University of Belfast

CLIFFORD H. BLOCK

Chief, Division of Educational
Technology and Development
Communications, United States Agency
for International Development,
Washington, D.C.

JAY G. BLUMLER

Director, Centre for Television
Research, University of Leeds; Associate
Director, Center
for Research in Public Communication,
University of Maryland at College Park

S. T. KWAME BOAFO

Lecturer, School of Communication
Studies, University of Ghana

MIHAI C. BOTEZ

Senior Researcher, Mathematics and
Policy Analysis, Universitatea București

ANNE W. BRANSCOMB

Adjunct Professor of International Law,
Fletcher School of Law and Diplomacy,
Tufts University

ROGER W. BROWN

John Lindsley Professor of Psychology,
Harvard University

WILLIAM F. BUCKLEY, JR.

Editor, *National Review*, New York

ROBERT W. BURCHFIELD

Former Chief Editor, Oxford English
Dictionaries, Oxford University Press,
Oxford

PETER BURKE

Reader in Cultural History and Fellow
of Emmanuel College, University of
Cambridge

NELLY DE CAMARGO

Professor of Communications Theory
and Communication Policies for
Development, Universidade de São
Paulo

MURIEL G. CANTOR

Professor of Sociology, American University, Washington, D.C.

JAMES W. CAREY

Dean, College of Communications, University of Illinois at Urbana-Champaign

THOMAS F. CARNEY

Professor of Communication Studies, University of Windsor

STEVEN H. CHAFFEE

Janet M. Peck Professor of International Communication and Chair, Department of Communication, Stanford University

JACK CHEN (CHEN I-WAN)

President, The Pear Garden in the West, San Francisco; former Consultant Editor, *Peking Review*, Beijing

NOAM CHOMSKY

Institute Professor, Department of Linguistics and Philosophy, Massachusetts Institute of Technology

ARTHUR C. CLARKE

Chancellor, University of Moratuwa, Sri Lanka

THOMAS C. COCHRAN

Benjamin Franklin Professor Emeritus of History, University of Pennsylvania

HERMAN COHEN JEHOAM

Professor of Intellectual Property, Media, and Information Law, Universiteit van Amsterdam

MICHAEL COLE

Professor of Communications and Psychology and Director, Laboratory of Comparative Human Cognition, University of California, San Diego

PETER COWIE

Film historian, London and Helsinki

RITA CRUISE O'BRIEN

Fellow, London School of Economics and Political Science, University of London

DAVID CRYSTAL

Honorary Professor of Linguistics, University College of North Wales

JONATHAN CULLER

Professor of English and Comparative Literature, Cornell University

NABIL H. DAJANI

Assistant Dean, Faculty of Arts and Sciences, American University of Beirut

CHIDANANDA DAS GUPTA

Arts Editor, *The Telegraph*, Calcutta

HAROLD DE BOCK

Director, Burke Inter/View B.V., Instituut voor Marktinformatie, Amsterdam

BRENDA L. DERVIN

Professor and Chair, Department of Communication, Ohio State University

JUAN E. DÍAZ BORDENAVE

International consultant in communication and education, Rio de Janeiro

HENRI GEORGES DIEUZEIDE

Director, Division of Structures, Content, Methods, and Techniques of Education, UNESCO, Paris

WIMAL DISSANAYAKE

Research Associate and Assistant Director, Institute of Culture and Communication, East-West Center, Honolulu

WILSON P. DIZARD

Senior Fellow, Center for Strategic and International Studies, Washington, D.C.

ARIEL DORFMAN

Chilean essayist and novelist; Visiting Professor of Literature and Latin American Studies, Duke University

SERGEI V. DROBASCHENKO

Professor of Film Studies and Deputy Director, Cinema Art Institute, Moscow

UMBERTO ECO

Professor of Semiotics, Università degli Studi, Bologna

ELIZABETH L. EISENSTEIN

Alice Freeman Palmer Professor of History, University of Michigan, Ann Arbor

PHOEBE C. ELLSWORTH

Professor of Psychology and Professor of Law, University of Michigan, Ann Arbor

HAROLD EVANS

Editor in Chief, *Condé-Nast's Traveler*, New York

ITAMAR EVEN-ZOHAR

Professor of Poetics and Comparative Literature, Porter Institute for Poetics and Semiotics, Tel-Aviv University

CECILIA VON FEILITZEN

Senior Researcher, Centrum för Masskommunikationsforskning, Stockholms Universitet; Publik- och programforskningsavdelningen, Sveriges Radio

GLORIA D. FELICIANO

Professor of Communication, University of the Philippines; President and Chairman of the Board, International Social Research and Development Foundation, Inc., Quezon City

WILLIAM F. FORE

Assistant General Secretary for Communication, National Council of Churches in the U.S.A., New York

JAN FREESE

President and Director-General, Datainspektionen, Stockholm

OSCAR H. GANDY, JR.

Associate Professor of Communications, The Annenberg School of Communications, University of Pennsylvania

HERBERT J. GANS

Robert S. Lynd Professor of Sociology, Columbia University

HOWARD E. GARDNER

Professor of Education and Co-Director, Project Zero, Harvard University; Research Psychologist, Veterans Administration Medical Center, Boston

NICHOLAS GARNHAM

Professor of Media Studies and Director, Centre for Communication and Information Studies, Polytechnic of Central London

HENRY GELLER

Director, Washington Center for Public Policy Research, Duke University

HELMUT GERNDSHEIM

Photo-historian and author; founder of the Gernsheim Collection, University of Texas at Austin; Honorary Adjunct Professor, History of Art, Arizona State University

ENRIQUE GONZALEZ MANET

Professor of Communications, International Institute of Journalism, Havana

NELSON GOODMAN

Professor Emeritus of Philosophy, Harvard University

ROBERTO GRANDI

Professor of Mass Communications, Università degli Studi, Bologna

SHELTON A. GUNARATNE

Associate Professor of Mass Communications, Moorhead State University

BERT HAANSTRA

Film producer and director, Laren, The Netherlands

EDWARD T. HALL

Writer; Professor Emeritus of Anthropology, Northwestern University

STUART HALL

Professor of Sociology, Open University, Milton Keynes, England

JAMES D. HALLORAN

Professor and Director, Centre for Mass Communication Research, University of Leicester

CEES J. HAMELINK

Professor of International Communication, Universiteit van Amsterdam

SUSUMU HANI

Film director, Hani-Production, Tokyo

**BENJAMIN HARSHAV
(HRUSHOVSKI)**

Blaustein Professor of Hebrew and Comparative Literature, Yale University

ERIC A. HAVELOCK

Sterling Professor Emeritus of Classics, Yale University

HILDE T. HIMMELWEIT

Professor Emeritus of Social Psychology, London School of Economics and Political Science, University of London

RICHARD HOGGART

Professor of English and Director, Centre for Contemporary Cultural Studies, University of Birmingham

NATHAN I. HUGGINS

W. E. B. DuBois Professor of History and Afro-American Studies and Director, W. E. B. DuBois Institute for Afro-American Research, Harvard University

DELL H. HYMES

Professor of Anthropology and English, University of Virginia

SUMIKO IWAO

Professor of Social Psychology, Keio University

SUE CURRY JANSEN

Assistant Professor of Communications Studies, Cedar Crest College and Muhlenberg College

NEVILLE JAYAWEERA

Director of Studies and Planning, World Association for Christian Communication, London

GARTH S. JOWETT

Professor of Communication, University of Houston

ALEXANDRE V. KARAGANOV

Film critic and President, Association of Film Makers of the USSR, Moscow

HIDETOSHI KATO

Director, National Institute of Multimedia Education, Chiba

ELIHU KATZ

Professor of Sociology and Communications, Hebrew University of Jerusalem; Distinguished Visiting Professor, The Annenberg School of Communications, University of Southern California

F. GERALD KLINE

Professor of Journalism and Mass Communication, University of Minnesota, Twin Cities

JULIA KRISTEVA

Professor of Linguistics, Université de Paris VII

ALEKSANDER KUMOR

Professor of Television and Mass Culture Studies, Instytut Sztuki, Polska Akademia Nauk, Warsaw

GLADYS ENGEL LANG

Professor of Communications and Political Science, University of Washington

KURT LANG

Professor of Communications, University of Washington

OTTO N. LARSEN

Professor Emeritus of Sociology, University of Washington

OLGA LINNÉ

Senior Lecturer, Centre for Mass Communication Research, University of Leicester

VINCENT LOWE

Associate Professor of Communications,
Universiti Sains Malaysia

LEO LOWENTHAL

Professor Emeritus of Sociology,
University of California, Berkeley

EMILE G. MCANANY

Amon G. Carter Centennial Professor
in Communication, University of Texas
at Austin

NATHAN MACCOBY

Professor Emeritus of Communication,
Stanford University

MAXWELL E. MCCOMBS

Jesse H. Jones Centennial Professor in
Communication, University of Texas at
Austin

DENIS MCQUAIL

Professor of Mass Communications,
Universiteit van Amsterdam

MAKAMINAN MAKAGIANSAR

Assistant Director-General for Co-
ordination of UNESCO Activities in
Asia and the Pacific and Director,
UNESCO Principal Regional Office for
Asia and the Pacific, Bangkok

MIHAILO MARKOVIĆ

Professor of Philosophy, Univerzitet u
Beogradu; Adjunct Professor of
Philosophy and Political Science,
University of Pennsylvania

TOMO MARTELANC

Professor of Communication, Univerza
Edvarda Kardelja v Ljubljani; Director,
Narodna in Univerzitetna Knjižnica,
Ljubljana

MUSTAPHA MASMOUDI

Chairman, Arab Commission for the
Study of Communication Problems,
Tunis

GERALD MAST

Professor of English, University of
Chicago

ARMAND MATTELART

Professor of Information and
Communication Sciences, Université de
Rennes II (Université de Haute
Bretagne)

HENRY MAYER

Visiting Professor of Mass
Communications, Macquarie
University; Editor, *Media Information
Australia*, Sydney

ANNIE MÉAR

Professor of Communication, Université
de Montréal

GABRIELE MELISCHEK

Researcher, Institut für
Publikumsforschung, Österreichische
Akademie der Wissenschaften, Vienna

WILLIAM H. MELODY

Director, Communication and
Information Technologies Programme,
Economic and Social Research Council
of Great Britain, London

ABRAHAM A. MOLES

Director, Institut de Psychologie Sociale
de la Communication, Université de
Strasbourg I (Université Louis Pasteur)

VINCENT MOSCO

Professor of Sociology, Queen's
University at Kingston

SERGE MOTARD

Project Head, Centre International de la
Communication, Paris

ES'KIA MPHAHLELE

Professor of Literature, University of
the Witwatersrand

HORACE M. NEWCOMB

Professor of Radio-Television-Film,
University of Texas at Austin

YESHAYAHU NIR

Director, Communications Institute,
Hebrew University of Jerusalem

ELISABETH NOELLE-NEUMANN

Professor of Communications Research,
Johannes Gutenberg-Universität Mainz;
Director, Institut für Demoskopie
Allensbach; George Lurcy Visiting
Professor, University of Chicago

KAARLE NORDENSTRENG

Professor of Journalism and Mass
Communication, Tampereen Yliopisto

DAVID R. OLSON

Co-Director, McLuhan Program in
Culture and Technology, University of
Toronto

ALFRED E. OPUBOR

Professor of Mass Communication,
University of Lagos

LEENA PALDÁN

Research Fellow, Department of
Journalism and Mass Communication,
Tampereen Yliopisto

ANTONIO PASQUALI

Regional Coordinator for Latin
America and the Caribbean, UNESCO,
Caracas

THEODORE B. PETERSON

Professor Emeritus of Journalism and
Research Professor Emeritus of
Communications, University of Illinois
at Urbana-Champaign

G. RUSSELL PIPE

Publisher, *Transnational Data and
Communication Report*, Amsterdam
and Washington, D.C.

WALERY PISAREK

Professor and Director, Ośrodek Badań
Prasoznawczych (Press Research
Center), Cracow

EDWARD W. PLOMAN

Program Director, United Nations
University, Paris

RANDOLPH QUIRK

Vice-Chancellor, University of London

ALEXANDER REID

Chair, Octagon Investment
Management, Ltd., London

GIUSEPPE RICHERI

Director, MaknoMedia, Institute for
Communications Research, Milan

DONALD RICHIE

Film historian, Tokyo

THOMAS S. ROBERTSON

John and Laura Pomerantz Professor of
Marketing, Wharton School, University
of Pennsylvania

EVERETT M. ROGERS

Walter H. Annenberg Professor of
Communications, The Annenberg
School of Communications, University
of Southern California

KARL ERIK ROSENGREN

Professor of Sociology, Lunds
Universitet

RALPH L. ROSNOW

Thaddeus L. Bolton Professor of
Psychology, Temple University

HALUK ŞAHİN

Associate Professor, University of
Maryland at College Park; Editor in
Chief, *Nokta*, Istanbul

EDWARD W. SAID

Parr Professor of English and
Comparative Literature, Columbia
University

TOMOKAZU SAKAMOTO

Adviser, Japan Broadcasting
Corporation, Tokyo

YOSHIKAZU SAKAMOTO

Professor of Peace Studies, Meiji
Gakuin University

HERBERT I. SCHILLER

Professor of Communication, University
of California, San Diego

BENNO H. SIGNITZER

Professor of Communications,
Universität Salzburg

DOROTHY G. SINGER

Professor of Psychology, University of
Bridgeport; Co-Director, Family
Television Research and Consultation
Center, Yale University

JEROME L. SINGER

Professor of Psychology and Co-
Director, Family Television Research
and Consultation Center, Yale
University

NATHAN SIVIN

Professor of Chinese Culture and of the
History of Science, University of
Pennsylvania

TATIANA SLAMA-CAZACU

Professor of Psycholinguistics and
Applied Linguistics, Universitatea
Bucureşti; Editor in Chief, *International
Journal of Psycholinguistics*, The Hague

ANTHONY SMITH

President, Magdalen College, University
of Oxford

BARBARA HERRNSTEIN SMITH

Braxton Craven Professor of
Comparative Literature and English,
Duke University

JUAN SOMAVIA

President, Instituto Latinoamericano de
Estudios Transnacionales, Santiago

JAMES G. STAPPERS

Professor of Mass Communication,
Katholieke Universiteit Nijmegen

HENRI STORCK

Film director and Chair, Center of
Films on Art, Brussels

JOHN STURROCK

Editor, *Times Literary Supplement*,
London

HARSONO SUWARDI

Director, Mass Communication
Research and Development Institute,
University of Indonesia

TAMÁS SZECSKÖ

Director, Tomegkommunikációs
Kutatóközpont, Budapest

YASUMASA TANAKA

Professor of Social Psychology and
Communications, Gakushuin
University; Director, Gakushuin
University Computer Center

MAJID TEHRANIAN

Professor and Chair, Department of
Communication, University of Hawaii
at Manoa

ROMESH THAPAR

Editor and publisher, *Seminar, the
Monthly Symposium*, New Delhi

OYA TOKGÖZ

Associate Professor of Journalism,
Ankara Üniversitesi

TRAN VAN DINH

Professor of International Politics and
Communications, Temple University

GAYE TUCHMAN

Professor of Sociology, Queens College
and Graduate Center, City University of
New York

JEREMY TUNSTALL

Professor of Sociology, City University,
London

**FRANK OKWUADIGBO
UGBOAJAH**

Senior Lecturer and Research Fellow,
Department of Mass Communication,
University of Lagos

TEUN A. VAN DIJK

Professor of Discourse Studies,
Universiteit van Amsterdam

JOHN A. VAN ZYL

Associate Professor of Film and
Television Studies, University of the
Witwatersrand

JOSÉ VIDAL-BENEYTO

General Director of Education and
Culture, Council of Europe, Strasbourg

IAN P. WATT

Jackson Eli Reynolds Professor of
Humanities, Stanford University

ANITA WERNER

Professor of Mass Communication,
Universitetet i Oslo

ROBERT A. WHITE

Research Director, Centre for the Study
of Communication and Culture,
London

CHARLES R. WRIGHT

Professor of Communications and
Sociology, The Annenberg School of
Communications, University of
Pennsylvania

XU XIONGXIONG

Head, Education Department, China
Central Television, Beijing

ZHANG QINGNIAN

Director, English Department, Radio
Beijing

Preface

The ways in which members of the human species perceive and influence one another and envision their own roles in the scheme of things have been changed by a series of momentous innovations, which we now call a communications revolution. The revolution is clearly far from over.

But when did it begin? The revolution may be said to have begun when our ancestors started adding word-language to age-old repertoires of gesture, glance, body signal, touch, grunt, growl, moan, rhythm, intonation, melody. With the growth of word-language, humanity diverged increasingly from fellow species and acquired an oral tradition, tribal memory, and the beginnings of a history.

The revolution may be said to have moved through further phases as humans began to record on cave wall, stone tablet, bone, wood, bark, pottery, skin, and plant fibers messages that others might note. As such messages began to use symbol systems for conveying word-language, links with past and future were strengthened. The sense of community widened and deepened. Segments of humanity acquired their special recorded histories bolstered by artifacts, rituals, and sacred records. All this favored the complex evolution of societies and their hierarchies.

A further phase came with the devising of mechanisms for the mass production and distribution of words, images, and symbols through printing and paper and all their associated technologies. The reverberating effects have only gradually been perceived. The wider diffusion of information and ideas, sometimes circumventing those in power, could upset old orthodoxies and bring schisms and shifts in the social order. But it could also be used to consolidate power and extend hegemony. A growing deluge of messages embedded in multiplying languages, literary media, and works of art created larger social linkages as well as divisions.

Each of these phases brought great changes to the human experience. Most were spread over eons or centuries, so that few people felt they were living through anything that might be called a revolution. With the phases that followed, the situation has been different. The technologies of the past century, catapulting us from photography, film, telegraphy, telephone, and the broadcast media via video, cable, computer, satellite, and the laser beam into a telecommunications era, have set in motion such startling changes in our institutions and lives that the term *communications revolution* has become an ever-present reality to people everywhere. The resulting ferment has also generated a new and rapidly spreading field of academic study under the name *communications*, which takes as its domain the entire revolution, its social effects, and its meaning for the future.

The developments constituting the revolution, shaped largely by the human species itself, have at the same time reshaped it. Modern society is to an astonishing extent the constantly evolving product of this revolution. The centrality of communication in human history has become clear, explaining why such varied disciplines as anthropology, arts, education, ethology, history, journalism, law, linguistics, philosophy, political science, psychology, and sociology have all gravitated toward the study of communication processes and have collaborated in the creation of the new discipline.

The present work, a first effort to define the field in a comprehensive way, got its start in 1982 with a feasibility study under the leadership of George Gerbner of The Annenberg School of Communications, University of Pennsylvania. Within months Oxford University Press had joined the University of Pennsylvania as co-publisher. By the fall of 1983 a full-time staff was in place; supported by an international structure of editorial advisers and consultants, it began working its way toward an *International Encyclopedia of Communications*.

We include in communications all ways in which information, ideas, and attitudes pass among individuals, groups, nations, and generations. We offer entries on the histories and social roles of media from cuneiform tablets to communication satellites, from the genres of Nineveh to the genres of Hollywood. Other entries examine communication processes from psychological, sociological, anthropological, and other perspectives. Individuals who have enriched our understanding of these processes or who have made pioneering contributions to the evolution of media are discussed throughout the work, in some cases in separate "name entries." The role and influence of the arts, education, religion, commerce, journalism, politics, and other social activities in the diffusion of ideas are examined, as are the institutions that have grown up around them: libraries, museums, universities, broadcasting systems, advertising agencies, data banks, and telecommunications networks. Roadblocks to communication, psychological and societal, are analyzed. The historic communications impact of such developments as exploration, colonization, migration, revolution, and war is considered. A number of entries focus on forms of nonverbal communication—emphasizing that although each stage in communications history has added new ways of communicating, all have remained with us, in patterns of ever-growing complexity. Numerous types of animal communication, and the light they throw on human communication, are also examined. Special communications phenomena and problems in various parts of the world are analyzed, and the challenging tasks of intercultural communication form a pervasive theme in the work.

A communication system, like the human nervous system, sorts and distributes data and provides for their storage and retrieval. Its signals can evoke memories, rouse emotion, and trigger action. As in a nervous system, aberrations can cause deep disturbances in the organism. Communications scholars concern themselves with everything that may block, disrupt, poison, or distort communication. They strive to understand such aberrations and to further the quest for remedies.

In almost all our articles you will find cross-references to others, throwing light on related topics that may in turn lead you to still other topics, a process that should reflect and illuminate the fascinating ramifications of all communication. Following the trails of cross-references, we hope and trust that you will find what you are looking for, and more besides.

ERIK BARNOUW

Editor in Chief

Foreword

Creating the *International Encyclopedia of Communications* has been a six-year journey of discovery, of worldwide recruitment and mobilization of talent, of many serendipitous finds and some misses—and, in general, a great intellectual adventure.

It began on a day in 1982 in my office as Dean of The Annenberg School of Communications, University of Pennsylvania, as I sat talking with Tobia Worth of our staff. She had long publishing experience, specializing in encyclopedias, and now wondered whether our field might be ready for an important new initiative. She did not have to say it twice.

Soon afterward I had an opportunity to mention the idea to Walter H. Annenberg, the founder of the Annenberg Schools of Communications. I did not have to say it twice either. Ambassador Annenberg replied instantly. I remember his words: “This is a big-league idea.”

A feasibility study was launched. Its task was to probe every aspect of the proposed venture to make certain that, if undertaken, it would be on a sound intellectual foundation. A steering committee, consulting a diversity of scholars, began drafting a conceptual framework that might serve to generate ideas for topics and titles. This framework recognized three ways of approaching the study of communication. Although the reader would not guess it from reading the articles in these volumes, the feasibility study began with this three-phased survey of the field:

1. Communication *systems* and *organizations*. The history of communications; its institutions from library and school to data base and television network; public policy and technology related to communications and culture; the structure, regulation, and social functions of the mass media; theories of social communication systems.
2. Communication *modes*, *media*, and *codes*. Theories of communication content, information, semiotics, signs, symbols, and the strategies we use in the articulation and interpretation of meaning across modes, media, and codes. *Modes* comprises such systems as the visual-pictorial, the verbal-lexical, the musical, and the socio-gestural. *Media* refers to specific means of articulating within modes—such as film and video, painting and drawing, speaking and writing, piano and violin. *Codes* has to do with specific conventions by which messages are framed in specific media or their genres. These modes, media, and codes can be studied within and across aesthetic, social, cultural, political, and ideological contexts.
3. Communication *behavior* and *effects*. Study of the ways in which people learn and develop the ability to articulate and interpret symbolic behavior; how beliefs, attitudes, and public opinions are formed and maintained or changed by a variety of symbolic means ranging from interpersonal interaction to enculturation and socialization through the mass media. Research methods used in such studies.

During the fall and winter of 1982–1983 three gatherings of noted communication scholars were convened, each focusing on one of the above approaches. How well could its needs be satisfied in an encyclopedia format? Each gathering also debated the general feasibility of the proposed encyclopedia, how it might serve the field, what form it should take (alphabetical or thematic), what its scope should be, what users it might seek to serve.

In each of these gatherings, the intense discussion was dominated by the following concerns: (1) to build a work of enduring value, (2) to make this work international in scope by virtue of both its contributors and its coverage, (3) to draw on the work of leading scholars and practitioners in their special areas of knowledge, (4) to draw from the arts and social sciences those interests that could best be seen, or reinterpreted, in the context of communications, and (5) to use the dimension of history, through both direct narrative and biography, to convey the solidity of the field at a time when technology is soaring and reintegration of knowledge seems vital.

Early in each of the meetings, words of caution were heard. Was this the time? In view of the momentous growth of the field, was the project practical—or quixotic? Was it premature? But during the hours and days of discussion, skepticism vanished and a broad consensus developed. Creation of an encyclopedia of communications was considered both feasible and timely.

By great good fortune, the leadership of our choice became enthusiastically committed to the project. Joining us as editor in chief was media historian Erik Barnouw; as consulting editor, the late Wilbur Schramm, a founder of the field of communications study; as associate editor, Larry Gross, whose truly encyclopedic scholarship has infused many aspects of this work; and as editorial director, Tobia L. Worth, originator of the idea and manager of the project.

It was decided that concentrating on basic long-range trends and processes would be the best way to avoid early obsolescence in a rapidly changing, technology-driven field. It was also determined that the work should be addressed to college students, scholars, professionals, and educated laypersons. Physically it would be a four-volume set, printed in two colors, of about 1.2 million words, with approximately twelve hundred illustrations. A tentative schedule envisioned a five-year timetable culminating in a 1988–1989 publication date. The work is being published on schedule.

The *International Encyclopedia of Communications* is an attempt to define, reflect, summarize, and explain the field in an accessible, comprehensive, and authoritative way. It signals a new stage in the development of the field of communications as an area of knowledge, study, practice, technique, and research, and as an academic discipline.

On behalf of the Editorial Board, I want to thank for their contributions and support Ambassadors Walter Annenberg and Lee Annenberg, the other Trustees and officers of The Annenberg School and the University of Pennsylvania, a very able editorial staff, our publishing partners at Oxford University Press, and the dedicated members of the feasibility study groups, almost all of whom subsequently participated as contributors, editors, or advisers, appearing in lists elsewhere in these volumes.

GEORGE GERBNER
Chair, Editorial Board

Introduction

A new encyclopedia is one of the most daring of publishing ventures. A new encyclopedia that is also the first in its field carries an even greater burden. It was our task to make all the elements of this work—formal and pictorial as well as textual—reflect our commitment to the field of communications, to explicating it, and to honoring its international scope.

Under the following headings the reader will find our decisions about handling the formal elements of this encyclopedic reference work.

Organization. The *International Encyclopedia of Communications (IEC)* is structured alphabetically, on the word-by-word principle. Hence, “New Wave Film,” in this system, precedes “News, Television.” Each alphabetic section is announced by a letterbreak page, which displays a letter of the alphabet accompanied by a text fragment drawn from *The Oxford English Dictionary* (Oxford: Clarendon Press, 1933, 1961). Each fragment is the introductory etymological description of the particular letter.

Article Titles. The words *communication* and *communications* are used sparingly in titles because it is implicit in this encyclopedia that every article marks the subject as germane to an understanding of the field. When *communication* does appear in an article title (as in “Group Communication”), it is because lucidity would suffer from its absence.

Composite Entries. We have often clustered articles on related topics, written by individual authors, under a common heading, to reinforce their relation to one another. Such composites are signaled by a brief headnote to indicate the scope of the subject, followed by a list of the constituent sections. Thus, such subjects as newspaper trends come into sharper focus when developments in different areas of the world are presented in a sequence rather than located under a geographical title. The first section of a composite entry is often an overview, offering the reader a broad introduction to the topic that relates its parts.

Name Entries. Biographical entries in the *IEC* are career biographies only. We have called them name entries because they make no pretense of presenting the full range of information found in a standard biographical reference book. As such, these articles are in most cases shorter than other entries, ranging between five hundred and one thousand words. In planning them, an arbitrary birth date of December 31, 1919, was established as qualification for inclusion of living persons among the *IEC*'s name entries, thereby avoiding the difficulties associated with writing about the accomplishments of people who are currently engaged in shaping the field.

Name-entry subjects were selected with a view to their unique relationships to significant communications issues. In many cases, their repeated mention in different articles attests to the need for a more in-depth discussion of their work. The focus of the name entries is on those aspects of the subject's life and achievements most relevant to the study of communications. The entry on Charles S. Peirce, for example, emphasizes his theory of signs and his contribution to the study of meaning rather than his research on mathematics and logic.

Cross-references. Three types of cross-reference have been used, all indicated by the typographical distinction of being set in even small capitals (e.g., ANIMAL SIGNALS). The first type occurs naturally in running text to signal the existence of an entry in the identical form of the article title itself. There is one exception to this rule: because of the clumsiness and redundancy engendered by inverting names to indicate biographical entries in their precise form, we have elected to indicate them in natural order. Hence, "the U.S. linguist EDWARD SAPIR" instead of "the U.S. linguist Edward Sapir (*see* SAPIR, EDWARD)." For the same reason birth and death dates, although part of the article title proper, are not used in cross-references.

The second type of cross-reference is the *see* or *see also* reference. These are used to enlarge and enrich the reader's understanding of a subject by announcing the presence of other, related articles that might not be obvious from the text itself.

The third type is the blind reference, also known as a reference entry or a main reference. Blind references appear in alphabetical order in article-title position. They can direct the reader to an article alphabetized under an equivalent term (e.g., from FILM to MOTION PICTURES) or to an article alphabetized under an alternate form of its title (e.g., from MUSICAL, FILM to FILM, MUSICAL). The blind reference can also, in annotated form, direct the reader from a single term to multiple articles that will provide complete coverage of an important concept (e.g., from AUDIENCE to a great variety of relevant articles).

Bibliographies. Most articles are followed by brief bibliographies. The citations were selected by the author with some emendations made by the various Section Editors. These suggestions for further reading include basic texts and landmark journal literature as well as texts embodying a more general review of the literature on the subject. Writings in languages other than English have been included when appropriate. The bibliographies reflect the interdisciplinary nature of the evolving field of communications.

The Research Bibliographer has verified the accuracy of each entry using standard references, such as the National Union Catalog of the United States, Online Computer Library Center (OCLC) records, the national bibliographies of various countries, and the Cumulative Book Index. With few exceptions works are listed alphabetically by author, with information concerning additional series titles or conference proceedings also provided as needed within the citation. The exceptions are bibliographies that cite the works of one author only. In those cases, the works are listed in chronological order of publication so as to present the reader with a conceptual development of the author's ideas. Works cited that were in press at the time the *IEC* was printed have been listed as such.

Art. There are more than eleven hundred illustrations in the *International Encyclopedia of Communications*, halftone and line art, as well as maps, charts, and tables. Some illustrative material has been provided by authors, but in most cases it has been chosen by the Art Editor. Most often, when a figure illustrates an example from the text, there is a specific textual reference to it; elsewhere art is used to reflect generic ideas and often to enlarge the scope of the text. Although the overall look of the volumes has been a basic concern, each illustration has been selected for its value to the article; long sequences of articles may carry no art, whereas certain articles may be heavily illustrated. The art, in accordance with the principles governing text, has been chosen with an eye to emphasizing the international perspective of this work.

Topical Guide. In the back matter of volume 4 will be found a topical guide, or synoptic outline of contents, organized into large sections containing article titles that relate to the general heading. Every entry in the *IEC* appears in at least one of these sections. The Topical Guide is a valuable tool for students and librarians seeking a structure for studying the field of communications.

Articles are grouped under the following headings: Advertising and Public Relations, Ancient World, Animal Communication, Area Studies, Arts, Communications Research, Computer Era, Education, Folklore, Government

Regulation, Institutions, International Communication, Journalism, Language and Linguistics, Literature, Media, Middle Ages, Motion Pictures, Music, Nonverbal Communication, Photography, Political Communication, Print Media, Radio, Religion, Speech, Television, Theater, Theories of Communication, and Theorists.

Index. The index for the *IEC* is an analytical, or complex topical, index containing more than fifteen thousand entries. Every article appears as a main entry and may also appear as a subentry. Our concern has been to reach an international audience of specialists in communications as well as readers with a general interest in the field. Because communications research is done all over the world and also because it often includes work from other disciplines, there is not always agreement among scholars in the use and meaning of terminology. Accordingly, terms used in index entries have been chosen with the aim both of representing the field using its own terminology and of accommodating the needs and interests of nonspecialists. We have therefore included blind index entries for many words and concepts that will direct readers to the word or phrase we have chosen for the actual entry. This concern for adequate coverage of the variations in communications terminology, heightened by our sense of responsibility for being the first encyclopedia in the field, has resulted in an index of unusual depth.

Acknowledgments. The contributions of many people are visible from the presence of their names in one section or another in the front matter of volume 1: Section Editors, Editorial Advisers, and editorial and production staffs at both the University of Pennsylvania and Oxford University Press. The excellence of their work, and the close and rewarding relationships that sprang from our association, has infused every page of these volumes.

The women and men of the editorial and administrative staff of the *IEC* deserve special recognition for their exceptional achievement in realizing the dream of this work. Their expertise and fierce devotion to our common aim cannot be overstated.

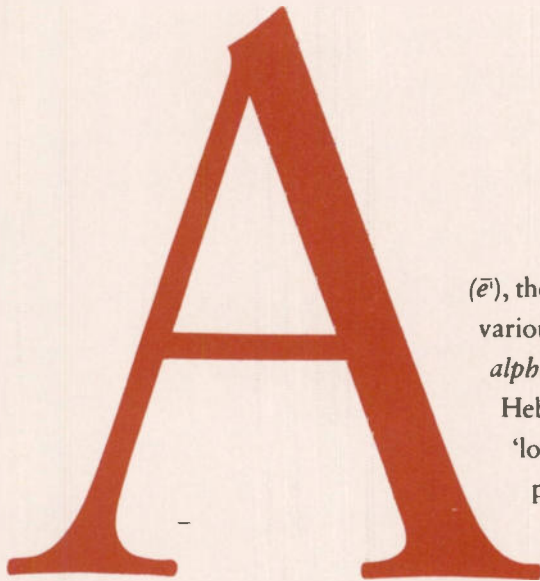
I must single out here the contribution of a few of the people who made valuable contributions as consultants in the initial, conceptual stages of our encyclopedia, especially during the feasibility study preceding formal staff work: David I. Eggenberger, former Director of Publications, National Archives, Washington, D.C.; David L. Sills, Editor, *International Encyclopedia of the Social Sciences*, and Executive Associate, Social Science Research Council, New York; Barbara A. Chernow, Chernow Editorial Services, Inc., New York; and Marsha Siefert, Editor, *Journal of Communication*. We thank them all.

We also thank Elvira Fitzgerald, Assistant Dean, and Mary Brennan, Business Manager, of The Annenberg School of Communications, University of Pennsylvania, for their unfailing and sympathetic support in all matters relating to the physical comfort and financial sanity of the project.

Working with our colleagues at Oxford University Press has been an especially happy experience. At Editorial Board meetings Sheldon Meyer, David Attwooll, and William Mitchell lent us strong intellectual support, as well as a feeling of camaraderie. Marion Britt was our principal and almost daily liaison for four years; we thank her for her devotion to us and to the project. Claude Conyers arrived at a late but critical moment in the life of the *IEC*, taking over supervision of its final production stages with great skill and exceptional grace.

I would also like to express the inexpressible: my thanks to and appreciation of the role played by Carol Welty Faris, who, in addition to doing invaluable backup research, supported us with unflagging patience.

TOBIA L. WORTH
Editorial Director



(*ā*), the first letter of the Roman alphabet, and of its various subsequent modifications (as were its prototypes *alpha* of the Greek and *aleph* of the Phœnician and old Hebrew); representing originally in English, as in Latin, the 'low-back-wide' vowel, formed with the widest opening of jaws, pharynx, and lips. The plural has been written *aes*, *A's*, *As*.

ACTING

Acting style pertains to a general theory of communication as a vague but powerful language, a CODE of substituted behaviors, and a phenomenon of social intercourse. As a language it includes the actor's formation of images, gestures, intonations, rhythms, postures, silences, and facial expressions governed by a general grammar of theatrical convention (*see* FACIAL EXPRESSION). To characterize acting style as NONVERBAL COMMUNICATION frames the issue too narrowly. Acting embodies the expressive delivery of the spoken word as well as BODY MOVEMENT and GESTURE. It also entails the actor's use of costumes, settings, and properties to shape the MEANING of his or her actions by placing them in an appropriate physical context. George Henry Lewes, the Victorian DRAMA critic and psychologist, called all these diverse expressive elements the "actor's symbols." They seem to signify the world directly, without the interpolation of arbitrary signs (*see* SIGN). With the speed of gesture they can locate a PERFORMANCE in the correct social milieu and the appropriate theatrical GENRE—COMEDY (high or low), TRAGEDY, travesty. Style may be in part unique to the individual actor, as in CHARLES CHAPLIN's style, but it more often identifies a tradition or a school, as in the style of Balinese PUPPETRY.

Issues in the Analysis of Acting Style

Style by definition is somewhat removed from reality, but it also constitutes the actor's principal means of intensifying the truths he or she has imaginatively discovered. Style is a highly selective representation of human action, continually mediating between the public's various preconceptions about the natural order of life and the THEATER's aesthetic embodiment of it. As Michel Saint-Denis said in *Theatre: The Rediscovery of Style*, "Style does not lie. It is the expression of real understanding, of deep communication with the world and its secrets."

Though we might assume initially that style in acting is opposed to REALISM (thinking of the Japanese No or Kabuki actor, say, as rigidly stylized and of the Method actor trained in the United States as living the role), deeper reflection reveals that realism is itself a pronounced theatrical style. U.S. actor Marlon Brando's celebrated gutturalisms represent a rigorously circumscribed shorthand of the human experience. Conversely, the great Japanese Kabuki actor Sakatu Tojuro, quoted in *The Actors' Analects* (ca. 1700), remarked on his own style: "In acting, I think that everyday life should be the model." Historians know that conventions remain unrecognized until they are nearly outgrown. Performances once thought to be the epitome of naturalness and realistic

detail eventually seem dated and even risible, as old movies often reveal. Viewed in broad terms, then, all acting is stylized behavior, continuously developing from period to period or even from audience to audience. The relation of style to reality is always relative. At once social and aesthetic, it rests on the readiness of the community to accept the essential paradox of the actor, the actor's double being.

Theatrical conventions, like the rituals in which some of them originated, might also be interpreted as a code (*see* RITUAL). The rules of operation of this code are largely preestablished, but they can be modified spontaneously in performance, as anthropologist Victor Turner noted in *From Ritual to Theatre*: "The rules may 'frame' the performance, but the 'flow' of action and interaction within that frame may conduce to hitherto unprecedented insights and even generate new symbols and meanings, which may be incorporated into subsequent performances." The successful operation of the code, however, depends on the mutual assent of the celebrants (performers and spectators) to a specific agenda of substitutions. What René Girard has said about sacrificial substitution in *Violence and the Sacred* applies by extension to the stylized relationship of the actor to the reality he or she represents. Sacrificial substitution partially conceals the displacement, the surrogation of the victim, on which the rite is based, yet at the same time it retains its awareness that the original object of the sacrifice has been replaced by another. As a "monstrous double," the actor stands in for the king who must die. In a more expansive sense the actor may double the audience itself. As the Polish director Jerzy Grotowski has said, the actor is there not *for* us but *instead* of us.

Acting style grows from the elaboration of these codified substitutions. Like ritual expectancy among initiates, style regulates the transfer of behavior from the originals to the surrogates. It establishes the propriety of some behaviors and the indecorum of others. It authorizes certain actions, gestures, intonations, and expressions in relation to the originals they double. As in the performance of a ritual, one false substitution in the theater may ruin the efficacy of the rite. In ritual and in drama the final arbiter is nature. This principle of regulated substitution underlies the most famous of all pronouncements on acting style, Hamlet's advice to the Players: "o'erstep not the modesty of nature," he urges, for to substitute falsely "out-Herods Herod" as if "Nature's journey-men had made men, and not made them well."

History of Theatrical Style

The history of theatrical style demonstrates that nature has been variously understood at different times and places. The ancient theatrical gesture of grasping



Figure 1. (*Acting*) Nikolai Cherkasov in Sergei Eisenstein's *Ivan Grozny, Part 1*, 1944. The Museum of Modern Art/Film Stills Archive.

or striking the knees to express grief over the loss of a child, for instance, seems arbitrary unless we realize that a popular belief in antiquity was that the locus of sperm production was in the kneecaps. The *Natyasastra*, the ancient Sanskrit "Science of Dramaturgy," systematically catalogs twenty-four movements of one hand alone and thirty-six of the EYES, but these stylized signs stand in for complex correspondences, moods, and states of mind, universalized in the direct experience of the competent Sanskrit audience. Even the substitution that we take to be the

clearest evidence of high stylization in ancient and oriental acting—MASK wearing—seems somewhat less radical when we reckon with a concept of personality (from *persona*, "mask") at once more public and more stable than our modern one. The importance that the classical theater attached to the public setting of dramatic action (confirmed by the continuous presence of the chorus) in contrast to the pervasiveness of the private settings in the modern theater highlights an important stylistic distinction. This distinction is between *presentational* acting style, which



Figure 2. (Acting) Katsukawa Shunko, *Kabuki Actors in Dance*, 1781. Honolulu Academy of Arts, James A. Michener Collection.

explicitly acknowledges the presence of the audience, and *representational* acting style, which explicitly denies it. Theater practitioners commonly speak of various levels of stylization existing between the presentational “theater theatrical” at one extreme and the representational theater of illusions and slices of life at the other. In the twentieth century these styles may coexist side by side, even in the same artist’s work. André Antoine, the father of French theatrical naturalism, who once arranged sofas facing upstage from the curtain line to perfect the realistic impression of a four-sided room and whose Théâtre Libre shortly became known as “the theatre of Antoine’s back,” finally discovered “true reality in acting” on the completely bare stage of Jacques Copeau’s Théâtre du Vieux-Colombier. Russian actor-director Vsevolod Meyerhold first mastered the naturalistic style of his mentor, Konstantin Stanislavsky, then

broke away to found the radically theatrical Biomechanical school. German playwright and theorist Bertolt Brecht urged the stylization of the oriental theater on his actors concurrently with the art of *gestus*, the commonly intelligible social gesture. Brecht and Stanislavsky, seemingly irreconcilable on the question of style, both regarded the acting of Chinese female impersonator Mei Lan-fang as exemplary. But in broad historical terms acting in the modern theater has generally evolved away from the presentational style of the classical past, a trend reinforced by the development of cinema and television.

Until the eighteenth century the close connection between acting and ORATORY, as described in such rhetorics as the *Institutio oratoria* of the Roman rhetorician Quintilian, established the physical orientation of the actor toward the public. Early prints show the actors opened up to the audience and lined

to country depending not only on the stage of development but on the restrictions in force. In the United States the major media—daily newspapers, television, direct mail, magazines, and radio—generally account for well over half of all advertising investments, with newspapers and television generally winning the largest shares. In a number of other countries (the Federal Republic of Germany, Sweden, Norway, and Belgium, for example) advertising on television has been restricted by law in an effort to safeguard the financial health of the print media.

Relation to Consumption

The growth of advertising has been linked to that of the market economy and to a productive manufacturing capacity adequate to satisfy consumer demand. But advertising is also highly visible in less advanced countries like those of Latin America and South Asia, where a consuming elite coexists with a predominantly subsistence economy. Advertising has also found a small but growing niche in socialist countries, in spite of the long-standing Marxist contempt for it as the epitome of capitalism's wasteful competitive spirit.

Fundamental to the critique of advertising, which many non-Marxists share, is the thesis that it results in a misallocation of economic resources by encouraging the consumption of products and services that are socially undesirable or unnecessary. Advertising

can successfully introduce new products and create a market for them. It can also be used ingeniously to increase a particular competitor's market position. There is little solid indication, however, that advertising can in itself build the consumption of an established product that has remained unchanged in its attributes.

Consumer surveys find that objections to advertising generally mask objections to the advertised products or services themselves. So long as a society permits these to be sold in a free and competitive market, restrictions on advertising would merely channel sales pressures into alternative forms of promotion.

The percentage of gross national product spent on advertising varies greatly from country to country, just as advertising's percentage of sales revenues varies within each country for different types of industries. The advertising-to-sales ratio is generally lowest for expensive products and for those sold to limited numbers of industrial users rather than to the general public. The ratio is highest for consumer products characterized by small differences between competing market entries. For such "parity products," advertising must depart farthest from its primary informational function in order to create a symbolic aura of special identity for a particular company, brand, or store. In this process, whatever is advertised is endowed with meanings and values extraneous to its essential function. The consumer may be lured with nonverbal intimations of health, wealth, romance, and esteem (see MOTIVATION RESEARCH).

Advertising styles. Since parity products are widely used and frequently purchased, consumers make purchase decisions over and over with considerable turnover in their selection of brands. Thus each brand requires a continuing reminder of its existence, if only on the premise that familiarity leads to approval. As a result, advertising for packaged goods such as soap, instant coffee, hand lotion, beer, and deodorant has a prominence out of all proportion to their actual places in the consumer economy. This type of advertising attracts the greatest visibility and comment and is notable for its stylistic trendiness.

Styles in advertising come and go, reflecting its fast, competitive pace, the mobility of personnel, and a penchant for emulating innovators. From its origins, advertising has used humor gently, brashly, tongue-in-cheek, to gain attention or approval. It has exploited fears and fantasies. It has used personal testimonials by authorities, by nonauthoritative but well-known personalities, by company spokespersons, and by ordinary consumers captured in a pseudodocumentary "slice of life." It has featured beautiful women, cuddly animals, and engaging children. It has been dryly informative and irrationally emotional. It has knocked the competition head on. It has screamed and whispered.



Figure 1. (*Advertising—Overview*) Side street in Tokyo. Courtesy of Japan Air Lines.



Figure 2. (Advertising—Overview)
Kiosk and subway entrance, Paris.
Courtesy of the French Government
Tourist Office.

Brilliant advertising is generally considered the kind that is most memorable, whose phrases and images enter the popular culture through imitation and parody. The memorability of ads and COMMERCIALS is measured routinely, and throughout the world a wide array of awards is bestowed by copywriters and art directors upon one another. However, the advertising that is best remembered or most admired is not necessarily the most convincing or the most effective in selling the advertised product. Advertising textbooks abound with the rules and principles of good advertising, generally based on the findings of copy research. Most of these relate well to communication theory, stressing, for instance, the importance of focusing attention, of minimizing visual distraction, of avoiding incongruity between the visual and aural components of a message. But, as with any art, mastery of basic principles is only a foundation for creative achievement.

Effects on sales. Advertising idealizes and articulates the goals of competing business enterprises and

thus energizes their constant struggle for advantage and improvement. While most firms consider advertising a current expense against which an immediate sales return may be credited, advertising may be treated as an investment with a long-term payout. For any advertiser who communicates on a continuing basis, the effects of a single advertisement are notoriously difficult to measure because they interact with the residue of all the previous messages and leave a trace on future sales. The effects of an ad are difficult to extricate from the concurrent effects of distribution, pricing, merchandising, and the inherent appeal of the product itself. Moreover, a message from one source is perceived amid a cacophony of competing messages, which may totally obscure its impact.

Much advertising cannot be evaluated on the basis of its direct sales effect, since its purpose is to build, over time, a "brand image" or "personality" that dovetails with the psychological profile or product usage motives of a definable segment of the buying



Figure 3. (*Advertising—Overview*) Promotional billboard that appeared during a world badminton championship, Hangzhou, China. UPI/Bettmann Newsphotos.

public. When the products themselves are of low interest, advertisers generally assume that their messages must be “intrusive,” to break through the barriers of inattention. First radio and then television advertising have been deemed especially appropriate for this purpose. In the United States television is used for over half of all national consumer advertising and nine-tenths of all advertising for certain major types of packaged goods.

In most television advertising campaigns, advertisers repeat the same messages, not only to heighten the effect on the individuals exposed to them initially, but to increase their cumulative exposure to additional people—a tactic made possible by the continual turnover of media audiences. Repeated exposure of a given individual to the same message eventually provokes disinterest or even revulsion. While this can be overcome by varying the form and content of the message, most advertisers recoil from the expense required to do this. Repetition, required by the considerable expense of television commercial production, has shaped the public’s perceptions of advertising as an institution as well as the communications environment of advertising itself. Commercials have become progressively shorter as pressure has grown

to expand the total number of advertising positions within a limited amount of broadcast time.

Retail promotion. Image building has been extended from the arena of advertising for branded goods and services to the field of retail advertising, in which merchants have traditionally looked for immediate and direct returns on their investments. A store’s image or reputation is created not only by those ads that are produced expressly for this purpose but also by the layout, copy, art style, models, and merchandise selections in its routine daily advertisements for specific items. Chain retailers have steadily expanded in most Western countries. Store brands or “private labels” represent a growing proportion of their business, and they have turned to advertising agencies to produce campaigns that emphasize the merits of the store itself rather than individual items of merchandise. But most retail advertising continues to stress information about specific merchandise items and prices and is produced either by the store’s own advertising staff or by the medium. Although merchandise sales can be directly attributed to a particular ad, retail advertising also serves the more important purpose of generating traffic that results in sales of unadvertised items.

As marketing precepts have increasingly penetrated retailing, there has been a heightened concern with “targeting” specific segments of the public through the use of selective saturation distribution methods (direct mail, zoned editions of daily newspapers, free and paid weeklies, hand-distributed circulars) in the limited geographic areas from which customers are drawn (*see* CONSUMER RESEARCH). Advertising has made possible the growth of direct retailing by mail or telephone. This rapidly growing field of direct marketing will be stimulated further with the development of home communications systems that permit merchandise to be displayed or even demonstrated and ordered through a personal computer (*see* DIRECT RESPONSE MARKETING).

Retail and other local advertising account for about 60 percent of U.S. consumer advertising but for a smaller share in most other countries, especially those where retailing is fractionated among a myriad of small businesses serving neighborhoods rather than an entire community. Classified newspaper advertising and telephone directory advertising similarly represent highly informative and utilitarian communications that are generally immune from the questions, comment, and criticism that envelop the subject of national brand advertising (*see* CLASSIFIED ADVERTISING).

Also utilitarian but generally invisible to the general public is the vast field of business, trade, and professional advertising directed through special media to small but influential audiences. In the United States alone, business-to-business advertising involves expenditures of billions of dollars annually. This sustains a considerable variety of publications, mostly distributed free, that often account for the principal flow of communication in an occupational group and thus for its sense of community and cohesion (*see* MAGAZINE).

Cultural Effects

Whatever the economic functions of advertising may be for the individual firm or for the market system as a whole, advertising has a cumulative effect on the culture that runs far deeper than the slogans and images it renders familiar or even popular. Advertising is the good news that offsets the predominantly disquieting bulletins of the real news. It depicts a world of unbounded pleasure and abundance, inhabited by remarkably comely, good-humored, and articulate people who exist in a single dimension, that of consumers.

The advent of television has made this opulent, imaginary world universally familiar and has fostered the illusion that its possessions and values are normal as well as desirable. The endless representation and glorification of consumer goods can act either as a

stimulant or as an irritant to those who lack them. Advertising heightens the awareness of consumption and thus of property as an indicator of social status. By constantly massaging the public’s acquisitive instincts, it adds emphasis to the material aspects of human life and presents consumption as the goal of work. Thus advertising raises not merely hopes but the sense of entitlement, and it fosters not merely expectations but frustrations.

Most mature adults can distinguish between this fantasy world and the realities of their economic power, just as they can distinguish between the hyperbole of claims in individual ads and the reality of the products’ merits. Young children, however, do take advertisements literally and must be acculturated into recognition of their metaphors and exaggerations (*see* CHILDREN—MEDIA EFFECTS).

Exaggerated claims are held in check by advertisers’ realization that they can be counterproductive if they fail to jibe with consumer experience. They are further restrained by the vigilance of competitors, by



Figure 4. (*Advertising—Overview*) Sandwich sign carrier. The Bettmann Archive, Inc.

acceptability standards set by the major media, by self-policing systems set in place within the advertising industry itself, and by the regulatory practices of government agencies with a more comprehensive mission of consumer protection (see GOVERNMENT REGULATION).

U.S. influence. The United States, with slightly less than a quarter of the world's income, has accounted for over half of all advertising investments. The preeminent position of U.S. advertising has given its techniques and procedures a disproportionate influence elsewhere. This has been bolstered by the spreading power of multinational corporations based in the United States, which have adapted U.S. marketing methods to other countries. It has been spurred also by the growth of internationally familiar brands and by the multiplication of overseas branches and affiliations on the part of U.S. advertising agencies. The much-deplored "Coca-Colonization" of the world is visible primarily as a phenomenon of advertising, not of manufacturing. However, the world's largest advertising company, Saatchi and Saatchi, is British, and the growth of international marketing has made the exchange of personnel and ideas a reciprocal process.

Advertising agencies. Most national advertising is channeled through advertising agencies. These agencies are basically organized to translate the advertiser's requirements into advertisements, but with the evolution of modern marketing these requirements are no longer limited to the narrow goal of selling a product. A large, diversified agency employs a corps of account executives with responsibilities for the affairs of their respective clients. Its creative department includes copywriters, art directors, jingle writers, video producers, and production specialists. Its media department, lately transformed by the availability of vast quantities of computerized data on audiences and rates, prepares media schedules and negotiates contracts for space and time. Other departments cover market research, market planning, sales promotion, and public relations (see section 3, below).

As a hired advocate for its clients, the agency has nothing more to offer than the array of talent it has assembled, talent that must be nurtured and well compensated to meet both the frequently intense pressures of the workplace (which make advertising an occupation with below-average life expectancy) and the constant lure of competition.

In the United States the proportion of national advertising placed by the one hundred leading national advertisers has generally, since World War II, represented about half the national total and has at the same time shown an upward trend. A similar trend has occurred among advertising agencies. In part, concentration came through mergers and ac-

quisitions, which have made it possible to handle competitive accounts through different entities of the same corporation. This tendency jibes with the general trend toward corporate mergers and diversification.

In some instances, large advertisers circumvent agencies by setting up their own "house agencies" or by using outside organizations to provide creative work, buy broadcast time, or perform other special services. However, an agency is of value to its clients precisely because it fosters a cross-fertilization of ideas. As the major agencies have become multinational, this cross-fertilization occurs across an ever broader range of cultures, economies, and market conditions. Although the nature of the agency-client relationship varies greatly from case to case, agencies have often had a profound effect on their clients' businesses, suggesting and developing plans for new products and activities and encouraging changes in operations. A successful advertising campaign leads to a change in corporate self-image and affects the evaluation of the company by investors.

Marketing concepts. Advertising agencies fostered the rise of marketing concepts, with their emphasis on the satisfaction of latent consumer demand and heavy reliance on research data. The marketing task begins with the assessment of opportunities for market entry through analysis of sales and consumption patterns even before the product exists. Agencies are commonly involved in product development and marketing strategy as well as in the creation and placement of ads.

Although all agencies pride themselves principally on their ability to generate convincing and striking advertisements, they have increasingly had to relate those advertisements to overall marketing plans in which consumers' characteristics, predilections, and media habits have been carefully identified. There has been a growing appetite for data, both for guidance in the preparation of plans and as evidence of the wisdom of those plans. Large agencies routinely conduct research of their own to test alternative creative approaches in designing ads; in some instances they have also conducted or sponsored innovative studies on basic problems of persuasive communication (for example, on the effect of positioning a commercial message at different places in a series).

Of even greater significance has been the pressure agencies have exerted on advertising media to provide information about their audiences. For different media, as for individual publications or broadcast programs, audience size has been related to advertising charges to produce comparisons of yield by the criterion of cost-per-thousand. But since both marketing theory and common sense recognize that different marketing objectives require different targets,

more and more emphasis has been placed on matching product consumption and media audience characteristics (see PRINT-AUDIENCE MEASUREMENT; RATING SYSTEMS; RADIO and TELEVISION).

Research trends. The growing use of common data bases (see DATA BASE) provided by syndicated media research services has encouraged the concentration of advertising budgets against those elements of the public that represent the most rewarding targets as potential consumers. Advertisers, through whatever combination of media they use, generally seek to concentrate their impact on “upscale” and youthful consumers and are willing to ignore the rest. Thus advertising research has not only speeded up the process of media specialization but has also altered the rate at which commercial communication flows to different sectors of the public.

Apart from general reliance on survey research, the practice of advertising has been influenced by the social sciences, especially in the areas of communication, motivation, and PERSUASION. There is little evidence that they have had an impact in the aggregate, but specific advertisements and campaigns and even specific new products have in many instances been successfully developed with the help of consumer research.

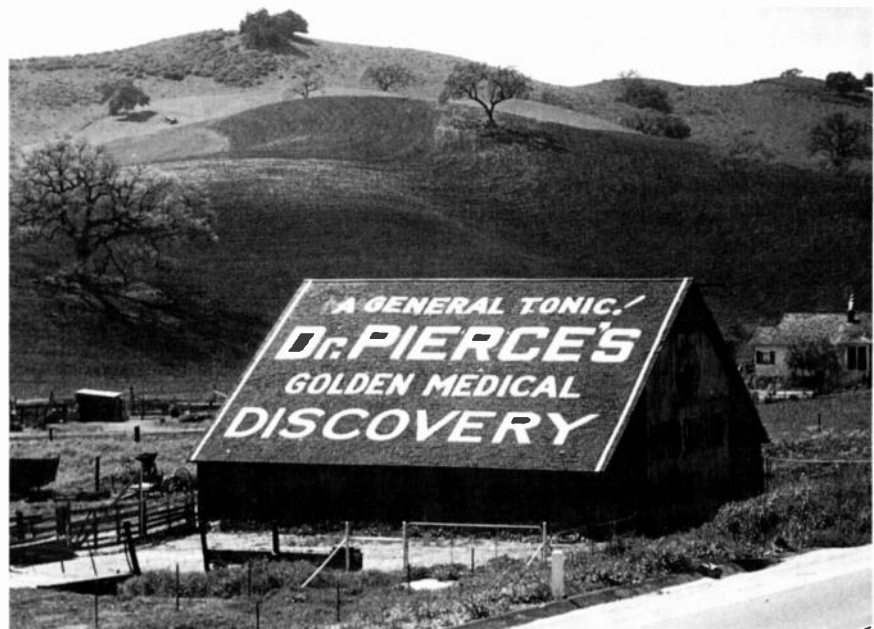
The techniques and media of advertising have long been employed for purposes other than the sale of

goods and services. Advertising has been used as a tool of corporate public relations to plead a company’s case when it faces a problem with labor, government, or independent critics. Institutional advertising is widely used to influence public officials on specific issues or to improve the general climate of favorable recognition in which every business likes to operate. Similar advertising is widely done by nonbusiness organizations defending particular interests and viewpoints. Public service advertising, much of it using volunteer professional talent and space and time donated by media, pleads for godliness, kindness, adherence to safety rules, and support for charity.

Involvement in government. In many countries government is itself a major advertiser on behalf of state-owned industries or such general services as the post office and the military. This may create temptations and opportunities for direct pressure on the media by public officials. A town’s mayor may withdraw official legal announcements from the local newspaper; a national government may expand commercial hours on the state-run television channel in order to weaken and punish an opposition press.

While advertising is coopted into the propaganda apparatus of an authoritarian regime, it has a distinctive political role in many democratic countries through its involvement in the electoral process. This

Figure 5. (*Advertising—Overview*)
Southern California landscape.
The Bettmann Archive, Inc.



has become most critical with the ascendancy of television. Press advertisements have long appeared on behalf of political candidates and parties to make their names well known and to describe their qualifications and platforms. Since the early 1950s, U.S. television has been used by advertising professionals to project the image of candidates for major office, and the same techniques have been widely adopted in other countries with free elections and unrestricted television advertising. *See* ELECTION.

Although there is no evidence that political ads in themselves make the difference between election victory and defeat, the entrance of advertising agencies into politics has had another consequence. Agencies and agency-originated "political consultants" have become essential to the planning of primary and general election campaigns (*see* POLITICAL COMMUNICATION). Just as the product marketer conducts consumer surveys to identify the copy appeals to which likely customers are most susceptible, so the political marketer uses research to identify the points in a candidate's platform that should be stressed, soft-pedaled, or even eliminated in order to maximize vote-getting appeal. Fund-raising campaigns are conducted with the computerized skill of the direct mail marketer. The candidate's public and television appearances are planned and modeled by the same experts and to the same specifications that govern the preparation of commercials. Advertising practitioners have become a major political force, just as advertising has become an integral element in free-market economies.

Impact on communications. Among countries at a common level of technical development, those that permit advertising enjoy a much greater number of media choices than those that discourage or limit it. Free-market countries that restrict advertising on their state-operated broadcast systems generally provide fewer hours and channels than comparable countries with advertiser-supported radio and television. Although the ratio of advertising to circulation revenues for the periodical press varies widely from country to country, advertising is almost everywhere essential to the survival of an unsubsidized mass press.

In a mass communication system dependent on advertising income, the main influence of advertisers is not in the occasional outrageous instance of CENSORSHIP, bias, or blatant puffery in ostensibly non-advertising content. The interests of advertisers determine whether publications and programs are started up, whether they survive and flourish, whether they struggle and die.

As with any other product, media ventures are initiated in the expectation that there is a market for them, and these markets are defined by the desires of advertisers rather than those of the public. Those

desires may coincide, inasmuch as advertisers look for cost efficiency and thus for audiences of maximum size, or inasmuch as they aim for people with a distinctive set of interests that a medium can serve and define. But a conflict arises when advertisers following their herd instincts desert a medium that still satisfies an audience of many thousands or millions of people.

Advertisers, not individually but through their collective institutions, can be held responsible for the disappearance of great magazines, the waning of press competition, and the continual turnover of television programs in the course of the endless ratings war. Advertising's greatest communications impact is therefore felt in its shaping of the media on which people in advanced societies and elites in all societies depend for information and entertainment.

Bibliography. Leo Bogart, *Strategy in Advertising*, 2d ed., Chicago, 1985; John Caples, *Tested Advertising Methods*, Englewood Cliffs, N.J., 1974; Bart A. Cummings, *Benevolent Dictators*, Chicago, 1984; Claude Hopkins, *Scientific Advertising*, New York, 1966; Otto Kleppner and Thomas Russell, *Otto Kleppner's Advertising Procedure*, 8th ed., Englewood Cliffs, N.J., 1983; Martin Mayer, *Madison Avenue USA*, New York, 1958; David Ogilvy, *Confessions of an Advertising Man*, New York, 1963; Frank S. Presbrey, *The History and Development of Advertising*, New York, 1929, reprint Westport, Conn., 1968; Rosser Reeves, *Reality in Advertising*, New York, 1961.

LEO BOGART

2. HISTORY OF ADVERTISING

The global scope and pervasive presence of contemporary advertising make it difficult to imagine a world without it. The emphasis on consumer advertising is mainly a product of the era of industrial capitalism. Yet the roots of advertising go back much farther.

Early Advertisers

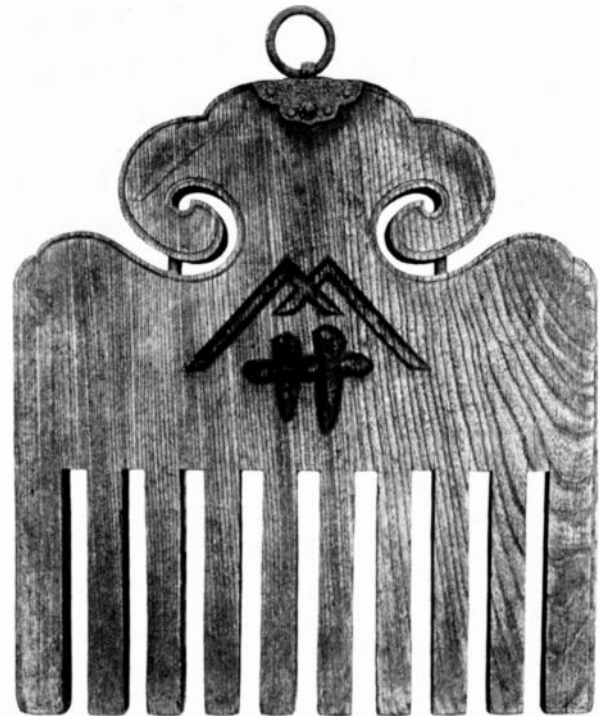
Even before the advent of the printing press in the fifteenth century (*see* PRINTING—HISTORY OF PRINTING) there was advertising. The craft economies of Europe and Asia gave rise to colorful carved shop signs announcing that a particular kind of good or service might be acquired at a given establishment. These signs were directed at a largely nonliterate population, and they drew upon a visual vernacular of commonly understood symbols. As early forms of trademarks, they developed in rich variety. A particularly artful tradition of shop signs, known as *Kanban*, developed in Japan during the Tokugawa and Meiji periods (Figure 1). *See also* SIGNAGE.

Early printed advertising consisted largely of crudely illustrated handbills distributed by tradesmen. By the sixteenth century the modern world market system was beginning to develop. With the European explorations and an expanding network of international mercantile trade, economic life was moving beyond subsistence farming, home production, and small-workshop activity toward an international world of commercial enterprise (see COLONIZATION; EXPLORATION). As trade routes created commercial links between strangers—sellers and buyers across broad expanses of land and sea—advertising emerged as an important tool of commercial communications. By the early eighteenth century in England and by the mid-eighteenth century in its North American colonies, many newspapers came to be known as “Advertisers” and carried large classified advertisements (often on the front page) aimed at small but affluent readerships. In England, where the growth of an urban mercantile population gave rise to a significant middle class of consumers, some ads offered items for personal consumption. For the most part, however, these newspaper advertisements were communications between people of business, for the purpose of carrying out business. Wholesale advertising an-

a



b



c

Figure 1. (*Advertising—History of Advertising*) Kanban (signboards) of Japan: (a) miso shop, Edo Period; (b) bucket shop, Meiji Period; (c) comb shop, Edo Period. From Dana Levy, Lea Sneider, and Frank B. Gibney, *Kanban: Shop Signs of Japan*, New York and Tokyo: Weatherhill, 1983, pp. 35, 55, 79.

nounced the arrival of shipments of coffee, tea, gingham, sailcloth, and so on, for purchase by dealers in grocery or dry goods. Other ads announced the availability of urban properties.

The development of a mobile economy involved not only the transporting of goods and money but also the transporting of labor forces. Some ads announced the availability of labor for sale or hire. Slavery was the cash-crop labor system by which both England and the United States amassed much of their wealth, and it is not surprising that a considerable amount of eighteenth- and early nineteenth-century advertising space was devoted to the sale of slaves or to offering rewards for the capture and return of runaways (see Figure 2).

The classified listings that comprised most advertising into the latter half of the nineteenth century were not products of an advertising industry (see CLASSIFIED ADVERTISING). For the most part the business of advertising was handled by printers and publishers of newspapers who sold advertising space to help finance their publications. If we were to look for the leading figures in eighteenth-century American advertising, we would find them among the ranks of JOHN PETER ZENGER, publisher of the *New York Journal*, and Benjamin Franklin, publisher of the *Pennsylvania Gazette*. Classifieds were laid out in simple agate columns of print. While some printers added small illustrations (woodcuts) to break up the typography, the primary role of advertising was to provide unembellished, useful information to an interested commercial readership.

As newspapers developed in the nineteenth century, advertising continued to be mainly classified business information. Yet, at the same time, newspapers were changing in ways that would prove important to later developments in advertising. Both in Europe and in America the early nineteenth century saw the appearance of newspapers that reached beyond a traditional merchant readership. Called the "Penny Press" in England and later in the United States, such papers were affordable to many and tended toward a sensational style of journalism. They continued to be vehicles of commercial intelligence but also had large, literate working-class readerships. These papers were the beginnings of vernacular commercial media, read by popular audiences. While advertising still utilized the classified format, these papers inaugurated the mass media environment in which modern forms of consumer advertising would flourish by the late nineteenth and early twentieth centuries. See NEWSPAPER: HISTORY.

Industrialism

The shift from utilitarian classified advertising to a kind of advertising that situated consumer goods

**N. B. FOREST,
DEALER IN SLAVES,
No. 87 Adams-st, Memphis, Ten.,**

HAS just received from North Carolina, twenty-five likely young negroes, to which he desires to call the attention of purchasers. He will be in the regular receipt of negroes from North and South Carolina every month. His Negro Depot is one of the most complete and commodious establishments of the kind in the Southern country, and his regulations exact and systematic, cleanliness, neatness and comfort being strictly observed and enforced. His aim is to furnish to customers A. 1 servants and field hands, sound and perfect in body and mind. Negroes taken on commission. Jan 21

Figure 2. (*Advertising—History of Advertising*) A classified advertisement in a Tennessee newspaper of the 1850s. The Bettmann Archive, Inc.

within provocative contexts of visual display cannot be explained purely on the level of a growing sophistication of advertising technique. At the heart of the shift lay great changes in the way goods were being produced, distributed, and consumed. The rise of industrialism in the nineteenth century drew an ever-increasing number of people into its expanding orbit of influence. Goods previously made by hand were now being produced and standardized on a mass scale. The prodigious capacity of industrial production required the development of markets far beyond traditional locales, and alongside industrial production there developed modern national and international networks of transport (railroads, shipping, canals) and communication (TELEGRAPHY, improved POSTAL SERVICE) to facilitate distribution. The structure of daily life was changing as well. People whose work lives had once been defined by the home production of goods for personal and localized consumption now increasingly worked in factories or commercial enterprises that left little time or energy for customary productive activities. As industrialism magnified the scale of goods production, and as an exchange economy and wage labor began to displace traditional subsistence living, the potential for vast consumer markets began to emerge. While low wages severely limited many people's ability to consume, it was within this late-nineteenth-century milieu that the modern institution of consumer advertising began to take hold.

Agency beginnings. Prior to the 1840s, advertising generally involved direct negotiations between publishers and advertisers. The subsequent appearance of the advertising agency (see section 3, below) as intermediary received special impetus in the expanding United States, where an agency could help manufacturers reach out to new markets via newspapers springing up in widely scattered communities. The

first agency in the United States was the Country Newspaper Advertising Agency founded in the 1840s by Volney B. Palmer of Philadelphia, and it was soon followed by others. They served at first mainly as space brokers, buying large amounts of advertising space from numerous rural papers, then selling the space, inch by inch, to advertisers. Among pioneer agencies worthy of note were those of George P. Rowell (Boston, 1865) and N. W. Ayer and Son, founded by Francis Wayland Ayer (Philadelphia, 1869). A commission fee, generally 15 percent of space transactions, gradually became the standard form of agency compensation.

These early agencies were important on a number of counts. First, they represented the beginnings of a systematic, consolidated approach to advertising. Second, because they placed ads primarily in rural papers, they represented a channel by which urban industrial manufacturers made their way into the countryside. Third, while these agents began as adjuncts to the newspaper business, by the 1870s the advertising industry had become a relatively independent arena of entrepreneurship. Fourth, by the late 1870s Ayer was providing advertisers with marketing surveys and media strategies that moved agencies beyond the simple role of space brokerage. Such market analysis marked the emergence of the modern service agency. By 1890 Lord and Thomas, Pettengill and Co., and J. Walter Thompson had followed Ayer's lead. With the development of circulation listings and marketing surveys, media audiences were becoming commodities, to be estimated in value and sold to advertisers interested in attracting their attention.

These early agencies were not involved in the creative side of advertising. Creative innovations and techniques occurred more haphazardly. One important arena of creativity in many countries was patent medicine advertising, which often demonstrated the seductive power and potential of advertising copy and illustration. Similarly, the activities of showmen like PHINEAS T. BARNUM demonstrated the power of puffery and promotion to excite the public's imagination.

Several institutional and technical developments contributed to the scope and appearance of advertising in the late nineteenth century. The halftone printing process aided in the ability to publish a realistic pictorial display. The development of chromolithography, especially in Germany, made possible the mass production of brilliant color images. The technique allowed an advertiser's products to be represented in sensuous and imaginative tableaux. Even poor people who could not afford the goods collected advertising chromos, decorating their homes with these readily available examples of mass-produced "art."



Figure 3. (*Advertising—History of Advertising*) Advertisement for ready-made clothing. Courtesy of Levi Strauss and Co.

Age of the consumer. The burgeoning of the large-circulation MAGAZINE in many countries in the late nineteenth and early twentieth centuries facilitated advertising's growth, and vice versa. Magazines provided excellent vehicles for the advertising of soaps and cleansers, packaged and canned foods, toothpastes and shaving products. Another important consumer item promoted by late-nineteenth-century advertising was ready-made clothing (see Figure 3). Previously most homemakers had sewn their own families' clothes, but industrial life both expanded the production of textiles and diminished people's ability to carry on the home production of garments. Ready-to-wear became a feature of industrial life. In many U.S. cities, by the mid-nineteenth century, department stores made steady use of advertising copy and display to sell clothes and other goods. Another development, introducing ready-to-wear and other new consumer products to rural areas, was the mail-order catalog, such as those of Montgomery Ward and Sears Roebuck and Company. Densely illustrated with a previously unimaginable variety of items, they engaged the fantasies of people who had been schooled by scarcity.

The expanding consumer industries and the growing need for markets continually added new impetus to the advertising industry. By the late 1870s adver-



Figure 4. (*Advertising—History of Advertising*) “The Orphan Asylum”: Life insurance advertisement. From *The Literary Digest*, October 16, 1926. Courtesy of The Prudential Insurance Company of America.

tising was a significant independent business, particularly in the United States.

Twentieth-Century Changes

The period between 1890 and the 1920s marked dramatic changes in the ad industry and its social impact. Before 1890 agencies focused on selling space, analyzing media markets, and trying to convince businesses that they should advertise; after 1890 advertising represented an increasing range of creative and business functions. Through the use of jingles, artwork, typeface, and layout, advertising became an avenue of multifaceted PERSUASION, attempting to appeal aesthetically, to draw attention to products, and to embed the message in people’s memories. Trademarks and trade characters were developed to enhance and establish corporate identities.

An important figure in U.S. advertising during this period was ALBERT LASKER. Beginning in 1898 as a janitor and then as an ad salesman at the Chicago

firm of Lord and Thomas, he eventually came to be recognized as the dean of the U.S. advertising world. Under his leadership at Lord and Thomas, perceptive copywriters John E. Kennedy and Claude Hopkins refined a simple style of persuasive logic, embellished with drama.

Internal expansion of the ad industry was mirrored throughout the society. As assembly-line production was applied to a growing number of consumer industries, the need to generate competitive national markets magnified the utility of advertising. Modern consumer advertising—in newspapers, magazines, and door-to-door-distributed chromos and on rural and urban signboards—was becoming part of the landscape. Writing as early as 1914, WALTER LIPPMANN complained about advertising’s growing presence. It had become a feature of daily life.

Expanding social role. As advertising became a profession between 1900 and World War I (1914), it shared certain features with many other new professions arising in the business world. The period witnessed great industrial development but also social turmoil and widespread opposition to many of the miseries of industrial life. Numerous business professions developed that were concerned not only with increasing productivity and profit but also with managing the social environment. Scientific management experts, such as F. W. Taylor and Frank and Lillian Gilbreth, and industrial psychologists were committed to furthering enhanced output by habituating new industrial populations to the rhythms of mass industrial work. This impulse toward social engineering became manifest in advertising as well.

Advertising as a device of social engineering and opinion molding moved into the political realm during World War I. The Committee for Public Information, directed by George Creel, employed advertising people and techniques to build support for the war, not only in the United States but abroad. *How We Advertised America* was the title Creel gave to his report, published in 1920. His committee, in consolidating the largest-ever advertising campaign, fueled the national ad industry. Between 1918 and 1920 the volume of advertising doubled, reaching \$3 billion annually.

In the 1920s the U.S. ad industry employed social scientists and psychologists in an attempt to perfect methods of opinion and behavior management. Walter Dill Scott, who had begun as an industrial psychologist, was a prominent figure in the new field of advertising psychology. J. Walter Thompson employed Johns Hopkins University psychologist John B. Watson to aid in the delineation of advertising strategies. Edward L. Bernays consulted SIGMUND FREUD’s disciple E. E. Brill in developing a promotional campaign for Lucky Strikes cigarettes. They

all sought to define a universally applicable catalog of human instinct, in order to develop effective and predictable appeals. Advertising by the 1920s spoke less about the product being advertised and more to the hopes, fears, insecurities, and desires of the people at whom the message was being directed (see Figure 4). In their classic study *Middletown* (1929), Robert and Helen Lynd found that advertising along with movies had helped to recast people's understanding of dissatisfaction and desire. Advertising copy, they reported, functioned to make "the reader emotionally uneasy, to bludgeon him with the fact that decent people don't live the way he does." Others, however, saw the process as socially beneficial. To Calvin Coolidge, advertising was a method by which "the desire is created for better things." To a large extent, the debate over modern advertising has revolved around these two general perspectives ever since the 1920s. See MOTIVATION RESEARCH.

A crucial development of the 1920s was RADIO broadcasting. When it began its boom period in 1920 radio was not thought of as a vehicle for advertising, but within two years station WEAJ in New York began to sell radio time commercially. Many people deplored what they considered a commercial intrusion into the home. Even the advertising trade journal *Printer's Ink*, speaking for a then print-oriented industry, said that radio advertising would prove "positively offensive" to many people. In Britain and other countries such concerns led at first to the establishment of noncommercial radio, but in the United States advertiser-sponsored programs became the norm for radio by the mid-1920s and for television later. Both media became major channels for

advertising, sparking the evolution of a powerful U.S. broadcast industry. See SPONSOR.

Following the stock-market crash of 1929 and during the worldwide depression of the 1930s, advertising as a business experienced a decline, but advertising as a phenomenon persevered. Within a shrinking consumer market, ads adopted a zealously competitive approach. Sexual themes and nudity became more pervasive in many countries. Against the grim realities of the depression, some advertisers drew on modern art forms, adopting a futuristic depiction of commodities. Amid the struggle for commercial survival, the hard-sell approach became common.

One of the few agencies in the United States to flourish during the 1930s was Young and Rubicam, under the direction of Raymond Rubicam. He bolstered creative know-how with intensive market research, bringing Northwestern University professor GEORGE GALLUP into the service of advertising to conduct advertising research and opinion polls (see POLL).

Impact of World War II. To a large extent it was World War II that lifted the U.S. economy out of the depression. Yet, if the productive apparatus was once again moving, the shift to war production cut significantly into the availability of many consumer products. Within this context advertising functioned as a tool for keeping corporate and brand-name identities alive in the public mind (see Figure 5). Using techniques of institutional advertising developed in the 1920s, and especially associated with Bruce Barton of the Batten, Barton, Durstine and Osborn advertising agency, some ads informed audiences of cor-



Figure 5. (*Advertising—History of Advertising*) "Remember this wrapper": a World War II advertising campaign reminded consumers of the Wrigley brand name at a time when the company's products were removed from the U.S. market. Courtesy of Wm. Wrigley Jr. Co.

porate contributions to the war effort. Many ads displayed consumer items that would be available after the war (see Figure 6). Conspicuous among these projected spoils of victory was a household appliance that would have a revolutionary impact in the postwar era: television (see TELEVISION HISTORY).

As promised, the period following the war was one of economic boom for the United States. Consumer industries, feeding a massive suburban migration, increasingly used the services of advertising to sell their products (see Figure 7).

The war had stimulated an interest in PROPAGANDA research. By the end of the war, research for the purpose of influencing PUBLIC OPINION had gained a new legitimacy in academic, business, and government circles. Bernays argued in 1947 that “the engineering of consent” had become a necessary activity in a democracy. Noting that the “media provide open doors to the public mind,” Bernays saw an implied “right of persuasion” in the Bill of Rights. In the area of consumer advertising such ideas held a great deal of sway in the 1950s.

Drawing on such ideas, Marion Harper, Jr., built the McCann-Erickson agency into an advertising colossus during the 1950s. McCann and other leading agencies expanded internationally as a part of the massive exportation of consumer goods and con-



△ Figure 6. (Advertising—History of Advertising) “U plan for V day”: Potential newlyweds were encouraged to deposit money into war bonds designated for the purchase of Universal appliances “after Victory.” Courtesy of Stuart Ewen.

Great Number to go “Buy”

... ESPECIALLY RIGHT NOW!



Figure 7. (Advertising—History of Advertising) Oldsmobile advertisement from the 1950s. From *Life*, August 27, 1956, p. 62. Courtesy of Oldsmobile Division, General Motors.

sumer culture that marked U.S. world power in the postwar years.

Postwar era. The greatest influence on advertising in the 1950s and after was the international rise of television. There was also a reverse influence. With television having begun in the United States as a medium underwritten by advertising, television programming and advertising went hand in hand during the following decades, promoting the material and psychic values of a consumer way of life. In industrial societies advertising had become generalized as a way of presenting information on a mass scale, on almost any conceivable subject. As the U.S. advertising industry internationalized, European and Japanese advertising agencies likewise flourished. No corner of the earth was now beyond the reach of advertising. These developments contributed to what the historian E. J. Hobsbawm termed “the international and interlinguistic standardization of culture” characterizing much of twentieth-century life (see Figure 8).

The primary public arena of advertising continued to be consumer goods and services, yet advertising principles were applied in a growing number of other areas. ENTERTAINMENT, information, and even education became subject to market testing and packaging. Another area in which advertising techniques became prevalent was politics. In the United States, from the 1950s on, it became common for politicians and political policies to be promoted like commodities. Presidential advisers were increasingly drawn from the advertising and public relations industries (see POLITICAL COMMUNICATION). Whether the “engineering of consent” is consistent with the effective practice of democracy is a question that deserves ongoing attention.

Bibliography. Stuart Ewen, *Captains of Consciousness: Advertising and the Social Roots of the Consumer Culture*, New York, 1976; Stuart Ewen and Elizabeth Ewen, *Channels of Desire: Mass Images and the Shaping of American Consciousness*, New York, 1982; Stephen Fox, *The Mirror Makers: A History of American Advertising and Its Creators*, New York, 1984; Ralph Hower, *The History of an Advertising Agency*, rev. ed., Cambridge, Mass., 1949; Otis A. Pease, *The Responsibilities of American Advertising*, New Haven, Conn., 1958; Richard W. Pollay, ed., *Information Sources in Advertising History*, Westport, Conn., 1979; Daniel Pope, *The Making of Modern Advertising*, New York, 1983; Henry Sampson, *A History of Advertising from the Earliest Times*, London, 1874, reprint Detroit, 1974; Roy Sheldon and Egmont Arens, *Consumer Engineering: A New Technique for Prosperity*, New York and London, 1932; John W. Wright, ed., *The Commercial Connection: Advertising and the American Mass Media*, New York, 1979.

STUART B. EWEN



Figure 8. (*Advertising—History of Advertising*) Austrian billboard, 1980. Photograph by Lee Ann Draud.

3. ADVERTISING AGENCY

An organization retained by an advertiser to prepare advertising messages and place them in advertising media. An advertiser does not usually turn over the entire advertising function to an advertising agency. More typically the advertiser divides the advertising function into components, assigning some to one or more advertising agencies while handling others within the advertiser's organization. The advertiser almost always determines how much money will be spent and how effectiveness is to be measured. Advertising strategy and research are jointly determined. Advertisers marketing a large range of products are likely to divide them among several advertising agencies.

Role and Structure

The advertising agency is expected to analyze the marketing situation that characterizes products or services and to identify the advertising implications. Once the major strategy decisions have been made, it plans and executes individual advertisements, always subject to the approval of the advertiser, and places the finished advertisements in the selected advertising media. Finally, the agency ascertains that advertisements have been run by the media as agreed and oversees the processing of media bills and payments.

Agencies are generally organized into four basic groupings or departments: account service, creative,

media, and business affairs. Each of these groups provides a basic advertising agency service.

- *Account service.* Maintains agency liaison with the advertiser. Determines agency services needed by the advertiser and transmits the information to the relevant departments. Makes sure that the work is finished on time and in accordance with client specifications and agency standards. Continuously monitors the marketing situation facing the client's products and services, analyzing the implications and making recommendations.
- *Creative department.* Develops and recommends advertising ideas to carry out agreed strategies. Oversees production of these advertising ideas into final form by personnel within the agency and/or by such outside services as recording studios and animation firms.
- *Media department.* Evaluates and analyzes the audiences and advertising environments provided by all media that offer time and space for advertising. Recommends the media to be used and related placement strategies. Upon client approval, contracts for specific units of time and space.
- *Business affairs department.* Arranges for actual placement of advertisements in the contracted time and space. Bills clients for the time and space provided by the media, confirms the actual appearance of advertisements in this time and space, and remits payments to the media.

Types of Agencies

Many advertising agencies characterize themselves as full-service agencies. There is no commonly accepted definition of just what such "full" service comprises. Most advertising agencies, in addition to providing the four basic services, offer one or more peripheral services. These may include advertising and marketing research, sales promotion planning, PUBLIC RELATIONS and publicity, yellow pages advertising service, DIRECT RESPONSE MARKETING, sales meeting arrangements, merchandising, package design, design and development of annual reports and other non-advertising corporate communications, and speech writing for client executives.

Advertising agencies rarely maintain peripheral service capabilities that are not in active use by current clients. Thus the particular assortment of peripheral services maintained by an advertising agency depends on the service requirements of its clients. National advertising accounts require very different services, especially media services, from accounts that are primarily local or regional.

Specialist advertising agencies. The largest advertising agencies are generally able to serve the needs of any advertiser, regardless of the nature of the

products or services to be advertised. They can deal with consumer goods, business-to-business, direct response, retail, and institutional advertisers with equal facility. It is not uncommon, however, for a smaller advertising agency to develop a specialization that makes it particularly well suited to handle the needs of a particular kind of advertiser. This may be a particular type of business activity, such as retail advertising, or it may represent a particular kind of content, such as medical, theatrical, investment, or travel advertising.

Limited service agencies. Some advertising-related organizations offer some but not all of the basic advertising agency services. Creative "boutiques," for example, specialize in the creation and execution of advertising ideas. Media buying services plan and execute media programs and handle the business affairs activities implicit in such programs. Advertising strategy specialists concern themselves with marketing situation analyses and advertising strategy development. In addition, a great deal of creative work and media placement is done in organizations that do not conceive of themselves as advertising agencies and make no attempt to provide the basic agency services. Foremost among these are the media themselves, which offer production facilities and in some cases, particularly in local situations, will assist in the creation of advertising copy. Also, much advertising is produced by printing shops for those advertisers whose total budgets are too small to justify the involvement of a full-fledged advertising agency.

Another variant of limited service advertising agencies is the "in-house" advertising agency. In this case the advertiser creates an advertising agency within the advertiser's own organization, thereby becoming its own provider of advertising agency services. The in-house agency has never gained widespread popularity, apparently because advertisers welcome an objective outside view and the broad service capabilities that cannot easily be achieved when employees attempt to provide agencylike services.

Compensation Arrangements

The traditional method of advertising agency compensation is a commission system. The agency receives, from each medium used, a commission on the gross value of the space or time purchased, usually 15 percent. In practice, the agency bills the advertiser for the gross value but remits only 85 percent to the medium, retaining the brokerage fee. The 15 percent fee is a widespread standard, but in some countries rates may vary from as low as 10 percent to 20 percent or higher and may vary from one medium to another.

When large space or time purchases are involved,

the commission fee may be considered adequate compensation for such other services as an advertiser may require. But with the growing complexity of advertising and the rise of new media and services, the shortcomings of the system have become clear. When required service includes, for example, advertising agency supervision of the on-location production of a series of commercials, an additional fee is obviously needed—and in this case is paid by the client. This may be on a cost-plus or negotiated basis. Negotiated fees may thus be used to supplement the traditional commission system, but they may also replace it entirely.

Advertisers who decide to compensate their agencies by a negotiated-fee system tend to define the amount and kinds of agency services needed more rigorously than do those advertisers who depend on the commission method of compensation.

Extended Roles

Advertising agencies have long been involved in politics. The nature of the involvement has varied widely from country to country. In some countries advertising agencies align themselves openly with particular political parties and share unabashedly in the division of government advertising appropriations and campaigns, such as those promoting bond sales and military recruitment.

Another aspect of the advertising agency role in politics, particularly since World War II, involves ELECTION campaigns. In some countries, notably the United States, it has become common for political parties and candidates running for major offices to retain advertising agencies to handle media purchases and to prepare campaign “commercials.” The trend has been widely criticized. Most countries have banned the sale of broadcast time for political appeals.

With the burgeoning of international trade, advertising agencies in many countries have faced marketing and advertising problems on an international scale, involving an array of new relationships. It is generally recognized that most advertising campaigns cannot be implemented universally because of socio-cultural differences among individual countries. Yet in many instances agencies have successfully adapted their expertise to the solution of cross-cultural marketing problems.

After World War II a strong trend toward the internationalization of advertising agencies developed, particularly among U.S. advertising agencies. The trend reflected the world expansion of U.S. business. As many corporations turned multinational, their advertising agencies opened new offices to provide the needed services. By the 1970s a number of U.S. agencies had more offices and personnel abroad, and were earning more there, than in the United

States. The advertising agency proliferation involved various kinds of affiliation—including mergers—with agencies of other countries. These developments gave U.S. advertising practices increasing influence over advertising elsewhere, in a wide variety of countries.

See also COMMERCIALS.

Bibliography. Leo Bogart, *Strategy in Advertising*, 2d ed., Chicago, 1985; James P. Neelankavil, *Agency Remuneration: Practices and Prospects around the World*, New York, 1982; William M. Weilbacher, *Auditing Productivity: Advertiser-Agency Relationships Can Be Improved*, New York, 1981; idem, *Choosing an Advertising Agency*, Chicago, 1983.

WILLIAM M. WEILBACHER

4. ADVERTISING ECONOMICS

Narrowly viewed, advertising is important to society for the information it puts into circulation. More broadly viewed, it is important for how it affects the whole system of buyer and seller interactions by which market economies organize the production and distribution of goods. Advertising affects economic performance not only according to how well it communicates information but also according to how it affects the efficiency with which the economic system provides goods to buyers.

Information, the Media, and Public Goods

Under certain conditions, the market system provides private goods efficiently without advertising. Private goods are goods like tomatoes and toothpaste that, when consumed by one person, become unavailable for anyone else's consumption. Efficiency requires sellers to expand their provision of such goods up to the point at which the price that buyers are willing to pay for one unit just equals the cost of providing it. Ideally, the profit motive induces sellers to expand their provision of private goods up to this point. If, say, there is too little production of toothpaste, then price will exceed the cost of producing one more unit (that is, it will exceed marginal cost), and toothpaste producers will be able to make a profit equal to the difference by expanding production. They will expand production until they have exhausted every opportunity to make such additional profits. Price will tend to equal marginal cost without sellers' wishing or needing to advertise.

For the profit motive to lead to efficiency in this way, buyers must know what goods are available and sellers must know the goods for which buyers are willing to pay prices high enough to cover production and distribution costs. If information about goods were a private good, then, ideally, sellers would

provide just the right amount of it. Production and distribution would expand until price equaled marginal cost. But information is a public good: the consumption of a unit by one person does not prevent another person from consuming the same unit. Once a firm communicates information about, say, the development of a new product to one consumer, the information becomes cheaply available to other consumers through word of mouth and other sources. Firms thus find it difficult to charge consumers for information about new products.

The communications media themselves exhibit varying degrees of this public character. Once a publisher has placed a copy of a MAGAZINE or newspaper in the hands of one reader, the same copy or another copy becomes available, at comparatively little cost, to another reader. Once a broadcaster has transmitted a RADIO or television signal to one receiver, it can transmit the same signal at little or no cost to another. Publishers and broadcasters thus find it difficult to charge for their services without some mechanism for selling time and space.

Advertising provides such a mechanism. In commercial systems media time and space are private goods, and their providers can induce advertisers to pay for them. Because advertising reduces the cost to buyers of receiving advertising messages to nearly zero, buyers are expected to absorb and respond to these messages with sufficient predictability to make it worthwhile for sellers to pay for placing them. Advertising therefore serves to correct for the underprovision of product information and of media services that would characterize economic activity in its absence.

Competition and Monopoly

In an ideally working market economy, competition is "perfect": buyers are fully informed about goods, and there are so many sellers that no one seller is important enough to be able to affect price. Sellers have no reason to advertise because competition makes them "price takers," able to sell all they want at the market-determined price but unable to sell any amount at any higher price. When competition is imperfect, however, sellers discover that they cannot expand sales without either persuading buyers to buy more of their goods or reducing price. Imperfectly competitive sellers have monopoly power; they are "price searchers."

Monopoly power reduces the efficiency with which the market system provides goods. Because price falls as production expands, sellers having monopoly power find that, as they provide more of a product, the additional revenue yielded by providing one more unit is less than price. Hence, they find that it pays to produce some amount less than the amount that equates price and marginal cost.

Anticompetitive effects of advertising. A seller might use advertising as a method for exploiting its monopoly power over buyers. The seller might increase its advertising at the same time that it raises price, attempting thereby to get a higher price for its product without reducing the quantity that buyers are willing to buy. If the increase in revenue captured by raising price more than offsets the cost of the additional advertising, profits will rise. A seller using this method to increase profits will continue to raise price until the increase in revenue brought about by raising price is just equal to the cost of the additional advertising that is needed to keep quantity sold from falling.

A seller might also use advertising to expand its monopoly power and thus its ability to increase profits through further increases in price. If, by advertising, the seller is able to make buyers less sensitive to price, it will be able to reduce the amount by which quantity sold falls as it raises price. Less additional advertising will be needed to offset the negative effect of raising the price on the quantity sold, and the positive effect on revenue will rise. Buyers are, then, twice damned: once by the diminution of their price sensitivity and again by the rise in price that by virtue of this diminution becomes all the more advantageous a method for raising sellers' profits.

Buyers also suffer from advertising by which sellers aim to exploit buyer ignorance about goods. In the absence of legal or ethical deterrents, sellers sometimes use deceptive advertising to expand sales of products that are poor buys. The incentive to conduct deceptive advertising is especially great when there is initially little prospect of a seller's enjoying repeat sales and when rivals are not likely to offer and advertise products that are better buys than a deceptively advertised product. Advertising that is anticompetitive (permitting sellers to exploit or expand their monopoly power over buyers or to exploit buyer ignorance) reduces economic efficiency.

Procompetitive effects of advertising. Advertising can also be procompetitive. Suppose that sellers of some product A have monopoly power and that buyers are unaware of the fact that some other product B represents a better buy. Sellers of B might advertise to increase buyer awareness of the advantages of B over A. This will raise efficiency by leading buyers to substitute B for A and by subjecting sellers of A to increased competition. Buyers of A will become more price sensitive, and the monopoly power commanded by sellers of A will fall.

Sellers in both centrally planned and market-oriented economic systems use advertising to inform buyers of the availability of unsold goods. Under central planning, producers have relatively little incentive to advertise, owing to their hegemony over distributors and their inclination to avoid product innovation in

favor of meeting production targets. Distributors (and producers prodded by distributors) will, however, advertise from time to time to bring new but unsold products to the attentions of buyers.

Economies of Scale in Advertising

Whether advertising improves economic performance depends largely on whether its procompetitive effects outweigh its anticompetitive effects. The weight of its procompetitive effects relative to its anticompetitive effects depends, in turn, on the behavior of advertising costs.

There are economies of scale in advertising if a given percentage rise in a seller's outlays on advertising produces a greater percentage rise in sales revenue. Economies of scale reduce the cost to established sellers of expanding sales and increase the cost to newcomers of capturing sales revenues from established sellers. By exploiting any economies of scale in advertising to which they might have access, established sellers thus tend to increase concentration (the fraction of sales accounted for by leading established sellers) and monopoly power. The possible adverse consequences for economic performance posed by these considerations have led to a number of policies and proposals to limit advertising, especially by manufacturers of consumer goods.

Economies of scale in advertising stem from any quantity discounts that the media offer to advertisers and from any slowness by consumers to respond to less than some threshold amount of advertising. It is not clear from the evidence whether media discounts and advertising thresholds exist or, if they do, whether they offer a substantial advantage to established sellers over newcomers.

The ability of a seller to expand monopoly power by exploiting any economies of scale to which it might have access depends in part on the accessibility of economies of scale to its rivals. Sellers expand their access to economies of scale by expanding the number of product groups within which they offer brands and by expanding the number of brands that they offer within given product groups. An established seller in product group A might, for example, take advantage of media discounts by entering product group B. Established sellers in product group B will find that their ability to expand monopoly power by taking advantage of media discounts has correspondingly diminished.

The ability of rival sellers to introduce new brands into existing product groups or to promote old ones similarly diminishes the monopoly power that sellers of heavily advertised established brands are able to exercise. A seller might attempt to expand its monopoly power over a given product group by raising buyer awareness of its brand above a threshold at which advertising cost per dollar of sales begins to

fall. Insofar as the same product group will accommodate other brands, however, other sellers will attempt to exploit the same economies by promoting existing brands or introducing new ones. The more brands that sellers try, in this way, to crowd into a given product group, the less monopoly power any one seller can exercise over any one brand.

Advertising and Product Information

There is evidence that advertising increases profits in the manufacture of consumer goods, particularly low-priced, frequently purchased convenience goods. There is also evidence of a positive relationship between advertising and concentration. The implications of this evidence for economic performance depend not only on any monopoly power that manufacturers are able to exercise over buyers, but also on how buyers seek product information.

Buyers tend to seek product information from whatever source makes the cost of obtaining it as low as possible. For consumer goods there are usually two sellers—the manufacturer and the distributor—to which the consumers (final buyers) can turn for information. For some consumer goods, especially little-advertised, high-priced, infrequently purchased nonconvenience goods, distributors offer the cheaper source of information. Because time and household budgets limit the number of distributors that consumers can identify and compare, distributors can exercise monopoly power over consumers whose patronage they build through advertising and personal selling.

Manufacturers' advertising limits the ability of distributors to exercise this power. When a manufacturer uses advertising to increase consumer familiarity with a product, it shifts accountability for product quality from the distributor to itself. In centrally planned economies the authorities sometimes require branding of consumer durables in order to shift accountability in this way. In market-oriented economies manufacturers of consumer goods advertise, in part to shift monopoly power over consumers from distributors to themselves. Hence manufacturers' advertising can be anticompetitive for its effect on manufacturers' prices but procompetitive for its effect on distributors' prices.

Advertising and Consumer Goods

Controversy about the effects of advertising on economic performance centers on manufacturers' advertising of consumer goods. Other advertising is less controversial, either because it is less important than other methods of sales promotion or because it offers less potential for causing harm.

Advertising causes harm when sellers use it to exploit monopoly power or consumer ignorance. Ad-

vertising used for this purpose reduces economic efficiency by causing prices to rise and by inducing consumers to purchase brands that offer poor buys. Advertising can also increase economic efficiency, however. Advertising used to increase the number of products and brands that are available and familiar to consumers causes prices to fall and induces consumers to purchase brands that offer good buys.

Manufacturers ordinarily aim their advertising at expanding the market share—the fraction of the total sales of a given product group—that they are able to capture for their own brands. The problem of assessing the economic effects of advertising therefore depends largely on how manufacturers' brand advertising affects brand qualities and prices. Is advertising of this kind likely to result in better buys or in worse buys for consumers? The answer depends on whether advertising is, on balance, anticompetitive. Although there is evidence of economies of scale in advertising and of positive effects of advertising on profits and concentration, this evidence does not appear strong enough to support the conclusion that advertising generally results in worse buys for consumers.

A different problem arises over the possibility that advertising can expand not just market share but also the total sales of some product groups and even the size and variability of total consumer expenditures. The possibility that advertising expands total sales of dangerous products like cigarettes and alcoholic beverages has led to policies and proposals to require warning labels or to impose outright bans on advertising.

The extent to which measures of this kind protect consumers rests on the effect of advertising on total sales and on producer accountability. The evidence concerning total sales is mixed, suggesting that the effect of advertising is weak and greatly outweighed by other factors such as fashion, demographics, and income. The ability of advertising to increase producers' accountability argues against banning the advertising of dangerous products. The uncertain quality of illegal and, hence, unadvertised drugs results largely from the nonexistence of brand name familiarity of the kind that induces sellers of advertised products to maintain high levels of product quality.

Concerns about the effects of advertising on consumer expenditures arise also from the supposed propensity of advertising to magnify swings in business activity and to encourage consumption at the cost of saving. Neither argument can claim substantial support from the facts. Advertising appears to follow, not lead, swings in consumer expenditures. This is consistent with the hypothesis that advertising is a form of investment, the demand for which is derived from the demand for consumer goods. According to this hypothesis, sellers can be expected to

gear their advertising to their expected sales, adjusting to swings in consumer expenditures in such a way as to keep the ratio of advertising to sales roughly constant.

Conclusions

Advertising is probably best understood as a method by which economic systems correct, albeit imperfectly, for deficiencies to which they are vulnerable in its absence. These deficiencies are, for market-oriented systems, a propensity to provide too little product information and too few media services, and, for centrally planned systems, a propensity to discourage product innovation and producer accountability.

Proponents of regulations to limit manufacturer's advertising of consumer goods argue that such advertising encourages the exploitation of manufacturer's monopoly power, promotes the use of products that represent poor or dangerous buys, and leads to economic instability. Opponents argue that manufacturers' advertising reduces the ability of both manufacturers and distributors to exercise monopoly power over consumers and that it increases producer accountability at little sacrifice in economic stability. The ability of market-oriented systems that exhibit high levels of consumer-good advertising to provide consumers with good buys argues against the idea that limiting such advertising promotes consumer welfare.

See also CONSUMER RESEARCH; GOVERNMENT REGULATION.

Bibliography. Mark S. Albion, *Advertising's Hidden Effects: Manufacturers' Advertising and Retail Pricing*, Boston, 1983; Mark S. Albion and Paul W. Farris, *The Advertising Controversy: Evidence on the Economic Effects of Advertising*, Boston, 1981; William S. Comanor and Thomas A. Wilson, *Advertising and Market Power*, Cambridge, Mass., 1974; James M. Ferguson, *Advertising and Competition: Theory, Measurement, Fact*, Cambridge, Mass., 1974; Philip Hanson, *Advertising and Socialism*, White Plains, N.Y., 1974; Michael E. Porter, *Interbrand Choice, Strategy, and Bilateral Market Power*, Cambridge, Mass., 1976; W. Duncan Reekie, *The Economics of Advertising*, London, 1981; Julian L. Simon, *Issues in the Economics of Advertising*, Urbana, Ill., 1970; Robert L. Steiner, "A Dual Stage Approach to the Effects of Brand Advertising on Competition and Price," in *Marketing and the Public Interest*, ed. by John F. Cady, Cambridge, Mass., 1978; David G. Tuerck, ed., *Issues in Advertising: The Economics of Persuasion*, Washington, D.C., 1978.

DAVID G. TUERCK

ADVERTISING, CLASSIFIED. *See* CLASSIFIED ADVERTISING.

AESTHETICS

Widely defined as the philosophical analysis of ART and art works. Aesthetics is particularly concerned with the ontology of art, addressing such topics as the relation between physical nature and human CULTURE, and with the methodology and epistemology of criticism and appreciation, meaning the descriptive, interpretive, and evaluative aspects of discourse about the arts.

Modern aesthetics is usually said to have begun more or less formally in the eighteenth century with the appearance in Germany of Alexander Gottlieb Baumgarten's *Reflections on Poetry* and the unfinished *Aesthetica Acroamatica* and of Gotthold Ephraim Lessing's *Laokoon*, and to have achieved a compendious, enormously influential orientation in Immanuel Kant's *Critique of Judgment*. Kant viewed the field largely in terms of the logical peculiarities of aesthetic judgments, their claim to universal validity despite being grounded in subjective taste and feeling, their extension to the beautiful and sublime in nature as well as in art, genius as the source of "aesthetical ideas," the autonomy of the aesthetic and the moral, and the function of the aesthetic as enabling humanity to appreciate the moral order of things. Since Kant's time aesthetics has focused rather more narrowly on the theory of art and on the theory of criticism in the arts, although Kant's own formulations continue to be vigorously debated. As a well-defined discipline in the Western world, aesthetics is markedly insulated from the ways of theorizing about the arts and criticism characteristic of Asia and other non-Western cultures.

Origins. Pre-Kantian aesthetics is usually understood to include certain classical pronouncements regarding the arts from ancient Greece and Rome, early and medieval Christian authorities, and the High Renaissance (see RENAISSANCE). Perhaps the most important and systematic of these are ARISTOTLE's *Poetics*, Horace's *Ars poetica*, and Longinus's *On the Sublime*. The *Poetics* is viewed as an exemplar of a certain essential way of working in aesthetics. Its extant first part presents a brilliant account of the generic features of ancient Greek TRAGEDY, a model that substantially influenced Longinus. But, encouraged by the Aristotelian model, there has always been a tendency in aesthetics and allied disciplines (e.g., STRUCTURALISM, SEMIOTICS, and POETICS) to view aesthetic theories as primarily favoring an analysis of the poetic use of LANGUAGE (or the creative use of other media in a way analogized to the use of poetic language or in a way that features the communicative and infectious function of the arts). This tendency has encouraged a strong sense of contemporaneity bridging current analyses and the works of the ancients. For example, mimesis, the doctrine that art imitates nature—in effect the

first grand theory of the arts and developed in rather different ways by PLATO, Aristotle, and Longinus—is expressly treated in instructional, didactic, or morally infectious terms. Mimetic theories appear to emphasize the communicative effectiveness of the arts in terms that are not confined to or centered explicitly in linguistic communication even when they are specifically literary. The reality said to be imitated—ultimately the creative power of nature—is usually linked closely to human interests and dispositions. Art itself is said to function communicatively because it fashions in some sense a representation of such reality, and its communicative effectiveness is characteristically exhibited in its influence on the conduct and affective responses of those who attend the arts. The study of the logical structures of representation (see REPRESENTATION, PICTORIAL AND PHOTOGRAPHIC), expression, SIGN and symbol (see SYMBOLISM), METAPHOR, FICTION, and the rhetorical process in general (see RHETORIC) has largely collected the threads of such early theory.

In the MIDDLE AGES the communicative emphasis is, if anything, strengthened. For example, according to the English philosopher Roger Bacon, the arts (notably painting) have in their representational power the ability to instruct the faithful in an accurate and easy way. According to the Italian philosopher Thomas Aquinas, the arts, like the natural world itself, instruct by producing beautiful things. The artist produces what is good (pleasing when contemplated or seen, congruent with what all creatures are said naturally to desire), and the work thus produced, in being good or beautiful, pointedly draws our attention to what in accord with God's creation may be predicated of all beings. In this sense art communicates or at least tacitly conveys the import of the entire created order and of the relationship between creator and creation.

Perhaps the most influential modern theories of art and art production derive from the romantic movement (see ROMANTICISM) of the eighteenth and early nineteenth centuries. The key idea of romanticism is that through their creative powers artists express themselves, their inner lives, their "intentions," even their eras. Audiences must be able to grasp or be appropriately affected by what is conveyed in an effective artwork. The expressive function is not thought to be subsumable under the mimetic and is distinctly associated with notions of the novel, the personal, and the creative. In the view of the French poet Alfred de Musset, for instance, POETRY becomes a sob overheard or a personal sentiment made public. This is the egoistic, perhaps even egotistic, communicative idea of art that the Russian novelist Leo Tolstoy inveighed against in *What Is Art?* (1898), but his own theory, which was devoted to the redemptive role of the Russian peas-

ant, simply favors another expressive preference.

Hermeneutics. The most important and explicit modern version of the communicative theme of art is memorably adumbrated in the early nineteenth-century speculations of the German philosopher Friedrich Schleiermacher. In Schleiermacher's so-called romantic hermeneutics the interpretive complexities of the communicative function of art are first explored in terms close to contemporary aesthetic interests. Hermeneutics, generally construed as the theory of INTERPRETATION or of interpreting texts, is focused on the problem of how to understand what authors of a previous age must have meant in producing the texts bequeathed to us. Hence interpretation and expression are, historically, quite closely linked conceptions. The hermeneutic question, whether formulated in romantic or other terms, restricted to literary texts or enlarged to include the productions of the other arts, centered on our sense of increasing historical distance or addressed to contemporary texts, has become one of the focal issues in theorizing about the arts.

Generally speaking, the hermeneutic tradition construes art works or texts as artifacts (*see* ARTIFACT) intended to be communicatively rich and significant. Their importance is usually said to lie with their content, but their ability to communicate requires the skill on our part to recover that original intent or to achieve some suitable alternative objective. Hermeneutics in this sense is a relatively autonomous discipline that since the eighteenth century has become increasingly intertwined with aesthetic theory. Because communicative and interpretive themes are of paramount importance in contemporary aesthetic analysis, the convergence of the two disciplines is quite natural. Yet the dominance of interpretive rather than specifically hermeneutic puzzles needs to be emphasized for two reasons. First, the term *hermeneutic* usually pertains fairly specifically to the contributions of theorists such as Schleiermacher, Emilio Betti, Hans-Georg Gadamer, E. D. Hirsch, Jr., Wolfgang Iser, and Hans Robert Jauss, who address a distinctly circumscribed tradition. Second, twentieth-century theorists of interpretation as different as the U.S. philosopher and New Critic Monroe C. Beardsley, the French belletrist ROLAND BARTHES, the literary critic Stanley Fish, the so-called Yale deconstructionists (Geoffrey Hartman, Hillis Miller, Paul de Man, Harold Bloom), Marxist theorists such as Fredric Jameson and Terry Eagleton, and many others representing Anglo-American analytic philosophy, phenomenology, Prague semiotics, and Freudian analysis are not concerned primarily with bringing their theories of interpretation into line with the distinctive claims and idiom of the hermeneutic school. Also opposed to this orientation but partly inter-

twined with it are numerous versions of structuralism analyzing the semiotic, symbolic, signifying, or communicative functions of the arts (indeed of all human culture) in terms that distinctly avoid or subordinate their semantic, pragmatic, referential, representational, and expressive functions and favor instead the syntactic, formal, grammatical, and generative rules by which MEANING is said to be constrained. Nevertheless, the contest between hermeneutic and structuralist themes attests to the abiding emphasis of communicative concerns in the history of aesthetics. In twentieth-century U.S. aesthetics, for instance, Nelson Goodman featured the syntactic structures of art at the expense of semantic content, and Arthur Danto displayed the intentional complexities of representation and related rhetorical functions. Characteristically the second is profoundly historicized, and the first is relatively indifferent to historical change.

Art works, intention, and history. Theories of these sorts are not confined to questions of criticism and appreciation; they invariably color our theories of the nature of art works. For it is the ontology of art that generates the puzzles of interpretation, and it is the importance of interpretive questions that obliges us to characterize the peculiar nature of art in some suitably congruent way. The result, by and large, is that contemporary theories of the nature of art are focused on the difference between natural (or physical) objects and culturally generated objects (works of art, texts, words and sentences, institutions). There is therefore a characteristically double theme in nineteenth- and twentieth-century aesthetics stressing the conceptual linkage between the properties of critical discourse addressed to the arts (largely interpretive) and the properties of art works (examined both descriptively and interpretively). This is quite apparent in romantic theories of the arts.

Romantic theories hold that there is an original, individual, authorial intent that generates the art work and that, once correctly recovered, fixes the meaning or communicative import of the work (*see* AUTHORSHIP). Such theories hold that the original intent is fixed once and for all in historical time and is recoverable in principle, despite the "distance" between author and reader, by virtue of either the constancies of human nature or those of interpretive techniques or methods. Very early on it became clear that the author's intent could not be taken to be an actual, deliberate, or observable event but must be reconstructed in terms of a grasp of the prevailing practices, traditions, and genres (*see* GENRE) that a responsive artist may reasonably be supposed to have internalized in producing a work of a particular kind. Since the eighteenth and early nineteenth centuries the complexities of this reconstructive effort of inter-

pretation have come under the influence of an increasingly radicalized sense of history—ranging, say, from the French Revolution and the reflections of the nineteenth-century German philosopher G. W. F. Hegel to the theories of history and HISTORIOGRAPHY favored by the influential twentieth-century German philosophers Gadamer and Martin Heidegger. Schleiermacher seems to have emphasized the effectiveness of hermeneutic method and therefore to have accommodated (but not fully grasped the implications of) the idea of discerning distinctly individual intention. More recent “romantics,” notably Hirsch, are aware that the recovery of particular styles and genres within which individual variability may be located argues for the existence of even more fundamental human uniformities themselves capable of encompassing or accounting for such large historical diversities.

The key change in theory from Schleiermacher to Gadamer is as follows. For Schleiermacher history poses the problem of interpretation but does not in principle disallow the recovery of the meaningful past and does not disable the full recovery of a particular author's original intent or, through that, the original meaning of what the author intended by the text. For Heidegger and Gadamer the very process of interpretation has a radically historical nature because human nature is radically historicized. It is therefore no longer possible or even meaningful to speak of simply recovering the separate past in terms of its own sense of meaning. For these theorists historical time precludes ahistorical constancies of meaning, which affects the separate careers of both texts and efforts to interpret them. Neither texts nor their interpreters have constant natures. The meaning of the past is a construction projected from a present historically linked with the authors of the past. There is literally nothing to be recovered from a frozen and separate past, although there is indeed a fair sense in which we may still be in touch with the authors of the past.

Contemporary aesthetics, both Anglo-American and western European, focuses increasingly on the problem of artistic communication in terms of the paradoxes of history and historical meaning and the paradoxes of intentionality, both personal and societal. In this regard it has obviously converged and intersected with hermeneutics. But hermeneutics itself has had to accommodate other theories addressed to the dynamics of human history—from Freudian, Marxist, Frankfurt school, and Nietzschean sources, for instance—and these have directly influenced the course of aesthetics. The hermeneutic tradition, in fact, has no distinctive theory of the social processes that determine significant social movements affecting representational and expressive

content. It has no particular ideological orientation (see IDEOLOGY) to be compared with those of critical theorists such as THEODOR ADORNO and WALTER BENJAMIN, who have had distinct views about the content of interpretive discourse; of more orthodox Marxists such as György Lukács; or of SIGMUND FREUD himself or the structuralist Freudian Jacques Lacan.

Nevertheless, because of the growing importance of interpretive and communicative questions to the aesthetic tradition and, perhaps even more important, because of the dawning difficulty of defining the nature of art works under the conditions of historicizing interpretation, modern puzzles about the ontology of art have implicitly if not actually paralleled the central puzzles of the hermeneutic tradition. In the context of strong currents stressing historicism, intentionality, and poststructuralist doubts, hermeneutic, phenomenological, structuralist, and deconstructive themes have inevitably become prominent.

Implications. The importance of this eddy of theory and criticism rests with the fact that it preserves the essential theme that art works may be construed as texts, cultural deposits of some sort that have no function other than inviting efforts to fathom their meaning. In so doing, art works utterly defeat every effort at an orderly or professionalized practice of determining their actual meaning. The French scholar MICHEL FOUCAULT, for example, sees the process as yielding forms of “normalization,” habits of mind that congeal into traditions and are eventually overturned by subterranean forces that yield still other formative traditions. And Barthes construes reading as a game of free interpretation disciplined only in the sense that the players play best when they are as remarkably informed about the possibilities of the tradition as is Barthes himself. A particularly notable flowering of the optimistic advantage of this loss of objective discipline appears in the theory of Fish, who asserts that the meaning of a text is a function of specific, interpretive communities that arrive at their own consensual interpretations or conceptualizations of the text's communicative import (see READING THEORY).

In the process of absorbing these developments, the standard concern of aestheticians to analyze and define art works ontologically has been either stalemated or distinctly radicalized. The stalemate results from the view that defining art is an impossible undertaking based on the pretense that there is an essence assignable to art or that art is cognitively transparent. The radicalization of aesthetics stems from the view that art works, as with all texts, are themselves indivisible parts of the seamless matrix of human culture or are repeatedly reconstituted heu-

ristically in the process of human attempts at self-understanding. The first development is largely Nietzschean; the second is largely the work of post-Heideggerean hermeneutics.

There is now before us—in aesthetics, poetics, and allied disciplines—the threat of interpretive anarchy, of a drift toward extreme relativism on the one hand or the opportunistic imposition of meanings by fiat on the other. This threat attests to the growing difficulty of collecting reliable, orderly efforts at interpretation and at fixing the ontology of art. Yet similar conceptual difficulties have emerged with respect to theory in the physical sciences and concerning the very enterprise of philosophy itself. Viewed optimistically, the disruption of aesthetics may be no more than an invitation to a fresh conception of the arts and human culture, one both larger and freer than previously envisioned.

See also LITERARY CRITICISM.

Bibliography. Monroe C. Beardsley, *Aesthetics from Classical Greece to the Present: A Short History*, New York, 1966; idem, *The Possibility of Criticism*, Detroit, Mich., 1970; Arthur C. Danto, *The Transfiguration of the Commonplace*, Cambridge, Mass., 1981; Jacques Derrida, *Of Grammatology* (De la grammatologie), trans. by Gayatri Chakravorty Spivak, Baltimore, Md., 1977; Hans-Georg Gadamer, *Truth and Method* (Wahrheit und Methode), trans. from 2d ed. by Garrett Barden and John Cumming, New York, 1975, reprint 1986; Nelson Goodman, *Languages of Art*, 2d ed., Indianapolis, Ind., 1976; E. D. Hirsch, Jr., *Validity in Interpretation*, New Haven, Conn., 1967; Joseph Margolis, *Art and Philosophy*, Atlantic Highlands, N.J., 1980; idem, ed., *Philosophy Looks at the Arts*, 3d ed., Philadelphia, 1986; F. D. E. Schleiermacher, *Hermeneutics: The Handwritten Manuscripts* (Hermeneutik), ed. by Heinz Kimmerle, trans. by James Duke and Jack Forstman, Missoula, Mont., 1977.

JOSEPH MARGOLIS

AFRICA, PRECOLONIAL

Communication across regions of precolonial sub-Saharan Africa was restricted to a greater degree than elsewhere in the world by geographical and historical factors and by the cultural and linguistic differences among African societies. Although WRITING was introduced into various portions of the African continent during ancient and medieval times, the primary medium of communication remained the spoken word. Furthermore, African languages varied to an extent unknown in any other contiguous land mass of similar size and population density. Nonetheless, precolonial African communities did not live in anything like total isolation from one another. Instead they managed to maintain a number of large-scale political systems and even more extensive trad-



a



b

Figure 1. (*Africa, Precolonial*) African rock art: (a) Petroglyph, Tassili. Photograph by Jürgen Kunz. (b) Painting of bowmen, Masange, Central Tanzania. After H. Sassoon. From A. R. Willcox, *The Rock Art of Africa*, New York: Holmes & Meier Publishers, 1984, opposite p. 64, and p. 115.

ing networks, and they also shared important elements of social and cultural identity.

Geographical Obstacles

Geography is the most serious barrier to the operation of communications systems within Africa, in terms of the shape of the African continent, its physical relationship to other populated areas, and its ecological conditions. As a physical entity the African continent seems designed to separate rather than integrate human communities. The formation of the vast Sahara Desert some five thousand years ago cut off the major part of Africa from easy contact with the Mediterranean, one of the most active and influential regions in the entire early world. Navigation on any regular basis was impossible from the Mediterranean or the Atlantic Ocean until the era of the Portuguese discoveries in the fifteenth century. African, Arab, Chinese, Indian, and Persian navigators did maintain sea traffic between Asia and East Africa from the second century on, and Arab-Berber camel caravans crossed the Sahara by the eighth century. However, all these contacts were limited by the coastline and the Sahel, the semidesert area at the south of the Sahara, both remarkable for their lack of major indentations. This left most inland inhabitants far from points of direct communication with outsiders. Unlike the pre-Columbian Americas (see AMERICAS, PRE-COLUMBIAN) and the South Seas, Af-

rica was always part of the Old World of Asia and Europe—but links with the Old World were limited to specific places.

Another geographical constraint on outside contact was the nature of soil and climate conditions in the supposedly lush tropics. African soil is generally limited in nutritive value and subject to marked, often irregular seasonal shifts between heavy rain and intense sunlight. Early African populations maintained maximum agricultural productivity by shifting cultivation sites at varied intervals. There was thus little concentration of human settlement, a major requisite for the development of complex communications systems.

The contours of the continent and its rainfall patterns have also severely limited the transportation role of African rivers, thus cutting off one more traditional means for regular contact with distant peoples. Because the tropical African environment is particularly hospitable to insects and microorganisms of various kinds, human demography is further restrained by disease, and large beasts of burden—the other major preindustrial means of transport—cannot survive in many parts of the continent.

Although great expanses of space tended to separate small African communities, there were nonetheless motives for overcoming these barriers. The most common was trade, both domestic and foreign. Certain African commodities such as gold and ivory were in particularly high demand in Asia and Europe.

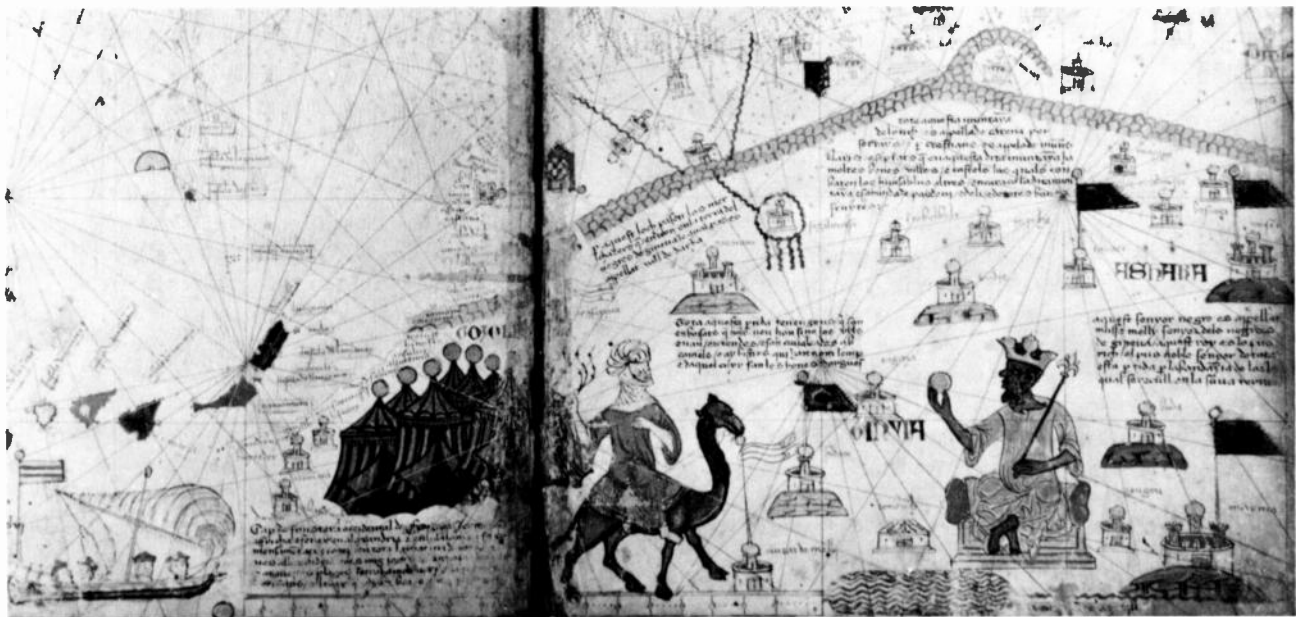


Figure 2. (*Africa, Precolonial*) Abraham Cresques, map of West Africa, 1375: the first European depiction of the area, based on reports from North African Muslim traders. The detail shows the Muslim ruler of Mali, Mansa Musa (*right*) and the Atlas Mountains represented as a stone wall. Phot. Bibl. Nat., Paris.



Figure 3. (*Africa, Precolonial*)
Helmet mask (*hembra*), Bayaka,
southwest Zaire. These masks are
worn while displaying important
charms to young Suku boys at initia-
tion camps and again when they re-
turn to their villages. The University
Museum, Philadelphia. Neg. 805.

Along with eastern Europe and central Asia, Africa also served as a major source of slaves in the medieval Islamic world. European plantations in the New World relied entirely on Africans for their labor supply (*see SLAVE TRADE, AFRICAN*). Trade routes for the export of African goods extended over great distances. Large African population centers were established at various key entrepôts.

Given the absence of writing and the range of different African languages, how did communication take place within these enlarged systems? The gravity of the problem is illustrated by a long-standing belief that African trade was conducted through dumb barter, an exchange limited to the display of goods and signals or gestures (*see GESTURE*) indicating assent when a bargain was struck. There is no documentary evidence for any such trading practice in Africa. At every marketing point there were always people who spoke at least a rudimentary common LANGUAGE, a lingua franca shared by long-distance

travelers such as the Swahili speakers of East Africa, the Juula Manding and Hausa of West Africa, or the Lingala speakers of the Congo basin. In the Juula and Hausa cases merchant groups did not simply adopt a second language for limited trade purposes but actually took on the full ethnic identity of the core Manding and Hausa speakers. Thus involvement in trade contacts could extend cultural boundaries to varying degrees. *See also* LANGUAGE VARIETIES.

Restricted literacy. African Swahili, Juula, and Hausa merchants were also Muslims and were exposed to LITERACY through their own religious education as well as through interaction with foreign trading partners at international entrepôts. There is some historical dispute about the extent to which these trading communities kept written commercial records, but in any case the practice did not help the DIFFUSION of literacy into the larger CULTURE. Precolonial Africa constitutes a prime example of what has been called restricted literacy, that is, the con-

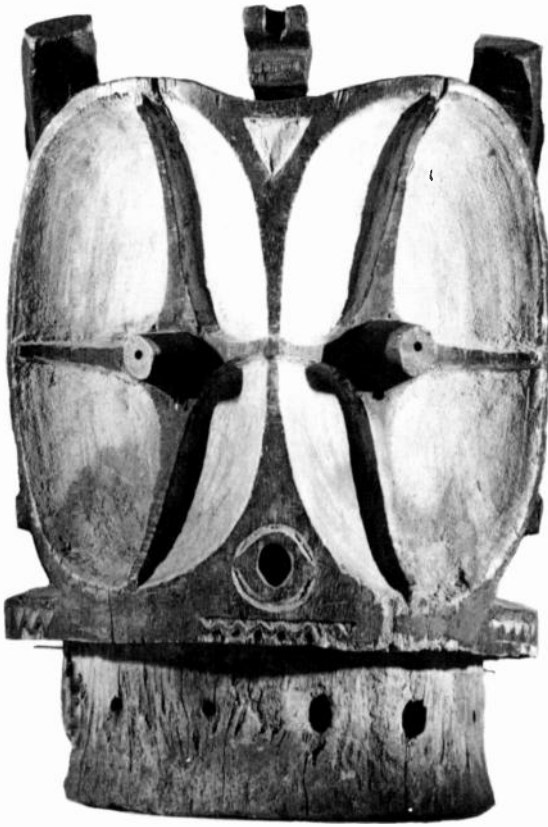


Figure 4. (*Africa, Precolonial*) Helmet mask, Bembe, Zaire. The Metropolitan Museum of Art, New York, The Michael C. Rockefeller Memorial Collection, bequest of Nelson A. Rockefeller, 1979. (1979.206.243)

finement of READING and writing to foreign communities (including African merchants scattered along international trade routes), sacred purposes, or foreign or liturgical languages (mainly Arabic). Even Muslim rulers of African states apparently did not use writing for any state business other than communication with other Mediterranean rulers. *See ISLAM, CLASSICAL AND MEDIEVAL ERAS.*

This restriction of literacy illustrates the fact that communication systems not only shape culture but also are shaped by culture and the larger conditions to which it responds. It should be kept in mind that, given the ecological constraints to which precolonial Africans were subject, they had only limited needs for communication across long distances that were adequately served by the existing trade networks. During the eighteenth and nineteenth centuries, when external and internal trade had intensified to a point at which large numbers of ethnically diverse people were concentrated in or around urban settlements, major Muslim uprisings occurred in West Africa. These movements replaced many existing states with larger, more Islamized ones and also generated widespread religious EDUCATION in local vernacular lan-

guages, thus increasing the scope of literacy in areas such as commerce and creating the potential for the extension of literacy into much wider realms of indigenous African culture. Because of the subsequent European COLONIZATION we will never know how these uses of writing would have affected the development of African communication systems, but they at least demonstrate the possible range of internally generated change. *See AFRICA, TWENTIETH CENTURY.*

Talking drums. In the absence of widespread literacy Africans developed alternative methods of communicating across distances. The most famous of these, the talking drums found in western Africa from Guinea to Zaire, has, like dumb barter, been the subject of exotic myth. Much African drum communication does not actually translate SPEECH but consists of coded signals not unlike the bugle calls and drum signals of Western culture. In order to translate words into beats, using either the membrane of a true drum or a slitted wooden cylinder gong, words are broken into constituent units and then are reaggregated into standardized phrases. The first part of the operation is not possible using anything like Morse CODE, because there is no ALPHABET representing consonants and vowels to which the equivalents of dots and dashes can refer. Rather, the constituent verbal units are syllables, and the drummers represent words by imitating their patterns of rhythm and tone. Almost all African languages are rhythmically more complex than European ones, and many African peoples, including most of those who employ talking drums, use varying tones as speech markers. Each word in these languages is thus characterized by a particular, if not unique, pattern of syllabic rhythm and tone. These patterns can in turn be reproduced in drumming by the immediate rhythm of the beats and the manipulation or choice of the surfaces on which they are produced (tone). Within any African language many words have the same rhythm or tone pattern. Ambiguous messages are avoided by placing words within set phrases so that the receiver of the message can associate word patterns with one another.

In practical terms talking drums constitute a very complex but also technically limited medium for long-distance communication. Under optimal conditions a single drum can be heard clearly only at a maximum distance of perhaps five miles. Sending messages over greater distances thus involves highly coordinated relays of drummers. In addition, the vocabulary translated into drum language remains limited, even with all the devices of rhythm, tone, and phrasing. J. H. K. Nketia, one of the leading scholars of the subject, has calculated the Akan (Ghanaian) drumming vocabulary at about five hundred words. Finally, the ability to transmit and understand a drum message is limited to the speakers



Figure 5. (*Africa, Precolonial*) Queen Mother's head, Benin, Nigeria, ca. fourteenth to sixteenth century C.E. Bronze, life-size. Reproduced by courtesy of the Trustees of The British Museum.

of a given African language and even within this group requires a corps of highly skilled specialists.

Talking drums were thus never a means for maintaining very wide or frequent communication in precolonial Africa. Their use tended to be restricted to major events such as an important RITUAL or the arrival of European explorers (who then exaggerated the role of the practice) or just to play—to display skill or to insult rivals.

Oral Tradition

It has been argued that writing is essential to the preservation of ideas over time and that without literacy precolonial Africa had no history. Africanist scholars often respond to this contention by pointing out that Africans possess the functional equivalent of written historical records in their highly developed oral traditions. The ability to recite detailed accounts of past events from memory is indeed more fully



Figure 6. (*Africa, Precolonial*) Bambara dance head-dress, which is worn attached to a wickerwork cap. Mali. The antelope with young represents the spirit *chi wara*, who introduced agriculture to the Bambara. Reproduced by courtesy of the Trustees of The British Museum.

cultivated among nonliterate peoples in general, and among Africans in particular, than in societies that have come to rely on the written word. Furthermore, for the recording of events with broad public significance African communities often relied on specialist bards who made use of various poetic and musical devices to formalize their accounts of the past. See ORAL CULTURE; ORAL POETRY.

The arguments against treating oral tradition as history rest on two bases: first, that the traditions only touch on a highlighted set of events, essentially

the “kings and battles” of political NARRATIVE rather than the underlying social, economic, and cultural transformations; and second, and more important, that these traditions are not reliable records of the past but rather are mythical reconstructions designed to meet contemporary ideological needs (see IDEOLOGY). Both criticisms are largely valid and account for the retreat among professional historians from the enthusiastic embrace of oral tradition that characterized the period of African decolonization in the early 1960s. Nonetheless, oral tradition represents an important African medium for addressing the past and should be taken seriously both as myth and as history. See HISTORIOGRAPHY; ORAL HISTORY.

With regard to the categories of events on which it focuses—royal genealogies and deeds, natural disasters such as droughts, and encounters with other groups and peoples—oral tradition has a distinct and even self-critical sense of the past. However distorted, these events are viewed as taking place outside the present and are often associated with one another so as to convey a real sense of an earlier but connected time, the essence of historical consciousness. Moreover, at least some of the ideological tendencies in such accounts were not shared by the entire cultural community to which they were addressed and, as in the genealogies of rival lineages or the tales of battles told by competing or hostile groups, may be compared with variant versions.

Written history conventionally bases accounts of the past on documents actually recorded at the time of the events described. The existence of written texts makes it possible to compare one account with another and thus to defend any given version of the past in explicit, rational terms. British anthropologist Jack Goody has contended that it is this critical self-consciousness along with its attendant mode of dialectical discourse that forms the great cultural divide between traditional African societies and those of the West. Whether or not one fully accepts this view, it is relevant to any consideration of African oral traditions. An excellent example of the role of literacy in changing precolonial African historical consciousness can be seen in the writings of the nineteenth-century northern Nigerian Islamic reformist Muhammad Bello, whose accounts of the past are highly ideological but present and explicitly dispute the versions found in earlier Muslim writings.

Communication among African Cultures

The division of precolonial Africa into literally hundreds of language groups was a major obstacle to communication throughout the sub-Saharan regions of the continent. Nonetheless, observers frequently refer to “culture zones,” large areas in which peoples speaking different languages still share a



Figure 7. (*Africa, Precolonial*) Funerary figure, Bakota, Congo. These figures, which were placed on top of baskets containing the skulls and bones of ancestors, were supposed to guard the relics from noninitiates and evil forces that might weaken their power. The University Museum, Philadelphia. Neg. 70291.

wide range of practices, beliefs, and artifacts (see ARTIFACT). What factors account for such cultural diffusion?

One answer may be none. Shared culture may be a result of residual rather than active common experience. Peoples living in similar circumstances develop similar institutions even when they have no contact with one another. In African cases when the contours of certain cultural elements are too closely related to be explained by some universal “primitive” life-style, it is possible that the groups themselves may have diffused through OUT-MIGRATION from a common historical core. The Bantu-speaking peoples who dominate entire regions of equatorial, East, and southern Africa probably originated in various migrations from a single West African cradle. However, their languages, although similar, are mutually unintelligible, and there is no reason to assume that other shared cultural traits are the result of sustained contact. See INTERCULTURAL COMMUNICATION.

Other cultural artifacts obviously passed along



Figure 8. (*Africa, Precolonial*) Wooden chair used only by a chief or by nobility, BaMileke, Cameroon. Reproduced by courtesy of the Trustees of The British Museum.

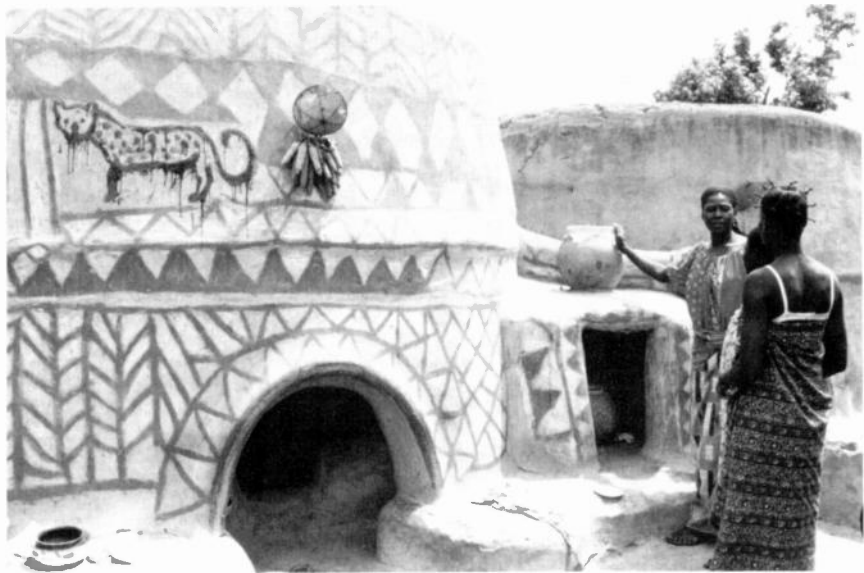


Figure 9. (*Africa, Precolonial*)
Village chief's house in Pô, near
the Ghana border, illustrating traditional
design and building materials.
1983. United Nations photo
152872/Kay Muldoon.



Figure 10. (*Africa, Precolonial*) View of traditional house architectural style and building materials in the Dogon village of Sangha, Mali, 1971. United Nations photo 120924/J. Laure/PAS.

long-distance trade routes or are the result of political conquest and centralization. The fact that these events did not produce a major common language suggests that the broad economic and political systems of precolonial Africa did not penetrate very deeply into the lives of most people. Even in the very recent history of western Europe it is the modern state that has imposed linguistic unity on the citizenry as much as it was the ethnic "nation" that gave rise to the state.

Precolonial Africa is thus a good example of how nonverbal cultural elements can be communicated across ethnic boundaries without an accompanying integration of the resulting culture zones. There is ample evidence of technology, rituals, artistic styles, and aural signals circulating over extensive and linguistically diverse areas. Some of these items are associated with the real or imagined power of larger institutions, such as distant rulers or trade in exotic goods or luxury items. Thus elements of Islam were incorporated into the culture of people who did not read the Qur'an and did not abandon any of their traditional religious identity. Communities that were not linguistically or politically integrated into any centralized state often adopted the symbolic names and drumming codes of African kings, as well as such famed royal regalia as masks (*see* MASK) and wood carvings. At a more basic level, agricultural methods, medicines, and rituals for dealing with all kinds of afflictions have spread across many regions of Africa.

Among the most widely diffused African cultural items are cults for the defense against witchcraft. These provide a key to the relationship between general African historical experience and the pattern of precolonial African communication. Antiwitchcraft cults spread because they were a tested means of dealing with common dangers, but these dangers were also identified with the very sources of regional integration: ambitious rulers, foreign influence, and the possibility of personal enrichment through trade. What the cults communicated was the danger of intimate contact with systems that seemed to threaten the precarious welfare of Africa. The posture of precolonial Africans toward communication with the outside world was conservative, but it was a conservatism tragically vindicated by later African experience.

Bibliography. E. Arnett, *The Rise of the Sokoto Fulani, Being a Paraphrase and in Some Part a Trans. of the Infaku'l Maisuri of Sultan Muhammad Bello*, London, 1922; Ralph A. Austen, *African Economic History: Internal Development and External Dependency*, London, 1987; René A. Bravmann, *Open Frontiers: The Mobility of Art in Black Africa*, Seattle, Wash., 1973; David Dalby, ed., *Language and History in Africa*, London, 1970; Jack Goody,

The Domestication of the Savage Mind, Cambridge, 1977; idem, ed., *Literacy in Traditional Societies*, Cambridge, 1968, reprint Cambridge and New York, 1975; John Middleton and E. H. Winter, eds., *Witchcraft and Sorcery in East Africa*, New York, 1963; Thomas A. Sebeok and Donna Jean Umiker-Sebeok, eds., *Speech Surrogates: Drum and Whistle Systems*, The Hague, 1976; Jan Vansina, *Oral Tradition as History*, Madison, Wis., 1985.

RALPH A. AUSTEN

AFRICA, TWENTIETH CENTURY

In terms of mass communication facilities Africa is the poorest-served region in the world. This is the result of Africa's generally low level of economic development, which in turn has consequences for the infrastructure required for media development and the ability to acquire communications hardware and software. Advances in media technology have had a limited impact on Africa; in fact, the gap between the industrialized nations and the developing nations of Africa has widened rather than narrowed. *See* DEVELOPMENT COMMUNICATION.

The vital role of communication in the promotion of national integration and development in Africa has led to the allocation of large resources for communication facilities, but rapidly changing technology and the need to keep up-to-date has tended to neutralize such efforts. Among the factors accounting for the slow development of mass communication in Africa are the lack of an adequate telecommunications infrastructure, low levels of LITERACY and individual income affecting mass media consumption, and severe economic problems limiting countries' abilities to acquire the necessary plant, machinery, and supplies and to train a work force in the operation and maintenance of equipment.

Despite these formidable constraints, modern mass communication has become an integral part of the modern social system in Africa. Efforts have been made at the continental level to pool resources in order to find solutions to problems best handled on a regional rather than a national basis.

Development of the Press

The newspaper made an early appearance in West Africa in the second decade of the nineteenth century with the publication of official newsletters by the British colonial authorities (*see* COLONIZATION; NEWSLETTER). It did not take long for the indigenous people to start small newspapers with more nationalistic zeal than either capital or professional training. Missionary efforts also helped with the development of the press, especially in Nigeria. However, progress was slow and sporadic, and not until the period between the two world wars was there a

systematic growth of newspapers in West Africa produced and managed by the indigenous people. These papers were highly political in content and were used by their proprietors as instruments of political education and mobilization (*see* POLITICAL COMMUNICATION).

While the press was being developed in the English-speaking colonies of West Africa, progress was very slow in French-speaking West and equatorial Africa, where the colonial administration opposed the establishment of newspapers by Africans. The very small papers that had appeared at the end of the nineteenth century were published by French nationals for the French settlers and administrators. The first newspaper managed and edited by an African was started in the Ivory Coast in 1935. In the 1930s the de Breteuil group established a chain of newspapers in West Africa meant to serve the French and the small group of African *évolués* in colonies such as Senegal and the Ivory Coast. The activities of the publishing group were extended to other colonies such as Guinea and Cameroon after World War II.

In East Africa the beginning of the twentieth century saw the establishment of the *African Standard* in Nairobi, Kenya, which served the East African region until a paper specifically serving Tanganyika was established in 1930. The Standard group of newspapers represented the interest of the white settlers, supported the colonial administration, and took positions against the nationalist aspirations of the Africans.

The most significant strides in the development of the newspaper press were made in the immediate postwar period, when the London Daily Mirror group established important dailies in three British West African colonies: the *Daily Times* in Nigeria (1947), the *Daily Graphic* in Ghana (1950), and the *Daily Mail* in Sierra Leone (1952). The Mirror group invested considerable technical and financial resources in these papers, which became the best-produced papers on the western coast. Their efficient management and prestige helped to attract talented journalists. A few whites occupied management positions on these papers, but their editorial staffs were entirely African. The papers tried to remain neutral between the colonial administration and the nationalistic leaders and maintained a professional detachment that pleased neither of the contending factions. They changed ownership in the postindependence period and were acquired either by the state, as in Ghana, or by local entrepreneurs, as in Nigeria.

A tradition of private ownership of newspapers had been established in Africa in the colonial period. The government was generally not involved with the establishment or production of newspapers except for official government bulletins and gazettes. With

the rise of an indigenous press most newspapers were used as instruments for mobilizing the people for independence. They were clearly partisan, made few concessions to impartiality or balance in the presentation of views, and were more concerned with advocacy than with the detached reporting of news. When political parties were formed, these newspapers became party papers opposing the colonial government. With independence, when the party became the government, these newspapers became mouthpieces of the ruling party (*see* GOVERNMENT-MEDIA RELATIONS). In this way government ownership of newspapers became established in Africa. Dissenting views are generally not allowed an audience in one-party states (*see* CENSORSHIP—GOVERNMENT CENSORSHIP). In a few countries private, independent publications are tolerated, but these face daily crises of survival. Unless they are supported by some political or religious group, their mortality rate is high.

Economic factors directly affect the production and distribution of newspapers. Stagnant economies do not provide the competitiveness that makes ADVERTISING, an indispensable source of revenue, feasible for businesses. The result is that even when there are no political restrictions, economic realities do not encourage investment in newspapers. In addition, high levels of illiteracy keep circulation and readership low. There are a few countries in Africa in which a diversity of information sources exists, as in Senegal or Nigeria, but these are exceptions in a continent where the press has been aptly described as "gagged," "besieged," or "shrinking." *See* NEWSPAPER: TRENDS—TRENDS IN AFRICA.

Radio and Television

RADIO can be considered the only true mass medium in Africa. It reaches an estimated 85 percent of Africans, a much larger percentage than any other medium. Although from its introduction into Africa in the 1920s radio was largely restricted to urban centers, the transistor revolution of the late 1950s and early 1960s helped to spread it to the more remote areas.

Radio was at first seen primarily as a means for European settlers and colonial civil servants to keep in touch with political, social, and cultural developments in the metropolitan areas. It also served the interests of the small educated African elite. Radio was first introduced in South Africa in 1920 and seven years later in Kenya. On the west coast it was introduced into Sierra Leone in 1934, the Gold Coast (now Ghana) in 1935, and Nigeria in 1936. The French followed the British and introduced radio into their colonies of Senegal and Congo in 1939. Outlying stations were treated as relay or rediffusion services of the metropolitan stations.

During World War II Africans were recruited into the colonial armies fighting on the side of the Allies. In order to mobilize people to help in the war effort and to keep them informed of the progress of the war, it became necessary to broadcast in local languages. Radio was used as a rallying point for the Free French Forces, particularly in the French colonies of West and Central Africa, and this led to the expansion and strengthening of transmission facilities to counter pro-Vichy broadcasts from Dakar, Senegal. These powerful transmitters installed for PROPAGANDA purposes proved helpful in the postwar development of African radio.

With very few exceptions the ownership and control of radio in Africa is vested in the state (*see* GOVERNMENT REGULATION). The exceptions are small stations run by private companies, such as Radio Syd in The Gambia, or by religious organizations, such as Radio ELWA in Liberia (*see* RELIGIOUS BROADCASTING). Because radio is the most effective medium for reaching the vast majority of the people, African leaders see it as a useful tool for educating and mobilizing them for development.

Broadcasting systems in Africa can be divided into two broad categories. In some cases they are operated as government departments or agencies directly under the supervision of a ministry of information. In other cases they have been established as statutory corporations with autonomous governing boards. However, in actual practice there is not much difference between the two arrangements because even in the case of the statutory corporations the president or the minister exercises such wide discretionary powers as to undermine the theoretical independence of the governing board.

The government grip on broadcasting is strengthened because in most cases the government is the sole or major source of funds. In a few countries license fees are charged on receivers either at the time of purchase or on a yearly basis. Such license fees contribute a negligible percentage of the total expenditure on broadcasting. Another source of revenue in some countries is radio and television COMMERCIALS, but hardly any broadcasting station derives more than 10 percent of its total income from advertising.

Broadcasting is seen as an instrument for building or maintaining national integration and is therefore highly centralized. Despite the multiplicity of languages there is a reluctance to decentralize the system for fear that it may cause fragmentation and encourage regionalism. The major exception is Nigeria, where the vast territory and the federal structure have resulted in each of the nineteen states owning and operating its own radio and television stations alongside the operations of the Federal Radio Corporation of Nigeria and the Nigerian Television Authority.

Most African radio stations operate shortwave and medium-wave transmitters. Although shortwave broadcasting has the advantage of covering longer distances, it is also subject to severe atmospheric interference in the tropics. Since the mid-1970s a number of countries have shifted to medium-wave and FM transmission, but progress has been slow because of the expense involved. Sometimes the transmitters are not powerful enough to enable the signals to reach the whole country, and with the absence of booster stations, in some countries the penetration of radio signals does not exceed 80 percent. *See also* RADIO, INTERNATIONAL.

Television was introduced into Africa in the post-independence period of the 1960s, although Nigeria had established the first television station in its western region in 1959 (*see* TELEVISION HISTORY). Because the installation and operation of a television station is very capital-intensive, not all African countries can afford television. In most of the countries in which it exists, television constitutes an elitist, urban medium out of the reach of the vast majority of people living in the rural areas.

Like radio, television is part of the government's broadcasting system coming directly under a ministry of information or run by a statutory corporation. It depends mainly on government subvention supplemented in some cases by revenue from advertising or income from fees levied on television receivers. Because Nigeria operates both federal and state stations, it has the best broadcasting coverage of both land area and population. In many other countries the transmitters cannot cover more than 60 percent of the land area. In some cases only about 10 percent of the land area is covered, and the population reached is about 25 percent. Even then good reception is limited to the zones reasonably close to the transmission center.

In terms of television-set ownership, only about half a dozen countries in sub-Saharan Africa (excluding South Africa) have reached the UN minimum of twenty receivers per thousand people. About half the total number of television stations and receivers in the region are to be found in Nigeria, which has seven television receivers for every hundred people. To make television available to a larger number of people, community receivers were provided in some countries, but supervision and maintenance problems arose and the experiment was largely suspended.

There is no uniform pattern of television programming in Africa. Whereas in countries such as Nigeria and Ghana about 75 percent of programs are locally produced, particularly in the countries of southern Africa up to 75 percent of programs aired on television are imported, mainly from the United States and western Europe. This is an issue of great concern to many African governments that are aware of television's potential for portraying national CUL-

TURE. In some cases the large percentage of imported programs can be accounted for by the fact that it costs far less to import an old foreign series than it does to produce programs locally. In other cases, even when there are no serious financial constraints there is a lack of trained technical and production talent.

Other communication technologies. As is the case for television, cinema is very underdeveloped in Africa. The motion picture industry is embryonic, and local film activity is scarce. Documentaries (*see DOCUMENTARY*), short instructional films, and newsreels (*see NEWSREEL*) are produced by film units attached to information ministries, but full-length feature films for commercial exhibition are very limited in number, although a few have attracted wide attention (*see MOTION PICTURES*). Most features are the result of coproduction efforts. The reasons for the underdevelopment of the film industry include the high cost of film equipment and materials and the expense of processing, which makes heavy demands on limited foreign exchange resources. For this reason almost all the films exhibited are imported from the United States and western Europe, and—in eastern Africa—from India (*see MUSICAL, FILM*).

What has been called the VIDEO revolution has come to Africa, but it has had very little impact. The videocassette recorder (VCR) is increasingly used by religious groups for evangelistic and social work. In a few countries video is used for teaching literacy and for training and educating women about child care, nutrition, health, and income-generating activities (*see AUDIOVISUAL EDUCATION*). These are examples of the development uses to which the new video technology can be put, but so far in Africa most video recording and production equipment is used in the home or in small groups for entertainment.

The VCR has become the newest status symbol in Africa after color television. VCRs are generally owned by the more affluent urbanites, and their prohibitive cost limits ownership to a small circle of privileged people. However, the technology has had an impact on film and television similar to that found in other parts of the world. Single-channel television stations are increasingly deserted as far as entertainment programs are concerned, and movie theaters are losing their customers to the video theaters that are springing up in many African cities.

The application of SATELLITE communication technology in Africa is quite recent and has been used mainly for TELEPHONE and telex communication. Occasionally its use has been extended to broadcast-program distribution, but this is very limited because of the high costs involved. Some countries covering a large landmass have domestic satellite systems with transponders leased from INTELSAT, but the capital and operational costs are very high. It is this

high cost that has made it difficult for African countries to take full advantage of the satellite facilities available for broadcasting, although a small number of countries have domestic systems for receiving foreign news via satellite. A direct satellite broadcasting system can be cost-effective only when it covers a large territory. For this reason considerable interest has been shown in the establishment of an African regional satellite system for common-carrier communication and for broadcasting, but the major deterrent has been the high initial investment and projected annual costs.

Inter-African cooperation. There is increasing evidence of cooperation in the development of media in Africa, a result of the recognition that the communication problems facing the continent can be best solved on a continentwide basis rather than by individual states. In the field of broadcasting the Union of National Radio and Television Organisations in Africa (URTNA) was set up in 1962 to promote the development of radio and television at an inter-African level. URTNA's Technical Committee keeps in touch with the technical services of national broadcasting systems, and it has been active in the work of the Pan-African Telecommunications Network (PANAFTEL) project, whose main objective is to provide common-carrier telecommunications systems by terrestrial and satellite interconnections (*see TELECOMMUNICATIONS NETWORKS*).

After years of experimentation a center for the exchange of broadcast programming was set up in Nairobi in 1977. About thirty member organizations are actively engaged in the exchange, intended to reduce the dependence of African countries on non-African programming. Despite the increase in the number of countries participating in the URTNA exchange program, URTNA exchange material accounts for less than 0.5 percent of the total; U.S. and European programming still dominates television fare. URTNA has experienced severe resource limitations in the areas of finance, telecommunications facilities, technical equipment, and personnel. On occasion satellite facilities have been used for inter-African SPORTS events, but regular news and program exchange takes place via air transport. Appreciable outside assistance has been obtained from UNESCO and the Federal Republic of Germany's Agency for Technical Cooperation, but URTNA still faces many problems.

In order to reduce dependence on the transnational NEWS AGENCIES for foreign news, especially for news concerning other African countries, the Pan-African News Agency (PANA) was established by an Organization of African Unity (OAU) convention in 1979 and began operating in May 1983. PANA serves mainly as a pool of more than forty African news agencies, which transmit national news either directly to its headquarters in Dakar or through five regional

offices. These regional pool offices are Lagos (Nigeria) for western Africa, Tripoli (Libya) for northern Africa, Khartoum (Sudan) for eastern Africa, Kinshasa (Zaire) for central Africa, and Lusaka (Zambia) for southern Africa. Materials received at the headquarters are processed and retransmitted by shortwave radio or telex to member countries.

The mode of transmission does not always ensure speed, fidelity, or economy, and a number of African countries continue to depend on the transnational news agencies even for news about Africa. These older agencies have satellite facilities that speed the transmission of dispatches. Like URTNA, PANA also faces formidable problems in carrying out the functions for which it was established. The largest problem is that of a very weak telecommunications infrastructure in Africa. Efforts are under way to solve it by establishment of the Pan-African Telecommunications network (PANAFTEL). In addition, PANA has financial problems severely limiting its ability to acquire up-to-date transmission and reception equipment and computer facilities for the processing, storage, retrieval, and distribution of information. Yet PANA has helped to reduce dependence on the transnational news agencies for information about Africa.

Outlook. In deciding on priorities for communication development, Africa faces a series of dilemmas. Africa depends on the industrialized countries for increasingly sophisticated communications technology. But the communications infrastructure in most countries is so rudimentary that road construction, rural electrification, the extension of telephone facilities to rural areas, the provision of television sets for communal viewing, and the development of the rural press appear to have much stronger claims on resources than do the introduction of color television, computers, microwave links, and satellites.

There can be no simple choices; the construction of an infrastructure has to be pursued simultaneously with equipment modernization. The large investments demanded by both must contend with the financial difficulties facing Africa and other developing countries (see LATIN AMERICA, TWENTIETH CENTURY). The development of communication in Africa will not make spectacular strides before the end of the twentieth century. African countries must first cope with the more basic problems of building an infrastructure, training personnel, and providing the rural majority with access to modern communication facilities.

See also AFRICA, PRECOLONIAL; INTERNATIONAL ORGANIZATIONS; NEW INTERNATIONAL INFORMATION ORDER; TELECOMMUNICATIONS POLICY.

Bibliography. Rosalynde Ainslie, *The Press in Africa: Communications Past and Present*, New York, 1966; Frank Barton, *The Press of Africa*, New York and London, 1979;

William A. Hachten, *Muffled Drums: The News Media in Africa*, Ames, Iowa, 1971; Sydney W. Head, *Broadcasting in Africa: A Continental Survey of Radio and Television*, Philadelphia, 1974; Elihu Katz and George Wedell, *Broadcasting in the Third World*, Cambridge, Mass., 1977; Graham Mytton, *Mass Communication in Africa*, Baltimore, Md., and London, 1983; George Wedell, ed., *Making Broadcasting Useful: The Development of Radio and Television in Africa in the 1980s*, Manchester, Eng., 1986.

PAUL A. V. ANSAH

AGENDA-SETTING

Term used for the hypothesis that editors and broadcasters—the mass media in general—play an important part in shaping social reality as they go about their daily task of selecting and displaying news. A link between media and what WALTER LIPPMANN called “the pictures in our heads” has long been assumed; empirical studies since World War II have sought a more precise definition of the relationship, which many felt had been overstated in early assessments. J. S. M. Trenaman, Denis McQuail, Bernard Cohen, and others suggested that the mass media are not always successful in telling us what to think but are stunningly successful in telling us what to think about. In 1972 Maxwell McCombs and Donald Shaw posited an “agenda-setting” role for mass communications. The phrase and the views it implies have won wide currency.

Editorial judgments, including those relating to the placement and length of news items, reflect the relative journalistic salience ascribed to topics by media personnel. Audiences absorb these saliences from the news media, incorporating similar priorities into their personal agendas. Even though these saliences are largely a by-product of journalistic practice, here may lie the most important effect of mass communication: its ability to order and organize our world.

Agenda-setting is not limited to the correspondence between salience of topics for the media and the audience, but it also subsumes such concepts as status conferral, stereotyping, and image making. All deal with the salience of objects or their attributes. In each instance we are dealing with a generic question of agenda-setting research: How does press coverage influence our perception of objects and their attributes? Early mass communications research focused on immediate effects on ATTITUDES and found minimal media influence. Agenda-setting research redirected attention to longer-term cognitive effects of exposure to mass communications.

Media and public. That much of the world we deal with is a media-inspired secondhand reality is a truism. Two decades of studies have developed specific assertions about the role of the news media in highlighting and emphasizing certain elements—to

the exclusion of others—in our pictures of the world.

Initial investigations compared public concern over the most important issues of the day with the array of issues presented in the press. Substantial correlations were found between these agendas of press and public, especially when there were controls for appropriate contingent conditions, such as heavy exposure to the media and high need for orientation.

Need for orientation is defined by level of interest in and perceived uncertainty about a topic. This idea provides a key conceptual bridge between the effects tradition of MASS COMMUNICATIONS RESEARCH and the uses-and-gratifications tradition with its emphasis on audience motivation. See MASS MEDIA EFFECTS.

Increased attention to each individual's experience with the issues of the day and the distinction between immediate experience and media dependency have brought agenda-setting studies down to the individual level of analysis. As a result, four different notions of agenda-setting defined by a two-by-two typology can be identified in the research literature. Along one dimension is the distinction between aggregate population versus individual analysis (e.g., POLL marginals versus individual measures). The second dimension distinguishes sets of issues from the prominence of a single issue. In terms of personal experience each issue can be arrayed along a continuum whose anchors are labeled obtrusive (extensive personal contact) and unobtrusive (lack of any personal contact). Unobtrusive issues follow the rise and fall of the news agenda, while obtrusive issues are independent of media attention. Studies by Chaim Eyal, James Winter, and Warwick Blood utilizing the conceptual distinction between obtrusive and unobtrusive issues have moved across this typology, shifting away from aggregate analysis of sets of issues to focus on changes in the salience of specific issues among populations and individuals over time.

Broadening the focus. Agenda-setting research began and grew in the long tradition of presidential ELECTION studies in the United States. Within this tradition, agenda-setting united survey research among voters and CONTENT ANALYSIS of the news media. Continuing interest in agenda-setting took researchers beyond campaign settings. It also led to experimental tests of the agenda-setting hypothesis to, supplement the causal evidence supplied by major longitudinal studies in 1972 and 1976. Owing to the variety of measurement procedures and operational definitions of agenda-setting relationships, the accumulating evidence generated by multiple methodologies provides a fruitful foundation for continuing explorations.

Almost all agenda-setting research to date has been concerned with the impact of media agendas on the public agenda. But agenda-setting as a theoretical concept about the transmission of salience is not

limited to mass communications and PUBLIC OPINION. This concept also can be used to analyze earlier stages in the mass communications process.

The second decade of agenda-setting research has revived and redirected the gatekeeper theme in journalism research, documenting the impact of news organizations on one another, such as wire service influence on local media agendas. Attention also has been directed to the nature and origins of the news agenda per se and to the social implications of this specialized genre of writing and communication. For example, coverage in the national media of environmental pollution, a topic and a condition that have been present for a very long time, more than doubled after its emphasis in Richard Nixon's 1970 State of the Union address. Since most news stories can be framed (i.e., presented) from a number of perspectives, Wenmouth Williams and his colleagues have examined the implications of framing for agenda-setting. Analysis of the 1980 U.S. presidential campaign yielded strong correlations between the public agenda and the media agenda of issues specifically framed as campaign issues. However, the match was substantially weaker with the media agenda of issues in noncampaign frames.

This expanding look at a series of agenda-setting steps in the mass communication process has been labeled the agenda-building process by Kurt and Gladys Lang. Understanding how the national agenda is formed is central to our civic and theoretical concerns in POLITICAL COMMUNICATION.



Bibliography. Bernard Cohen, *The Press and Foreign Policy*, Princeton, N.J., 1963, reprint Westport, Conn., 1983; Maxwell E. McCombs, "The Agenda-Setting Approach," in *Handbook of Political Communication*, ed. by Dan Nimmo and Keith Sanders, Beverly Hills, Calif., 1981; Donald L. Shaw and Maxwell E. McCombs, eds., *The Emergence of American Political Issues*, St. Paul, Minn., 1977; David Weaver, Doris Graber, Maxwell E. McCombs, and Chaim Eyal, *Media Agenda-Setting in a Presidential Election*, New York, 1981.

MAXWELL E. MCCOMBS

ALPHABET

A system of WRITING, in which each sign represents a single phonetic value, as opposed to systems in which signs represent syllables or complete words. First developed in Palestine about 1700 B.C.E., alphabetic writing made it possible for languages to be expressed by means of relatively few characters, in contrast to word-based writing systems (such as modern Chinese and Japanese), which employ hundreds and even thousands of symbols. The modern languages that can be represented with only twenty-six signs are the descendants of the first alphabetic writing system.

Origins. The common ancestor of all alphabetic writing systems currently in use—Latin, Greek, Cyrillic, Arabic, Hebrew, and others—is the so-called Proto-Canaanite script, which was introduced by the Canaanites in the first half of the second millennium B.C.E. (see Figures 1 and 2). By that time other scripts, each of which included hundreds of signs, were already flourishing in the ancient world. None of them were alphabetic systems, however, because their signs represented whole words or syllables rather than single phonetic units. In Mesopotamia and its vicinity various peoples, such as the Babylonians, Assyrians, Elamites, Hurrians, and Hittites, used CUNEIFORM writing, in which wedge-shaped signs were impressed on wet clay. In the cuneiform systems, which evolved from the originally pictographic Sumerian writing, the various signs sometimes represented words but usually stood for syllables, like *ba* or *bi*, each of which contained a vowel and one or two consonants. Pictographic scripts were invented by the Hittites in Anatolia (although they wrote in cuneiform as well), by the Minoans in Crete (whose script was the ancestor of Linear A and Linear B), and by the Egyptians (see EGYPTIAN HIEROGLYPHS). In the Egyptian script, signs were triconsonantal, biconsonantal, or uniconsonantal. Had the Egyptians used only the uniconsonantal signs, their writing would have resembled the alphabetic system developed by the Canaanites. However, they maintained their traditional script by preserving the bi- and triconsonantal pictographs, and the total number of signs remained large. Presumably under the inspiration of the Egyptian uniconsonantal hieroglyphic signs, the Canaanites invented the alphabet about 1700 B.C.E. Their revolutionary innovation was to discard the bi- and triconsonantal signs and assign a single uniconsonantal sign to each consonantal phoneme in their LANGUAGE.

The Proto-Canaanite script consisted of twenty-seven pictographic signs of acrophonic values; that is, each picture represented the first consonant of its name. For example, the sign for a house,  in Canaanite *bet*, stood for *b*; the sign for water, , in Canaanite *mem*, designated *m*. By the thirteenth century B.C.E., after five consonants fell into disuse in the language of the Canaanites, the number of signs was reduced to twenty-two. At the same time, the pictographic origins of the letters were still sufficiently evident to permit flexibility of the stances (symbols could face left or right) and writing in any direction: from left to right, from right to left, in boustrophedon (from left to right and from right to left in alternate lines), or even—before about 1100 B.C.E.—in vertical columns. By the middle of the eleventh century B.C.E., all the letters were linear (without pictographic characteristics), the stances had become fixed, and writing was only from right to left. The scholarly term for the script after about

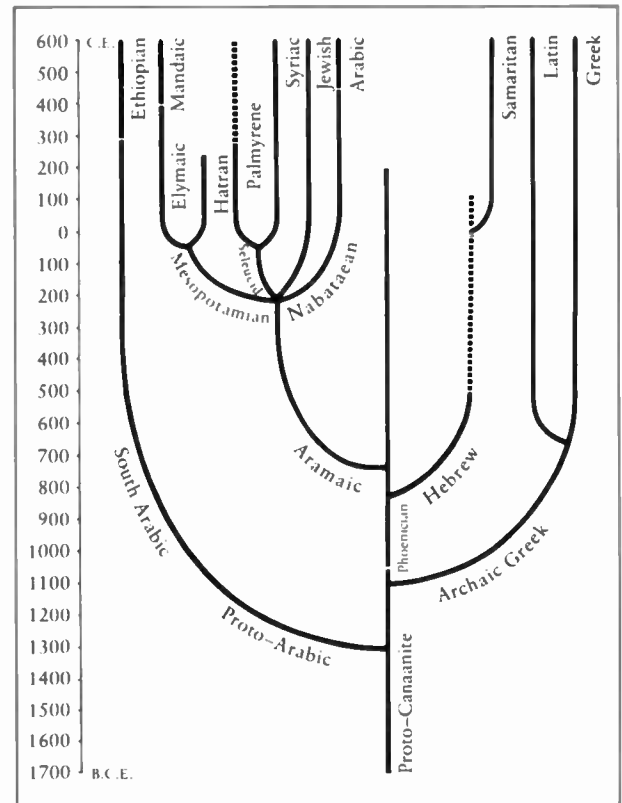


Figure 1. (*Alphabet*) Family tree of the early alphabetic scripts. Redrawn after Joseph Naveh, *Early History of the Alphabet*, Jerusalem: The Magnes Press, The Hebrew University, 1982, p. 10.

1050 B.C.E. is now no longer Proto-Canaanite (or Canaanite), but Phoenician; *Phoenician* is the Greek name for the Canaanite descendants living in the city-states of the Syria littoral in the first millennium B.C.E.

Transmission to the Greeks. In the second millennium B.C.E., the Minoans in Crete and the Mycenaean in Greece wrote in pictographic and linear scripts, of which only Linear B—a syllabic writing system used by the Greek-speaking Mycenaean—has been deciphered (in 1953). Whereas the Cypriots of Mycenaean descent continued to use a syllabic script until the later part of the first millennium B.C.E., Linear B died out in Greece with the Mycenaean civilization, which was destroyed by the Doric invasion about 1100 B.C.E.

There is general consensus that the Greeks learned alphabetic writing from the West Semites, who developed the Proto-Canaanite (later Phoenician) script. This conclusion is based on the following evidence:

1. According to Greek tradition, the alphabetic characters, which the Greeks called “Phoenician letters” or “letters of Kadmos,” were introduced by the Phoenicians, who came to Greece with a person named Kadmos.

	Late Proto-Canaanite variation 1200-1050 B.C.E.	Archaic Greek variation	Classical Greek	Latin
1	𐤀 𐤁 𐤂 𐤃	𐀀 𐀁 𐀂	A	
2	𐤄 𐤅 𐤆	𐀃 𐀄 𐀅 𐀆	B	
3	𐤇 𐤈 𐤉	𐀇 𐀈 𐀉 𐀊	Γ	C
4	𐤋 𐤌 𐤍	𐀋 𐀌 𐀍	Δ	D
5	𐤎 𐤏 𐤐	𐀎 𐀏	E	
6	𐤑 𐤒 𐤓	𐀑 𐀒 𐀓	-	F
7	𐤔 𐤕 𐤖	𐀔 𐀕	Z	- G ¹
8	𐤗 𐤘 𐤙	𐀗 𐀘	H	
9	𐤚 𐤛 𐤜	𐀚 𐀛	Θ	-
10	𐤝 𐤞 𐤟	𐀝 𐀞 𐀟	I	J
11	𐤠 𐤡 𐤢	𐀠 𐀡 𐀢	K	
12	𐤣 𐤤 𐤥	𐀣 𐀤 𐀥	Λ	L
13	𐤦 𐤧 𐤨	𐀦 𐀧 𐀨	M	
14	𐤩 𐤪 𐤫	𐀩 𐀪	N	
15	𐤬 𐤭 𐤮	𐀬 𐀭 𐀮	Ξ	-
16	𐤯 𐤰 𐤱	𐀯 𐀰	O	
17	𐤲 𐤳 𐤴	𐀲 𐀳	Π	P
18	𐤵 𐤶 𐤷	𐀵 𐀶	-	Q
19	𐤸 𐤹 𐤺	𐀸 𐀹 𐀺	P	R
20	𐤻 𐤼 𐤽	𐀻 𐀼 𐀽	Σ	S
21	𐤾 𐤿 𐥀	𐀾 𐀿 𐥀	T	T
22	𐥁 𐥂 𐥃	𐀾 𐀿 𐥀 𐀻 𐀼 𐀽 𐀶 𐀷 𐀸 𐀶 𐀷 𐀸 𐀶 𐀷 𐀸 𐀶 𐀷 𐀸	Y Φ X Ψ Ω	U, V, W - X ² Y Z

1 G is variation of C 2 X from Greek Ξ

Figure 2. (Alphabet) The Proto-Canaanite script, ancestor of archaic and classical Greek and Latin scripts. Redrawn after Joseph Naveh, *Early History of the Alphabet*, Jerusalem: The Magnes Press, The Hebrew University, 1982, p. 180.

- The names of the letters, such as *alpha*, *beta*, *gamma*, and *delta*, have no meaning in Greek, but most of their Semitic equivalents, such as *alef*, *bet*, *gimel*, and *dalet*, are Semitic words.
- The sequence of the Greek letters is basically identical to the Phoenician or Hebrew alphabetic order.
- The earliest Greek letter forms are very similar to, and some are even identical to, the equivalent West Semitic letters.

The archaic Greek alphabet used the twenty-two Semitic letters, although not all of them served as consonants. A, E, I, and O were systematically used as vowels, which was a most important innovation (see below). The Greeks also added five supplementary letters: Y, Φ, X, Ψ, and Ω. The archaic Greeks wrote in horizontal lines from left to right, from right to left, or in horizontal boustrophedon. The archaic Greek script had many local variations. Only in the fourth century B.C.E., when the Ionian version of the script was generally accepted, did the uniform classical Greek script emerge.

There is much controversy about the date when the alphabet was introduced to the Greeks. Scholars have generally placed it in the eighth century B.C.E. However, based on various kinds of evidence, including the similarity of many of the letter forms in archaic Greek inscriptions to Canaanite script of much earlier date, some have suggested that the alphabet may have come to Greece—or at least to some Greek islands, such as Crete or Thera—as early as 1100 B.C.E. The question remains a subject of scholarly debate.

Significance for the history of writing. As stated above, the Proto-Canaanite script, by using only twenty-seven uniconsonantal pictographic signs, streamlined the system of Egyptian hieroglyphic script, which had a very large number of tri-, bi-, and uniconsonantal signs. There are scholars who minimize the importance of this development and contend instead that real alphabetic writing was invented only by the Greeks. This is based on the fact that each “letter” of the Semitic writing system stood for a fixed consonant plus any vowel, leading scholars to conclude that the West Semitic writing was syllabic rather than alphabetic. According to this point of view, only Greek writing, expressing single sounds by means of separate signs for consonants and vowels, marks the final step in the history of writing and can be called alphabetic. This interpretation emphasizes that from the Greek period to the present no comparable innovation has occurred in the inner structural development of writing because, generally speaking, consonants and vowels are written in the same way as in ancient Greek.

While there is no doubt that the Greek alphabet and its descendants are more developed than the Semitic alphabets, there was a Canaanite attempt to notate vowels in the alphabetic cuneiform texts from Ugarit as early as the fourteenth century B.C.E., and in the eleventh century B.C.E. the Aramaeans introduced vowel signs at the ends of words. Furthermore, some scholars maintain the view that the systematic notation of vowels is, relatively speaking, a minor change in the history of writing. They contend that the real revolution took place when a reduced set of signs made LITERACY a much more widely accessible skill.

Semitic and European descendants. The relationships between descendants of the early Canaanite-Phoenician script are illustrated in Figure 1. Proto-Arabic script branched off from the Proto-Canaanite about 1300 B.C.E. It is the ancestor of the scripts used in the ancient South Arabian kingdoms of Saba, Maʿin, Hadramaut, and others. The modern descendant of this branch is the Ethiopian script, which consists of seven series of twenty-six letters and is written from left to right. The seven series are formed by slight modifications of the basic character, indicating whether a certain consonant is to be vocalized by a particular vowel or is to remain unvocalized.

The next important departures from the Canaanite-Phoenician roots were Hebrew and Aramaic. The Hebrews adopted the Canaanite script in the twelfth century B.C.E. and used it until the ninth century B.C.E., when they began to develop a script of their own. The Aramaeans borrowed the Phoenician script in the eleventh century. The Aramaic script began its independent development in the eighth century B.C.E., after which Aramaic was spoken and written by peoples other than the Aramaeans, because the Assyrians introduced it as an official means of communication among the various nations living in the Assyrian Empire. Moreover, it became the *lingua franca* for diplomatic and commercial transactions among many nations. As a result, abbreviated letter forms were introduced to produce a quick and efficient version of the script. Meanwhile, the Phoenician script continued to flourish, both on the Phoenician mainland and in the Phoenician settlements along the shores of the Mediterranean Sea, until the second century C.E.

Aramaic continued to be used as an official language for many centuries over a wide geographical area. For example, Aramaic inscriptions from the Persian period (ca. 530–330 B.C.E.) have been found in a region extending from Asia Minor as far as Egypt and Afghanistan, but the Aramaic script remained uniform, and no local traditions of writing developed even in the most remote provinces. The various derivatives of the Aramaic script emerged only a century or two after the fall of the Persian Empire. At this time Greek replaced Aramaic as an official language, but Aramaic was too well established to be completely replaced. Thus, during the third and second centuries B.C.E., distinctive versions of the Aramaic scripts were developed by various national, cultural, and geographic units. In the East, local scripts such as Palmyrene, Syriac, and Mandaic developed as well as scripts for Middle Iranian languages and possibly the earliest Indic scripts, from which the modern Indian (Devanagari) and derived South Asian scripts are descended. In the West two offshoots emerged: the Nabataean and Jewish (square Hebrew) scripts.

The Nabataean script—the ancestor of Arabic writing—developed very cursive letter forms, and, therefore, the original Aramaic is not discernible in Arabic. However, the Jewish script, which is currently used by the Jews and is called (square) Hebrew, preserved most of the shapes of fourth-century B.C.E. Aramaic letters.

The original Hebrew script (Palaeo-Hebrew), which developed in Israel and Judah in the First Temple Period (950–586 B.C.E.), was increasingly neglected by the Jews. In the time of the Second Temple (515 B.C.E.–70 C.E.), both scripts—the original Hebrew and the Jewish (square Hebrew)—existed side by side. However, the use of the Palaeo-Hebrew was restricted mainly to coin legends and sacred texts, whereas the Jewish script eventually became the only script of the Jews. Only the Samaritans have continued to use the original Hebrew script into modern times.

The archaic Greek local scripts were used by mainland, island, and colonial Greeks as well as by peoples who did not speak Greek at all. These included, in Asia Minor, the Phrygians, Lydians, Lycians, and Carians; and, on the Italian peninsula, the Etruscans, Umbrians, Oscians, and Romans. When different peoples adopted the script, they accepted or rejected certain letters according to the requirements of their particular languages. Classical Greek, the local script of Ionia, which was universally accepted from the fourth century B.C.E. on, omitted three letters from the archaic Greek alphabet. The Latin (or Roman) alphabet adopted the archaic Greek local script that was used by the Etruscans, who had learned it in turn from the Chalcidian Greek colonies in Italy. First the Etruscans and then the Romans made various alterations in the alphabet to serve their own languages. After the Romans conquered Greece, and the Latin language began to borrow Greek words, more alterations were made, such as the addition of the letters *Y* and *Z*. In the MIDDLE AGES, in order to distinguish between consonantal and vowel signs, the letters *J*, *U*, and *W*—as variations of *I* and *V*—were added to the Latin alphabet of twenty-three letters. Thus, the Latin alphabet employed today for most European languages has twenty-six letters.

The other modern derivative of the Greek alphabet is the Cyrillic script. In the ninth century C.E., it is said, two Salonican Greek brothers, St. Cyril and St. Methodius, who journeyed to convert the Southern Slavs to Christianity, adapted the Greek alphabet for writing texts in the Old Slavonic language. Since the phonetic system of Slavonic languages was richer than that of Greek, new letters were invented. It is maintained that Cyril knew Hebrew and that he took two letters, *sade* (צ) and *shin* (שׁ), from the Hebrew alphabet and transformed them into three Slavonic letters for the sounds *ts* (Ц), *tsh* (Ч),

and *sh* (III). The Cyrillic script is used in the USSR, Bulgaria, and Yugoslavia.

See also AMERICAS, PRE-COLUMBIAN—WRITING SYSTEMS; CLAY TOKENS; INDUS SCRIPT; WRITING MATERIALS.

Bibliography. David Diringer, *The Alphabet: A Key to the History of Mankind*, 3d ed., New York and London, 1968; idem, *Writing*, New York and London, 1962; G. R. Driver, *Semitic Writing: From Pictograph to Alphabet*, 3d ed., New York and London, 1976; I. J. Gelb, *A Study of Writing*, rev. ed., Chicago, 1963; Lilian H. Jeffery, *The Local Scripts of Archaic Greece*, Oxford, 1961; P. Kyle McCarter, Jr., *The Antiquity of the Greek Alphabet and the Early Phoenician Scripts*, Missoula, Mont., 1975; Joseph Naveh, *Early History of the Alphabet: An Introduction to West Semitic Paleography*, Jerusalem and Leiden, 1982; idem, *Origins of the Alphabet*, London, 1975.

JOSEPH NAVEH

ALTERNATIVE MEDIA. See CITIZEN ACCESS; VIDEO.

AMERICAS, PRE-COLUMBIAN

This topic is discussed in two sections:

1. Communications
2. Writing Systems

1. COMMUNICATIONS

There is still considerable debate about the origins of the pre-Columbian cultures of the Americas. It is assumed that the original inhabitants of the New World migrated there from somewhere in the Old World, where they had evolved and had acquired sufficient cultural skills to enable them to survive in cold climates. No fossils of primitive humans or their apelike precursors or even any of the great apes have been discovered anywhere in the Americas.

Migration

MIGRATION in prehistoric times must be inferred by the distribution of Paleo-Indian artifacts and languages. From about 40,000 B.C.E. until quite recently an unknown number of groups entered the American continent from northeastern Asia, crossing the Bering Strait, which formed a land bridge several times during the maxima of glaciation and a chain of islands during interglacials. These groups are ancestral to the LANGUAGE groups of prehistoric America. They had already acquired a limited number of technical skills, especially those for big-game hunting, protection against cold (CLOTHING, housing), and traveling by water and on snow. Although undoubtedly of Asian origins, these groups cannot yet be

traced to their precise cultures of origin in Asia.

Historically documented migrations. Migrations of large groups over long distances occurred continuously, even after the continent had been completely occupied by humans by about 20,000 B.C.E. Many Indian tribes preserved memories of such migrations (Leni-Lenape in North America and Pipil groups in Central America). Pipil migrations (from 900 to 1300 C.E.) are among the best attested through many independent sources and linguistic studies. Similarly, Tupi migrations in the South American lowlands have been reconstructed by studying their myths and cultural as well as linguistic relations with other tribes.

Transatlantic migrations. Vikings from Greenland visited and settled the east coast of North America from 1000 to 1300, as attested by their oral traditions and excavations in Newfoundland (Anse aux Meadows). They had no lasting impact on Indian cultures. Other transatlantic contacts before Columbus have been proposed repeatedly (Egyptians, Phoenicians, Romans, Irish) but have never been proved by undisputable archaeological or documentary evidence.

Transpacific migrations. Contacts of fishermen from the Jomon culture in prehistoric Japan with Valdivia people in coastal Ecuador have been proposed for the introduction of ceramic technology in South America. However, these claims have been challenged for stratigraphic and chronological reasons. Belief systems, temple-pyramid ARCHITECTURE, the art of manuscript painting, and other cultural complexes of Classic Mesoamerica are said to have had their origins in India, China, Indonesia, or Cambodia and to have been transferred through transpacific shipwrecks and/or purposeful EXPLORATION. Formal and conceptual similarities and purported loan words in contact languages are put forward as arguments. This issue is not yet settled. It has also been proposed that contacts by boat between Andean civilizations (Inca) and eastern Polynesia (Easter Island) in both directions were responsible for shared useful plants (e.g., sweet potato, gourd, and cotton) and similarities in concepts of deities (tiger/jaguar complexes) and social structure on the basis of rather weak documentary hints and the well-known navigation skills of the Polynesians. Other migrations and/or sporadic contacts resulting in important communication have been proposed, such as Austronesian immigration via Antarctica and extraterrestrial astronauts leaving traces in Palenque, Nazca, and other sites. These claims are impossible to prove and in any case are unlikely.

Language

As with all human groups, spoken language was the prevalent means of communication among pre-

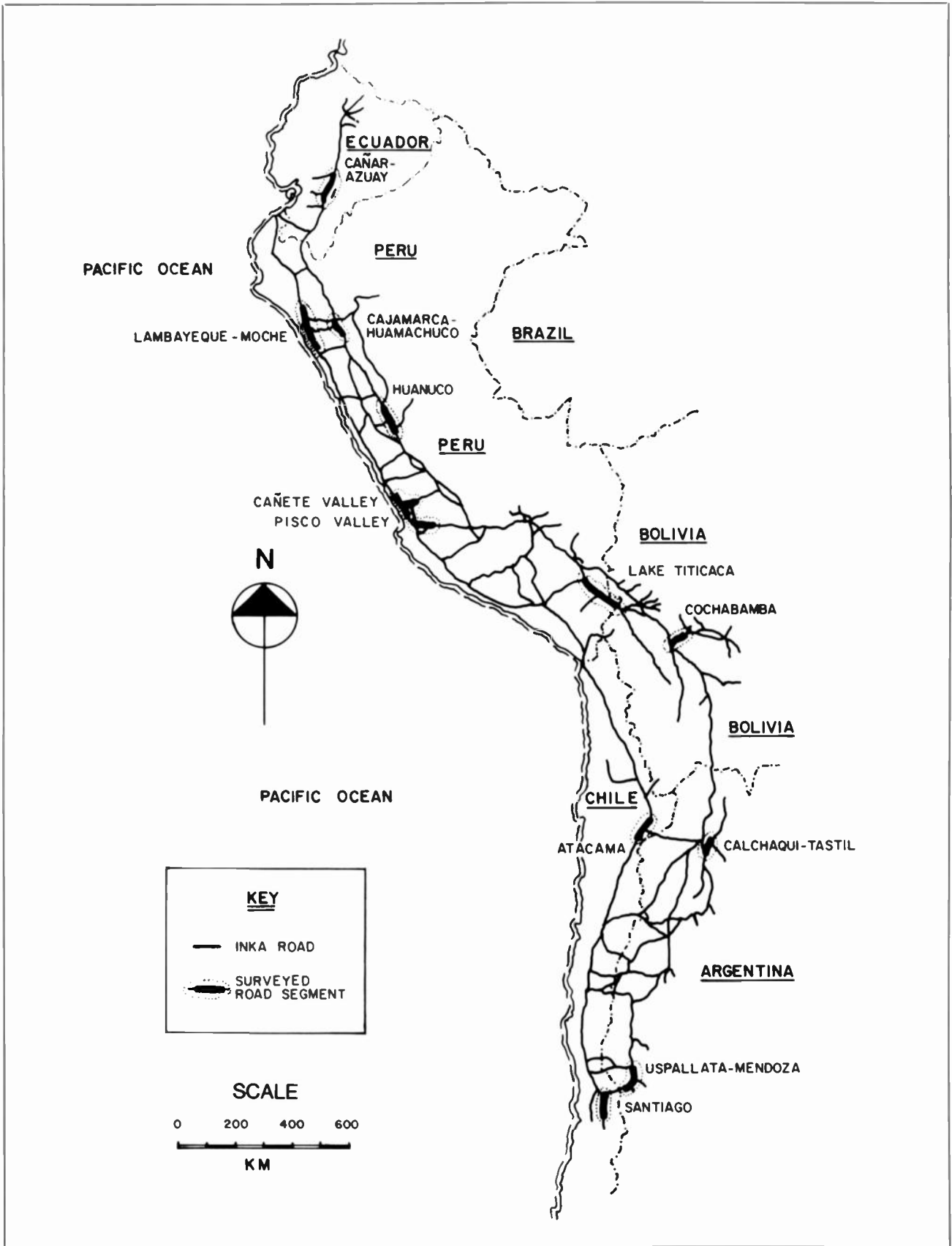


Figure 1. (*Americas, Pre-Columbian—Communications*) Surveyed segments of the Inca road system. From John Hyslop, *The Inka Road System*, Orlando, Fla.: Academic Press, 1984, p. 4.

Columbian people in the Americas. Approximately fifteen hundred distinct languages were spoken in aboriginal America. They are grouped into twenty genetic families (some of them more like residual categories than attested genetic classes) implying common ancestry. Some languages still remain unclassified.

History. Studies of the history of American Indian languages are revealing for the reconstruction of migrations (through glottochronology), contact with other languages (through loan-word studies), and political, economic, and social dominance (through cultural vocabulary studies). These kinds of analysis are fairly advanced for Mesoamerican and Uto-Aztecan languages. Archaeologically attested cultures can now be matched with languages. For example, the Olmec CULTURE is now associated with the Proto-Mixe-Zoque language, and this language has been found to be the mother language for basic cultural vocabulary in Mesoamerica. Proto-Mixe-Zoque *kakawa* means "cocoa" and is the source for Aztec *cacahuatl* and Maya *cacaw*. Interestingly enough, historical relations between North American and South American language families cannot as yet be firmly established.

Varieties. Some internal variations reflecting social structure as well as differential geographical contacts are well attested. Dialect fragmentation is much more pronounced in mountainous environments, such as the state of Oaxaca in Mexico and the Bolivian and Peruvian Montaña, than in settings easily traveled, such as the North American Arctic, Subarctic, and Plains, and the South American Patagonia. For several languages in the Caribbean, distinct forms of SPEECH exist for males and females. Differentiation according to social rank developed among some of the more populous and complex societies (Aztec), and these societies also show the beginnings of occupationally specialized vocabulary. On a more general level, specific forms of speaking (metaphorical speech, secret language) were confined to religious specialists (shamans, priests, day keepers) and to the political elite (Zuyua language of the Yucatec Maya).

Mazatec Indians of Mexico developed a whistle language, using the phonemic tonal pattern of spoken utterances and reproducing them through whistling. Whistle language can be used for communication across valley floors or canyons.

From Alaska to California and in the Columbia River drainage area the Chinook jargon was in use. In the southern Plains, Comanche developed into a trade language; along the coast of Louisiana and Florida, Mobilian (Chickasaw) was generally used. The Aztec in Mexico and the Inca in Peru imposed their languages onto regions that they dominated economically, politically, and militarily. For example, Quechua, the language spoken in the Cuzco

region of Peru, became a lingua franca for the Inca Empire as Inca armies extended their control over surrounding areas. It was taught to the newly conquered populations and was the medium of communication between them and the Inca rulers. In lowland South America migration was the prime factor in establishing Tupi-Guaraní as a generally accepted trade language.

Sizable portions of a population living in a linguistically segmented environment with strong social, commercial, or ceremonial intercourse can be expected to utilize two or more languages. This situation prevailed in parts of Mesoamerica, the Andes, and parts of Amazonia (Northwest and Xingu); yet the extent of pre-Columbian multilingualism is not known. *See also* LANGUAGE VARIETIES.

Oral literature. Formal speech used in specific social and RITUAL contexts was highly developed in many language groups in ancient America. Some examples are verbal dueling (Eskimo), individually owned ceremonial songs (Northwest Coast), historical narrations (Leni-Lenape), jokes (Shoshone), prayers and incantations (Aztec), lyrical songs and poems (Quechua), and colorful myths (Araucanian). The extent and process of dispersal of themes and forms of oral literature is not yet known. *See also* ETHNOPOETICS; FOLKLORE; ORAL CULTURE; ORAL POETRY; SPEAKING, ETHNOGRAPHY OF.

Writing

Systems of signs fixed (written) on a permanent medium to serve interpersonal and diachronic communication are classified here into two groups according to their ability to reproduce the spoken language. Systems that are capable of reproducing language completely are called full WRITING systems. Others that use signs not exclusively to represent sounds, that do not have signs for all sounds (or syllables, morphemes, etc.) of a specific language, and that do not render language completely or unequivocally are called partial writing systems. *See also* SIGN; SIGN SYSTEM.

Full writing systems. Full writing systems are second only to the spoken word in their ability to transmit messages, and they are more durable if written on an appropriate medium and stored. In pre-Columbian America only the Lowland Maya developed a full writing system (see section 2, below). It was used to convey data on dynastic history, calendrical and astronomical matters, and divination.

Partial writing systems. In the Americas partial writing systems are found exclusively in Mesoamerica. They emerged around 500 B.C.E. in Olmec culture of the Gulf Coast of Mexico and developed into two distinct branches: the Isthmian (Tres Zapotes, Izapa, Abaj Takalik, Kaminaljuyu) and the Oaxacan/



Figure 2. (*Americas, Pre-Columbian—Communications*) Mayan stela: Piedras Negras number 14. Mexico. The University Museum, Philadelphia. Neg. 23059.

Central Mexican (Zapotec, Xochicalco, Mixtec, Aztec). The Mesoamerican partial writing systems were used to convey data on dynastic history, territorial and political organization, economics (tribute specified with regard to merchandise, quantity, and provenience), ritual, and divination. Writing was done on stone monuments, in books of bark fiber or leather whose pages were connected like sections of a folding screen, on large cotton cloths (called *lienzo*), and on jewelry. Many such documents survived the general destruction by the Spaniards. *See also* WRITING MATERIALS.

Postcontact developments. Mesoamerican partial writing systems and the controversial Peruvian *tocapu* system survived in part until around 1600, when they were completely replaced by the Latin ALPHABET. In subsequent centuries and even before, many new systems (partial and full) emerged through stimulus DIFFUSION from European models. The more remarkable are Alaska-Neck, Cherokee-Sequoyah, Apache-Silas-John in North America; Cuna in Central America; and Aymara in South America. Others originate from direct invention and introduction by European missionaries. The best known of those is the Mesoamerican Testerman writing system, employed largely by missionaries in propagating the Christian faith. Study of postconquest inventions and developments is important for clarification of the process of invention, adaptation to specific languages, communicative purposes, and social acceptance or rejection.

Sign Systems

Gestures used in nonlinguistic communication and as an adjunct to speech in specific situations (e.g., greeting, trade) are important means of communication and hence ubiquitous. They are also highly individual with regard to tribe and social group. Gestures intended as a surrogate for linguistic communication were developed into sign systems for communication between partners, one of whom at least was deaf or mute (e.g., Tapiete of the South American Chaco). A wider use of such sign systems was made in North America (Plains) when persons speaking mutually unintelligible languages met. Signs are preponderantly of a representational nature. They are formed mostly with arms, hands, and fingers, less frequently with other body parts or extrasomatic objects. *See also* GESTURE; SIGN LANGUAGE.

Messages were sent on pieces of birchbark (*Betula papyrifera*) by Indians of the Great Lakes region. They were delivered by messengers or posted on trees along trails and water routes. Their content could be strictly personal (letters) or could contain information on hunting and potential danger. The sign system used consisted of self-explanatory pictures scratched into the bark. These birchbark messages

could be comprehended only by someone who had good background knowledge of the local conditions.

MUSICAL INSTRUMENTS, especially drums, flutes, and trumpets, were used by several Indian groups to transmit messages over considerable distances. In addition to general news transmittal (Plains) they were employed in warfare to coordinate movements of bodies of warriors (Aztec, Maya, Inca). For bridging even larger distances, smoke signals during the day and fires at night were used, especially on the plains, on seacoasts, and in mountainous areas where visual contact could be established over long distances. In addition, maps drawn in the sand are reported from many North American Indian tribes.

In what is now the eastern United States, wampum belts, formed of strings of shell disks (later glass pearls), might have been exchanged ceremonially as tokens of important (political) agreements. The design would allude to the event commemorated but would be intelligible only to the parties involved. The Navajo Indians of the North American Southwest fashioned intricate geometrical and pictorial designs of highly symbolic content during shamanic healing ceremonies. A much more ambitious ritualistic sign system possibly underlies the designs found in the Pampa de Nazca in southern Peru. Some investigators have interpreted them as mythological and/or astronomical designs.

Especially in Mesoamerica, where a dense population and intensive agriculture made arable land a valuable and scarce resource, territorial boundaries were often marked off. Stone walls, cactus hedges, heaps of stones, and preexisting trees served this purpose.

For counting days or quantities of goods, carved or painted sticks and boards were in general use (e.g., Iroquois, Plains Indians, Chamulas). A special and more elaborate means of numerical notation was developed by ancient Andean cultures (pre-Inca and Inca) in the form of the quipu. To a main cord smaller single cords were attached, which represented quantities in a decimal system of counting. Quipus were used by merchants and stewards (*quipucamayoc*) in charge of state storehouses. Similar but much more simple quipus are still used today by herdsmen in the Andes to keep track of their flocks.

Routes of Communication

The most elaborate and sophisticated route systems in pre-Columbian America were the Inca highways, built to a great extent on smaller, pre-Inca roads. They extended in two main highways (mountain and coastal) from northern Ecuador to central Chile and northern Argentina. The two main highways were connected by transverse roads. Retaining walls, bridges (stone, wooden, and suspension bridges), and stairways cut into hills and slopes were the major con-

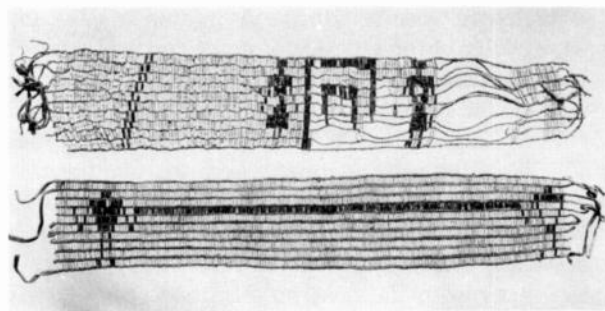


Figure 3. (*Americas, Pre-Columbian—Communications*) Wampum belt: First Penn Treaty Belt. The University Museum, Philadelphia. Neg. 12964.

struction features of these highways. Rest houses served the organized traffic of goods, messages, and military movements. The roads could also be used by private travelers.

Similar systems of lesser extent and sophistication existed in the northern Maya Lowlands and in the Aztec state, centering in the island capital Tenochtitlán (now Mexico City). Where population was less dense and where there was no territorial political structure and little traffic in goods, Indian trails and buffalo trails (North America) served the limited needs. These trails were often quite extensive.

Cleared plazas in the village centers that connected paths between houses and walkways from the village to, for example, water sources were standard forms of local roads. Remarkable exceptions were the paved roads and huge plazas with stairways connecting them at different levels, found in Maya, Aztec, Zapotec, and Inca cities, as well as the walled roads in pre-Inca cities of the Peruvian north coast (Chan-Chan).

The American continents have vast systems of navigable streams and lakes, such as the Columbia, Yukon-Mackenzie, Great Lakes-St. Lawrence, Mississippi-Missouri, Cauca-Magdalena, Orinoco-Amazon, and Paraguay-Paraná. These were used extensively for transportation by boat, such as birch-bark and buffalo-hide boats in North America, dug-out canoes in most other regions, and, more rarely, bark canoes and rafts. Some river systems pass so close to each other that portages were installed, and virtually all of North and South America, excluding the western cordilleras, could be traveled by boat.

Sea traffic along the coasts was especially important in the Arctic for hunting sea mammals, and the boats used for such hunting were kayaks and umiaks. On the Atlantic coast of Middle America, centering on the Yucatán peninsula, among the Caribbean islands, and off the Pacific coast of South America sea traffic served trade purposes. Apart from dugout canoes and balsawood rafts, big rafts were used for transporting merchandise.

Merchants were not the only people to play important roles in the transfer of news and information over great distances. Another special group were the *chasquis*, the messengers of the Inca state, who were stationed in pairs several miles apart along the main roads. As a messenger approached, the waiting runner began to run alongside him and to listen to the message to be memorized and passed on and/or to receive any written material to carry, after which he began his run to the next relay station. This system was incredibly speedy, given the good road system with rest houses. In addition to memorized messages, quipus could be used to fix and deliver the messages.

Ad hoc messengers were also employed by other groups as the need arose, and they also occasionally carried written messages (Aztecs with picture writing, Algonkians with wampum or birchbark messages). Among the communication specialists were spies known to have been employed by Plains Indians and Aztecs on a rather regular scale in preparation for war. Pathfinders for hunting were used by groups making their living from big game, such as the Aleut, Eskimo, Arctic Indians, and Plains Indians.

Arts

ART communicates indirectly, emotionally, and therefore often unconsciously. Its general scope and its aesthetic appeal make it a powerful means of communication. Highly complex and stratified societies have a tendency to control or to co-opt the visual arts and to use them to propagate state RELIGION (Chavín), prestige, and legitimacy of rulership (Classic Maya) and to create tribal or state identities (Aztec).

Visual arts. Visual arts closely associated with the human body were often part of a symbolic system communicating role, social status, and religious be-



Figure 4. (*Americas, Pre-Columbian—Communications*) Quipu from Peru. The University Museum, Philadelphia. Neg. 134153.

lief. The most direct form—scarification and body painting—prevailed in the tropics and subtropics (*see* BODY DECORATION). Age and kinship groups were thus indicated but never rank. Clothing and adornment were extremely sophisticated among the Northwest Coast Indians and the Aztec, Maya, Muisca, and Andean high civilizations. Here rank (general and military), occupational specialization, and tribal group were often represented. Especially impressive is the Indian tradition of masks (*see* MASK) worn during winter ceremonies (Northwest Coast), rituals of secret societies (Iroquois), and DANCE dramas (Mesoamerica). However, European influence on the use of masks in dance dramas is difficult to measure. *See also* ARTIFACT; VISUAL IMAGE.

Decoration of buildings (Northwest Coast facade painting, Plains Indians winter counts painted on tipis, temple decoration and MURAL painting of Mesoamerican and Andean civilizations) and associated monuments (Northwest Coast totem poles, stelae and altars of Classic Maya culture) often inform us directly about the social group, kinship organization, individual deeds, and occupations of the person or group using the building. Grave monuments (San Agustín) and grave furniture (Maya, Peruvian Coast) provide visible evidence of such things as social rank. They have helped modern archaeologists to distinguish stratified from egalitarian societies and to trace intragroup ranking and development. *See also* ART, FUNERARY.

Dance and music. Dance was often incorporated into rituals and combined with speech, chants, and instrumental music. Elaborate dances, often of an imitating nature, are known from the Pueblo and Plains Indians (animal imitations) as well as the Aztec (imitation of idiosyncrasies of foreign people). Full-fledged Indian dance dramas are reported from Mesoamerica (Aztec, Quiche “Rabinal-Achi”) and from the Inca, although for the Inca no undisputedly pre-European DRAMA is preserved with good description or reliable text.

Belief and Religious Systems

In the absence of rational scientific thought, belief systems and religion are the main vehicles to process knowledge and to stabilize or revolutionize human attitudes. Religion and beliefs are communicated mainly through language (myth, prayer, etc.) but also to some extent through emotional outbursts (trance, ecstasies), dramatic performance (gesture, dancing, self-mutilation), ritual, and art and its associated SYMBOLISM.

Sacred places, which were often respected by otherwise hostile groups and were therefore ideal meeting and trading places as well as places of pilgrimage, played a major role in general communication among



Figure 5. (*Americas, Pre-Columbian—Communications*) Chippewa wooden feather box with a pictographic song record of the *Midéwiwin* ceremonies on the cover. Courtesy Museum of the American Indian, Heye Foundation, New York. Photograph by Carmelo Guadagno.

Indians. The most important and long-lasting were Pipestone Quarries in southwestern Minnesota, Teotihuacán and Cholula in central Mexico, Chichén Itzá and Cozumel in Yucatán, and Pachacamac on the Peruvian coast.

Social Networks

Among sedentary groups the extended family, including lineal and collateral kin beyond the nuclear family, was the basic sphere of interaction. Further extensions based on lineage (Iroquois) or moieties (Bororo) were common.

Education. The EDUCATION of CHILDREN is the most important means of intergenerational transfer of knowledge and values. In pre-Columbian America it was mostly the responsibility of the parents. Mothers exclusively cared for babies, but as children grew older education became the responsibility of both parents or close relatives (e.g., matrilineal uncles) according to GENDER. Playmates often played an important role within the same family or residential unit. Learning was partly through imitation, backed by practical instruction. Thus specialized crafts were taught in the familiar social settings, especially by the parents (California basketry, Aztec metalworking). Instruction could be individual and even abstract, as with the Eskimo, who devised practical problems (canoeing, hunting) for children to solve and resorted even to the discussion of hypothetical problems. A common educational task was the replication of adult instruments (weapons for hunting, ritual puppets) to be used by children to reenact rituals (Pueblo) or everyday life (Karaja). Clay figu-

rines, especially abundant in formative Mesoamerica, may have served similar ritual, educational, or even recreational purposes.

Corporate education, supposing that children were educated in nonfamiliar contexts, was also known. It was highly formalized with the Aztecs, who offered two different careers: the priesthood, by way of the temple or monastery SCHOOL (*calmecac*), and the military, by way of the military school (*telpochcalli*). Formal education is well expressed in educational speeches of the Aztec called *huehuetlatolli* (precepts of the elders).

At certain ages children were introduced collectively or individually into new roles through rites of passage (spirit seeking in North America), often accompanied or followed by formal introduction into secret societies (Plains), medical societies (*Midéwiwin* of the Woodlands), and religious societies (kachina of the North American Southwest). Sometimes separate places or buildings (kiva) existed for the introductory ceremonies.

Social cooperation. Most economic activities made use of some social interaction. Among Amazonian hunters and gatherers small groups of males hunted jointly, forming a cooperating and closely knit group, and women also worked together collecting seeds and plants. Where agriculture played a primary role, harvest time was an opportunity to cooperate. In addition military organizations were counted among the more important coercive and communicative units in many Indian societies.

Feasts were opportunities for personal contact, exchange of news, and economic transfer. Their main purpose, of course, was the demonstration of social

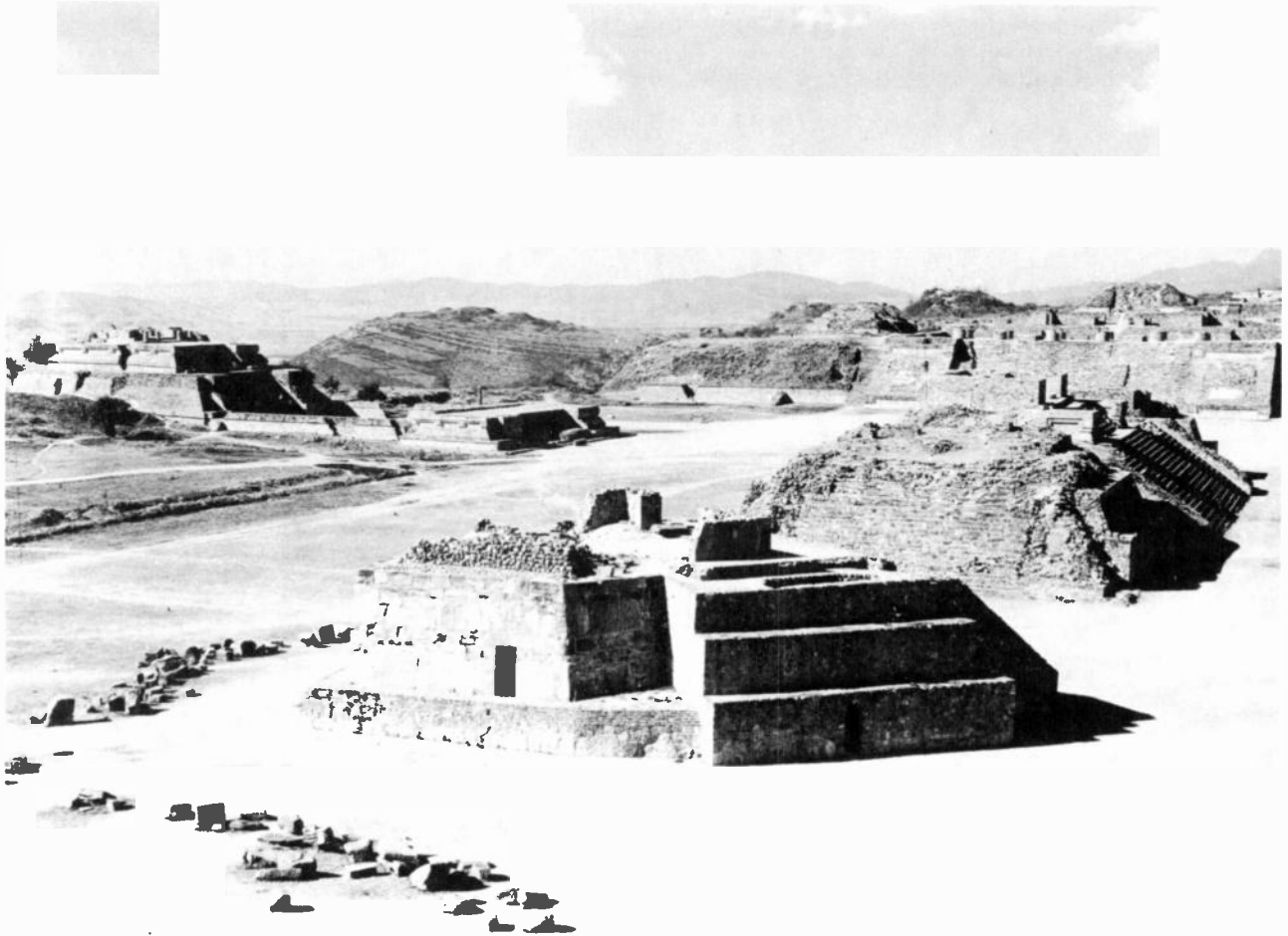


Figure 6. (*Americas, Pre-Columbian—Communications*) Ruins of the ancient Zapotec city of Monte Albán, Mexico. Giraudon/Art Resource, New York.

solidarity, transcending class and rank (as in the potlatches of the Northwest Coast). They also could serve as indoctrination and training opportunities for state IDEOLOGY and religion (Aztec feast cycles) and to give frame to communal labors (Inca seasonal feasts), especially those connected with agriculture (harvest festivals).

In some regions formal declarations of war were symbolized by special markings at the border of the territories of the warring parties (painted arrows). Warfare itself could be formalized (Plains Indians coup), as could treatment of prisoners of war, even if they were destined to lose their lives as sacrificial victims (Aztec). Ambassadors and special emissaries were also involved in matters of foreign politics, at least in states and chiefdoms with political institutions.

Forced resettlement. Resettlement of whole populations was undertaken by the Inca as a means to control conquered people. Potentially hostile groups

were transferred by their Inca conquerors to other locations, where they would be easier to control, and their lands were occupied by people whose loyalty was more certain. This probably was a major factor contributing to the spread of the Quechua language and the Inca way of life, as well as to the rapid disappearance of pre-Inca cultural traditions of the Central Andes.

Commerce

Commerce as communication is highlighted by three different processes: (1) Direct contact between peoples leads to exchanges of information; (2) Agreement on values and exchange items tends to standardize economic activities; and (3) Commodities exchanged are by themselves channels of technical, artistic, and natural resource information.

Forms of local trade. Direct individual exchange was the prevalent form of local trade during pre-

Columbian times. Sometimes silent barter was used, especially among hostile groups in South America (e.g., between the Guaitaca and Tupinamba Indians). Market trade was generally important among advanced tribes, chiefdoms, and states. Local markets were well developed almost everywhere in agricultural regions. Especially active ones have been reported for the contact period in Nicaragua. Markets were often situated at religious shrines, near navigable water courses (Cauca Valley), and intermediary between different sources of important raw materials (e.g., Tikal). International or state-controlled markets are reported for the Aztec, Mixtec, Uraba, Inca, and the Cauca Valley.

Redistribution. Besides market exchange, redistribution of collected taxes was an important form of commercial exchange in the Inca and Aztec states. This system was probably responsible for the rapid standardization of cultures and societies in the central Andes under Inca rule.

Long-distance trade. Long-distance trade had developed everywhere on the American continents, stimulated by unavailable local resources, such as metals (copper), useful and precious minerals (soapstone, volcanic tuff and basalt, obsidian, turquoise, jadeite, rock crystal), seashells, salt, and feathers (parrot, quetzal). The linking of state politics with trade in Aztec society is noteworthy. Traders were

often military spies, and trade relations prepared the terrain for later military conquest and full economic exploitation through the exaction of tribute. So-called ports of trade were an important feature of long-distance trade, serving as safe places for traders from different countries. These were especially important in Mesoamerica (Cimatan, Xicalango, Xoconochco, Naco) but might have existed elsewhere as well, for example, in ritually and religiously important places like the soapstone quarries in North America.

Currency. Standardized and widely accepted values were not highly developed in aboriginal America. In North America different kinds of shell money, sometimes called wampum, were in use on the Pacific and Atlantic coasts. Copper was the raw material for other forms of currency—copper plates in the Northwest Coast, copper bells and axes in Mesoamerica and the central Andes. In Mesoamerica other currencies were cocoa beans, woven cotton blankets, and gold dust. Slaves had standardized values in some parts of South America.

Transportation. The American Indian is remarkable for never having developed mechanical transportation machinery, such as wheeled carts. The Indians' bodies were the ubiquitous means of transportation. Tumplines (Mesoamerica), in addition to small carriers like bags (Mataco) and baskets (North American Southwest, California, and Gran Chaco),

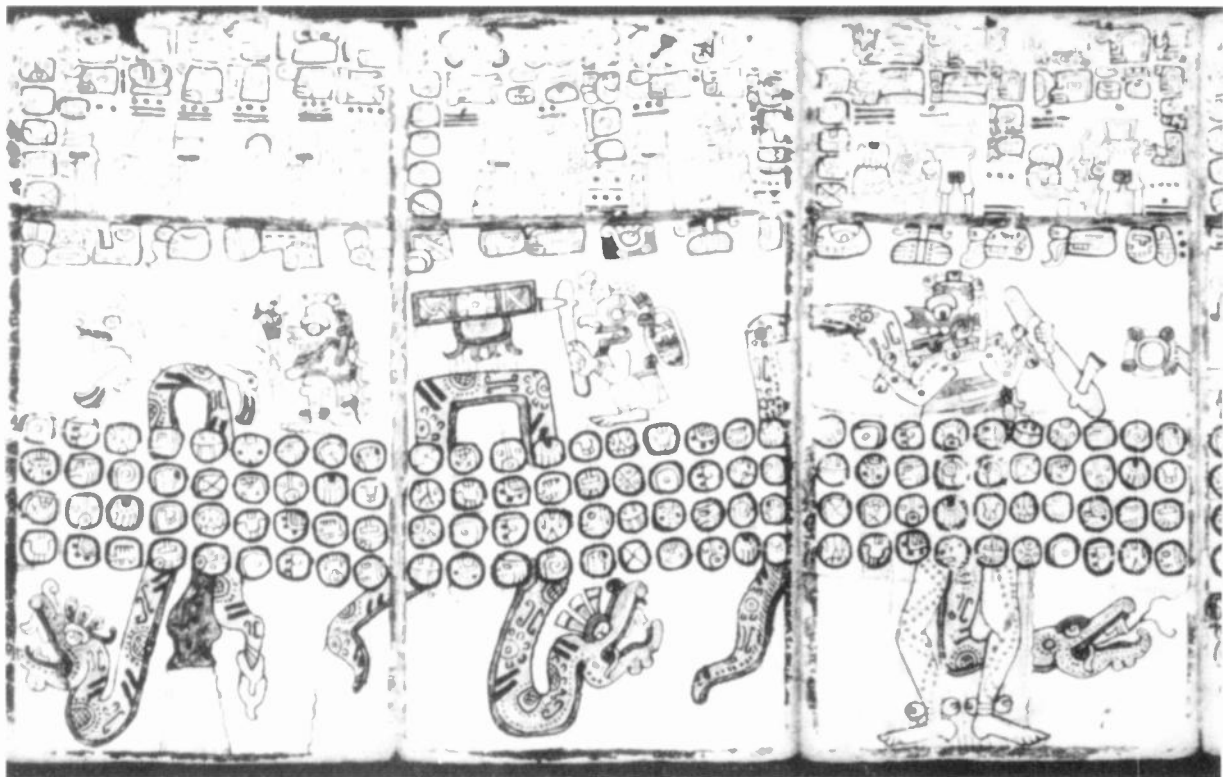


Figure 7. (*Americas, Pre-Columbian—Communications*) Detail from the Madrid Codex. Mayan. Scala/Art Resource, New York.



were used to ease the burden of carrying. Boats were important on rivers and in coastal waters, but, again, they were technically undeveloped, as exemplified by the almost complete lack of large plank boats and sailing techniques. The only animals employed in transportation were dogs, pulling sledges in Arctic North America above 40 degrees northern latitude and pulling racks (travois) on the Plains. In the Andes llamas were used for back loads.

Pre-Columbian communication routes were essential in the rapid expansion and conquest of America by Europeans. When the Europeans arrived with their wheeled vehicles and their horses, the elaborate system of roads and trails that already existed saved them time and backbreaking labor and allowed them to find and conquer the Indian civilizations more quickly. Many of these roads traveled first by the pre-Columbian Indians and then by the Europeans are still in use today.

Bibliography. Lyle R. Campbell and M. Mithun, eds., *The Languages of Native America: Historical and Comparative Assessment*. Austin, Tex., and London, 1979; W. P. Clarke, *The Indian Sign Language*, Philadelphia, 1885; Gordon F. Ekholm, *A Possible Focus of Asiatic Influence in the Late Classic Cultures of Mesoamerica* (Memoirs of the Society for American Archaeology, Vol. 9), Washington, D.C., 1953; Georg Friederici, *Die Schiffahrt der Indianer*. Stuttgart, 1907; John B. Glass, "A Survey and Census of Native American Pictorial Manuscripts," *Handbook of Middle American Indians*, Vol. 14, ed. by Howard F. Cline, Robert Wauchope, gen. ed., Austin, Tex., 1975; Thor Heyerdahl, *American Indians in the Pacific*, London, 1952; John Hyslop, *The Inka Road System*, Orlando, Fla., 1984; Helge M. Ingstad, *Die erste Entdeckung Amerikas*, Berlin, 1966; Garrick Mallery, "Picture Writing of the American Indians," in *10th Annual Report of the [U.S.] Bureau of American Ethnology, 1888-1889*, Washington, D.C., 1893; Wolfgang Marschall, *Transpazifische Kulturbeziehungen*, Munich, 1972; Erland Nordenskjöld, *Calculations with Years and Months in the Peruvian Quipus* (Comparative Ethnographical Studies, Vol. 6, pt. 2), Göteborg, 1925; Timothy Smith, "Wampum as Primitive Valuables," *Research in Economic Anthropology* 5 (1983): 225-246; Gordon Randolph Willy, *An Introduction to American Archaeology*, 2 vols., Englewood Cliffs, N.J., 1966.

BERTHOLD RIESE

2. WRITING SYSTEMS

Mesoamerica is the only New World CULTURE area in which WRITING originated independently rather than through contact with literate cultures. Thus the

◁ Figure 8. (Americas, Pre-Columbian—Communications) Haida totem pole. Northwest coast of North America. The University Museum, Philadelphia. Neg. 101708.

history of Mesoamerican hieroglyphic systems is important for theories concerning the evolution of writing generally. There are two main traditions. The western, Oaxacan branch “devolved” from a fully textual script to a nontextual system of iconographic captions for the accompanying scenes; it never developed more than rudimentary phonetic principles or grammatical representation. The eastern, Mayan branch, exhibiting the more typical pattern of expanding phonetic and grammatical representation in a textual tradition, provides evidence of the processes causing and the contexts promoting these developments.

Origins

Mesoamerican writing emerged sometime between 1100 and 600 B.C.E. as the confluence of two originally separate notational systems: numeral tallies and Olmec-style representational ART (Figure 1). Comprising probably the first state society in Mesoamerica, the Olmec were then its most powerful and prestigious group. Outside the Olmec heartland the objects bearing the precursors of writing were evidently used in public rituals, with RITUAL paraphernalia bearing Olmec ICONOGRAPHY manifesting an Olmec alliance. Linguistic coding may have been introduced into graphic communication through the juxtaposition of numeral tallies (see below) with depictions of animals and plants for which the days of the 260-day ritual CALENDAR (the *tzolkin* or *tonalamatl*) were named. See also CLAY TOKENS; EGYPTIAN HIEROGLYPHS.

Archaic Mesoamerican writing parallels other early scripts in its columnar (rather than row) format, left-to-right and top-to-bottom reading order, depictive signs, and in facing its signs against the order of reading. The meanings of signs shared among early Mesoamerican scripts (Figure 2), plus other shared content among them, suggest that the ancestral script included numerals from 1 to 19 or 20, day names, and personal and place names (often as captions in scenes), with emphasis on sacrificial rites, accession, and ritual prerogatives of rulership.

Two descendant script traditions flanked the Olmec heartland by around 600 to 400 B.C.E. Earliest documentation is fuller in the Oaxacan branch, originating with the Zapotec; the Southeastern branch, descended from Olmec, yields fewer but generally lengthier texts dating mostly from around 300 B.C.E. to 250 C.E. (see Figures 3 and 4). In both branches early written forms are found on monuments and portable art that served to legitimize and/or glorify secular rulers, perpetuating the functional and social context of the inchoate script that had developed from Olmec-style art.

The earliest Oaxacan and Southeastern scripts were adopted fairly faithfully by neighbors and spread quickly throughout Mesoamerica. Descendants of ancestral Zapotec writing, such as Mixtec and Zapotec, eventually stopped representing words in a textual format, passing this reduced script on to the Aztec. Both the Isthmian and Izapan subgroups of the Southeastern branch maintained the textual tradition. Mayan writing was a form or offshoot of Izapan. The first Maya using it were probably Cholan

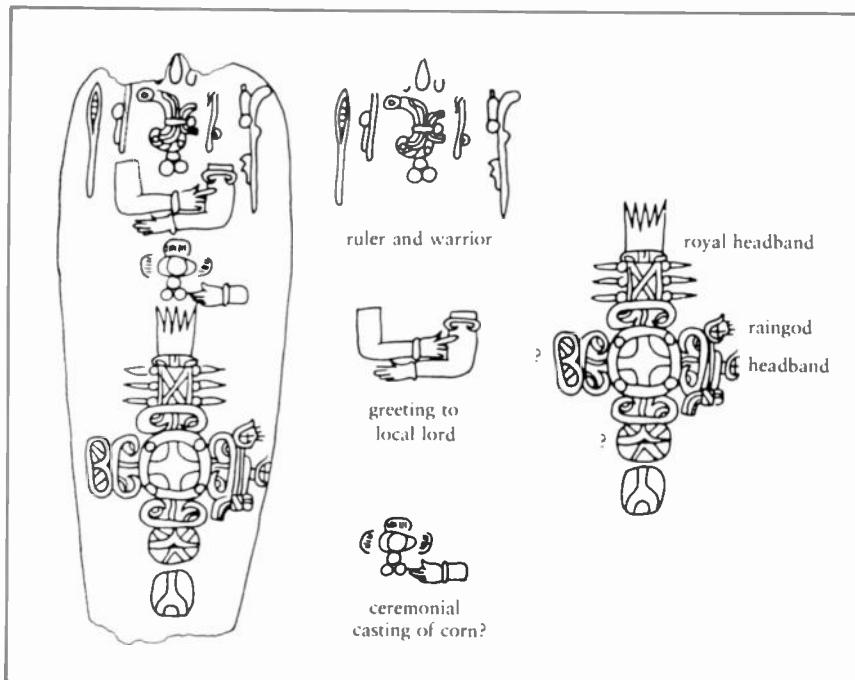


Figure 1. (*Americas, Pre-Columbian—Writing Systems*) Iconographic precursors of writing often used iconographic elements outside the pictorial context in which they normally derived their meanings. The Humboldt Celt (ca. 1100–900 B.C.E.) depicts several elements from a traditional representation of an Olmec dignitary but eliminates depiction of his body: his symbols of power and office, normally worn on or held alongside the head; a gesture of greeting to a lord whom he is visiting; and a casting ritual that was the prerogative of rulers, usually involving corn or incense. The less depictive elements composing the lower register are also found in normal iconographic context; their function here is obscure.

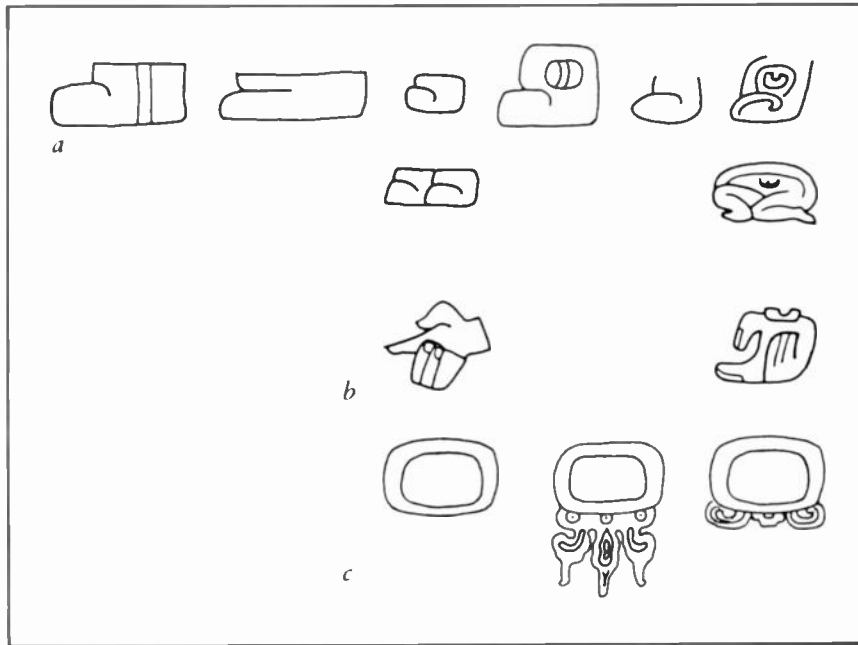


Figure 2. (*Americas, Pre-Columbian—Writing Systems*) Signs shared among early Mesoamerican scripts: (a) signs for seating in office; (b) signs for the casting ritual; and (c) a cartouche sign surrounding the day names (and marking them as such).

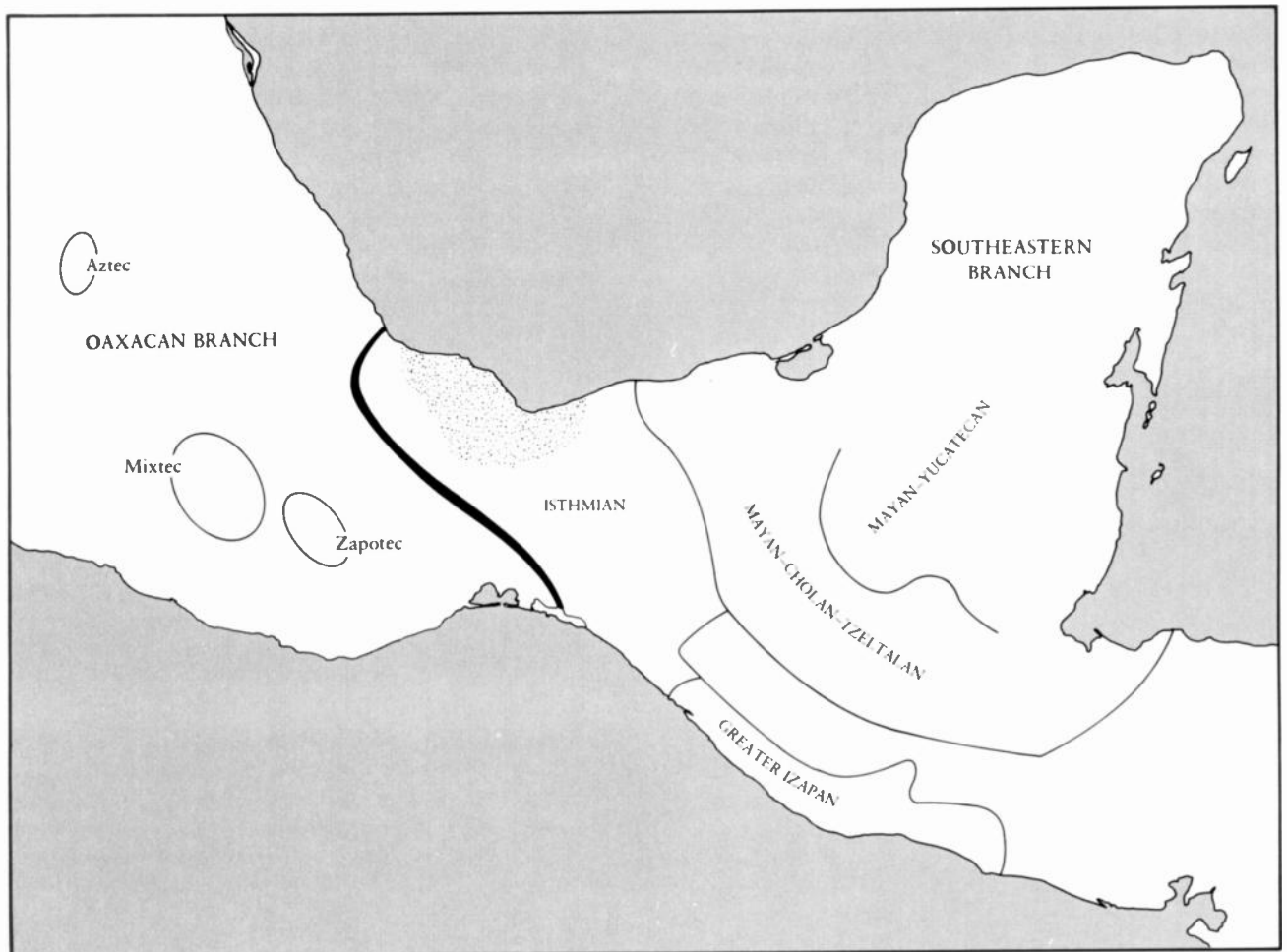


Figure 3. (*Americas, Pre-Columbian—Writing Systems*) Major Mesoamerican script groups. The heavy line separates the Oaxacan from the Southeastern branch. Boundaries are imprecise and are based in part on noncontemporaneous data. Some would put the boundary within Mayan farther north.

speakers, perhaps coparticipants with Mixe-Zoque people in Izapan civilization. They passed it to Yucatecan speakers in the Maya Lowlands.

Numeration and the Calendar

Calendrical recording and historical NARRATIVE are mutually reinforcing forms of graphic communication. Calendric records thus remained the basic framework of most Mesoamerican texts and affected the subsequent development of writing in all areas. Because of the high level of interregional integration and communication in Mesoamerica, structurally similar calendar systems combining 260-day and 365-day cycles were used throughout the area, and for a similar range of functions.

Numeral systems. All Mesoamerican languages express numerals in a vigesimal (base 20) system, structurally similar to decimal except that units were expressed as a sum of multiples of powers of 20 (Figure 5a). The quinary-vigesimal structure of numerals in Mesoamerican languages was reflected in written numerals. All areas used the tallylike bar-and-dot system (Figure 5b) to represent these digits. Bars represented 5, dots represented 1, and a given numeral represented the sum of the referents of its parts; for example, two bars and three dots represented 13. Higher numerals were expressed in pictographic systems by repeating each sign for 20^n the appropriate number of times. The Preclassic South-eastern scripts represented numerals by a positional or place-value notation (Figure 6a, b); place values were ordered from the highest to the lowest power of 20. Probably no sign for zero was present in the original place-value system (nor is such a word found in Mesoamerican languages); rather, the zero was a late development fostered by the system.

Calendrical systems and historical records. The most basic calendar in Mesoamerica was the tzolkin, a ritual calendar of 260 days. It was used in all cultures for divination concerning the scheduling of important events. It consisted of two separate cycles: one (the *trecena*) of consecutive numbers 1 through 13, the other (the *veintena*) of 20 consecutive named days. Recording a tzolkin date "13 Snake" (not equivalent to "13 snakes") therefore required a record of the numeral 13 and of the veintena name Snake. Veintena names were all plants, animals, and natural forces, which could be depicted in representational art.

The calendar priests in charge of ritual were also the scribes responsible for the development of this recording system. They faced a problem in presenting historical narrative. Almost all calendars in Mesoamerica were cyclical. Although the 260-day and 365-day calendars were useful for the short spans involved in scheduling imminent events, reference to dates within a ruler's life or reign required a means

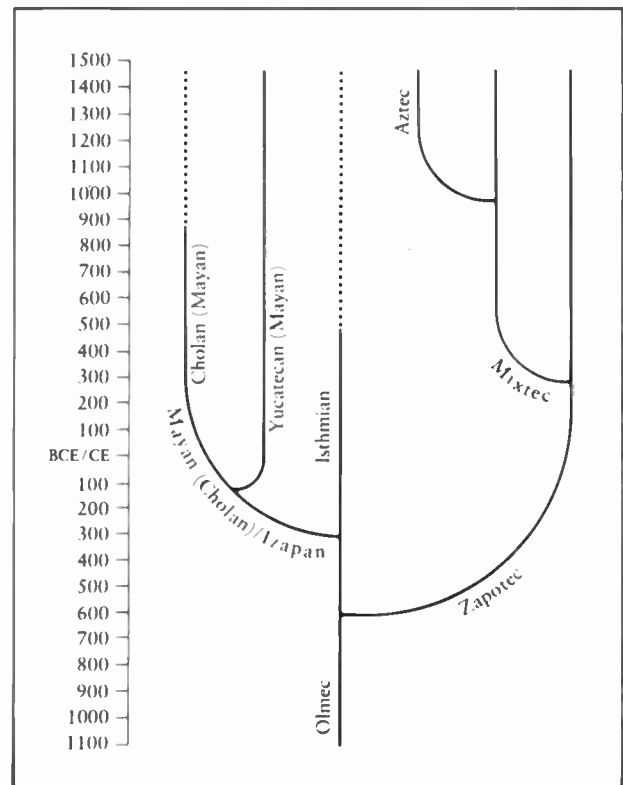


Figure 4. (Americas, Pre-Columbian—Writing Systems) Phylogenetic chart of script traditions.

of fixing dates in a longer historical span. Two types of solution were adopted in both the Oaxacan and the Southeastern traditions.

One solution was suggested by the pairing of two cycles in the tzolkin, a combination of two cycles producing a much longer one. The trecena position repeats every 13 days, the veintena position every 20 days; their combined positions repeat together only after 260 days, because 260 is the least common multiple of 13 and 20. All of Mesoamerica used a civil calendar or vague year of 365 days. The combination of the civil and ritual calendars produces a longer historical cycle; because $260 = 5 \cdot 52$, but $365 = 5 \cdot 73$, a position in the vague year is paired again with the same position in the ritual calendar only after $5 \cdot 52 \cdot 73$ days, or 52 civil years. Therefore, recorded dates could be referred to a 52-year cycle, rather than one of only 260 days, by recording the day in the tzolkin along with either (1) its position in the vague year (e.g., 2 Flower 18 Hawk) or (2) the name of the year bearer (e.g., 1 Flower, year 6 Earthquake).

The other method of fixing dates was to specify the number of days between two successive dates. In Oaxaca this was done using a count of units whose length is controversial, probably 20 or 13 days long.

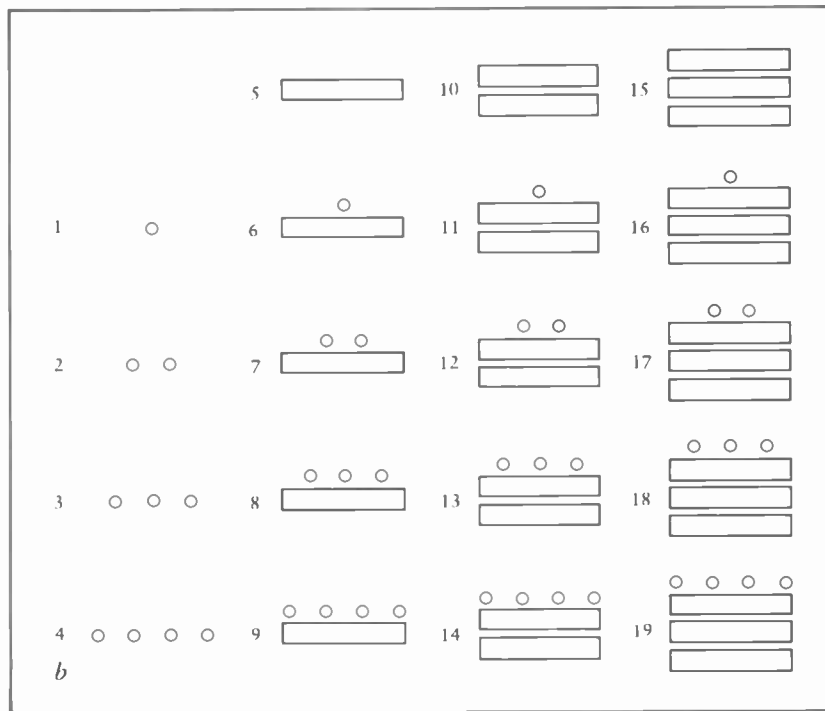
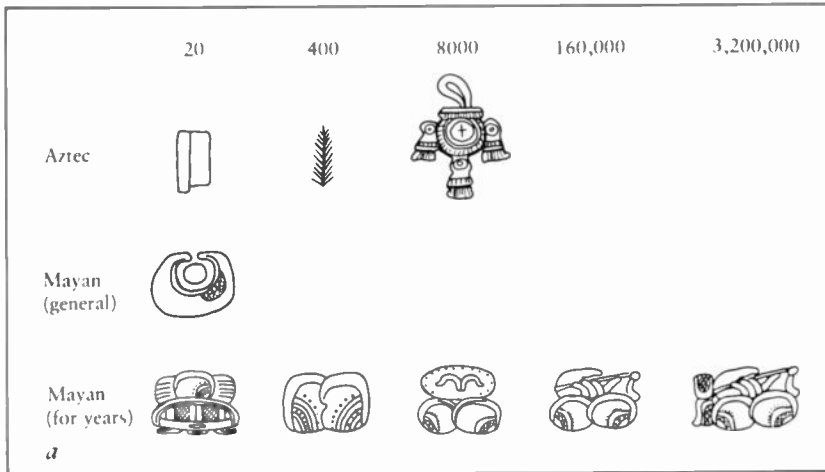


Figure 5. (*Americas, Pre-Columbian—Writing Systems*) Numerical signs. (a) Signs for powers of 20. The Aztec numeral signs are by rebus for number words or concepts; for example, *pan-* is the root for “400” and “hair, feather barbs,” and *šikil-* is the root for “bag” and “8,000.” The Maya sign for the word *k'al* (“20”) could be used in enumerations of various items, such as the bar-and-dot numerals; otherwise signs for powers of 20 are known only for days and years, shown here in early forms. Among the latter, the compound for 20 years is numerical (the upper element represents the word *may* for “20 [of years]”); it is not clear whether the other compounds contain numerical significance or are simply names for time spans; none is securely read, and all are formed by placing modifying logograms before the compound for the 400-year period. (b) Bar-and-dot numerals 1–19.

In the Maya area arbitrarily long spans were indicated in (quasi-) positional notation.

History of Mesoamerican Writing Systems

Ancestral Mesoamerican scripts were almost purely logographic (each sign representing a word or root). Grammatical variations were not indicated; thus “He was seated” was written simply as “Sit.” This did not permit complex relational information to be given, and it can be difficult to recognize how to separate distinct statements in a lengthy sign sequence. Perhaps because the tradition of writing evolved out of calendrical recording of events, longer texts emerged by giving a *series* of dates, each followed by a record

of one or more events occurring on that date. Fairly long narratives could therefore be developed through short text segments, the beginning and end of each recognized by the occurrence of a tzolkin date. Relational information was recoverable to the extent that it was associated with sequence information or was reflected in an accompanying scene.

Most early nonnumerical signs were depictive. Phonetic spelling occurred initially only by rebus (the use of one sign for different words having the same pronunciation); hence MEANING was represented along with SOUND. It was by rebus that grammatical words and affixes added to words came to be represented in the Southeastern scripts and in Aztec writing. Because meanings of grammatical elements are no-

toriously difficult to pin down, these were the first signs extended in Mayan writing to phonetic use without conveying meaning—to be purely phonetic signs.

Some grammatical elements could not be spelled by rebus; they were not pronounced like separate roots or words preceding the actual root but were mutations in the pronunciation of the root itself through a change in a consonant or vowel already present (e.g., *breath/breathe*; *life/live-s*, *life/live*; *run/ran*; *mouse/mice*; *old, eld-er*) or through the insertion of a consonant or vowel infix within the root. Because many such elements affected most nouns and verbs in the original languages of the Oaxacan branch (Zapotec and Mixtec), grammatical representation was at best quite limited, and purely phonetic sign use was nonexistent. Text segments were necessarily simple in structure and content, and relational information was conveyed by iconographic associations. Much less affected by grammatical mutation or infixing, the languages of the Southeastern scripts (Mayan and Mixe-Zoque) and of the Aztec were more susceptible to grammatical representation. Aztec scribes expanded the Oaxacan script they had adopted, representing some grammatical affixes and perhaps just beginning to extend them to purely phonetic usage. All Southeastern scripts represented grammatical suffixes and produced lengthy text segments, and at least the Mayan developed simple phonetic spelling.

In each script rebus phonetic spelling was first used for forms that were difficult to indicate depictively (Figure 7*a, b*). The grammatical particles and affixes represented by rebus were seemingly those that helped to differentiate meanings (Figure 7*c, d*). Extended in Mayan to purely phonetic use, once-grammatical signs served the same purpose as phonetic complements (phonetic signs added to logograms). For example (Figure 7*e*), *tu·n* (“a [specific] year”) and *ha?b'* (“a year [interval]”) were both represented by the same sign, YEAR; a following phonetic sign *ni* showed that YEAR was for the word *tu·n*, ending in *n*, and a preceding sign, possibly for *b*, showed that it was for *ha?b'*. As grammatical extensions, signs for suffixes appeared mainly after the logogram and represented the final parts of words; signs for prefixes preceded the logogram and represented the initial parts of words.

Subsequent Mayan spelling conventions developed, like phonetic complements, by analogical extension, through interaction between existing spelling conventions and word structure or grammatical rules in Lowland Mayan languages. For example, two-syllable roots were treated as if they were a one-syllable root plus a suffix, the latter spelled as usual (Figure 7*f*); thus signs for grammatical suffixes began to indicate the closing parts of words that were not

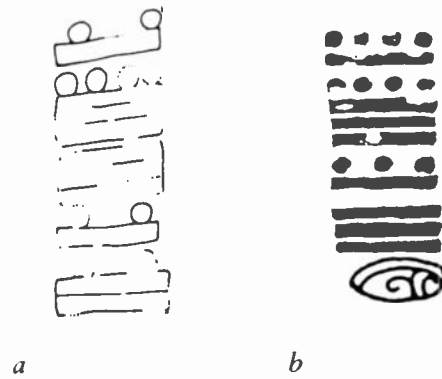


Figure 6. (Americas, Pre-Columbian—Writing Systems) Place-value notation. (a) El Baúl Stela 1, one of the earliest surviving examples of place-value notation, recorded the numeral 7 19 15 7 12. (b) The numeral 9 19 8 15 0, from the Dresden Codex, a place-value record using what is evidently a genuine numerical 0.

otherwise spelled, and logograms for roots served as signs for simple syllables. Because most roots by far were of one syllable, the latter extension affected the logograms only in reinforcing rebus usage. It also led to the establishment of phonetic sign sequences for spelling words with no logographic usage being involved. Once established, the pattern of use of these phonetic signs in purely phonetic spelling would also follow grammatical rules and analogies.

Nonrebus phonetic spelling is first attested around 380 C.E. It gradually increased thereafter both in frequency and in the range of words affected, most extensively in northern Yucatán and least extensively in the central Peten. The increase came about partly by exploitation of the existing resources of the script to render novel and contextually ambiguous material and partly because of the weakness of social conditions that had inhibited phonetic spelling: the decline of traditional central Peten influence, which supported a conservative orthography; the probable decline of interlingual LITERACY along the western and southern periphery with the breakdown of intersite political integration after around 700 C.E.; and the minimal display of writing as art in the northern lowlands. See also GRAMMAR; LANGUAGE; PHONOLOGY.

Diffusion among Mesoamerican scripts. Written forms and formats diffused among the early Southeastern scripts. Later, especially after 800 C.E. but with earlier traces, Isthmian writing influenced Mayan along the western river routes in visually apparent ways, reflecting and perhaps intentionally signaling great power or prestige of these northerners among the Maya elite. This impact is paralleled by linguistic and iconographic DIFFUSION from groups occupying the southern Gulf Coast.

There was scant early diffusion between the Oaxa-

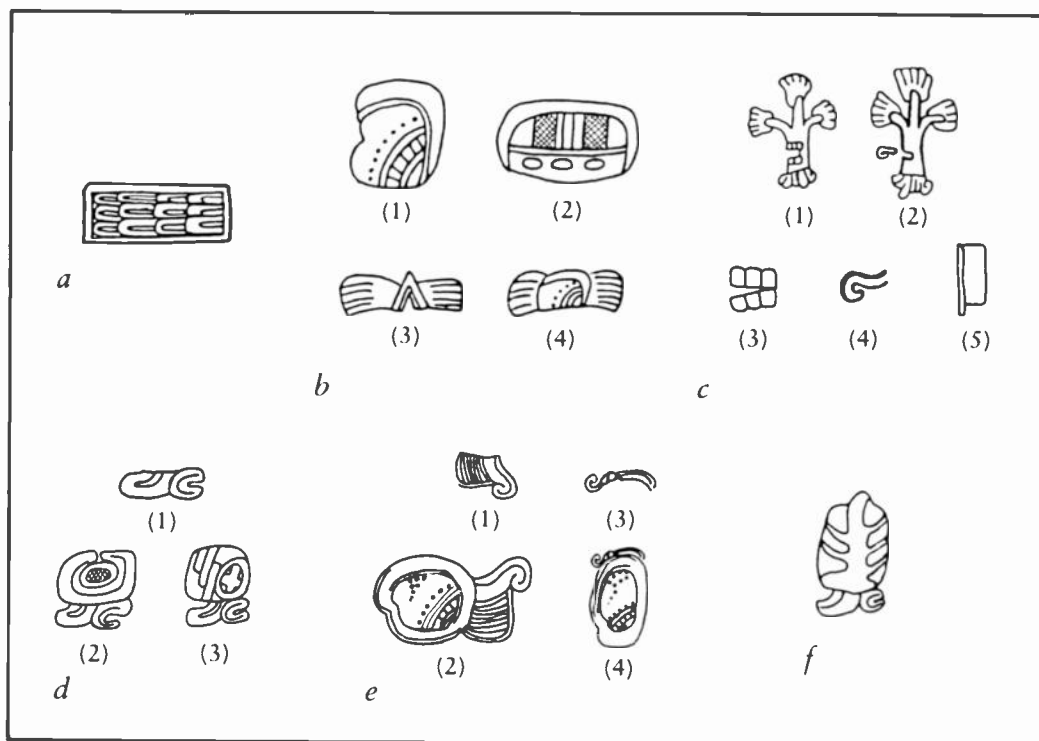


Figure 7. (*Americas, Pre-Columbian—Writing Systems*) Early forms of phonetic representation. (a) In Mixtec writing a bundle of feathers (*yodzo*) indicated the word “plain, valley” (*yodzo*) in place names. (b) (1) The Lowland Mayan word *tu-n* came to mean both “stone” and “year,” so a sign for stone also meant year; (2) probably somewhat earlier, a sign for a hollow-log drum had come to represent the word *tu-n* (“year”) because it had the same pronunciation; (3) a sign originally pronounced *mab* (“great”) in the Mayan/Izapan script represented the word *may* “20 (of years)”); (4) the stone/year sign was infixed into it to indicate which interpretation of the sign was pertinent. (c) Many Aztec town names, such as (1) Cuauhtitlan (“Place of Trees”) and (2) Cuauhnauhac (“By the Trees”), were identical except for locative suffixes. Most of these suffixes began to be represented by rebus, as in (3) *-tlan/titlan* (“place of”) by teeth (*tlan-*, “tooth”), (4) *-nahua-k* (“adjacent to”) by a speech scroll (*nahua-*, “fine speech”), (5) *-pan* (“on, upon”) by a banner (*pan-*, “banner”). (d) The (1) sign for *-ab’Vw/wa* derived (2), a word meaning the passage of *n* days from a numeral *n*, and (3), a word for an instrument from a verb for the action it performs, here *k’an xal-ab’* (“yellow shuttle”), with *xal-ab’* from *xal* (“to weave”). (e) (1) The sign *ni* suffixed to the stone/year sign (2) indicates the final *n* of the word *tu-n* (“year”); (3) the sign *h* prefixed to the stone/year sign (4) indicates the initial *h* of the word *ha?b’* (“year”). (f) The word **o-ne-w* was a simple root for a month name but was spelled as if it were a root *o-n* (“avocado [tree]”) plus a suffix *ew*.

can and Southeastern script groups. Later, Isthmian writing was influenced by Mixteca-Puebla style variants of the Oaxacan tradition, for example, in the “dots only” numeral system and the style of glyphic elements. Increasing Mexican iconographic and linguistic influence is found in Postclassic Maya murals and manuscripts accompanied by hieroglyphic writing in recognizably Maya script. Mayan conventions and signs were unaffected, apart from possible stylistic impact.

The most persistent and pervasive case of diffusion was among the Maya, between Cholan and Yucatecan scribes. Spelling practices and sign values passed back and forth between them; phonetic spelling was inhibited, scribes avoiding those specific to either group.

Social functions and correlates of the use of writing. Occupationally, scribes were often painters;

writing was painted primarily with fine brush on bark paper or deer hide, and it always maintained a close connection to the visual arts (*see* WRITING MATERIALS). The scribes used writing in manuscripts to aid them in prognostication concerning the timing of matters of civic significance, such as agriculture and warfare, and to record historical data pertinent to the legitimacy of rulers and potential rulers; minor economic use is found only in late pictographic systems. They also treated writing as a form of and/or adjunct to representational public art; where monumental and architectural art makes scant reference to rulers and other actual people, as in the greater part of the northernmost Maya Lowlands, at Teotihuacán, and among the Mixtec, writing is also seldom to be found. In the Southeastern script group the traditional use of logographic spelling featured the use of multiple signs for the same logographic or

phonetic value(s) and inhibited the reduction of the script to a simple phonetic system. The terse textual tradition of the Oaxacan branch, which had relied on accompanying art for clarification, became increasingly an iconographic adjunct to that art; one-word captions to scenes or to figures in them expressed personal names, place names, and day names in the ritual calendar (some functioning as personal names, a Mesoamerican custom), but nothing corresponded to a sentence or a phrase.

See also VISUAL IMAGE.

Bibliography. *Codex Mendoza: Aztec Manuscript*, commentaries by Kurt Ross, ed., Fribourg, Switzerland, 1978; Linda Schele, George Stuart, and David Stuart, *Ancient Maya Writing*, Austin, Tex., forthcoming; Mary Elizabeth Smith, *Picture Writing from Ancient Southern Mexico: Mixtec Place Signs and Maps*, Norman, Okla., 1973.

JOHN S. JUSTESON

ANIMAL COMMUNICATION

Humans have a marvelously powerful tool in SPEECH. Yet we evolved from primate ancestors who already had rich communication that was not speech, and we continue to have abundant means of communicating in addition to speech (see NONVERBAL COMMUNICATION). Indeed, some of our signaling is still homologous with that of our extant primate relatives, and all of it shares basic features with a great range of other species. Rich communication is not peculiar to primates but is a common attribute of animals of diverse evolutionary lineages. Nonhuman communication shares with human both fundamental characteristics—repertoires of more than one kind of signaling, context-dependent meaning—and surprising specializations—bird songs of many species have dialects, singing sequences can be grammatical, social insects have a form of mass communication (see INSECTS, SOCIAL), diverse animals make signposts, and others make stages from which to signal.

Capacities for communicating evolved as means by which animals could profit from interacting with one another. All kinds of animals have some social encounters, and many species have richly complex social lives. The orderliness of their social behavior depends to a considerable extent on the ability of individuals to communicate—to share information with one another, making public what otherwise would be private.

Central to the efficient sharing of information are repertoires of specialized signaling behavior and other specializations such as color patterns, wattles, crests, and scents (see ANIMAL SIGNALS; ANIMAL SONG; ETHOLOGY). This article explores the kinds of information in which animals traffic as they communicate,

how recipients of such information respond, and issues involved with the biological functioning (and hence evolution) of their communicative specializations.

Kinds of Information

Various kinds of information are made available by the presentation of a signal. These are *referents* of animal signaling.

Identity and location. Signals provide information identifying the signaler (Figure 1). Wherever many species are likely to be present simultaneously, identification of species is usually essential if individuals

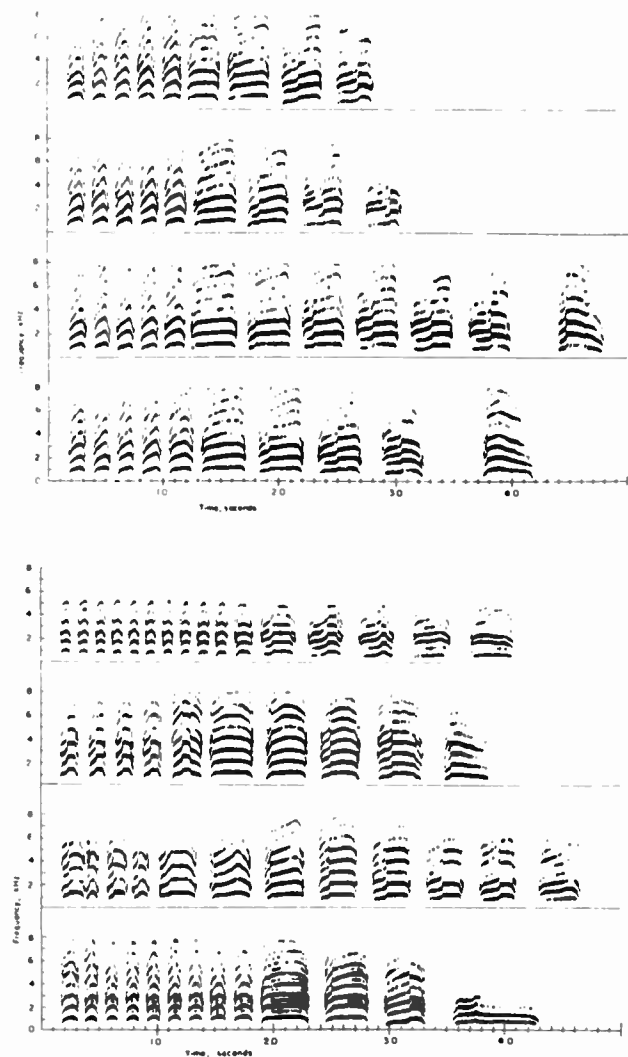


Figure 1. (*Animal Communication*) Sonograms of long-calls of Laughing Gulls: (top) four calls by the same gull; (bottom) calls of four other gulls. Individual gulls can be identified by characteristics of these calls. From Colin G. Beer, "Individual Recognition of Voice and Its Development in Birds," *Proceedings of the XVth International Ornithological Congress*, Leiden: E. J. Brill, 1972, p. 344.

are to know what perceived signals are the most pertinent for them to attend. It is also necessary for animals to identify their species (and often their gender, age, and breeding condition—i.e., physiological state) when mating. Some animal signals do not provide information that identifies the species of the signaler, however. Occasionally signals of different species converge in mutual intelligibility if the species form multispecific social groups, or if one species deceptively copies signals of another as, say, a defense against predators. More often, however, specificity extends even to discriminations among individual signalers, at least in vertebrate animals.

The forms of vocal signals also contain information that makes it possible for recipients to determine a signaler's direction from them. Recipients do this by binaural comparisons of temporal differences in physical features as the sound reaches each ear in turn. Decreasing the complexity of a sound's form can decrease but not eliminate such information. Some vocalizations, such as those small birds utter when alarmed by hawks, have evolved toward this simplicity. However, most vocalizations do render signalers readily localizable.

Behavior. Signal acts correlate conditionally and probabilistically with the performance of other behavior. As a result they provide reliable information about these other actions.

In spite of numerous differences in phylogenetic history, social organization, and ecology, the kinds of behavioral referents of the basic signals called *displays* are remarkably similar among most of the species of at least vertebrate animals studied to date. All species appear to provide information about attacking or fleeing, for instance, often combining prediction of both with that of a third possibility in a single signal. The bill-downward, neck-upright signal posture of an Inca tern (*Larosterna inca*), for instance, predicts that the signaler is more likely to attack than to withdraw but is even more likely to hesitate and vacillate while committing to neither (Figure 2). Most species also appear to have one or more signals that provide information about the possibility of copulating (or other procedures for insemination). Many species have displays indicating that a signaler is interrupting other behavior to monitor some stimulus.

Few such behavioral referents are as narrowly predictive, however. Many displays provide information about the probability of the signaler interacting but give no indication of the kind of interaction the signaler will attempt, facilitate, or accept. The range can be considerable, from attack to copulation, including noncontact association and other relatively innocuous possibilities. Locomotory behavior is another common referent, with no specification of the function of the locomotion. Many displays even provide the information that the signaler may do some-

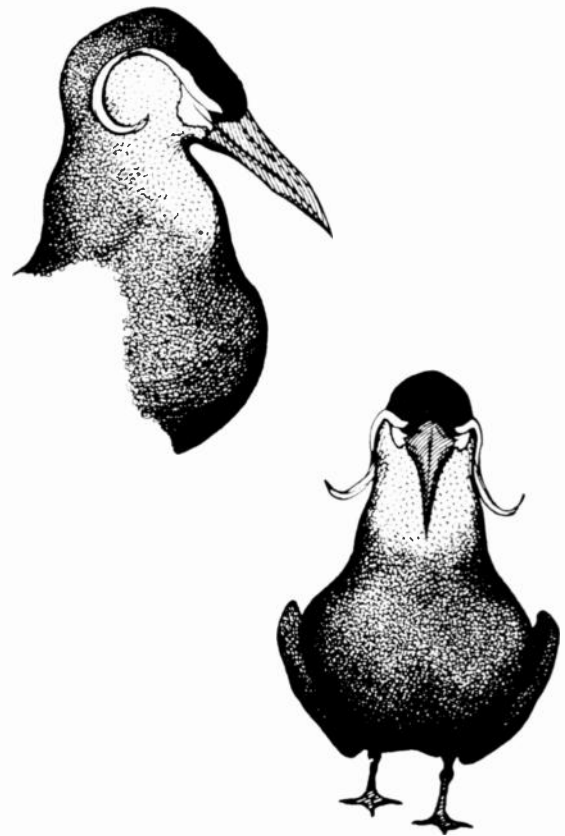


Figure 2. (*Animal Communication*) Aggressive upright postures of the Inca tern (*Larosterna inca*). From M. Moynihan, "Hostile and Sexual Behavior Patterns of South American and Pacific *Laridae*," *Behaviour*, Supplement VIII, Leiden: E. J. Brill, 1962, p. 262.

thing incompatible with another behavioral referent. For example, the signaler may interact or instead do something that precludes interacting, although the nature of the alternative—fleeing, foraging, or something else—is not predictable from the display.

Although the usefulness of such broadly predictive information might seem questionable, considerable predictability is engendered when a display is considered in the context of any given performance. Why animals should traffic in such information seems to be a matter of economy. No species has more than forty or fifty display units at its disposal, so the more situations in which each can be used, the more functions a signaler can get from communicating. That diverse species appear to have diverged little may imply that few behavioral options are as valuable as referents as the dozen or so now thought to be widespread.

There are exceptional behavioral referents, probably many when all species are considered. Nonetheless, most displays of most species may be involved only with the common referents discussed above. Other referents are now being found in signaling repertoires in addition to the basic display repertoire of each species. These repertoires are only just begin-

ning to be explored systematically by ethologists, but they appear to contribute significantly to the richness and flexibility of animal communication.

In addition to information about the kinds of behavior that may be selected by a signaler, information is also made available about the conditional probability of that behavior being performed, the intensity of its performance, sometimes the direction it will take, or yet other issues that add to the predictions of classes of activities.

Making information available about behavior necessarily provides clues to some aspects of the signaler's internal motivational and emotional states that underlie behaving. These states were in fact the focus of most early ethological attempts to analyze signaling, which were concerned more with immediate causes of signaling than with the information it made available. How important information about motivational states is to interacting animals is unclear. Behavior is what each participant in an interaction must predict from moment to moment as it strives to cope with and manage the social event. The participants need information about behavior, but information about one another's internal states might also affect their expectations.

Stimuli to which a signaler is responding. Some signal acts correlate not just with behavior but also with particular classes of stimuli to which an individual is responding when it signals. For instance, California ground squirrels (*Spermophilus beechyi*) utter different forms of a chattering alarm call when they see predators from classes that have different hunting tactics. These chatterings also predict different behavior that the caller will show in response to the predators. Some monkeys (e.g., vervets, *Cercopithecus aethiops*) also utter different calls, or forms of a call, as they respond to predators of different classes. Rhesus monkeys (*Macaca mulatta*) utter screams during disputes with one another; different forms of screams provide information about whether the event involves physical contact and whether the opponent is dominant or subordinate to the screamer. Toque monkeys (*M. sinica*) utter a "whee" vocalization when they forgo traveling with their troop in order to use an important localized resource—usually food, although sometimes water or a place to sunbathe. Honey bees also communicate about flights they make to resources, again usually food.

All of these cases have in common the fact that the signaler or the referent is not near appropriate recipients. The recipients are being enlisted to interact with or respond to some important entity or situation that they may not otherwise notice. Referents of this sort may be relatively uncommon, and signals having them may always have behavioral referents also.

Ethology lacks appropriate terms with which to distinguish different categories of referents of signals,

and the literature can be misleading if not read carefully. For instance, ethologists have often referred to predators, resources, or other such stimuli as "external referents." The term arises in conceiving of information predictive of behavior as private (until made public by signaling). Yet so is information about perception of a predator or resource. And the term *external*, implying a contrast with *internal*, invites further preoccupation with motivational states—a perspective that slowed ethology's recognition of most of the various kinds of information about behavior that are made available by signaling. Some workers have also arbitrarily restricted the term *semantic* to signaling about predators and the like, as if all relations between signals and referents were not semantic. Sometimes such signals are called *representational* or *referential* instead of semantic—terms that may be only slightly preferable even though there is precedent for the latter in LINGUISTICS.

Responding to Signals

Communication does not occur simply when one individual presents a signal. Some other individual must perceive the signal and respond in some way, even if only by briefly storing the information. Responding is complexly determined, however. It is rarely possible for the recipient of a signal to choose an appropriate response solely on the basis of the information provided by that signal. Even though that information may be highly pertinent, it is not itself finely tuned to the features of any momentary event.

A recipient also attends to and uses information from sources contextual to the signal. These sources can be other signals, even repetitions of the same signal, and other behavior or attributes of the signaler. Some possibilities are the signaler's size, age class, gender, and much nonformalized behavior, such as its approach or withdrawal, the speed and continuity of its movements, its stance, and the like. Still other sources of information are brought to any event by the responding individual itself, such as genetic predispositions (e.g., to recognize the signals of its species) and memories (e.g., a categorization of the signaler as familiar or strange, the location with respect to territorial boundary conventions, the social situation with respect to its current progress through phases of, say, the breeding season). Much pertinent information also comes from events immediately preceding the perception of a signal, those more or less simultaneous with it, and any that follow before a recipient has committed itself fully to a particular response. No signal ever occurs in the absence of contextual sources of information, and no recipient responds to a signal without integrating the information from at least some of them.

Preoccupation with innate causes of behavior led

early ethologists to conceive of communication as primarily a matter of signals “releasing” predetermined patterns of response from recipient individuals. The relevance of stimuli contextual to signaling was sometimes recognized in detailed studies, but the enormous importance of context to communication was not realized in early work. Circumstances do exist in which information from sources contextual to a signal is minimally important in eliciting responses. For example, experiments with neonatal animals often show strong biases toward particular signals, almost to the exclusion of attention to contextual stimuli. But these naive response predispositions are quickly modified by learning, and older infants demand richer arrays of clues contextual to the key signals.

All responsiveness is selective, and organized perceptions require that some stimuli be taken as especially salient. Nonetheless, these focal stimuli are perceived in context; for each figure there is some sort of relevant ground that determines responses to it. In the process of formalization signals become specialized to be accepted by appropriate recipients as highly salient. (The evolution actually involves both the signals and the perceptual mechanisms, of course.) This is the basis of what impressed the early ethologists. But responding to signals requires attention to stimuli of lesser rank also. The latter are not simply discarded but are crucial to the fine-tuning of response behavior in each unique event.

This context dependency of responding has made it difficult to investigate relations between signals and responses through controlled experiments. Naturalistic observations suggest the kinds of responses that are usual but rarely provide conditions in which only the signal or some one contextual source of information changes while all other sources remain constant. (Such conditions, when approximated, provide the “natural experiments” that Niko Tinbergen and others have used as especially strong evidence of responses.) Ethological experiments in natural circumstances range from broadcasting selected vocalizations to presenting models or stuffed animals—sometimes with limited, remote-controlled movements—in signal postures. At least the initial responses to such stimuli are often revealing, particularly about animals’ abilities to obtain species-specific and even individually specific identifying information from the signals.

Their behavioral responses are often more difficult to interpret, especially after responders begin to try to interact and then encounter events (e.g., continued repetition of a vocal signal from a stolidly posed model) that violate their expectations of the usual range of behavior accompanying a signal in real interaction. Initial responses of approach (e.g., toward what sounds like a territorial intruder) or fleeing (in

responses to playback of an “alarm call”) can be significant, but there is considerable elaboration and individual variation. British ornithologist David Lack, for instance, found that he could elicit postural signaling from some male European robins (*Erithacus rubecula*) by placing a stuffed robin near their nests (Figure 3). In real events the various postures were used to threaten intruders, and some responding robins did attack the decoy. A stuffed immature robin, with its brown rather than reddish-orange breast, was ineffective. In some tests headless or tailless decoys—even just an adult breast alone—were effective. Yet, as Lack cautioned, the red breast per se does not cause the response. Each robin had a mate, and the sexes have identical plumage, but in spite of their red breasts the mates were not attacked and could use the territories freely. Mates provided appropriate clues contextually to the red signal. The experimental decoys provided the signal in the absence of expected contextual clues, which was enough to lead some males to respond as if adopting a worst-case scenario: in the absence of sufficient information, threaten an object that has a key signal in common with a real intruder. (One male adopted a different scenario, accepting the decoy as a receptive female, who would be motionless, and he mounted instead of threatening.) Decoys left for long ceased to be accepted even as possible intruders and were often used as inanimate perches.

Both the usefulness and the limitations of such techniques are revealed by these experiments. Animals can be brought into laboratories for even greater control of contextual variables, yet further problems can emerge as the subjects’ expectations are more

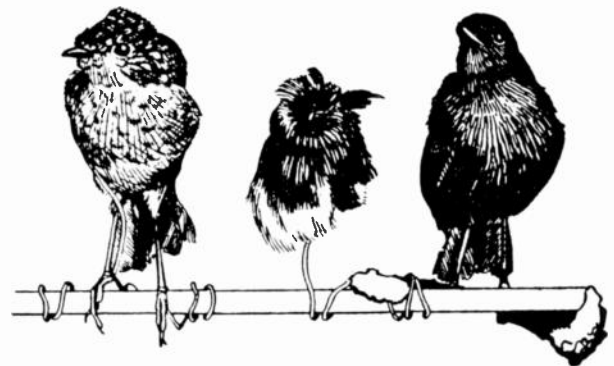


Figure 3. (*Animal Communication*) The stuffed juvenile robin (left) and the stuffed adult dyed brown (right) were both less effective in eliciting threat posturing when placed near a robin’s nest than was just the red breast and white belly plumage (center), even though this bit of feathers lacked all other features of a robin. The red breast is a highly significant signal to European robins, although even it elicits different responses as contextual circumstances change. From David Lack, *The Life of the Robin*, London: Penguin Books, 1953, p. 158.

thoroughly violated by the oversimplified, confining circumstances. However, laboratory conditions can be sufficient and often are for invertebrate subjects in particular. For example, biologist Edward O. Wilson has studied the chemical signaling of ants by removing their scent-producing Dufour's glands and using them to lay trails that other individuals will follow. Field experiments by Karl von Frisch, James Gould, and others have shown analogous responses to directional information in honey bee dances. These researchers have also shown that some responses to signals occur promptly, whereas others are more a "priming" of a recipient individual that can influence its behavior in later events. This, too, complicates research on responses.

Functions of Communicating

There are various consequences when a recipient responds to a signal. A mate may be attracted or a territorial intruder repelled when a bird sings. Or a hawk may notice and then kill the singer. The first two consequences are adaptive for the singer: they yield advantages that drive the evolution of this signaling. Getting killed is a nonadaptive consequence that works against the evolution of singing. Advantages must exceed costs, or singing will not be fostered and maintained by natural selection. To biologists the advantageous consequences are the functions of communicating.

Not just signalers but also responders must, on average, profit in order for communication to evolve. Benefits need not be equal. An individual whose threats give it access to a resource gains more than a responder who defers, yet both avoid an outright fight. If the deferent responder does better by continuing to search for resources than by expending energy and risking injury in fighting, then its response to the threat is appropriate. An individual who vocally alerts its companions when it detects a predator may save them from danger but increase its own vulnerability by drawing attention to itself. Yet such signaling can still pay off in many different ways. For example, the saved companions may alert it in subsequent events; they may be its offspring or other close relatives carrying many of its genes, and hence evolutionarily they are worth some risk (a "kin effect"); their responses when alerted may be to scatter in ways that distract and confuse the predator to the signaler's benefit.

Much communication is effectively cooperative. Its functions to establish or maintain the social fabric on which individuals depend for regular interactions with one another. Thus individuals cooperate to form a pair bond and raise offspring, to form territorial boundaries, or to maintain a status hierarchy or a social group. This does not mean that each individual

is not competitive, even in interactions with its mate and offspring, but that it competes within a social framework that must be maintained and kept more or less orderly (for each member's own evolutionary "fitness") through cooperation. Thus, although various members of a baboon troop may try to have some control over the speed and direction of group movement during foraging behavior, each also needs to stay with its group. When the group is moving through dense vegetation each member will provide information about its location and movements to others and will respond to information the others provide so that the troop remains coherent. As in this intraspecific case, members of species that regularly flock, herd, or school interspecifically will signal cooperatively to make their movements obvious and the detection of predators widely known. The same species may signal to maintain interspecific dominance orders, keeping their competitive encounters orderly.

Communication between species with opposing needs, such as predators and prey, is also sometimes cooperative. Prey may signal to a predator that it has detected the predator's approach, thus saving both individuals the costs of a pursuit in which the prey would escape. But there is always strong competition. Both prey and predator can profit greatly from misinforming each other in their life-and-death encounters, and this has led to the evolution of deceptive signaling. For instance, edible prey may mimic poisonous species or inedible backgrounds (rocks, twigs, leaves); predators may mimic innocuous species, becoming "wolves in sheep's clothing." Both procedures lead to counteradaptations, however. They are evolutionarily unstable.

Even within a species, individuals have many divergent needs. In principle they should attempt any potentially profitable behavior that is not ultimately self-defeating. There are thus pressures to evolve or to learn to perform at least some unreliable signaling. Yet manipulative social behavior endangers the continuing interdependence of individuals and hence the maintenance of their organized social groups. Thus the extent to which unreliable intraspecific communicating can evolve must be limited.

Among the limitations is that the evolution of communicative behavior involves coadaptation of signaling and responding. When signals misinform they provide selection for responders to be skeptical—and skeptical responding provides selection for reliable signaling. Unreliable signalers are put at a disadvantage if skeptical recipients of signals seek further information from sources contextual to a signal to check it or act to test the signaler before committing themselves. One evolutionary result is signaling with forms that cannot be deceptive and thus certify the honesty of the signaler. One example

of such self-certification is a threat so energetically taxing that only a powerful signaler can perform it in sustained bouts, as is apparently the case with the bellowing of red deer stags (*Cervus elaphus*).

A basic limitation to the evolution of misinforming is that it yields its benefits for a signaler by parasitizing responses recipients make to what are normally reliable sources of information. It is thus based on mimicry. Like all mimicry, it requires the prior and continued existence of reliable models. It cannot become excessively common relative to these reliable models and will not succeed as the predominant form of signaling.

Ethologists have obtained little evidence for misinforming among individuals of the same species and considerable evidence for reliable informing. Subtle and relatively infrequent misinforming may be hard for us to detect, of course, just as it is hard for the animals themselves.

Bibliography. Charles Darwin, *The Expression of the Emotions in Man and Animals*, London, 1872; Robert A. Hinde, "The Concept of Function," in *Function and Evolution in Behaviour*, ed. by Gerard Baerends, Colin Beer, and Aubrey Manning, Oxford, 1975; Donald E. Kroodmsa and Edward H. Miller, eds., *Acoustic Communication in Birds*, 2 vols., New York, 1982–1983; W. John Smith, *The Behavior of Communicating: An Ethological Approach*, Cambridge, Mass., 1977; idem, "An Informational Perspective on Manipulation," in *Deception: Perspectives on Human and Nonhuman Deceit*, ed. by Robert W. Mitchell and Nicholas S. Thompson, Albany, N.Y., 1986; Edward O. Wilson, *The Insect Societies*, Cambridge, Mass., 1971; idem, *Sociobiology*, Cambridge, Mass., 1975.

W. JOHN SMITH

ANIMAL-HUMAN COMMUNICATION. See HUMAN-ANIMAL COMMUNICATION.

ANIMAL SIGNALS

This entry consists of four articles:

1. Overview
2. Audible Signals
3. Chemical Signals
4. Visible Signals

1. OVERVIEW

All species of animals communicate. That is, individuals of each species share information with one another; often they also share it with other species. There are many means by which they make information available. Anything an animal does and any attribute it has that can be perceived by any other

individual is necessarily informative. But some actions and attributes are highly relevant to communication because they have undergone specialization to be informative, much as others have been specialized to be locomotory or to serve in foraging or in the evasion of predators. Specialization to be informative can arise during genetic evolution, in the development and cultural modification of learned traditions, or in both and is broadly termed *formalization*. (Most of the study of ANIMAL COMMUNICATION is done by biologists in the subdiscipline of ETHOLOGY. Ethologists use primarily the term *ritualization* but almost always with a predominant connotation of genetic evolution; the term is subsumed here under formalization.)

Formalized actions and attributes (collectively termed simply *signals* here) lead indirectly to consequences that are functional for a signaler. When one individual attacks another and pushes it away forcefully from some contested resource, it gains access to that resource by direct action on its competitor. The same access may be obtained, however, if the first individual signaled a high probability of attack and the second individual responded by departing. The physical withdrawal is accomplished in this case solely through actions taken by the recipient individual; hence the signal achieves its functions for the signaler indirectly.

The direct/indirect distinction is important to ethological research on communication, most of which has focused primarily on indirectly functional (hence formalized) behavior and attributes. Formalizations are often strikingly conspicuous, even bizarre—particularly those employed in courtship—and ethologists have been much concerned with attempts to explain their evolution, proximate causation, and function. In fact, the historical roots of ethology are deeply involved with investigations of signaling, for instance CHARLES DARWIN'S OF FACIAL EXPRESSION, Oskar Heinroth's of courting ducks, Julian Huxley's of grebes, Niko Tinbergen's of gulls, and Karl von Frisch's of honey bee dances (see INSECTS, SOCIAL).

Communication is not simply a matter of providing and responding to signals, however. The information made available by a signal is insufficient to enable a recipient to select an appropriate response. Responding is instead based on a process of integrating information from a signal with information from sources contextual to the signal.

Formalization of Signal Receptors

Ethological accounts often divide animal signals according to the different sensory modalities by which they are received. Largely a classification of convenience, this does emphasize the existence of formalization for all available receptors, suggesting both

that signaling is important to animals and that it is often adaptive to signal redundantly: an obstacle to one sense need not be an obstacle to another. Thus in the social din of a seabird colony visible signaling may accomplish what cannot be trusted to vocal signaling, whereas vocal signaling will often function even when a recipient is facing away from a signaler or is obscured from seeing it by line-of-sight obstacles.

Visible and audible signaling are both highly developed in the behavior of many species of animals (see sections 2 and 4, below). Tactile communication is somewhat less well understood, at least partly because it is relatively hard to study when observer and subject are not close. But animals are seen to make careful contact with each other using at least their noses, lips, teeth, tongues, necks, hands, arms, feet, flanks, tails, and genitalia, touching, embracing, neck rubbing, bumping, or pressing (see Figure 1). Male birds may tread the back of a female during copulation. A parrot may nibble its partner's toes to get it to move along a branch. Fish nudge with their noses and grasp with their mouths, and much of their fin- and body-movement signaling is both visible and received as pressure waves impinging on a recipient's lateral-line organs. All colonial insects use tactile signals, and during their famous dances honey bees make sounds that they feel rather than hear (bees have no ears). Substrate-borne vibrational signaling, effectively tactile, is also known in web-building spiders and in leeches, and surface waves are propagated in special signaling patterns by insects known as water striders (Gerridae). Much touching is involved in chemical communication (see section 3, below), as insects taste each other's surfaces with their antennae and mammals thrust noses against each other's axillary, anal, or genital glands. When elephants touch each other with their trunks it is difficult for an observer to know whether the signaling is tactile, olfactory, or both.

Release of chemical products, known as pheromones, is an important sort of signaling for many animals. Male moths are led to receptive females along wind-borne odor trails; ants are led to food at sites from which other foragers have laid down scent trails as they returned to the colony (see Figure 2). Snakes, snails, and even some bees also deposit pheromonal trails. Mammals use scent marks in communicating about individual and group identity, dominance rank, and important sites. Highly volatile pheromones are released by alarmed ants, deer, woodchucks, and countless other species. Mating is regulated or facilitated by pheromonal signaling in species from bees to humans.

Even electrical discharges have been developed for signaling in species with receptors specialized for their detection, especially some kinds of fishes that



Figure 1. (*Animal Signals—Overview*) Tail twining in the titi monkey (*Callicebus moloch*), a tactile signal. From M. Moynihan, "Communication in the Titi Monkey, *Callicebus*," *Journal of Zoology* (London) 150 (1966): 83.

live in muddy tropical waters. Every sensory modality (except possibly thermoreception) that detects external events has been involved. One result is enormous diversity: the signals of animal communication have been elaborated in many and often unimagined ways, and the vast majority will always remain unknown to us.

Further, animals have formalized many nonbehavioral sources of information. Some of these amount to "badges": visible color patches or marking patterns; elaborations of the shapes of feathers, scales, or fur; the horns and antlers of ungulates; the dewlaps of lizards; and the enlarged claws of male fiddler crabs. Badges may be kept visible or concealed until useful. Some are permanently or seasonally fixed and others behaviorally alterable through inflation, chromatophore change, and the like. Evolution has even produced analogues of badges in plants whose flowers or other features elicit responses from animals, after which the animals effect pollination or seed dispersal.

Other formalized sources are constructions that animals make as stages or backgrounds for signaling: nests, nestlike structures, shelters, and stages decorated by bowerbirds (Ptilonorhynchidae or Paradisaeidae) with colored fruits, flowers, and pebbles (see

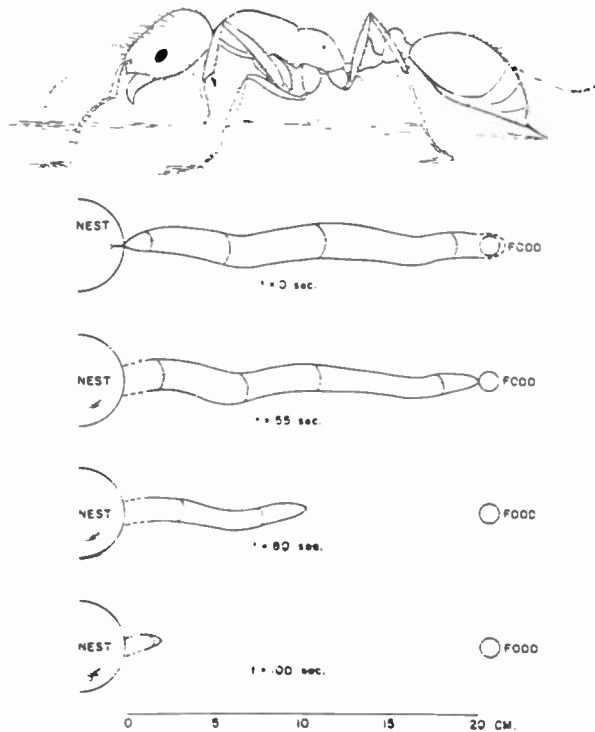


Figure 2. (*Animal Signals—Overview*) The form of the odor trail of *Solenopsis saevissima* laid on glass. As the trail substance diffuses from its line of application on the surface, it forms a semiellipsoidal active space within which the pheromone is at or above threshold concentration. This space, and therefore the entire signal, fades after about one hundred seconds. The worker ant pictured above is laying a trail from right to left. From Edward O. Wilson, *The Insect Societies*, Cambridge, Mass.: Harvard University Press, 1971, p. 252. Reprinted by permission.

Figure 3). Mammals may make conspicuous scent posts by removing bark from trees or depositing their feces in piles, then applying pheromones from special glands.

Signal Repertoires

More than one repertoire of signaling behavior is available to the animals of any species. These repertoires are distinguished not by specialization for different sensory modalities (each repertoire has arrays of signals for whatever sensory reception is appropriate) but by more fundamental features of their signal units and by the diverse ways in which they contribute to communication.

Display repertoire. The basic signal units of animal communication are acts ethologists call *displays*. Although the term was initially applied to visible signals, it has been generalized to include sounds and acts specialized for reception by other senses.

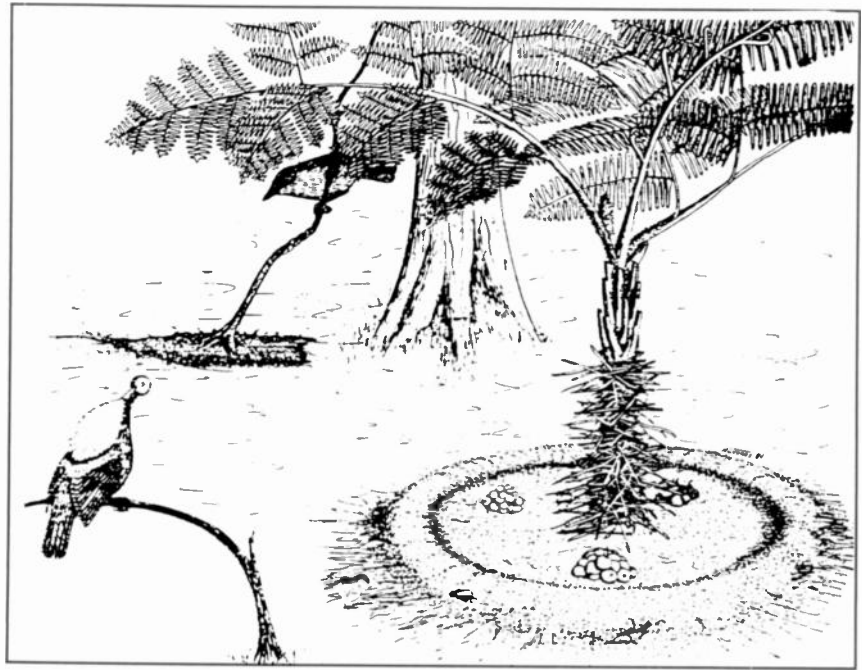
Displays are the signals with which we are most familiar in our casual relations with other species—

the songs of birds, for instance, as well as their chirps, twitters, trills, caws, and quacks. (With only casual familiarity we underestimate considerably the number of vocal displays in the repertoire of each species.) Our mammalian pets bark and growl, hiss and mew, raise and wag their tails, ruffle tracts of fur, arch their backs, flatten back their ears, and sometimes deposit urine repeatedly at sites special to them. Fish court with spread fins and changing colors, frogs croak, crickets chirp, fireflies flash, and we read or hear recordings of the singing of whales, the roaring of lions, the bellowing of bison, and the chest beating of gorillas. Other examples are mentioned above in discussing signaling for various sensory modalities, but the true diversity of such signals cannot begin to be listed. We perhaps recognize too that many of our groans and giggles, gasps and laughs, smiles, frowns, eyebrow raisings, and blushes are comparable forms of signaling (*see* BODY MOVEMENT; EYES; FACE; KINESICS). Students of human NONVERBAL COMMUNICATION, however, typically use terms such as *expression* and *posture* instead of *display*.

These are the most obvious signal units, and every species has a repertoire ranging from a few (e.g., a relatively asocial frog) to a maximum of about forty or fifty (in some birds and mammals). Ethologists have cataloged them (or at least those most readily recognizable by humans) in diverse species. However, the cataloging has often raised problems of criteria. Just what constitutes a unit of display behavior has caused considerable concern. Variation in form, compounding of separable actions, and elaborate cooperative ceremonies of two or more participants have all confused the issue. These complexities also occur in human signaling, in which familiarity born of daily use makes it somewhat easier to distinguish words (for instance) from ways of altering their sounds or of compounding them. We accept words as the basic meaningful signal units of SPEECH. In effect, just as we have repertoires of both words and other kinds of signaling specializations, so too do members of other species. It is necessary to recognize the differences among kinds of signals, as each repertoire has its own properties and makes its own distinctive contribution to communication.

Repertoire of classes of form variation. Diverse procedures for altering the forms of basic signal acts are also formalized and comprise units of signaling behavior in their own right, just as they do in human speech. For instance, changes in duration, pitch, intonation contours, loudness, harshness, quavering, and other features add information to that carried by the words of a LANGUAGE. Taken together such procedures make up a repertoire of ways of varying the characteristics of speech sounds. Many of these formalized procedures are also employed in altering nonspeech utterances, by both humans and nonhu-

Figure 3. (*Animal Signals—Overview*) Bower of *Amblyornis flavifrons*. Male (with flared crest and holding fruit) is displaying to female (on sapling in background). The male has placed the sticks piled up around the tree fern, constructed the moss platform at the base, and placed the blue, yellow, and green mounds of fruit on the platform. From J. M. Diamond, "Rediscovery of the Yellow-fronted Gardener Bowerbird," *Science* 216 (1982): 433.



man species. Further analogous modifications are imposed on features such as the duration, smoothness, and amplitude of visible, tactile, and other displays. Every species has a repertoire of ways of varying display form.

Form variants are of two functionally disparate sorts, however. Some variation is manifested only at certain ontogenetic stages, after which forms become fixed. This is the source of differences among groups that ethologists recognize as dialects of bird songs, group-specific pulsed calls of killer whales, and the like (see ANIMAL SONG). It is also the source of many of the differences that make the signaling of individuals distinctive. The variation in such cases is temporary—characteristic only of a stage—and leads to stable differences among individual signalers that appear to function primarily in providing identifying information.

Other procedures remain available to individuals throughout their lives as means to modify the forms of their displays. These add richly to communication and can permit subtle shifts of information over very short intervals. For example, many birds can quaver the sound of their vocalizations, superimposing a frequency modulation on the basic display forms. In a North American flycatcher called the eastern kingbird (*Tyrannus tyrannus*) quavering has been shown to modify at least two different kinds of vocal display that are often uttered in flight. It alters the form of the first as a signaler veers from an attack on, say, a predator and detours around its target. Kingbirds also sometimes quaver the second kind of vocal display (a different unit in the species' repertoire,

with its own distinctive informative contribution) when suddenly breaking off attack. In addition, however, they may quaver this second vocalization when abruptly terminating social interaction with a mate in instances when attack is never at issue. The quavering adds information about the likelihood of quitting some current activity to the information already being provided by these two different displays. Further, individuals of many other species of birds, both flycatchers and species from other evolutionary lineages, add quavering to vocalizations when approaching mates, rivals, or groups as they veer away or stop short. That the information quavering adds to vocalizations may be similar among diverse species suggests that this is a signaling procedure with a long evolutionary history, largely independent of the evolution of units of display repertoires.

Ethologists have only begun to make detailed studies of members of the repertoire of procedures for varying display form. There are suggestions of other widespread commonalities. Harshening a vocal display, for instance, may provide the information that attack behavior is becoming probable; making that vocalization higher and shrill may shift the prediction toward escape. Such possible generalizations need much more thorough investigation. Even if few procedures are found to be widespread among species, however, the existence of repertoires of this kind is certainly widespread.

The repertoires include more than procedures for modifying vocalizations. Displays involving movement or posture are also varied in many ways, as are displays suited to yet other sensory modalities. Some

classes of variation, such as changing duration or amplitude, are recognizable whatever the modality. Others are peculiar to particular sets of displays. For example, vervet monkeys (*Cercopithecus aethiops*) signal about approach and withdrawal by holding their tails in a continuously graded array of different positions. The probability of withdrawal increases as the tail droops backward from the vertical. The probability of attack is highest when the tip of the tail points forward and decreases as the tip dangles downward toward a signaler's back. With the tail in the latter position a vervet is likely to approach or pass by others without making any attempt to control them or some resource they might contest. As another example, the more a gull (*Larus* species) angles its bill downward from the horizontal, the more the probability of attack increases relative to that of escape; the more it lifts its bill upward above the horizontal, the more the probability of fleeing increases relative to an otherwise unspecified alternative.

Units of the repertoire of procedures for varying the forms of signals offer two sorts of enrichment to communication. They can either add to or modify the information made available by units of the display repertoire. And they can do this with fine gradations, through series of continuous variations in display form.

Repertoire of classes of combinations. Display units can become components in higher-order formalized signaling patterns. The displays are then combined according to rules that generate different classes of patterns. These rule-bound classes are the units of the third repertoire of signaling behavior.

Bouts in which a display unit is repeated at regular intervals are the simplest case of rule-bound sequences. The control of interval duration produces a readily recognizable pattern providing information about the stability of predictions engendered by the display units. In the barking of black-tailed prairie dogs (*Cynomys ludovicianus*) a signaler maintaining a steady interval continues to interrupt its other activities to monitor a predator or other bothersome stimulus. With a shortening interval its relative probability of fleeing increases; with a lengthening inter-



Figure 4. (*Animal Signals—Overview*) Male hawfinch (*Coccothraustes coccothraustes*) approaching female for bill-touching ceremony. From Guy Mountfort, "Some Observations on the Hawfinch *Coccothraustes coccothraustes*," *Proceedings of the XIth International Ornithological Congress*, 1954, p. 606.

val the probabilities of continued monitoring and fleeing decrease.

Other rules generate markedly nonrandom sequential combinations of display units. In the singing of eastern pewees (*Contopus virens*) and eastern phoebes (*Sayornis phoebe*) one display unit is repeated in strings, each terminated by an utterance of a different display. The probability that a singer will act to facilitate interaction with other birds is highest for short strings and declines as string length increases. Yet other species (e.g., the yellow-throated vireo, *Vireo flavifrons*) sing larger numbers of different display units in patterned sequences and provide more detailed information about their interactional and other behavior. The extent to which such patterning rules are found among diverse species is largely unexplored, however. Rules may be common in some kinds of birds, and they appear to occur in at least some primates (e.g., *Callicebus moloch*) and whales (e.g., *Megaptera novaeangliae* and *Balaenoptera physalis*), but they may not be important in the communication of most animal species.

Not all commonly repeated sequences imply the existence of the performance rules that are fundamental to this repertoire. Some sequences arise frequently because their component displays are uttered in correlation with recurrent patterns in the flow of events rather than having their order imposed by processes strictly internal to that signaler. Similarly most simultaneous combinations of displays (as in human facial expressions or vocalizations birds utter while raising their crests) are probably concatenations fit to the event rather than to an internal rule structure. Thus none of these reflects membership in this repertoire. By employing display units contextually to each other the repertoire of classes of combinations of displays both gives signalers control of key contextual relations and reveals the proportional contributions of each component to recipients efficiently. And a few combinatorial rules plus a few display units can generate relatively large numbers of signaling patterns.

Repertoires of formalized interactions. Unlike those in the first three repertoires, many signal patterns cannot be performed by a single individual. A human handshake is a simple example of cooperative performance of a signal unit. Nonhuman animals have many comparable signals. Bills are struck together as individuals meet, for instance, by storks, herons, woodpeckers, and various finches. And both handshaking and bill touching (see Figure 4) are commonly embedded in longer cooperative sequences—sometimes of many steps—that are formal units of greeting behavior.

This sort of signaling is common when animals come together to greet, challenge, court, or accomplish any social task that is easily derailed. Formalized interactions provide the frameworks for

negotiation. Humans find special use for them in managing conversational interactions and in all the little smoothings of encounters that ERVING GOFFMAN recognized as the “everyday rituals” or “supportive and remedial interchanges” of social life (see CONVERSATION; INTERACTION, FACE-TO-FACE).

Every formalized interaction provides parts for its participants to play. Each part defines behavior (as in a handshake) or at least a range of actions with certain characteristics and limits (e.g., dominating and deferent behavior or initiating and responding behavior). If the formalization extends for more than a single move it entails a program that meshes the playing of parts into prescribed routines and optional subroutines. A routine may require participants to behave alike (as when two courting gulls or grebes walk or swim in parallel, stop in parallel, and display alike and simultaneously; Figure 5) or in a complementary fashion (as when one courting cockroach attends while the other engages in monologuelike repetitive behavior or one conversing human speaks and gestures while another listens and watches, making slight feedback signals). Routines thus delimit the ways in which participants in a formalized interaction combine sequences of the behavior required by their respective parts. The formalization is seen both in particular acts and in features of the framework

that flexibly constrain and direct the interaction.

Because the units are interactional—joint products of more than one signaling participant—formalized interactions are usually relatively complex signals. Many have been described by ethologists, but few complex ones are known in enough detail to permit the rules of their programs to be written with much precision.

That there is more than one repertoire of formalized interactions is evident from the range extending from simple performances that are jointly performed analogues of display units to complex cooperative routines that involve sequencing rules, and from the flexibility of many sorts, much of it involving formally patterned variations. This suggests a dichotomy: several repertoires of signal units that individuals can perform alone on the one hand, and repertoires of jointly performed signal acts on the other.

The special contributions of formalized interactions are to organize and limit signaling exchanges at crucial times that involve either change or at least management of potentially disruptive disparities in the contributions of participants. Difficulties and instabilities often arise when interacting can be costly or hazardous—as it readily can when individuals begin an encounter or try to develop an event in ways for which they are unequally prepared. Partic-

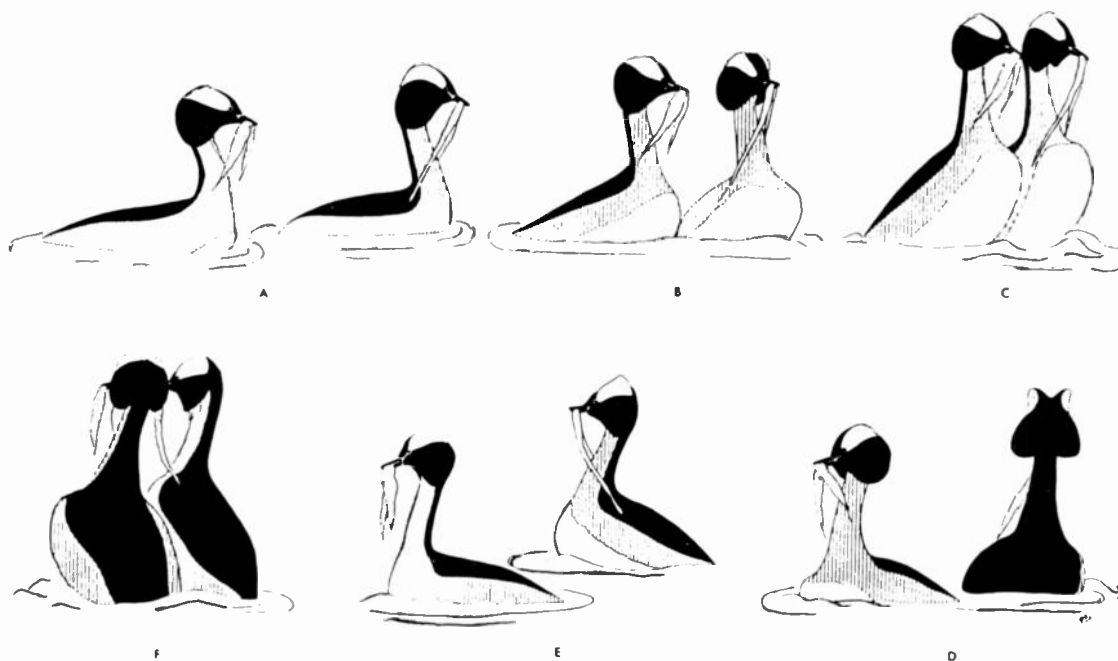


Figure 5. (*Animal Signals—Overview*) Part of a weed rush by horned grebes. “The birds, coming together, turn and Rush side by side for a few to perhaps 30 ft. Then they move apart, move together and Rush, move apart, and so on. . . . As the birds separate at the end of each Rush, they subside into the Upright Posture and often swim about briefly before coming together for another Rush. . . . The ceremony ends when one or both birds drop the weeds.” From Robert W. Storer, “The Behavior of the Horned Grebe in Spring,” *Condor* 71 (1969): 197.

ipants use formalized interactional signaling to negotiate.

Such signaling achieves its functions first by enabling individuals to provide and elicit information about adherence to an expectable routine or about the imminence and nature of change by an associate. Second, the signals provide means by which each participant can share in control of the event and can attempt to influence another's course within the security offered by formal constraints on behavior.

No animal has an unlimited number of signals available for communicating. Each of its various repertoires probably has fewer than forty or fifty units, often many fewer. And at least the units of the display repertoire—at present the one most studied—appear to provide information about a limited number of referents, perhaps fewer than twenty. Nonetheless, units from at least two and sometimes several repertoires, each with different characteristics and making distinctive informative contributions, are brought to bear in each event of signaling. This diversity of kinds of signals greatly enriches both animal communication and the nonspeech communication of humans.

Bibliography. Charles Darwin, *The Expression of the Emotions in Man and Animals*, London, 1872; W. John Smith, *The Behavior of Communicating: An Ethological Approach*, Cambridge, Mass., 1977; idem, "Consistency and Change in Communication," in *The Development of Expressive Behavior: Biology-Environment Interactions*, ed. by Gail Zivin, New York, 1985; idem, "Signaling Behavior: Contributions of Different Repertoires," in *Dolphin Cognition and Behavior: A Comparative Approach*, ed. by R. J. Schusterman, J. A. Thomas, and F. G. Wood, Hillsdale, N.J., 1986; Edward O. Wilson, *The Insect Societies*, Cambridge, Mass., 1971.

W. JOHN SMITH

2. AUDIBLE SIGNALS

Animals make sounds for communication by means of an astonishing variety of anatomical and physiological mechanisms. These sounds encompass acoustical patterns from wideband noise to pure tones, and they range in frequency in different species from under ten cycles per second (below the limit of human audition) to over one hundred kilocycles per second (far above the limit of human audition). The detection and analysis of sounds by animals is likewise complex. In spite of these adaptations, though, acoustic communication by animals is ultimately limited by distortions of sounds while traveling through the environment (propagation).

Production of Sound

Production of sound requires the forced vibration of some anatomical structure. For the most effective

emission of sound power, a source must produce sounds with wavelengths no greater than the dimensions of the source. For longer wavelengths, the emitted power drops steeply with increasing wavelength. Consequently, for animals with similar anatomical structures for producing sound, larger species often produce sounds of lower frequencies (longer wavelengths).

Among terrestrial vertebrates other than birds, many communicatory sounds result from vibrations of the vocal cords. These two flexible membranes in the larynx at the anterior end of the trachea are driven by the expulsion of air from the lungs. In some species, adjustment of the tension on the vocal cords alters the fundamental frequency of the sound. The amplitude of these sounds can be altered either by movement of the arytenoid cartilages in the larynx, as in certain toads, or by modulation of the force with which air is expelled from the lungs. Certain frequencies are made weaker or emphasized by resonances of the air spaces in the pharynx, mouth, and nasal passages, which produce a band-pass filtering of the vocal sounds. In humans this mechanism is highly developed to produce the formants of SPEECH. Mammals also produce important nonvocal communicatory sounds—for instance, by stamping their feet, by expelling air forcibly through the nostrils in a snort or whistle, and even in a few species by rattling stiff spines.

Birds do not use the larynx for producing sounds. Instead, an anatomically distinct structure—the syrinx—incorporating the distal ends of the bronchi and adjoining trachea serves this purpose. In the true songbirds (Oscines, Passeriformes) the syrinx consists of a thin membrane in the wall of each bronchus along with five to seven pairs of intrinsic and two pairs of extrinsic muscles (Figure 1). In other birds the syrinx includes two additional thin membranes, either in the walls of the trachea or in the bronchi, but in no case so many intrinsic muscles. Sound is produced by expulsion of air from the lungs past the membranes. In some species the vibration of the membranes determines the fundamental frequency of the sound produced; in others, including doves, constriction of the membranes produces a whistle as a result of turbulence in the downstream air column. Amplitude is controlled by the force with which air is expelled from the lungs or perhaps by constriction of the glottis in the larynx, which has an elaborate bony and muscular structure in Oscines. Frequency modulation in the true songbirds results from adjustments in the tension of the syringeal membranes. As an extraordinary consequence of this mechanism, in many species of songbirds a bird can sing a duet with itself by independently adjusting the membranes in its two bronchi.

In many species of birds, special elongations or enlargements of the trachea or esophagus, often in

conjunction with the respiratory air sacs, produce resonant cavities that could amplify the emitted sounds at particular frequencies, although these effects still require experimental verification. Some birds also produce communicatory sounds by scraping together stiff feathers, by means of specialized feathers that vibrate in flight or when fanned vigorously, by clapping together the upper and lower parts of the beak, or by drumming their beaks on trees.

Among invertebrates, terrestrial forms that produce communicatory sounds include a variety of spiders and scorpions, but the most numerous are insects. Unusual mechanisms include knocking the head on another surface (certain beetles and termites) and whistling by brief expulsions of air from the tracheoles (queen honey bees). The two major groups of sound-producing insects are the Orthoptera (grasshoppers and crickets) and Cicadidae (Homoptera, cicadas). The former produce shrill creaking noises (stridulations) by scraping a stiff plectrum across a filelike structure, a series of ridges or protuberances. Acridoid crickets and grasshoppers scrape their hind legs against their closed forewings; grylloid and tettigonioid crickets and grasshoppers scrape their two forewings together. The wings themselves serve as sounding boards to improve the impedance match with the ambient air. In some species the wings have specialized thin membranes for this purpose. Cicadas produce a rapid series of clicks by buckling, inward and outward, curved tymbals formed by the exoskeleton on the sides of the first abdominal segment. See also INSECTS, SOCIAL.

Aquatic animals produce as much if not more noise than terrestrial ones. Many crustaceans, for instance, produce clicks or stridulations with specialized portions of their exoskeletons. The snapping shrimp has a tiny plunger that works when the major cheliped (pincer) is opened and closed; in many coastal areas of the world these shrimp are so abundant and active that the water sizzles continuously with their sounds. The action of the plunger ejects a stream of water during foraging, and the sound apparently serves no role in communication. It was, however, the cause of much speculation and consternation among naval acoustics experts during World War II before its source had been identified. In contrast, it has been known since antiquity that spiny lobsters produce rasping sounds by scraping the bases of their antennae against ridges on their heads.

Bony fish also produce many communicatory sounds. Some appear to result from bones snapping against each other. In other species, bones of the pharyngeal arches, which support the gills, scrape against each other or across special bony protuberances in the floor of the pharynx to produce rasping noises. Thrumming sounds often result from vibrations of the air sac, induced by muscles in the walls or medial septum of the sac. In some species, sound-

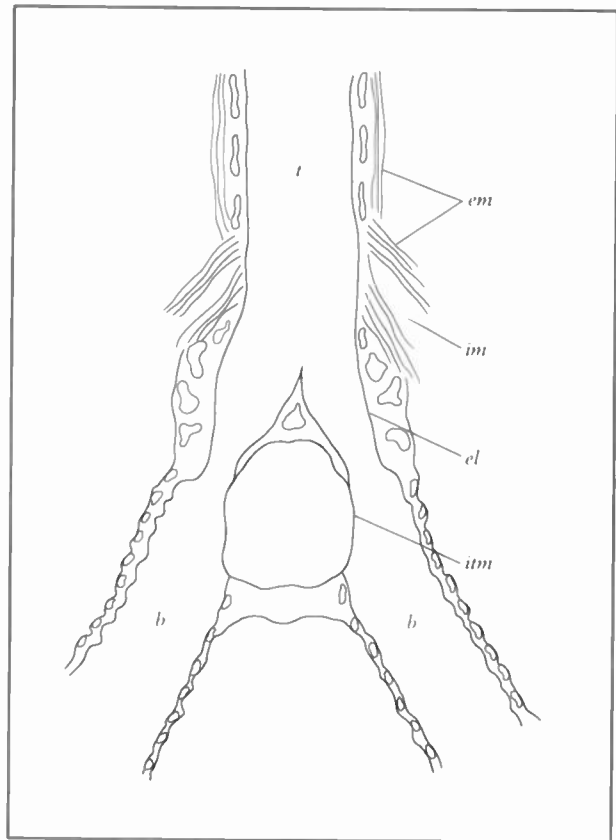


Figure 1. (*Animal Signals—Audible Signals*) Syrinx of an oscine songbird, schematic diagram of a longitudinal section: (*t*) trachea; (*b*) bronchus; (*itm*) internal tympaniform membrane; (*el*) external labium; (*em*) extrinsic muscles; (*im*) portion of the intrinsic muscles of the syrinx. The intraclavicular air sac lies against the external surfaces of the syrinx, including the extraluminal surfaces of the tympaniform membranes. Redrawn after F. Nottebohm.

producing portions of the pharyngeal arches lie against the air sac, which could then act as a resonating chamber.

Perhaps the most versatile of all animals in the range of sounds produced are the cetaceans: whales, porpoises, and dolphins. These animals produce sounds underwater without expelling air, by shifting air from one compartment to another within the head. The highly modified larynx includes an expandable chamber, which is filled by blocking the nasal passages at a point beyond the larynx while expelling air from the lungs. The air from the laryngeal chamber is then expelled through constrictions in the nasal passages controlled by muscular sphincters into diverticula located between the skull and the tightly closed blowhole. The air passing the nasal constrictions produces a startling variety of whistles, squeals, and flatulences.

Diversity of Communicatory Sounds

Most animals produce sounds well within the range of human hearing, but some, especially whales and certain birds, include some exceptionally low-frequency sounds near the lower limit for human hearing. Such frequencies have advantages for long-range communication (see below).

Ultrasonic sounds, greater than twenty kilocycles per second (the upper limit of human hearing), have evolved for special purposes. Because of their short wavelengths and high rate of absorption, they are ideal signals for echolocation of small objects at relatively close range. Bats, many of which rely on echolocation for capturing insects at night, produce intense ultrasonic chirps. Other animals that employ echolocation, including several birds and dolphins, make use of clicks or whistles at ultrasonic frequencies as well as frequencies audible to humans. These species only approximate the bats' extraordinary powers of discrimination.

Some rodents produce simple ultrasonic sounds, including distress cries of isolated young and certain male vocalizations during mating. In both cases the high rate of attenuation of these sounds effectively restricts them to nearby receivers and thus minimizes the chances of attracting predators or rivals.

Most birds have a surprisingly large repertoire of different types of vocalizations, in some species more than twenty. Most of these vocalizations are brief notes—some tonal, others harsh—used for close-range communication and alarm calls. Most species also have complex stereotyped vocalizations as well. Songbirds (Oscines) that defend relatively large territories usually have elaborate songs of complex, largely tonal patterns. In some species each individual masters a repertoire of these stereotyped patterns. Full development of these patterns usually requires experience with normal adult songs, a learning process that in some species is restricted to a sensitive period early in life. Interacting with adult birds in addition to hearing their songs can also enhance this learning.

Mammalian vocalizations are notable for their variability even within the repertoires of single individuals. The different calls in an individual's repertoire often merge with each other through a series of intermediate forms. Some of this variation, particularly though not exclusively in primates, is now known to be associated with different social contexts or external referents. As a general pattern in mammalian vocalizations, though, calls indicating aggressive threat tend to have low fundamental frequencies and wide spectra, while calls indicating submission or fear have the opposite features: high fundamental frequencies and tonal structure.

An important issue in research on animal sounds

is the specificity of the information they encode about the signaling animal. For some mammalian and avian species, particularly primates, evidence now indicates that even subtle variation in the structure of calls correlates with differences in the signaler's social situations, relationships to the receiver, or external referents such as the type of predator detected or food discovered. In some cases, playbacks of tape recordings have verified that members of the same species can make these distinctions and respond appropriately on the basis of the sounds alone. Experiments with vocalizations of birds and mammals have also demonstrated capabilities for recognition of particular individuals, such as parents, offspring, mates, or territorial neighbors, on the basis of individual differences in vocalizations. Some birds' songs also vary geographically, in some cases in the form of distinct dialects. In these species, individuals tend to respond most readily to songs of their local dialect, a discrimination that applies both to females responding with solicitations for copulation and to males responding to a territorial threat. *See also ANIMAL SONG.*

At least one fish is also known to recognize individual differences in the sounds of territorial neighbors. In contrast, the sounds produced by amphibians and invertebrates, so far as is known, only convey information about species and sexual status to potential receivers. Unlike the vocalizations of many birds and mammals, there are no consistent, individual differences in sounds.

Detection and Perception of Sound

Of the diversity of mechanisms for detecting and analyzing sound, all involve the coupling of mechanical transduction with neural analysis. In mechanical transduction the incident sound wave produces movements in some anatomical structure. The mechanism can respond to two features of the incident sound: either the pressure wave or the accompanying local displacements of the molecules in the medium. In the near field of a source of sound (roughly within a distance corresponding to the wavelength of the sound or the maximum dimensions of the source), the medium undergoes substantial displacement. Farther from the source, in the far field, most of the energy in a sound field is present in a pressure wave. The propagation of the pressure wave is accompanied by slight displacements of the molecules of the medium backward and forward in the direction of propagation. Since sound travels more than four times as fast in water as in air, the wavelength of a sound of a given frequency is more than four times longer, and the near field of the source extends more than four times as far.

The simplest mechanical transducer for detecting

sound is a fine hair. Such a structure resonates, like a tine of a tuning fork, at a particular frequency, corresponding to its natural period of oscillation as determined by its mass and compliance. Movement occurs in response to the local displacement of molecules in the medium as a sound wave passes.

For transducing the pressure variations in sound waves rather than the molecular movements, terrestrial vertebrates and many insects have evolved specialized organs. These structures all include a thin membrane, or tympanum, which vibrates in response to fluctuations in the pressures applied to its two faces. There are two types of membranous detectors: pressure and pressure-gradient detectors. In the first type, found in the ears of humans and many other mammals, one side of each tympanum is exposed to a reference pressure in an essentially closed, rigid cavity. Fluctuations in external pressure create differences in pressure across the membrane and set it in motion.

In the second type of detector each tympanum is exposed to the fluctuations of external pressure on both its faces. The tympanal organs of some acridoid Orthoptera, for instance, consist of two tympana in pockets on either side of the first abdominal segment. Large tracheal air sacs with thin walls fill the space between the inside surfaces of the tympana (Figure 2) so that changes of pressure are transmitted through the thorax from one membrane to the other, at least for frequencies less than about eight kilocycles per second. At any instant, depending on the orientation of the body, the phase of the sound wave differs at the two tympana. Fluctuations in this pressure gradient as the wave passes set the membranes in motion. A fundamentally similar mechanism appears in some frogs, reptiles, and birds.

Both of the mechanisms for detecting the pressure waves of sound in air offer advantages over a vibrating hair. The greater surface of the thin membrane offers higher sensitivity and thus reduces the need for narrow selectivity of frequencies; tympanal detectors respond to wide ranges of frequencies. The two tympanal mechanisms, on the other hand, differ in one fundamental way: directionality. As the response of a pressure-gradient receptor depends on the phase difference of the wave at two locations, the response varies dramatically as the animal changes its orientation with respect to the direction of the sound wave. When the two tympana are equidistant from the source, so that the line between them is transverse to the direction of propagation, the phase difference drops to zero, and a null occurs in the response.

In contrast, the pressure detector, which makes use of a reference pressure, lacks inherent directionality. Fluctuations of pressure from passing sound waves, regardless of their direction of travel, induce move-

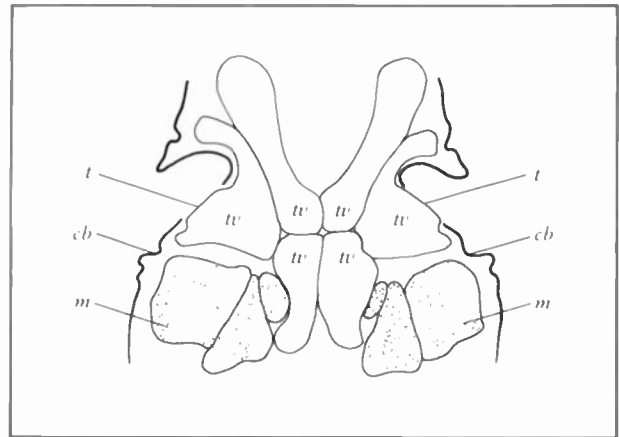


Figure 2. (*Animal Signals—Audible Signals*) Tympanal organs of a locust (Orthoptera: Acridoidea), schematic diagram of a cross-section through the first abdominal segment: (*t*) tympanum; (*tv*) tracheal vesicles (air spaces with thin walls); (*cb*) cuticular body at the site of attachment of sensory cells; (*m*) muscle. Note that air-filled tracheal vesicles bridge the space between the two tympana. Redrawn after H. Autrum.

ments of the tympanum, because the internal reference pressure remains constant. In actual cases, such ears have some directionality for wavelengths shorter than the distance between the ears because of sound shadows cast by the animal's head. To determine the direction of sound, these animals can use neural mechanisms to compare the responses of the two ears. Humans, for instance, can compare differences in the times of arrival, phases (for wavelengths greater than the width of the head), or amplitudes (for wavelengths shorter than the width of the head) of the incident sound on opposite sides of the head.

Discrimination of frequencies presents additional problems. All receptors, as emphasized above, have some selectivity in the frequencies to which they respond, although the narrowness of tuning varies considerably. Thus male mosquitoes' antennal hairs respond, as does the animal itself, to a narrow band of frequencies. Such a receptor—and the animal—cannot discriminate among different frequencies.

Frogs also have receptors in their inner ears tuned to certain frequencies. In this case the animals have two or more sets of receptors, each tuned to different bands of frequencies. Usually one or more sets of cells are tuned to frequencies in the males' mating calls; a separate set is tuned to low frequencies and perhaps is used to detect approaching predators.

Acridoid orthopteran insects discriminate among frequencies by another mechanical means. The membrane of the tympanal organ is divided into two portions, which differ in thickness and consequently resonate at different frequencies. Four separate attachments for sensory neurons differ in their response

to the vibrations of these portions of the tympanum so that the animal has several distinct populations of neurons tuned to different frequencies.

Frequency discrimination reaches its greatest sophistication in the cochlea. These organs have evolved separately in birds and mammals from reptilian ears, yet in both cases they depend on apparently similar mechanical means for separating frequencies. The changes in width and thickness of the basilar membrane in the cochlear duct result in corresponding changes in the response to the imposed force of a traveling wave along the membrane. The ability of a bird's ear to discriminate frequencies is comparable to that in mammals. Birds generally have less sensitivity than mammals at high frequencies, but some at least have greater sensitivity at low, subsonic frequencies.

Detection of sound underwater poses a different set of problems. The largely aqueous bodies of marine organisms are essentially transparent to sound; there is little differential movement of anatomical structures, on which transduction of pressure waves depends. Consequently, air-filled spaces or solid structures in marine organisms help in the detection of fluctuating pressures. The swim bladders of some fish serve this purpose. In cetaceans the mandible—the long bone of the lower jaw—transmits vibrations to the inner ear. No external passage for the ear is required.

Neural specializations for analyzing sounds begin at the level of the sensory cells themselves. Poorly understood interactions among auditory neurons in the mammalian cochlea, for instance, improve discrimination of frequencies. Even sharper tuning occurs in higher-order neurons in the brain stem.

Animals with special capabilities in hearing tend to have special neural mechanisms at early stages in the analysis of sound. For instance, bats use abrupt sweeps of ultrasonic frequencies in detecting small targets by echolocation. The barn owl, which specializes in catching its prey by sound, incorporates in its auditory cortex a complete representation of auditory space, analogous to the representation of visual space in the visual cortex of most vertebrates. In the owl, neurons at lower centers analyze the direction of a source of sound in three dimensions; this information is then organized in the auditory cortex, where the cells at each point respond selectively to sounds from a particular direction.

Many other animals have perceptual or sensory mechanisms specialized for recognizing species-specific acoustic signals. Some insects and lower vertebrates, as already noted, have receptors selectively tuned to the frequencies in species-specific calls. In orthopteran insects central neurons respond selectively to timing differences in the pulses of species-specific calls, differences that turn out to be the critical parameters for recognition of species.

More complex specializations in auditory processing occur in some mammals. Rhesus macaques, for instance, can discriminate among variants of sounds within their species' repertoire more easily than they can discriminate among similar sounds from related species. This result recalls the differences in human ability to discriminate among sounds from one's native language and those from an unfamiliar language. *See also* PERCEPTION—SPEECH.

One special capability that has received much recent attention is categorical perception. Humans asked to discriminate phonemes tend to perceive them in discrete categories. As the acoustic characteristics of a phoneme are transformed experimentally in a continuous sequence into those of a similar phoneme, a person tends to categorize the variants as belonging to one of the phonemes until some threshold is passed. Similar capabilities are reported for other animals. In these cases the subject is first trained to discriminate between two different acoustic signals or between two variants of vocalizations in its species' repertoire. To which kinds of stimuli or task this sort of categorical generalization, as opposed to the more usual progressive generalization, applies is not yet clear. Perhaps any well-learned task generalizes categorically.

Propagation of Sounds through the Environment

The listener or receiver must deal with acoustic signals not as they originate from the source but after they have propagated through an environment. Two difficulties arise as a consequence: the signal mixes with irrelevant sounds in the background, and the signal itself degrades and attenuates.

Background sounds can mask a signal by having the same or similar effects on the receptor organs of the listener. All natural acoustic communication encounters irrelevant background sounds. Most terrestrial environments have low-frequency sounds from human sources. Automobiles and airplanes produce low frequencies that travel for miles, pass through vegetation, and diffract over hills. Rain and vegetation rustling in the wind produce noise with a wide spectrum of frequencies. These sources of background sound can often be minimized by choosing the best time of day for signaling. In fact, dawn offers advantages in this respect. The most serious background sounds for communication, however, are often vocalizations of other animals. Birds that live in colonies confront this problem in its worst form. Each bird trying to communicate with its mate or young must do so over a din of other birds using very similar vocalizations for the same purpose. These birds minimize the difficulties by using sounds that make localization by the listener as easy as possible: complex temporal patterns in which elements have abrupt onsets and terminations and wide spectra. By

being able to focus attention on a portion of its auditory space a listener can effectively increase the signal-to-noise ratio.

The masking of acoustic signals by background sound also depends on the listener's selectivity for different frequencies. One advantage of narrow tuning of receptors or discrimination of frequencies is the exclusion of much background sound. This basic consideration explains why animals always have either narrowly tuned receptors or sophisticated mechanisms for discriminating frequencies.

During propagation through the atmosphere acoustic signals suffer attenuation and degradation that reduce a listener's ability to detect or recognize them. Attenuation results in the first place from the nearly spherical spread of sound from the source.

In addition to attenuation from spherical spreading, molecular relaxation in the atmosphere absorbs acoustic energy. This form of attenuation increases with frequency and also depends to a lesser extent on temperature and humidity. In general, higher frequencies attenuate more for propagation over a given distance than do lower ones. The ultrasonic cries of bats used for echolocation attenuate so rapidly with distance that they can hardly serve to detect even large targets at ranges of more than ten meters. Animals that use vocalizations for long-range communication often produce sounds with low frequencies, such as the hooting of owls. However, there are three limitations on the use of low frequencies: (1) the reduced sensitivity of the listener's ears at low frequencies, (2) the higher levels of background sound of low frequencies, and (3) in many cases the limitations imposed by small size of the animal on the possibility of producing low frequencies efficiently.

Sound also attenuates as a result of scattering from objects in the environment, particularly the leaves of trees. *Scattering* is a general term for multiple reflections and diffraction of waves. To produce scattering effectively, objects must have dimensions as large as or larger than the wavelengths of sound. Longer wavelengths (lower frequencies) scatter only from correspondingly larger objects. Attenuation in broad-leaved forests increases noticeably above three kilocycles per second in comparison to open environments. Bunches of needles on needle-leaved trees only appreciably scatter frequencies above eight to ten kilocycles per second at the upper range of the frequencies used by birds for territorial songs. Although atmospheric attenuation always makes lower frequencies more advantageous than higher ones for long-range communication, the additional attenuation of high frequencies by scattering in forests could lower the upper limit of frequencies acceptable for communication. Indeed, several studies have found evidence that birds in forests use lower frequencies than similar birds in more open environments.

A final source of attenuation results from effects

of the ground. When acoustic signals propagate close to the ground, the signal at the receiver is subject to interference between the direct wave from the source and the wave reflected from the ground. For transmission within a fraction of a meter of the ground, sound propagates as a ground wave, the result of an interaction between the air near the surface and the air within pores of the soil. This mode of propagation has a sharp cutoff frequency, so the effect is like a low-pass filter: all frequencies above a critical frequency are severely attenuated. With few exceptions, birds avoid this problem by singing from perches at least one meter above ground and often much higher, or by singing in flight well above the ground. This behavior is particularly striking in species that otherwise feed and spend most of their time on or near the ground. Those that do produce sounds near the ground use exceptionally low frequencies, such as the booming sounds of several species of grouse. Insects and frogs that communicate over distances of at least ten meters and are too small to produce low frequencies efficiently likewise crawl or fly to perches in vegetation well above the ground.

In addition to attenuation, degradation of acoustic structure by amplitude fluctuations and reverberation affects sounds during propagation. Amplitude fluctuations result from transitory heterogeneities in the atmosphere, particularly eddies and pockets of warm air rising from the ground. These variations in the density of air refract sound passing through them and can produce drastic variations in the amplitude of sound. These effects are more pronounced in open environments, where winds are often stronger and thermals more likely. Amplitude fluctuations thus produce effects like dropouts on a tape recording. In such environments long-range acoustic signals with complex, prolonged, stereotyped patterns with lots of specific detail in short intervals of time would be favored so that a listener could recognize the signal from hearing short snatches of it at irregular intervals. In fact, birds of prairies and other open environments often have territorial songs that sound like prolonged tinkling, an indication of the rich, stereotyped detail.

Reverberations result from multiple reflections of sound from objects in the medium. Consequently the sound arriving at the receiver comes by paths of different lengths and thus with different delays. A sound that terminates abruptly at the source wanes gradually at the receiver, with the consequence that temporal patterns are obscured (Figure 3). This problem arises especially in forests, where the foliage and tree trunks provide reflecting surfaces for sounds above roughly one kilocycle per second. Long-range sounds in this environment should differ diametrically from those just discussed for open habitats: they should avoid rapid repetitions of notes at any one frequency. In fact, the territorial songs of birds

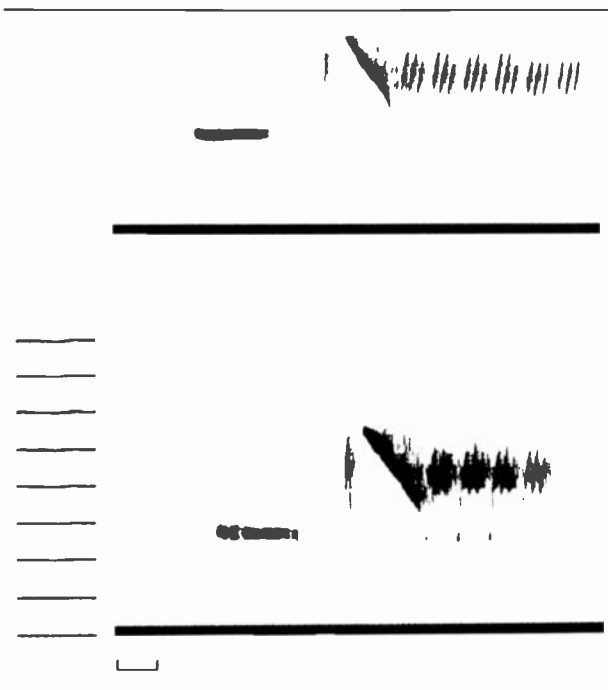


Figure 3. (*Animal Signals—Audible Signals*) Reverberation of a bird's song. *Upper*, spectrograph of the song of a rufous-sided towhee (*Pipilo erythrophthalmus*) recorded from five meters away; *lower*, spectrograph of the same song recorded from fifty meters away. Vertical scale, frequency in units of one kilocycle; horizontal scale, 0.2 second. Note the reverberations obscuring much of the acoustic pattern at a distance from the source. Reproduced by permission of D. G. Richards.

in forests lack rapid repetitions of this sort much more often than do those of birds in open areas. The songs of birds in forests often sound to our ears more melodious than those of birds of open habitats, because reverberation and attenuation by scattering from foliage create advantages for lower frequencies, more sustained tones, and a more measured tempo.

Reverberation also makes the task of locating acoustic signals more difficult. The onsets and terminations of sounds are diffused, and the directionality of the arriving sound is reduced. Notes sustained for longer than usual or repeated at regular but not too frequent intervals might permit more accurate localization of the source by the receiver. It is also possible that animals in forests might have evolved to use reverberation to obscure their locations in order to mislead rivals and predators.

Experiments with clean and degraded tape recordings of songs have demonstrated that at least some birds do have this ability to judge the distance to a source. If a listening animal had experience with the prevailing conditions for reverberation and frequency-dependent attenuation, and if it knew in a general

way the characteristics of the signal at the source, it could judge the distance to the source.

Acoustic communication in water encounters the same problems of attenuation and degradation. The primary differences in comparison with communication in the atmosphere arise from the much greater speed of sound in water (approximately 1450–1550 meters per second in sea water) and the much lower rate of attenuation (approximately one hundred times less than in air). The higher speed of sound means that for a given frequency sound has a wavelength over four times as great as in air. It is significant that most echolocating bats eat small insects, whereas most echolocating cetaceans eat fish. Even though both use comparable ultrasonic frequencies, the dolphins achieve substantially less resolution.

One consequence of the lower attenuation of sound in water is the much higher background noise from human machinery. The sounds of ship propellers and engines create an underwater din far from their sources.

Attenuation of sound in the sea is further spectacularly reduced at a depth of about fifteen hundred meters. At this depth the speed of sound is at a minimum. The speed of sound in water increases with increasing temperature and increasing pressure. With increasing depth in the sea, temperature drops and pressure rises. As a consequence the speed of sound first drops with depth, but then, as pressure continues to increase and temperature stabilizes, it rises. A sound produced at the depth of the minimum speed is refracted downward from the layers above and upward from the layers below. In effect it is trapped in a waveguide and consequently spreads, not in three dimensions but in two. In combination with the lower attenuation by molecular absorption in water, intense sounds sometimes produced by whales in this layer could conceivably propagate throughout an ocean basin. Considerable distortion would occur, though, as in propagation through any waveguide. It remains to be demonstrated that whales actually use this channel for such long-range communication.

In any environment, background sounds, attenuation, and degradation increase the chances for error on the part of receivers, either because receivers fail to detect or to classify an acoustic signal correctly or because they respond in the absence of a signal. These errors can also occur during the central processing of auditory information. Regardless of their origin, these errors constitute noise in communication, as defined by communications engineers, and this noise in turn defines the channel for communication. The mechanical and neural processes by which sounds are produced, propagated, and detected are thus fundamental to an analysis of acoustic communication.

See also ANIMAL COMMUNICATION.

Bibliography. René-Guy Busnel, ed., *Acoustic Behaviour of Animals*, Amsterdam and New York, 1963; Donald R. Griffin, *Listening in the Dark*, New Haven, Conn., 1958; Klaus Kalming and Norbert Elsner, eds., *Acoustic and Vibrational Communication in Insects*, New York, 1985; Donald E. Kroodsmma and Edward H. Miller, eds., *Acoustic Communication in Birds*, 2 vols., New York and London, 1982–1983; Brian Lewis, ed., *Bioacoustics: A Comparative Approach*, London, 1983; P. E. Purves and G. E. Pilleri, *Echolocation in Whales and Dolphins*, London, 1983; Charles T. Snowdon, Charles H. Brown, and Michael R. Petersen, eds., *Primate Communication*, Cambridge, 1982.

R. HAVEN WILEY

3. CHEMICAL SIGNALS

Chemical signals are probably the most ancient means of communication among living organisms. Existing single-cell organisms communicate in this manner, and it is likely that the first living organisms did also. Among primitive organisms chemical communication between individuals could have been a simple extension of the mechanisms that had evolved for coordination of functions within the organism. It continues to be essential in the life of many species. In 1959 the term *pheromone* was coined to refer to chemical signals between individuals of the same species. At that time such signals were thought to be analogous to hormones in that they (1) were single chemical substances, (2) were secreted by specialized glands, and (3) had specific behavioral or physiological effects on the receiver. It has become clear that most chemical signals are both chemically and functionally more complex than this original concept implied.

Characteristics. Chemical signals differ greatly from visual and auditory signals. The most important difference is that chemical signals persist in time. Even the briefest odor can still be detected in the atmosphere for tens of seconds or even several minutes, and scent that is deposited on a surface may last for months. The most obvious advantage of this characteristic is that chemical signals will remain in an environment and be effective in the absence of the sender. Many animals use scent marks for such purposes as defining territorial boundaries, identifying a home burrow, or indicating a trail to a productive food source. A less obvious but more fascinating consequence of this persistence is that scent marks may provide information about the passage of time. The odor quality of scent marks containing numerous chemical compounds changes with time as the more volatile components evaporate. Experiments with both insects and mammals have shown that individuals detect these changes and may respond differently to scent deposits of different ages. Infor-

mation about the age of a scent can be useful for a variety of purposes, because it tells one individual how recently another individual has been in the vicinity. Perfumists, for example, recognize the problem of changing odor quality and have spent millions of research dollars on chemical additives that will bind volatiles and release them at a relatively slow and constant rate so that the perfume lasts and the scent does not change. Animals too have dealt with this problem over the course of evolution, and most of the so-called fixatives used originally by perfume chemists were extracted from animal scent glands—civetone from civets, muskone from musk deer.

Sources. Any animal products that are secreted or excreted into the environment may be used as a source of chemical signals. Many animals use urine, feces, or saliva as carriers for scents, the most common example being the urine-marking of dogs and wolves. Most species have also evolved specialized scent glands that produce secretions specifically for the purpose of communication. Scent glands can occur on any part of the body. Common sites in mammals include the anogenital region (most species), the corner of the mouth (cats, ground squirrels), in front of the eye (antelope and deer), on the bottom of the feet (deer), in or near the armpits (humans and some other primates), and on the flank, back, or ventral midline (rodents). Many mammalian species have an array of such glands, sometimes with quite different functions. In species that use urine or feces as a carrier for scent, specialized glands often produce the primary components of the signal and add them to the excretory product. Such glands may be under the animal's control, so that an individual may produce either scented, signal-bearing feces or unscented, noncommunicative feces, depending on the situation (e.g., European rabbits).

Chemical nature. Scent glands usually produce a mixture of chemical compounds. The number of compounds ranges from just a few into the hundreds. A major task for research is to determine the effective components, those responsible for the communicative functions of the gland.

In some cases the effective signal consists of a single chemical compound with a relatively limited and specific effect on the receiver (e.g., sex attractant in the gypsy moth, *Porthetria dispar*). In other cases, especially well studied in insects, the chemical signal consists of several compounds. The overall effect of the signal and the degree to which it is species-specific may depend on the ratios of the individual components. For example, the sex attractant of the female oriental fruit moth (*Grapholitha molesta*) is maximally effective when the ratio of its three major components is 100:6:3; even slight deviations in these ratios make it much less effective in attracting males. In yet other cases, especially evident among

vertebrates, the scent secretion consists of a large number of chemical compounds. It is not clear to what extent all of these components are functional. In a number of mammalian species single components have been identified that can account for a significant percentage of a particular effect (such as the magnitude of sexual attraction), but such isolated components do not account for the full level of activity obtained when the complete scent is used. For some functions, such as individual, group, or kin recognition, many components are important in contributing to the "odor image," much as many components of a human FACE contribute to its individual distinctiveness. Both examples suggest that the complexity of many vertebrate scent signals, the richness and distinctiveness of their odor, is important for their function and that behavioral or physiological responses depend at least in part on the entire complex, not just a few components.

In some cases the chemical nature of the signal may have evolved to suit the function it serves. Alarm signals tend to be highly volatile substances that spread quickly but are short-lived in their action; sexual attractants also tend to be relatively volatile in order to attract partners from a distance but not so volatile that the scent disappears too quickly. At the other end of the continuum territorial marks are relatively nonvolatile and persist for a long time.

Deployment. Chemical signals may be emitted directly into the surrounding medium (air, water) or deposited onto objects in the environment (twigs, branches, rocks, or other prominent features). Signals released into the air or water will necessarily have a shorter effective lifetime than those deposited on an object, and the former tend to be for short-term functions such as signaling alarm, attracting a sexual partner, or repelling a predator. Indeed some of the most spectacular uses of chemical signals are for defense, the most well known being the obnoxious spray of skunks. Even more dramatic is the defensive spray of the bombardier beetle (*Brachinus sp.*), a mixture of irritating quinones that is emitted at approximately one hundred degrees centigrade. The beetle accomplishes this by mixing secretions from two glands, which react explosively and release heat.

Most species that employ scent signals have specialized behavior patterns for depositing scent in the environment, usually referred to as scent-marking behaviors. Such behaviors generally bring the scent gland into direct contact with an object in the environment, although some (such as the dog's raised-leg urination posture) allow the animal to aim at the appropriate object. Scent deposited in the environment generally persists for a considerable time and may have a variety of personal or group advertisement functions. Scent-marking behavior is usually

distinctive and stereotyped in form, often appearing as an exaggeration of normal movement. For humans, with our relatively limited olfactory abilities, such visible behavior often provides the most obvious indication that animals are doing something important. It also gives scientists a means to study this elusive mode of communication.

Perception. Perception of chemical signals is mediated either by the olfactory system, specialized for reception of chemicals released into the air (or into the water in the case of aquatic species), or by taste or other contact chemical senses. In reptiles and mammals an important sensory system for reception of chemical signals is the vomeronasal (or Jacobson's) organ, a tubular structure located either in the roof of the mouth (snakes and a few mammals) or in the nasal cavity (most mammals).

The neural mechanisms mediating chemical communication are reasonably well understood among insects but not in other complex organisms. In simple systems, in which one or just a few chemical compounds constitute the signal, there are often sensory nerve cells that are highly specialized for sensitivity to a single chemical component of the signal. The function of such cells is primarily to indicate the presence or absence of this one chemical compound. Behavioral or physiological responses to a chemical signal thus depend on activity in this class of sensory neurons. In general, however, sensory nerve cells in the chemical senses tend to be generalists; they respond to a range of chemical compounds. Sensory processing is thus based on comparisons among the responses of many sensory cells that differ in their patterns of sensitivity. Although the details of the mechanisms are unknown, this kind of system allows subtle discriminations among complex odorants to be made with a relatively small number of sensory nerve cells.

Behavioral functions. When chemical signals from one individual influence the behavior of other individuals they are said to have behavioral functions. These include sexual attraction and excitation; trail following; alarm; threat; individual, kin, or group recognition; offspring or parent identification; and elicitation of nipple attachment and nursing. In some cases behavioral responses are immediate and highly predictable, but in other cases changes in behavior may be extremely subtle and/or greatly delayed.

Among the signals that have immediate effects on behavior are sexual attractants, known to occur in a wide range of animals. Such signals cause perceivers of the opposite sex to attempt to find the source of the scent, which may involve moving upwind or upcurrent or searching within the active space of the scent. Once the recipient of the signal is in the vicinity of the sexual partner, further courtship and mating

activities are usually coordinated by other signals, some of which may be chemical.

Considerable speculation surrounds the question of whether humans also have sexual attractant or aphrodisiac scents. The existence of the controversy no doubt indicates that if we do, the effects are likely to be extremely subtle. It is known, however, that in many women regular changes do occur in the composition of vaginal secretions that correlate with the menstrual cycle, indicating some basic biochemical changes that could be used as signals. However, the nature of the changes varies among women, suggesting that this is not a highly elaborated signaling system. *See also* SMELL.

Among signals that do not necessarily elicit immediate behavioral responses are those that provide various kinds of categorical information—signals that allow recognition of individuals, kin, age classes, social status classes, or one's own versus a neighboring or unfamiliar group. Individual recognition, for example, is crucial for individual vertebrate animals that interact regularly with particular other members of their own species. This function is often entirely or partly dependent on chemical signals. All mammals that have been tested show the ability to discriminate individuals on the basis of odors. Such abilities indicate the presence of highly developed perceptual capacities for discrimination of subtle differences in odor quality and for memory of these qualities. Although human infants recognize the odor of their own mother versus another mother, and many adults can recognize at least a few other individuals by odor, nonhuman species rely much more heavily on chemical communication for this kind of information, and their abilities are accordingly much greater.

Physiological functions. When chemical signals influence the physiological state of a recipient they are said to have physiological or primer functions (and are often called primer pheromones). Among mammals chemical signals are known to accelerate or delay reproductive maturation, accelerate or retard reproductive cycles of females, cause abortion of fetuses or failure of implantation of the fertilized egg in the uterus, and cause rapid, short-term changes in circulating hormone levels. For example, in many species of rodents exposure of young females to the odors of unfamiliar adult males will result in the acceleration of sexual maturity. In humans it is known that women who associate closely tend to synchronize their menstrual cycles, an effect similar to that seen in other mammals; in both humans and nonhumans this effect is caused at least in part by chemical signals. Among other taxonomic groups a variety of similar effects have been discovered, such as suppression or acceleration of reproductive devel-

opment in fish and insects and reproductive suppression leading to caste development in insects. *See also* INSECTS, SOCIAL.

Conclusions. Despite considerable information about chemical communication our knowledge of this kind (or class) of communication lags far behind that of signals for other sensory modalities. In part this may be because humans have relatively poorly developed olfactory capabilities and scent signaling systems and therefore lack intuitive insight into and/or interest in this mode of communication. Only since about 1960 have chemical techniques become sensitive enough to measure the small quantities of compounds used in chemical signals. In addition chemical senses have proved to be more difficult to investigate and understand than other senses. In the future we are bound to discover many new and intriguing ways in which animals use chemicals to communicate, possibly ways that we have not yet imagined.

See also ANIMAL COMMUNICATION.

Bibliography. Eric S. Albone, *Mammalian Semiochemistry*, Chichester, Eng., and New York, 1984; William J. Bell and Ring T. Carde, eds., *Chemical Ecology of Insects*, Sunderland, Mass., 1984; Martin C. Birch, *Pheromones*, The Hague, 1974; Richard L. Doty, ed., *Mammalian Olfaction: Reproductive Processes and Behavior*, New York, 1976; Dietland Müller-Schwarze and Maxwell M. Mozell, eds., *Chemical Signals in Vertebrates*, New York, 1977; Dietland Müller-Schwarze and Robert M. Silverstein, eds., *Chemical Signals in Vertebrates 3*, New York, 1983; John G. Vandenberg, ed., *Pheromones and Reproduction in Mammals*, New York, 1983.

ROBERT E. JOHNSTON

4. VISIBLE SIGNALS

Used in communication by almost all freely moving, diurnal animals, including humans. The major classes of animals using visible signals are crustaceans (e.g., crabs), insects, spiders, cephalopod mollusks (e.g., octopuses), cartilaginous fishes (e.g., sharks), bony fishes, amphibians, reptiles, birds, and mammals. Most visible signals have evolved for intraspecific social communication, as in schooling and flocking, dominance and territoriality, courtship and sexual behavior, and parent-offspring relations. However, interspecific signaling is also important, as in predator-prey interactions, and most flowers are visible signals to pollinators such as insects (*see also* INSECTS, SOCIAL).

Forms

Visible signals of animals are mainly intrinsic, which is to say they are part of the signaler's body (e.g.,

color patches) or are created by the body (e.g., signal postures). Humans use many extrinsic signals—those having a physical existence separate from the signaler—such as writing, painting, road signs, and traffic lights (*see also* SIGN; SIGN SYSTEM). Extrinsic signals are rare among animals, however, being restricted to fecal deposits (scat), scratching on trees, earth piles made by digging animals, nests and marked nesting areas, and other such general signals that serve primarily to denote ownership of places in the environment (*see also* sections 1 and 3, above). The more common intrinsic signals are made visible either through the signaler itself generating light or through its body reflecting ambient illumination, usually sunlight.

Bioluminescent signals. A few animal species generate light, including certain nocturnal insects, some nocturnal squids, and a number of deep-sea fishes living in the lightless depths. The shrimp and the squid are known to secrete luminescent clouds into the water to hide their escape from predators. A few animals secrete a luminescent slime over their bodies, the communicative function of which has not been well studied. Most bioluminescence, however, is emitted from special cells collected into photic organs (photophores) with complex structures of reflectors, shields, and filters. In the firefly a pigmentlike molecule of low molecular weight (luciferin) emits light upon being oxidized, which process is mediated by an enzymatic protein (luciferase). Signals emitted by photophores can be regulated to produce flashing patterns and can be made various colors by means of filters. Probably best studied among bioluminescent signals are the flashing patterns of male fireflies searching for females (Figure 1). The female perched in the vegetation answers with a simpler reply, which guides males to her location. The female of one predatory species, nicknamed the “femme fatale,” mimics the reply of other species’ females, then catches and eats approaching males.

Behavioral signals. Reflected-light communication depends mainly on behavior, in which the orientation, shape, and movement of the body or bodily parts create the signal. These signaling acts are often enhanced by morphological elements, discussed below. Orientation with respect to the intended receiver or an environmental locus is often an important signal in aggressive and sexual interactions (Figure 2). Shapes of entire animals are often altered for communicative purposes. Some fishes can puff up by inflating themselves with air. Animals having bodily coverings such as mammalian fur and avian feathers can change shape by erecting or compressing the covering, called pilomotor responses (Figure 3). Most animal shapes, however, are created by positioning extremities through the action of skeletal muscles to

SPECIES	SIGNALS
Photinus consanguineus	▲ ▲
Photinus greeni	▲ ▲
Photinus macdermotti	▲ ▲
Photinus ardens	▲ ▲ ▲ ▲
Photinus obscurellus	▲ ▲ ▲
Kalm's photuris	▲
Photuris pennsylvanica	▲
Big Black Luciola	▲▲▲▲▲▲▲▲
Little Black Luciola	▲▲▲▲▲▲▲▲
Luciola peculiaris	▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲
Luciola huonensis	▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲
Luciola obsoleta	▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲

Figure 1. (*Animal Signals—Visible Signals*) Morse-code-like flashing patterns of male fireflies, which signals are differently patterned in each species. Courtesy of Jack P. Hailman.

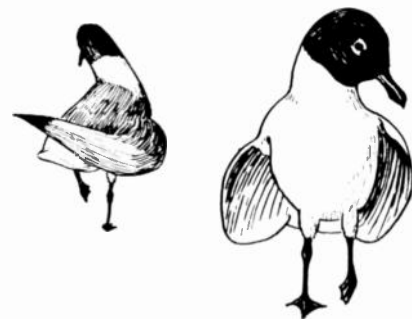


Figure 2. (*Animal Signals—Visible Signals*) Facing away in the black-headed gull, a typical orientational signal, communicates absence of aggressive intent. Courtesy of Jack P. Hailman.

form signal postures (Figure 4). Another element of behavioral signals is movement, as when a bird flies directly at another, supplanting it from a perch.

The elements of orientation, shape, and movement also are used with parts of the body to create signals. Eye contact and looking away, for example, can be behavioral signals involving only eye movements. CHARLES DARWIN pointed out that facial expressions in humans and other animals can be signals in which the shape of the mouth, EYES, and other parts convey different meanings. Similarly, movement of isolated

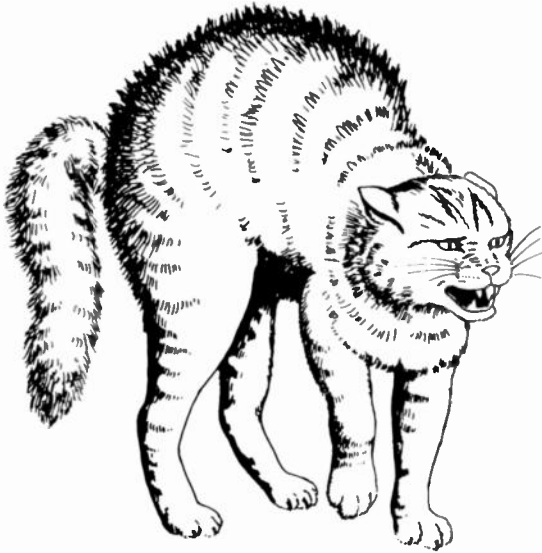


Figure 3. (*Animal Signals—Visible Signals*) The house cat's defensive shape, typical of pilo-motor responses in which animals look large by erecting body covering in aggressive signals or otherwise alter their shapes. Redrawn from Charles Darwin, *The Expression of the Emotions in Man and Animals*, London, 1872.

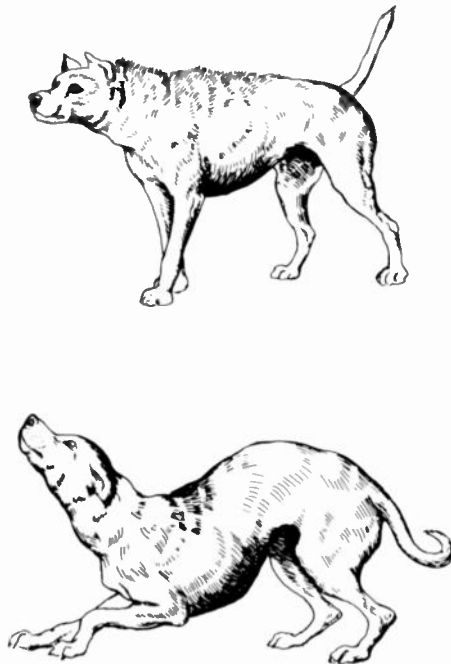


Figure 4. (*Animal Signals—Visible Signals*) As Charles Darwin noted, an aggressive dog stands erect, whereas an appeasing dog lowers its forelegs and tail, typical signal shapes created by positioning extremities. Redrawn from Charles Darwin, *The Expression of the Emotions in Man and Animals*, London, 1872.

bodily parts is often communicative, as in human gestures with hands and arms. See also FACE; FACIAL EXPRESSION; GESTURE.

These elements of orientation, shape, and movement of the body and its parts often occur together as a coordinated signal, or *display*. Displays also can employ morphological elements, discussed below. Visible displays may be relatively simple postures or complex performances like the courtship display of the Anna's hummingbird (Figure 5). The term display is no longer restricted to visible communication but is used to refer to any signal specializations, even though, for example, "vocal display" seems almost a contradiction in terms.

Morphological features. Visible signaling is often enhanced by structural features and coloration. Display structures include modification of horns and antlers in ungulates, ear tufts and tail adornments in other mammals, extendable throat flaps (dewlaps) in some lizards, modified fins in many fishes, inflatable

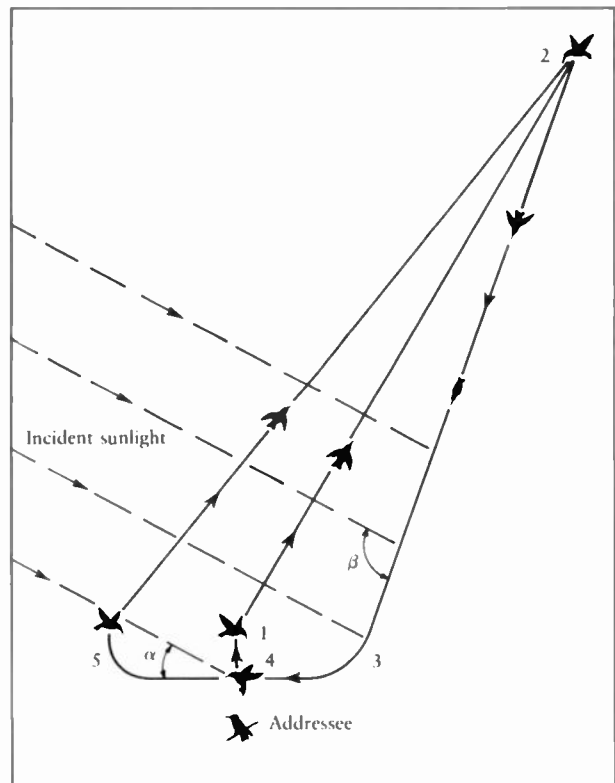


Figure 5. (*Animal Signals—Visible Signals*) The courting male Anna's hummingbird ascends above the female, hovers, power dives in an orientation to reflect sunlight from its iridescent plumage, hovers directly above the female, and then repeats the entire process time and again in a complex display involving orientation, shape, and movement as signal elements. Courtesy of Jack P. Hailman.

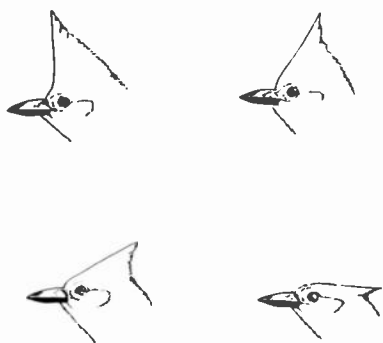


Figure 6. (*Animal Signals—Visible Signals*) The degree of aggressiveness of the Steller's jay is signaled by the angle of its crest, a typical morphological signal involving shape and movement. Courtesy of Jack P. Hailman.

throat pouches in some birds, streamer tails, erectable crests, and a huge variety of other adornments. These structural features can sometimes be controlled with respect to orientation, shape, and movement (Figure 6).

Most communicative coloration probably enhances behavioral signals and draws attention to display structure, but some color patches are signals in their own right (Figure 7). Color changes increase communicative possibilities. Some birds cover display plumage with more drab feathers: flocking signals for flight may consist of brightly colored rumps that are covered when the bird is at rest, for example; the red-winged blackbird covers its red epaulets with black feathers when fearful but displays the red when aggressive. Many animals can change color by means of cellular mechanisms that transport pigment to the



Figure 7. (*Animal Signals—Visible Signals*) The red spot on the herring gull's mandible is signal coloration that elicits pecking by the chicks, a form of begging that induces the parent to regurgitate food. Courtesy of Jack P. Hailman.

surface or retract it deeper (even covering it from view). Chameleons are well known for color changes but are outdone by many fishes and cephalopods (octopus, squid, etc.) in terms of speed of change. In these animals changes may be nearly instantaneous, and some cephalopods have "waterfall" displays in which lines of color sweep continuously along the body.

Evolution

Comparative evidence reveals factors favoring the evolution of visible signals, two of which are diurnal (daytime) habits and a reasonably open habitat. Nocturnal animals and those living in the deep sea or in caves can communicate visually only by generating their own signal light. Crepuscular species (those active at dawn and dusk) use black-and-white coloration because ambient light is insufficient for color vision; examples include whippoorwills and many mammals. Not all diurnal animals rely primarily on visible signaling, however, for birds living in dense vegetation often employ vocal communication more extensively. The answers to other evolutionary questions are less obvious and still actively under study.

Origins and ritualization. Every specialization in morphology, physiology, and behavior evolved from some less specialized precursor. Visible signals are no exception. It seems likely that pigmentation served a variety of functions in addition to social communication, and much animal coloration still serves these noncommunicative purposes. Black color (due to melanin), for example, is used to absorb infrared and visible radiation for thermal balance and to shield organs from damaging ultraviolet radiation. Both melanin and carotenoids (colored pigments) contribute to a feather's resistance to physical damage by abrasion. Physical adornments, such as antlers, crests, and so on, are elaborations of preexisting structures serving noncommunicative functions.

The origins of behavioral signals are harder to trace. Modern concepts have been elaborated by the Dutch zoologist Niko Tinbergen, along with investigators in the same tradition (*see also* ETHOLOGY). Display acts evolved from incipient movements of nonritualized precursors (Figure 8). It was originally believed that such displays could be evolved from "irrelevant" behavioral patterns occurring during times of high conflict. However, today it is generally believed that most or all behavioral signals originated from otherwise appropriate actions; for example, threat evolved from fighting acts. Almost anything an animal does may evolve into a display in some species, and signals have been traced to all these noncommunicative origins: agonistic behavior (fighting, fleeing, protective measures), reproductive be-

havior (mounting, copulation, nest building, parental care), maintenance activities (wallowing, scratching, bill wiping, preening, and grooming), and other skeletal actions (locomotion, foraging and feeding, anti-predator responses). Autonomic responses are further sources of signals: pilomotor acts (sleeking, fluffing, and ruffling), respiratory responses (yawning), vaso-responses (flushing, blanching), and ocular responses (eye movements, pupillary actions).

The changes that take place during the evolution of a signal from precursor acts with other functions are termed *ritualization*. These changes commonly

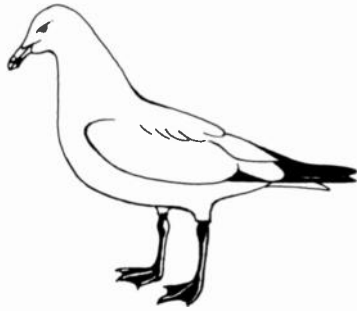


Figure 8. (*Animal Signals—Visible Signals*) The upright threat posture of the herring gull evolved from actions preparatory to fighting, such as the head held in readiness to peck down on the opponent and the wings held out slightly at the wrists in preparation for striking the other bird. Courtesy of Jack P. Hailman.

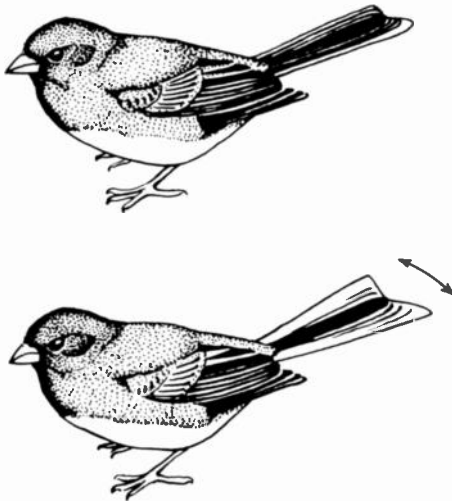


Figure 9. (*Animal Signals—Visible Signals*) A signal dark-eyed juncos use in flocking is ritualized from incipient flight movements in which the spreading of the feathers in the tail flick is exaggerated and standardized and the outer feathers of the dark tail have become white so that they flash during the movement. Courtesy of Jack P. Hailman.

involve “freezing” an incipient movement to create a posture, suppressing variation to create stereotypy, exaggerating movement and shape to create distinctiveness, and adding coloration to emphasize movement or shape (Figure 9).

Selection for signal quality. Perhaps the least understood aspect of visible signals is their precise form, which is often a compromise resulting from conflicting pressures of natural selection. One important aspect is the visibility of signals, which is enhanced by orientations differing from background (e.g., longitudinal stripes on fishes living in aquatic vegetation having vertical striation), by colors contrasting with the background (e.g., red against the complementary green color of leaves), and by other similar factors. Physiological processes also affect the form of a signal. For example, yellow is an intrinsically bright and therefore conspicuous color because most eyes are maximally sensitive to the part of the visible spectrum reflected by yellow surfaces. True green pigmentation is rare among birds partly because green-reflecting pigments are rare, some of the few being undesirably water soluble; the green of parrots is due to a combination of yellow pigment and blue structural color created by a scattering phenomenon similar to that which renders the sky blue. Another constraint on signal features is imposed by visual-system mechanisms of the central nervous system, which perceptually fuse movement that is too rapid.

Darwin pointed out that displays are selected to be distinct from one another. He framed this general notion under his more specific “principle of antithesis” in which opposite emotions were supposed to give rise to opposite expressions, as in the distinctive difference between threat and appeasement displays in a variety of animals (Figure 10). Finally, many



Figure 10. (*Animal Signals—Visible Signals*) The threat and appeasement displays of the fox sparrow are nearly opposite in shape, illustrating Darwin’s principle of antithesis in which displays having different meanings are selected to be visually distinct. Courtesy of Jack P. Hailman.

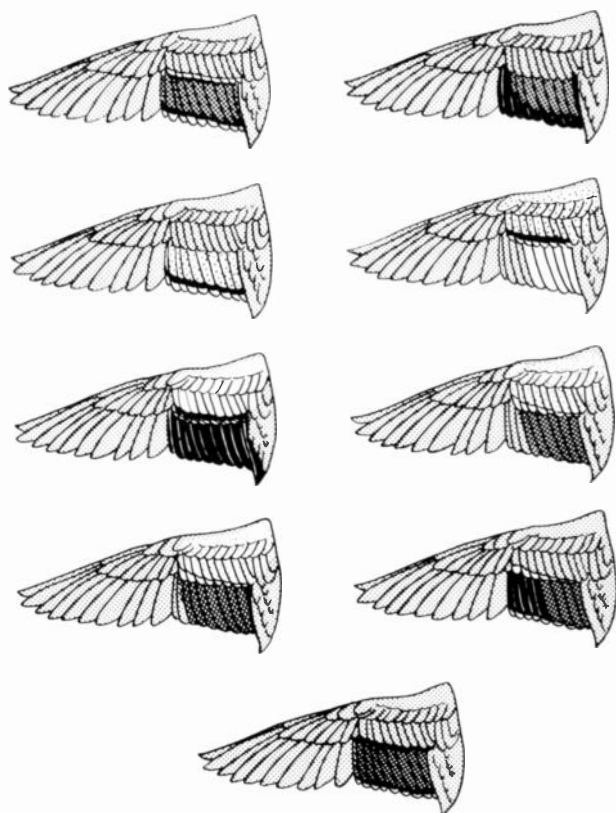


Figure 11. (*Animal Signals—Visible Signals*) Species-specific signals include the wing patches (specula) of ducks that promote grouping in flight.

displays appear to be selected for species specificity. As noted in Figure 1, the courtship flashing patterns of male fireflies are species specific, as are displays of other species (Figure 11).

See also ANIMAL COMMUNICATION.

Bibliography. Edward H. Burt, Jr., ed., *The Behavioral Significance of Color* (proceedings, Animal Behavior Society Symposium, 1977), New York, 1979; Charles Darwin, *The Expression of the Emotions in Man and Animals*, London, 1872; Jack P. Hailman, *Optical Signals: Animal Communication and Light*, Bloomington, Ind., and London, 1977; Thomas A. Sebeok, ed., *How Animals Communicate*, Bloomington, Ind., and London, 1977; W. John Smith, *The Behavior of Communicating: An Ethological Approach*, Cambridge, Mass., 1977; Niko Tinbergen, *The Study of Instinct*, Oxford, 1951.

JACK P. HAILMAN

ANIMAL SONG

Animals such as grasshoppers and cicadas, frogs and toads, birds, and certain whales produce loud, sustained, or rhythmically patterned sounds that are

customarily called songs. Animal sounds do not follow any universal features of rhythm or frequency relationships. They have developed largely in males and are used as long-range signals to attract sexually active females or to defend a territory that the female needs to raise her young. See also ANIMAL SIGNALS.

Insects

Among insects, the crickets, grasshoppers, locusts, and cicadas are the most well-known songsters. These instrumentalists produce and hear their sounds in different ways. The crickets, including katydids, rub the bases of their front wings together, and portions of the wings vibrate to produce the sounds; the sounds are heard by tympanal organs just below the knee joint on the front legs. Grasshoppers rub their hind legs against their front pair of wings; their hearing organs are on the abdomen near the base of the hind legs. The males sing to attract breeding females, and adjacent males often sing alternately or simultaneously in loud choruses. Male snowy tree crickets (*Oecanthus fultoni*) have synchronized their chorusing so well that the entire tree seems to pulsate with their songs. See also INSECTS, SOCIAL.

Amphibians

Frogs and toads produce their songs with a true larynx, or voice box. The vocal cords are vibrated with a burst of air from the lungs to the buccal cavity, and the sound is often intensified by resonating air sacs in the throat region. Again, it is the males who sing to defend a site and to attract a female for breeding. One tree frog from Puerto Rico (*Eleutherodactylus coqui*) even sings a two-noted song, "ko-kee," the first syllable directed to males and the second to females. Furthermore, the male's ear is selectively tuned to the "ko" and the female's to the "kee." By tuning only to the pertinent songs or parts of songs, frogs of each species can make sense of what, to us, is a cacophony of amphibian arias consisting of songs from as many as fifteen species in some tropical rain forests.

The songs of insects and amphibians are encoded in the genetic material; no learning or experience is required in order to produce or recognize the proper songs of the species. Hybrid species even produce and prefer songs that are intermediate to the two parental species, or in some cases they inherit the song from one of the two parents.

Birds

The songs of insects and amphibians may be functionally equivalent to the songs of birds and certain

mammals, but one exciting achievement in these latter two groups has promoted the evolution of sounds that are especially long, complex, and aesthetically pleasing to the human ear. This achievement is vocal learning, which is simply the ability to learn and imitate sounds of others. In the parrots (Order Psittaciformes) and in the songbirds (the suborder with the more structurally complex vocal apparatus in the Order Passeriformes), this learning has been well documented by research conducted both in the laboratory and in nature. Here, then, is the beginning of a new form of communication: the communication of cultural vocal traditions from one generation to the next.

This song learning in songbirds can be demonstrated clearly in the laboratory. If a nestling songbird, such as a white-crowned sparrow (*Zonotrichia leucophrys*), northern cardinal (*Richmondia cardinalis*), chaffinch (*Fringilla coelebs*), or marsh wren (*Cistothorus palustris*), is taken from the nest and isolated from songs of adults, it will produce odd songs that are very unlike those of its wild relatives. If that young bird is tutored over loudspeakers with songs of its own species, however, it imitates the details of those sounds. Most species have a "sensitive" or "impressionable" phase during the first few months of life when learning ability is maximal. Songs are usually "memorized" during this stage, but only several months later, when a male is preparing for his first breeding season, does he actually learn to vocalize what he has memorized months before. While practicing his singing (a stage called subsong or plastic song), the male produces a variety of sounds that will later be reduced to a select few for use as an adult breeding bird. Though some species, such as the northern mockingbird (*Mimus polyglottos*), have made a habit of mimicking the sounds of other species, individuals of most species are highly selective and learn only the songs of their own species.

Song dialects. As with humans, one consequence of vocal learning and a limited dispersal from the site of learning is the formation of stable vocal dialects. These dialects have been studied most in the white-crowned sparrow in the coastal chaparral of California. Careful listening and spectrographic analysis of songs from these populations have revealed the existence of dialect areas that contain on average a little more than one hundred pairs of birds. Dialect boundaries are often abrupt and striking, with birds on opposite sides of the boundary singing unique and clearly recognizable variants of songs typical of the species. The dialect areas may not be delineated so easily in other songbirds, but in most songbirds neighboring males share nearly identical songs—songs that are noticeably different from birds

of the same species at other nearby locations.

The exact function of song dialects remains a mystery. They could be a functionless by-product of vocal learning or simply a consequence of birds striving to match the songs of neighboring adults. A more exciting possibility is that dialect boundaries regulate the dispersal of young birds, thereby allowing the evolution of populations that are especially well adapted to local environmental conditions. In some populations of the rufous-naped sparrow (*Zonotrichia capensis*) of South America, the boundaries of different dialects and different habitats coincide, suggesting some support for this hypothesis. This system would work if young birds irreversibly learned the songs of either their father or other adults near the home territory before dispersing. Upon gaining independence, young birds would disperse from the home territory but be repelled by the strange songs of adjacent dialects. A crucial test of this hypothesis will require a careful study of exactly when, where, and how young birds learn their songs in nature; how they react to dialect boundaries during dispersal; and how successful they are at breeding within the home dialect or in other, "foreign" dialects. Proving this hypothesis would be especially exciting, for it would demonstrate a causal link among vocal learning, cultural traditions, and the rate of genetic evolution in this exceptionally successful songbird group.

Song repertoires. Learning of songs has also permitted the evolution of large signal repertoires. While individuals of many species, such as the white-crowned sparrow, may have a single song, individuals of other species may have ten (e.g., song sparrow, *Melospiza melodia*) or even hundreds of songs (e.g., marsh wren). The brown thrasher (*Toxostoma rufum*) has an enormous vocabulary; well over two thousand different songs have been documented from a single individual.

Song is used largely by males to defend territories and attract females, so a greater variety of songs might allow the job to be done even more effectively. Some evidence indicates this is true. Male canaries (*Serinus canaria*) may sing up to forty or fifty different sounds in their long and continuous songs. Female canaries that hear complex canary songs build nests faster than do females hearing simpler ones. Because male canaries increase their repertoire size each year, the female could actually count, by some physiological process, the number of male songs in order to obtain an accurate estimate of the male's age. Older males are usually better mates and parents, and the repertoire size could then be an honest indicator of the potential quality of a mate.

Larger song repertoires may also be helpful in defending territories. Male great tits (*Parus major*)

or red-winged blackbirds (*Agelaius phoeniceus*) sing up to eight different songs each. If a male is removed from his territory and replaced with a system of loudspeakers, those territories from which large song repertoires are broadcast remain vacant from intruders longer than do territories "occupied" by smaller song repertoires. Other playback experiments on territories have demonstrated that the resident male maintains an interest longer if a simulated intruder has a large variety of songs. In many species with repertoires, males often countersing (i.e., sing alternately) with the same learned song variant, as if they were addressing each other in their territorial warnings. The number and kind of songs with which a male can reply may in some way indicate his overall quality, for learning of songs does demand a considerable investment of time and energy.

Gender difference. In most animal groups it is only the male that sings, but females of some bird species also sing. This female song occurs especially in tropical regions where birds are relatively long-lived and where they may remain paired on the same territory throughout the year or even for life. The male and female of a pair usually sing simultaneously, often in a synchronized duet. Such duetting may enable members of a pair to communicate more efficiently with each other; in addition, the female's song enables her to participate more effectively in defense of the territory in which she also has a considerable investment.

Research results. Some of the most notable discoveries about bird vocalizations have been made in studies of how the behavior of communicating by song is controlled in the brain. These discoveries include (1) neural lateralization for song control, similar to the way in which one-half of the human brain dominates in control of language; (2) discrete, identifiable groups of cells—"song-control nuclei"—in the forebrain that are involved in both hearing and producing sounds; (3) large sexual differences in brain anatomy correlated with sexual differences in vocal behavior; (4) correlations between the volume of the song-control nuclei in the brain and the total song repertoire size of an individual; (5) growth of new cells in the brains of adults that have learned additional songs; and (6) in some species an annual fluctuation in the volume of song-control nuclei as singing waxes and wanes. These spectacular findings make the songbird an important model system for assessing the relationship between brain structure and behavior.

Whales

Although the songs of many songbirds are exceedingly complex (e.g., the winter wren, *Troglodytes troglodytes*) or especially beautiful to our ears, the

songs of whales have a quality that transcends description. Songs of humpback whales (*Megaptera novaeangliae*), for example, are long and complex, sounding somewhat like a bird song that has been slowed to many times its normal speed. The male humpbacks in different oceans sing different songs, but all humpback whales in the same area at a given time have identical songs. All whales in broad areas of an ocean, perhaps even an entire ocean, slowly change their songs, in unison, over time. The whales thus abandon old songs, introduce new variations, and continuously evolve new songs; they are constantly listening to each other and readjusting the latest version for the population. Knowing that there is a change in signal form does not, unfortunately, betray the function of this remarkable form of cultural evolution. Given the logistical problems of studying whales, a satisfying understanding of what these majestic oceanic denizens are doing is likely to remain elusive.

Animal Songs and Sounds

We are intrigued by animal songs because their duration, intensity, rhythm, and—not infrequently—beauty closely match features of our own songs; but we should be aware that the distinction between what is and what is not song among animals is anthropocentric and therefore arbitrary. Few animals are silent, and the simpler sounds of other animals, such as a spider plucking its web, a fruit fly "humming" with its wings, or a lobster rasping in the ocean, are functionally equivalent to the more noticeable sounds of animals such as grasshoppers, frogs, and birds. The currency of natural selection and evolution is offspring, and clearly a wide variety of animals use sounds, either instrumental or vocal or both, during crucial phases of territorial defense and courtship. The sounds of each animal match its own perceptual world, not ours, and they are all really animal songs.

See also ANIMAL COMMUNICATION; SONG.

Bibliography. Michael Bright, *Animal Language*, Ithaca, N.Y., 1985; Flora Davis, *Eloquent Animals: A Study in Animal Communication*, New York, 1978; Robert A. Hinde, ed., *Bird Vocalizations, Essays Presented to W. H. Thorpe*, London, 1969; Rosemary Jellis, *Bird Sounds and Their Meaning*, Ithaca, N.Y., 1984; Donald E. Kroodsma and Edward H. Miller, eds., *Acoustic Communication in Birds*, 2 vols., New York and London, 1982–1983; Roger Payne, ed., *Communication and Behavior of Whales*, Boulder, Colo., 1983; W. John Smith, *The Behavior of Communicating*, Cambridge, Mass., 1977.

DONALD E. KROODSMA

ANIMATION

In MOTION PICTURES, any technique using art materials and processes to produce an illusion of motion, as distinguished from live-action production, which uses PHOTOGRAPHY to record actions that actors and objects have performed. Animation depicts actions that did not previously exist: Mickey Mouse never waved hello except on film. Although originally applied to film, the term is now also used to describe imagery produced with videotape and computers. These technologies have enabled artists to create a wide range of synthetic illusions, usually designated as computer GRAPHICS.

In most animated films, two-dimensional artwork is used to create the illusion of motion, but three-dimensional sculptures and objects of almost any sort may also be used. Like live-action film, animated films are projected at twenty-four frames per second. Each frame of film represents a slightly different moment in the movement depicted. For the highest-quality animation, each frame must be photographed separately, with the artwork being changed or adjusted between exposures. As each minute of screen time requires 1,440 frames, good animation is highly labor-intensive and time-consuming.

The photography for two-dimensional animation is usually done on an animation stand, in which a camera is mounted vertically and pointed down toward the artwork, which lies flat on a table. Modern stands provide for complex computerized movements of the camera in relation to the art and for minutely calculated movements of each segment of artwork, sometimes on several levels. Three-dimensional animation, such as puppet animation, may require quite different procedures.

Origins

Animation may be said to have existed before film. Its basic principles were embodied in the flip-book and other nineteenth-century toys and diversions based on "persistence of vision." Such devices offered many artists experience with animated imagery and helped pave the way for the animated film, which also attracted experimenters from other fields.

Among the earliest animators was J. Stuart Blackton, a former vaudeville chalk-talk artist and cofounder of the Vitagraph studio. In 1900 Blackton made *The Enchanted Drawing*, an example of a trick film that involved substituting objects for drawings. As Blackton reaches for the hat, cigar, or wine bottle he has drawn on a large tablet, the real thing "miraculously" appears in his hand. In 1906 he produced *Humorous Phases of Funny Faces*, generally considered to be the first animated film. Faces drawn in chalk lines on a blackboard change expressions and

disappear; jointed cutouts of a clown and a poodle perform a balancing act.

In 1908 Émile Cohl, a French caricaturist who had entered the service of Léon Gaumont, began an animation career with *Fantasmagorie*, a film of cheerful grotesqueries. Its success was such that Gaumont soon had Cohl turning out a cartoon film every two weeks, a schedule that helped spur Cohl to explore the diverse possibilities of animation. At about the same time in the United States, Billy Bitzer, who had previously pursued a career in magic, was experimenting with clay animation. A sequence in *The Sculptor's Nightmare* (1908) shows a large lump of clay gradually changing into an image of Theodore Roosevelt. Hundreds of manipulations of the clay were made in the intervals of frame-by-frame photography.

In 1911 the American comic strip artist Winsor McCay used characters from his popular strip "Little Nemo in Slumberland" for his first film, *Little Nemo*. Three years later, he created *Gertie the Dinosaur*, the first example of character animation and one of the seminal films in the history of the medium (Figure 1). McCay used *Gertie* in his vaudeville act: whip in hand, he stood beside the screen and spoke orders that the animated dinosaur seemed to obey. McCay's draftsmanship and fluid animation set a standard of excellence that has rarely been surpassed.

Studios

The popularity of such experiments led to the establishment of animation studios. In 1913 Canadian-born Raoul Barré, who had studied and experimented in Paris and had devised the use of pegs to keep drawings in register to each other, opened a studio in New York. In the United States, John R. Bray fol-

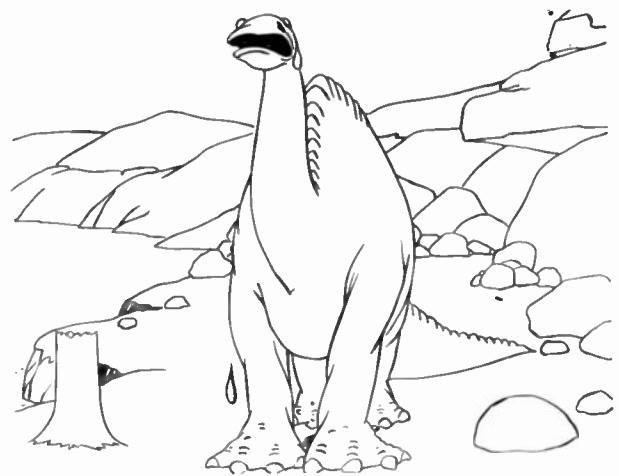


Figure 1. (Animation) Winsor McCay, *Gertie the Dinosaur*, 1914. The Museum of Modern Art/Film Stills Archive.

lowed shortly, launching a cartoon series about the adventures of Colonel Heeza Liar. In 1914 Bray joined Earl Hurd to form the Bray-Hurd Process Company, which developed numerous innovations and improvements in animation technology. Hurd was credited with introducing the use of cels, clear sheets of celluloid that became basic materials of large-scale studio production of animation. Cels enabled animators to do their artwork in layers. A sequence of a man careening in a balloon might be photographed in three layers. For the bottom layer—the background landscape—the same artwork might be used throughout the sequence, though shifted for each frame. Over this would be placed the balloon, painted on a transparent cel with opaque colors. It might also serve for the entire sequence, but its position in relation to the landscape background would have to be changed for each frame. The third layer would be for the man in the balloon, gesticulating wildly to those below. His gestures would require a new drawing for each frame of film. Owing to the cel system, this meticulous work would be confined to a small portion of the frame.

Among the talents emerging from the Bray-Hurd studio were Max Fleischer and his brother David, who in 1919 completed the first of their “Out of the Inkwell” cartoons, which propelled them into a successful independent career. That same year saw the appearance of the most famous silent cartoon character, Felix the Cat, who debuted in *Feline Follies*, drawn by Otto Messmer at the Pat Sullivan studio (Figure 2). Working on principles explored by McCay—and CHARLES CHAPLIN—Messmer gave Felix a character delineated by an individual style of movement. Three years later, in Kansas City, WALT DISNEY entered the animation industry with the first of his “Laugh-O-Grams.”

The United States dominated international animation during the late 1910s and the 1920s, with some important exceptions. In 1917, in Argentina, Quirino Cristiani created *El apóstol*, the first animated feature (now lost), using jointed cutouts. During the 1920s Berlin became the center of the first experiments in abstract animation, with the work of Walther Ruttmann, Viking Eggeling, Oskar Fischinger, and others (see AVANT-GARDE FILM). In 1919 Lotte Reiniger made her first silhouette film, *Das Ornament des verliebten Herzens* (The Ornament of the Lovestruck Heart), which she followed in 1926 with *Die Abenteuer des Prinzen Achmed* (The Adventures of Prince Achmed), the oldest extant animated feature.

Sound Era

A number of artists experimented with synchronization of animation and sound, but in 1928 Disney



Figure 2. (Animation) Otto Messmer, *Felix the Cat*, 1926. The Museum of Modern Art/Film Stills Archive.

released the first commercially successful sync-sound cartoon, *Steamboat Willie*, which premiered on November 18, 1928, at the Colony Theater in New York. The film also provided an introduction for Mickey Mouse, who became the world’s most celebrated cartoon character. The Disney organization expanded dramatically during the following years, with an unparalleled emphasis on training and experimentation. The “Silly Symphony” shorts and the features *Snow White and the Seven Dwarfs* (1937), *Pinocchio* (1940), and *Fantasia* (1940) gave the Disney studio unquestioned artistic leadership in the medium (Figure 3). Its only serious rival in the United States was the Fleischer studio, creator of the highly successful Betty Boop, Popeye, and Superman shorts. During this period animated films were a regular part of the entertainment supplied by the HOLLYWOOD majors to theaters throughout the world.

In the United States animation generally meant cartoon films. In Europe other avenues were explored. In France the Czech artist Berthold Bartosch caused an uproar with his propagandistic film *L'idée* (The Idea, 1934), based on woodcuts by Frans Masereel, with music by Arthur Honegger. Also in France, the Russian-born Alexander Alexeieff and his American wife and collaborator, Claire Parker, devised the pinscreen, a metal grid filled with headless pins (its surface resembled velvet). When the pins were pushed in at differing heights, they cast tiny shadows of differing lengths. The patterns of shadows produced striking pointillist images. Parker and Alexeieff introduced the technique in *Une nuit sur le Mont Chauve* (A Night on Bald Mountain, 1933), a dark, moody film synchronized to the music of Modest Mussorgsky. In England, New Zealander Len Lye did the first paint-on-film animation in *Colour Box* (1935); the Scotsman Norman McLaren, who had been experimenting with similar techniques independently, drew directly onto film in *Love on the Wing* (1938). The first Soviet work in animation, *Sovetskie ingrushki* (Soviet Toys), had been made in 1923 by Alexander Bushkin, Alexander Ivanov, and Ivan Beliakov for DZIGA VERTOV’s *Kinopravda* NEWSREEL series. But screenings of several Disney shorts in 1933 led the government to establish the Soyuzmultfilm



Figure 3. (Animation) Walt Disney, *Snow White and the Seven Dwarfs*, 1937. The Museum of Modern Art/Film Stills Archive.

studio for more extensive work in animation. In Germany the Nazi hostility to nonobjective art ended the explorations and experiments of earlier years.

Wartime animation. During World War II animation was used extensively for training and PROPAGANDA films. Japanese experiments with animation had begun during the 1910s, but their first animated features were made for war purposes and included children's films about a boy called Momotaro, a figure derived from Japanese FOLKTALE tradition. Revived for World War II, he is shown leading troops of Disneyesque mice and other animals into victorious battle. In England the early work of John Halas and Joy Batchelor was largely war-related and included the feature-length training film *Handling Ships* (1946). In the United States Disney, the other Hollywood studios, and the U.S. Air Force First Motion Picture Unit (FMPU) produced enormous amounts of animation for the armed forces and various civilian organizations.

New directions. After the war, the initiative in cartoon shorts passed to the Warner Brothers and MGM (Metro-Goldwyn-Mayer) studios, where directors like Friz Freleng, Chuck Jones, Robert McKimson, Bill Hanna, and Joe Barbera developed the brash, fast-paced style of comedy pioneered by Tex Avery. Their short films featuring Bugs Bunny, Daffy Duck, the Road Runner, and Wile E. Coyote (Warners) and Tom and Jerry (MGM) have remained popular (Figure 4). Disney continued to dominate the animated feature with films like *Cinderella* (1950), *Peter Pan* (1953), and *Sleeping Beauty* (1959). These lavish productions, based on popular fairy tales and children's stories, featured highly realistic animation of human and animal motions.



Figure 4. (Animation) Tex Avery, *Tom and Jerry*. National Film Archive, London.

In 1943 three Disney alumni, David Hilberman, Zachary Schwartz, and Stephen Bosustow, founded the UPA (United Productions of America) studio. There, artists like John Hubley and Bobe Cannon explored limited animation, a new technique that used simple, highly stylized artwork, bold color schemes, and less realistic movements to suggest the activities of characters like Gerald McBoing-Boing and Mr. Magoo (Figure 5). The approach was sparked by the work of artists like Pablo Picasso, Henri Matisse, Joan Miró, and Paul Klee, while the Disney style was derived from nineteenth-century academic draftsmanship. The bold, clean look of UPA was less

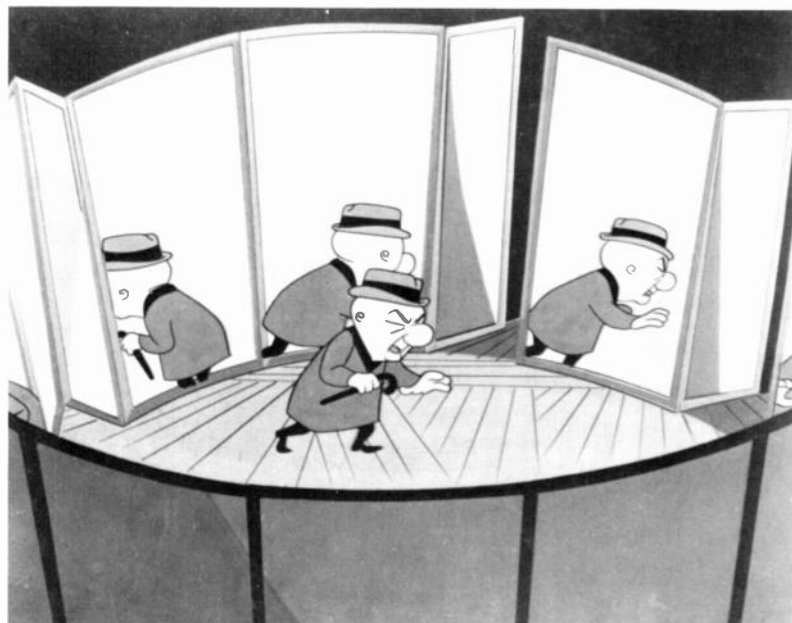


Figure 5. (Animation) UPA (United Productions of America), *Mr. Magoo*. The Museum of Modern Art/Films Stills Archive.

expensive to produce and became extremely influential worldwide.

Inspired by the films of UPA, a group of Yugoslavian artists founded the Zagreb Animation studio in 1954, producing shorts with even more stylized graphics and more limited animation. As UPA declined during the late 1950s and early 1960s, Zagreb became the center for aesthetic experimentation in animation (Figure 6). In 1960 Dušan Vukotić became the first non-American to win the Oscar in the Animated Short Film category, with his *Ersatz*.

The socialist governments of eastern Europe established animation studios during the 1950s, including the Sofia studio in Bulgaria, VEB DEFA in the German Democratic Republic, Pannonia in Hungary, and Se-Ma-Four, Miniatur, and Kracow Short Film in Poland. In Czechoslovakia the puppeteer Jiří Trnka began animating in 1946, creating such puppet films as the feature-length *Sen noci svatojánské* (A Midsummer Night's Dream, 1959) and a short parable on tyranny, *Ruka* (The Hand, 1965).

During the 1950s the major U.S. studios, pressed by financial and legal problems, gradually dismantled their animation divisions. Many animation artists and producers turned to the new medium of television, working on commercials and programs—mainly children's series. Quality animation became the preserve of Disney, some commercial studios, and a scattering of independent filmmakers.

Animation flourished in postwar Europe. In Italy, Bruno Bozzetto made his first short, *Tapum! La storia delle armi* (Tapum, the History of Weapons), in 1958; two years later Emanuele Luzzati and Giulio



Figure 6. (Animation) Dušan Vukotić, *Piccolo*, 1959. Zagreb school. The Museum of Modern Art/Film Stills Archive.

Gianini made their first cutout film, *I paladini di Francia* (Paladins of France). Halas and Batchelor completed the first British entertainment feature in 1954, an adaptation of George Orwell's *Animal Farm*.

European animators used the medium as a vehicle for personal expression, stressing innovative styles and subjects. Artists like Raoul Servais (Belgium), Walerian Borowczyk (Poland and France), Paul Driessen (the Netherlands), Marcell Jankovics (Hungary), Paul Grimault (France), and Jannick Hastrup and Li Vilstrup (Denmark) offered a vision of animation as an artistic medium as flexible and protean as painting or opera.

During the late 1960s the National Film Board of Canada replaced Zagreb as the creative forum of world animation. Founded in 1941 by Norman McLaren (Figures 7 and 8), who had left England for Canada, the animation units of the NFB offered artists from all over the world—Ishu Patel, Co Hoedeman, Caroline Leaf, Derek Lamb, Zlatko Grgic, and John and Faith Hubley—a chance to explore not only unusual styles and subjects but also such new media as paint on glass and sand animation.

In Japan an animation industry arose that rivaled even the United States in volume of production. Since the early 1960s its studios have produced dozens of television shows and feature films in limited animation, mainly for domestic consumption. China, after the turmoil of the Cultural Revolution had subsided, began to emerge as a force in world animation. The films of the Shanghai studio, founded in 1957, offered a striking combination of traditional graphic styles and themes.

During the mid-1970s animation became the object of renewed interest in the United States, sparked



Figure 7. (Animation) Norman McLaren, *La poulette grise* (The Gray Pullet), 1947. National Film Board of Canada.

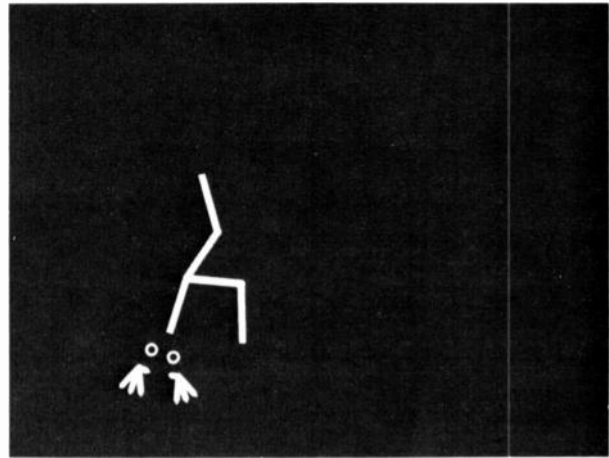


Figure 8. (Animation) Norman McLaren, *Le merle* (The Blackbird), 1958. National Film Board of Canada.

by nostalgia for the shorts of the 1930s and the popularity of British director George Dunning's *Yellow Submarine* (1968) and Ralph Bakshi's *Fritz the Cat* (1972). This revival led to the production of a record number of animated features, including Disney's *The Rescuers* (1977), Don Bluth's *The Secret of NIMH* (1982), and Bakshi's *Fire and Ice* (1983).

The most significant technical innovation in animation in recent decades has been the advent of the computer. Used during the 1950s to visualize experiments in science and engineering, computer graphics became a medium employed by artists such as John Whitney, Sr., Larry Cuba, and Ed Emshwiller to realize highly personal graphic creations. Because of the cost, such use has not been widespread, and most computer animation in the United States has been done for television commercials and logos, and for SPECIAL EFFECTS in science-fiction films such as *Star Wars* and *Tron* (Figure 9). But these films stimulated intensive research in animation hardware and software; what effects these developments will have on conventional animation techniques remains uncertain.

See also VIDEO.

Bibliography. John Canemaker, *The Animated Raggedy Ann & Andy*, Indianapolis, Ind., 1977; Donald Crafton, *Before Mickey: The Animated Film, 1898-1928*, Cambridge, Mass., 1982; Bruno Edera, *Full Length Animated Feature Films*, ed. by John Halas, New York, 1977; Leonard Maltin, *Of Mice and Magic*, New York, 1980; Robert Russett and Cecile Starr, *Experimental Animation: An Illustrated Anthology*, New York, 1976; Charles Solomon, *Enchanted Drawings: A History of Animation in America*, New York, 1987; Charles Solomon and Ron Stark, *The*

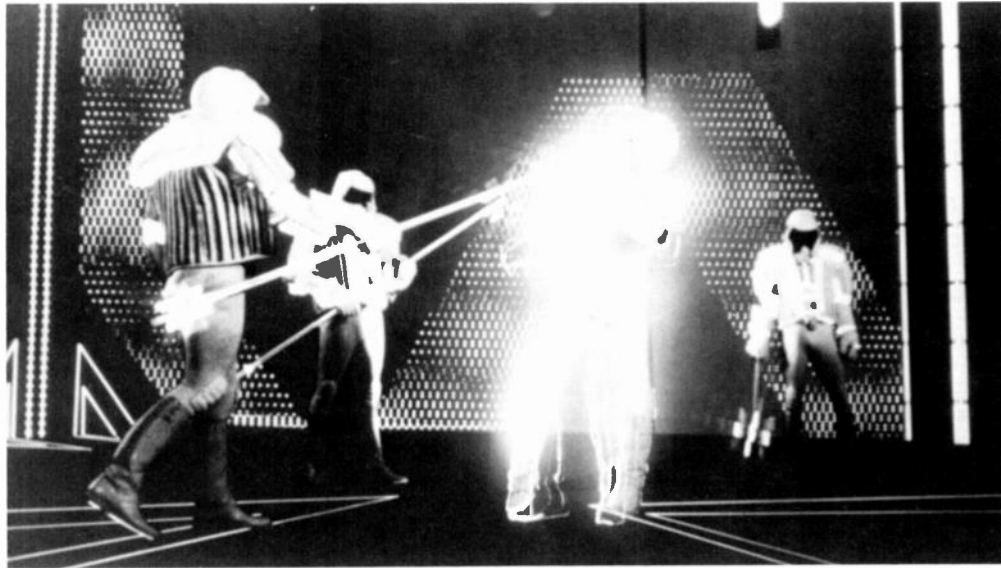


Figure 9. (Animation) Walt Disney Productions, *Tron*, 1982. National Film Archive, London. © 1982 The Walt Disney Company.

Complete Kodak Animation Book, Rochester, N.Y., 1983; Frank Thomas and Ollie Johnston, *Disney Animation: The Illusion of Life*, New York, 1981.

CHARLES SOLOMON

ARCHITECTURE

Unlike pictures or written statements, buildings do not transmit any message, and yet they do express something beyond their physical solidity and utilitarian purpose. The first known architectural theorist, the Roman Vitruvius, distinguished in the first century B.C.E. three basic qualities that the work of architecture must possess: *soliditas* (solidity), *utilitas* (utility), and *venustas*. According to Vitruvius, *venustas* is realized when the building appears pleasing and elegant, and when the constituent parts are adapted to one another in such a way that symmetry results. That is, a building ought to express a kind of general harmony that, in terms of systematic symmetry and simple numerical relations, reflects the harmony of the world. The Greek word *harmonikos* denotes the musical property of harmony, and the numerical ratios characteristic of musical consonances were in fact considered a proof of the hidden cosmic harmony. Cosmic harmony is also manifest in the position and movement of the celestial bodies; human music was therefore understood as an image of the “music of the spheres,” and architecture as a kind of “mute” or “frozen” music. Vitruvius’s *venustas* was therefore not limited to the qualities of order and symmetry as such, but also implied their symbolic value. See HELLENIC WORLD; ROMAN EMPIRE.



Figure 1. (Architecture) The Doric order. The Propylaea, Athens, 437 B.C.E. Courtesy of Christian Norberg-Schulz.

The expressive content of a building, however, is revealed not only in a harmonious organization of space but also in its embodiment, by means of an articulate built form, of a certain nature or "character." In one of his best-known passages, for example, Vitruvius says that the simple and mighty Doric style should be chosen for temples dedicated to male gods such as Mars and Hercules, whereas goddesses such as Venus and Flora ought to be represented by the gentle and ornate Corinthian style. Gods and goddesses who possess a "middle quality" should have temples in the Ionic style, which avoids both the severe manner of the Doric and the softer Corinthian. This implies that things have an identity corresponding to a certain form or *gestalt* and that architecture serves to make this property manifest.

Architectural Communication in History

From the beginning architectural theory has considered the building an *imago mundi*, or image of the world, that by means of its spatial organization

and concrete, plastic form communicates to the environment an INTERPRETATION of how things "are." Thus architecture is one of the modes of human understanding, helping humanity to gain an existential foothold.

In Western antiquity, however, we encounter two different versions of the architectural image. To the pre-Socratic philosophers the qualities of the world were immanent, as is implied in Thales' famous statement, "All things are full of gods." An image of immanent properties reveals the world as it is, rather than reflecting an ideal concept, and itself becomes an active force within the world, in accordance with the nature of myth and magic. The grand Pythagorean image of universal harmony was also conceived in concrete (musical) terms and in general implies that the world is understood as a kind of building. The image was the primary fact, and it was used as a model to illuminate the complex and opaque environment. It did not represent something already given but rather brought into the open hidden aspects of the cosmos, in accordance with the Greek concept

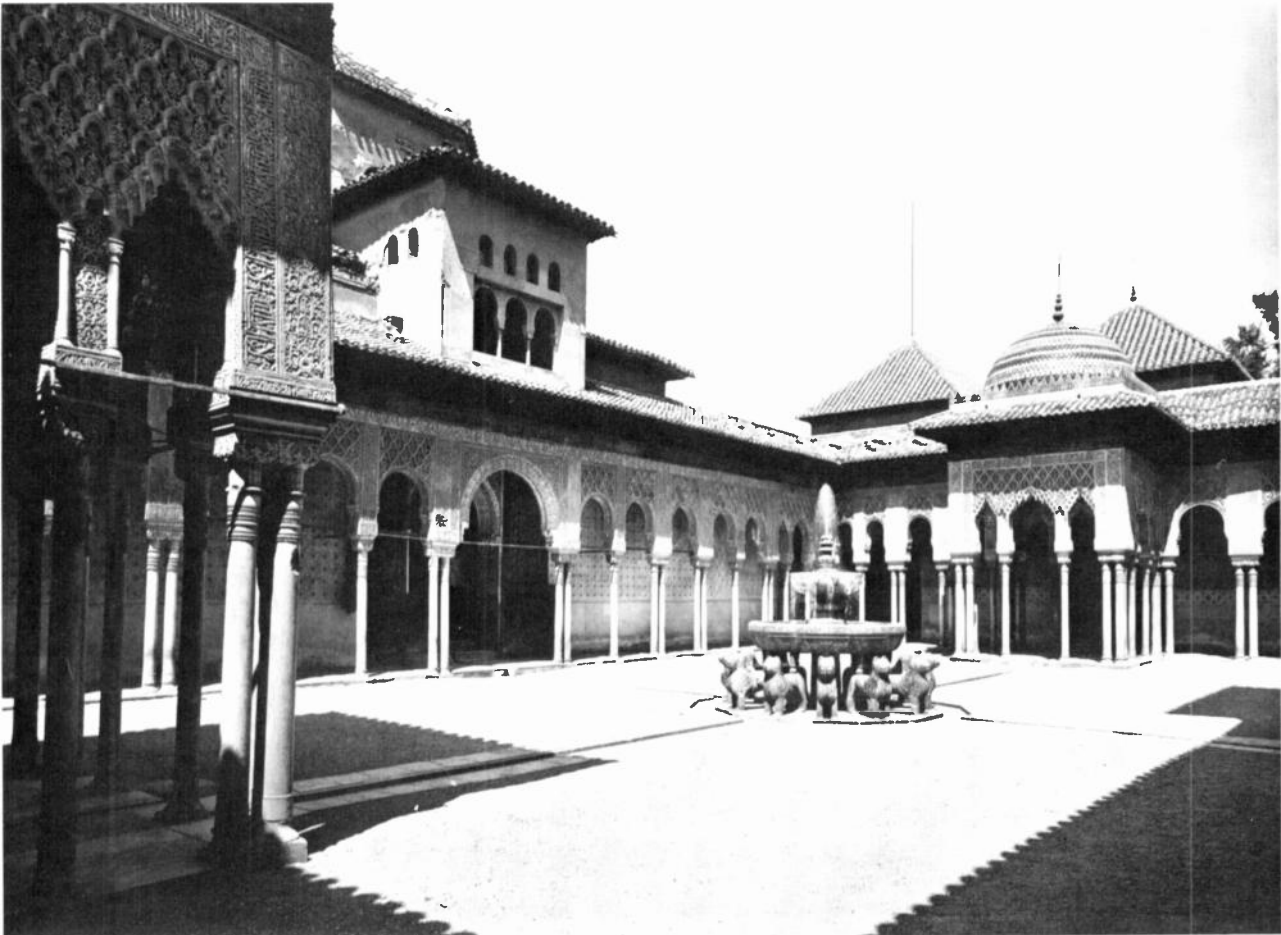


Figure 2. (*Architecture*) Court of the Lions, the Alhambra, Granada, Spain, 1354–1391. Alinari/Art Resource, New York.

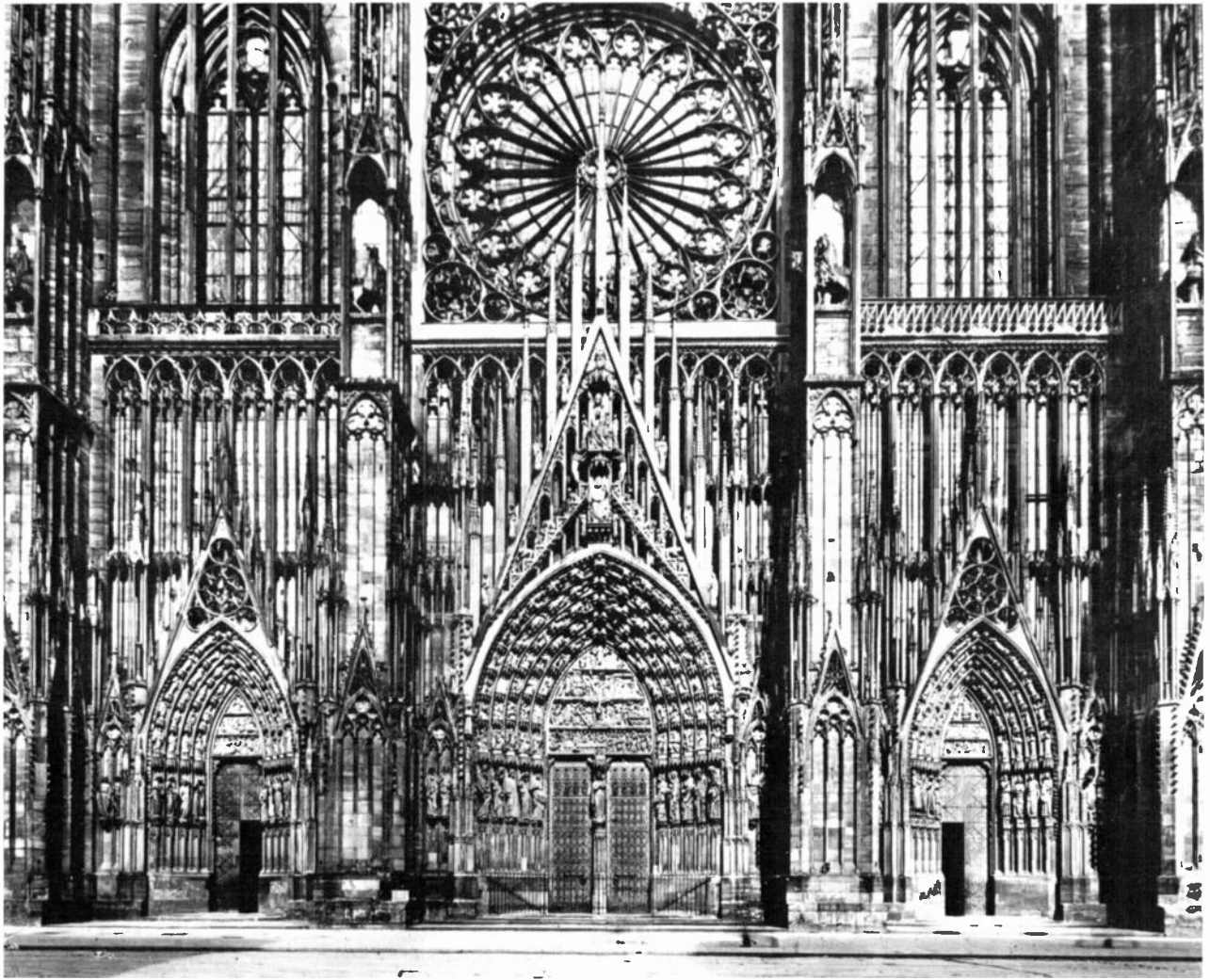


Figure 3. (Architecture) Strasbourg Cathedral, west front. Courtesy of Christian Norberg-Schulz.

of *alétheia*, which understood truth as simultaneous revelation and concealment. A parallel may be found in the ancient Germanic image of the world as a house, which implies that the environment follows an order analogous to that of a dwelling.

An important change occurred in the notion of image when Platonic idealism superseded pre-Socratic immanence. PLATO's understanding of phenomena as mere shadows of transcendent ideas transformed the image into a reflection of the ideal cosmos. Hence the image was reduced to a kind of tool, which served to bridge the gap between the two parts of the divided world, between subject and object. As a consequence of the idealization of the image, its reference to everyday life was weakened. An example is the "ideal city" of the RENAISSANCE, whose geometrically regular layout was determined by Neoplatonic ideas of perfection, rather than the demands of daily life. We could also say that the image was

transformed into a symbol, which represents something else by association, resemblance, or convention.

It is important to emphasize that the original function of architecture was not to symbolize but to make the world appear as what it "is." The difference is between the constitutive role of the image and the representational role of the symbol. A work of ART is primarily an image that brings a new being out of what is hidden. Art thereby resists the flux of phenomena and makes visible a stable world of things. This is the meaning of German poet Friedrich Hölderlin's famous phrase, "But that which remains, is founded by the poets."

Although the symbol has been given precedence by post-Platonic philosophers, in fact the history of architecture illustrates how image and symbol together account for architectural communication. The symbol represents the human concept of the world; the image reveals its qualities more directly. Both

may be integral to a valid work of architecture. A mere symbol remains an abstraction, without reference to what is immediately given, whereas the image runs the risk of missing the general insight offered by conceptualization. The Gothic cathedral, for example, is at the same time a mirror of the world in a very direct sense, a symbol of theological concepts, and an image of the interaction of mundane qualities such as light and matter, horizontal and vertical (*see MIDDLE AGES*). The classical or Vitruvian tradition also embraces both modes of expression (*see CLASSICISM*). Whereas the early Renaissance architecture of the Italian quattrocento emphasized a relatively abstract, geometrical symbolism, the mannerist experiments of the cinquecento revived the image as an immediate revelation of concrete, natural qualities. Baroque architecture gained its powerful expression from a synthesis of revelation and symbolization; the revealed qualities were in fact considered representations of the world beyond (and often were connected with secular power). In particular, the expression of character through the use of the classical Doric, Ionic, and Corinthian orders was of primary concern in Renaissance and baroque architecture. For centuries architectural expression consisted of a language of meaningful forms or styles handed down from generation to generation.

A meaningful *imago mundi* for any CULTURE is constituted of SPATIAL ORGANIZATION and plastic embodiment, the basic formal aspects. An example is Islamic architecture, in which the world to be visualized is the dialectic whole of desert and oasis. As an artificial oasis, the interior complements the forbidding environment and makes human dwelling possible in a physical as well as a psychological sense. At the same time the Islamic building reveals how light transforms earthly matter into abstract patterns, thus negating the very idea of incarnation. *See ISLAM, CLASSICAL AND MEDIEVAL ERAS.*

The Crisis of Architectural Communication

During the nineteenth century a process took place that Swiss architectural historian Sigfried Giedion called the "devaluation of symbols." Forms that had been meaningful expressions of properties of the world or of human existence were now treated as mere status symbols to give the self-made man characteristic of the century a cultural alibi. The resulting confusion of styles interrupted the continuity of the Western architectural tradition, a tradition that could no longer satisfy the demands of a modern industrial society. A new, "open" world had come into being, and artists as well as theorists demanded new forms. The search for a new architecture culminated after World War I. One of the most important protagonists of the modern movement, Swiss architect Le

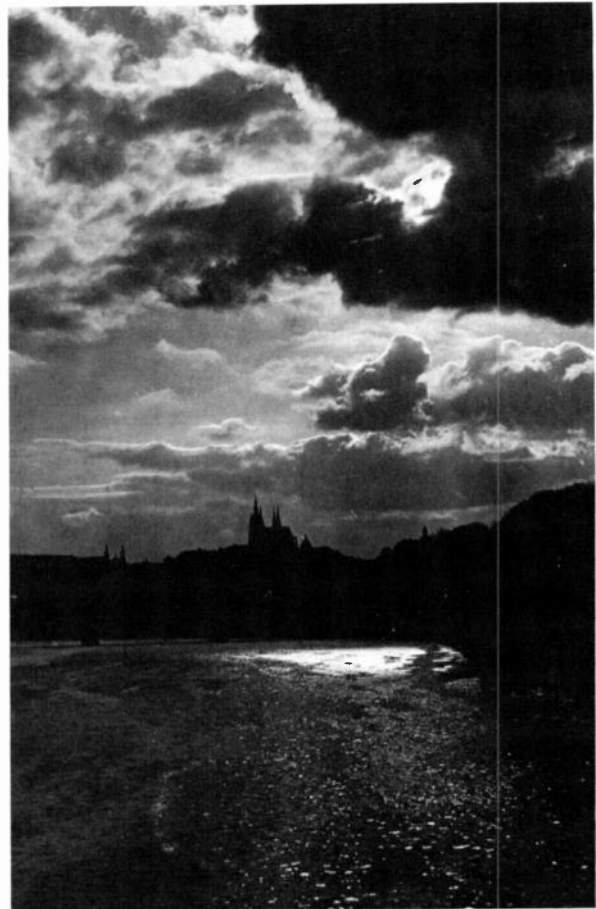


Figure 4. (*Architecture*) "Between earth and sky." Prague. Courtesy of Christian Norberg-Schulz.

Corbusier, stated the new aims clearly in the early 1920s. Asserting that a new epoch had begun and that the styles of the past were "lies," he demanded that the new spirit of the times find its own expression.

The answer offered by the pioneers of modern architecture was a new conception of space implied by the word *simultaneity*. Thanks to the mass media and increased mobility, in the modern world we may be in several places simultaneously. Physically, of course, we are only in one place at a time, but existentially we experience a simultaneity of places. How, then, does architecture make this state of affairs manifest? Le Corbusier's solution was to abolish all closed and static rooms in favor of a new, dynamic openness, which he called the *plan libre*, or "free plan." As a type of spatial organization that corresponds to a new understanding of the world, the free plan may be considered an *imago mundi*, a further development of certain traits of the Western tradition. However, it lacked the concrete figural quality of past architecture, and, furthermore, it neglected the embodiment of character, with a weakened sense



Figure 5. (*Architecture*) The “ideal” form of the Renaissance. S. Maria della Consolazione, Todi, Italy, ca. 1500. Courtesy of Christian Norberg-Schulz.

of presence as the result. The implicit anticomunicative tendencies culminated in the doctrine of functionalism, which defined architecture as a mere practical aid having no symbolic pretensions. The attitude was formulated in 1928 by Swiss architect Hannes Meyer, who stated that the only determinants are “function” and “economy” and that works of art are therefore useless.

Quite soon, however, a reaction against radical functionalism arose within the modern movement itself. In 1944 Giedion pointed out that something was lacking in modern architecture. Although the buildings executed may be functional, somehow they do not satisfy the need for “monumentality.” Giedion used this term to amalgamate those symbolic forms that represent cultural values such as religious beliefs and social conventions. Thus a new quest for MEANING was initiated that has characterized archi-

tectural development since World War II. To satisfy the need for meaning, however, one could not simply return to the styles of the past; a new theoretical basis became necessary. Two approaches may be singled out: the semiological and the phenomenological.

Architectural semiology. The basic point of departure of semiology, according to its foremost theorist, Umberto Eco, is the tenet that “all cultural phenomena are systems of signs” (see SIGN SYSTEM). Semiology thus substitutes for notions of image and symbol the more general concept of SIGN. Although signs are by definition arbitrarily chosen, Eco aims at giving architectural semiology a functional-empirical basis, and as an example points out that a stair or ramp denotes the possibility of going up. In general, the content communicated by an ARTIFACT is the function it fulfills. Eco thus goes beyond functionalism in

demanding that the forms denote the functions rather than just follow from them. He also recognizes that meanings other than utilitarian purpose come into play, such as different conceptions of inhabitation and use. As conceptions become routine, the artifacts usually constitute systems of signs, or codes (see CODE). The user has to know the code to be able to understand the content of the communication. As codes are temporal, local, and personal, any sign may connote diverse things, and Eco accordingly concludes that architecture is a “system of rhetorical formulas.” See SEMIOTICS.

What is presented here is a thoroughly relativistic understanding of architectural communication. Although certain empirical relationships may be pointed out, their interpretation, according to Eco, varies in such a way that it is meaningless to talk about expressive values inherent in the forms themselves. Since forms undoubtedly possess expressive values, however, other semiologists have expanded the concept of sign to include various kinds. Charles Jencks thus revives CHARLES S. PEIRCE’S distinction among indexical, iconic, and symbolic signs, but leaves out the architectural image. This lack is evidently felt by Jencks himself, who asserts that “most architectural signs are compound.”

In general, semiology may be considered an offspring of Platonic thinking. Although it negates the existence of absolute ideas, it stems from the split of subject and object. In contrast to older philosophies, however, it concentrates its attention on the relation between the two aspects of the world, that is, on semiosis. What was formerly considered a mere tool is hence given precedence, whereas the real world of things fades away. What is left is a phantom world of signs, which by themselves mean nothing.

Architectural phenomenology. Phenomenology approaches the problem of meaning by taking the architectural phenomena themselves as its point of departure. It is therefore less formalized than semiology and comprises different varieties, which on closer scrutiny have certain things in common. Three surprisingly similar statements concerning the nature of architectural expression illustrate this point.

In his essay *Von deutscher Baukunst* (1772), the German poet Johann Wolfgang von Goethe describes his first visit to the cathedral of Strasbourg and his anticipation of the “lack of order” and “unnaturalness” of the Gothic. However, the experience was unexpectedly overwhelming. Goethe provides a vivid picture of the impression of a harmonious whole that unifies a thousand different details. Although he felt a strong sense of enjoyment, he could not understand or explain what he perceived. The nearest he could come to a general characterization was the phrase “earthly-heavenly delight.” This is how many of us experience architecture: the building moves us in a



Figure 6. (*Architecture*) Cinquecento architecture. Palladio, La Basilica, Padua, Italy, 1549. Courtesy of Christian Norberg-Schulz.

profound sense, but we cannot really understand the complex nature of our PERCEPTION. Goethe suggests what it is all about when he describes how the firmly founded, enormous building rises up in the air, offering a sense of permanence although it is all “perforated.” The work of architecture does not impress us because it transmits a particular message, because it denotes or connotes; rather, its expression consists in its standing firmly on the ground, in its rising up toward the sky, and in its opening up the environment. The way this happens makes a certain stability manifest, so that the building seems to resist the flux of time.

In his seminal book, *Vers une architecture* (1923), Le Corbusier included a definition of architecture that has been frequently cited to show that he was not a mere functionalist but a true artist who wanted to “move man’s heart” with his buildings. In fact, Le Corbusier clearly states that the utilitarian purpose is only a point of departure, whereas the true meaning of the work of architecture resides in its expressive power. Again we encounter the idea that



Figure 7. (*Architecture*) Osaka castle, Japan, 1587. Courtesy of Japan National Tourist Organization.

architecture is expressive because the building rises in a certain way toward heaven, and furthermore that the way of rising is related to certain “moods,” such as “gentleness,” “brutality,” “nobility,” and “charm.”

Martin Heidegger offers an explanation for the problem posed by Goethe and Le Corbusier. In his essay *The Origin of the Work of Art* (1935), he uses a description of a Greek temple to tell what any work of architecture expresses. A building does not portray anything, he says, but in its standing in a certain place, it shows us what that place really is. Thus it reveals the nature of the supporting ground, the quality of light, and the vicissitudes of weather. It even makes visible the invisible air. In general, a building “gives to things their look” and in so doing opens up a world and thereby reveals what shapes our own destiny. This is achieved simply by its “resting” and “towering,” that is, by its “standing there.”

A building may stand in many different ways and also in many different places, and expression will vary accordingly. But it always shows *where* and *how* we are. The building is not a sign; it does not portray anything, but rather brings a world into view. The phenomenological approach to architectural meaning therefore implies a return to the *image*, in the original sense of the word.

The differences among sign, symbol, and image are explained by Hans-Georg Gadamer, a major figure in modern hermeneutics, in his magnum opus, *Truth and Method* (1960). A sign has a mere indicative function, while a symbol represents by making perceptible something that is absent. An image, however, does not represent something else; it brings about an “increase in meaning”—that is, it opens up a world by combining various and scattered elements into a unitary vision. Thus the work of art “adds” to the “content” of the world. This idea is shared by

the German poet Rainer Maria Rilke, who states that we are here to say certain things, “but to say them, understand me, so to say them as the things themselves never thought to be.” As a work of art, the architectural image speaks by showing the things.

The Language of Architecture

The work of architecture gathers together qualities of earth and sky in relation to human life in a certain place, as well as the beliefs and values on which that life is based. Its relation to human life implies that a building always stands forth, exists, *as* something—as a house, a church, a school. These functions, however, have in common the basic relationship of earth and sky. Human life thus does not occur in an isotropic Euclidean space but in a concrete environment distinguished by qualitative differences between up and down, north and south, here and there. Such a concrete space is better called a place, and the content that is given form by architecture is a place where life takes place. The place is primarily a given landscape, with which we have come to terms in order to be able to dwell in it. To do that, we build, not only for shelter, but to gather the qualities of the landscape into an image that offers a sense of understanding and belonging. The primary purpose of architecture is thus to make a world visible.

The basic constituent images of the language of architecture are spatial patterns and built forms possessing a distinct figural quality because of their modes of extending, opening, standing, and rising. Some of these, such as the piazza and the street, the rotunda and the nave, the column, arch, gable, and dome, may be considered archetypes because they



Figure 8. (*Architecture*) Nicholas Hawksmoor, St. Mary Woolnoth, London, 1717–1727. Courtesy of Christian Norberg-Schulz.

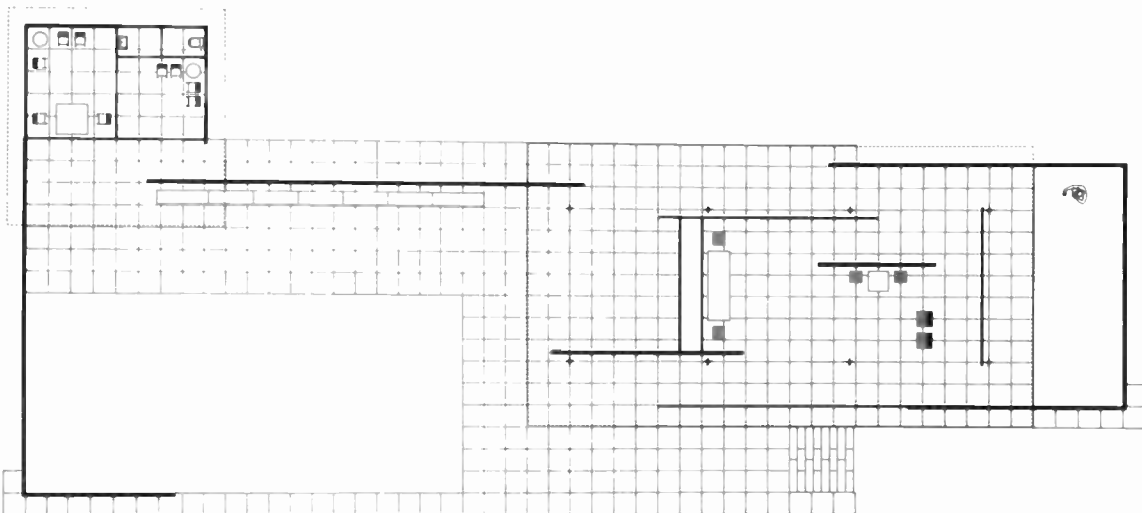


Figure 9. (*Architecture*) The “free plan.” Mies van der Rohe, German Pavilion, Barcelona, 1929. Courtesy of Christian Norberg-Schulz.



Figure 10. (*Architecture*) "Mute architecture." New York. Courtesy of Christian Norberg-Schulz.

reveal basic structures of the world. Other figures are temporal and local, circumstantial variations on the archetype. While the archetypes constitute the language of architecture, the variations make up more particular styles and traditions.

In a certain sense, the archetypes themselves do not exist, only the individual variations. A type is a generalization, which cannot as such be physically realized. However, architecture needs such generalizations to make possible a more comprehensive gathering of meanings. In the city, for example, multifarious meanings are brought together, meanings that originally were discovered in other places. Thus the Greeks brought the temple from its holy place in nature into the polis. With translocation the image loses its orig-

inal function and becomes a symbol or *monumentum*, something that reminds. The Greeks regarded the goddess Mnemosyne (memory) as the mother of the Muses. Mnemosyne was herself the daughter of the earth and the sky, which suggests that the memories giving rise to art center on our understanding of their relationship. Architecture keeps and visualizes the most basic properties of earth and sky and therefore becomes the "mother of the arts."

Further, the word *mother* (related to the Latin *mater*) is related to *material*, which reflects the tenet that the architectural image is primarily a built form. It is basically technological, in the original Greek sense of *technē*, meaning a *MODE* of revealing or bringing into view. This does not mean that an

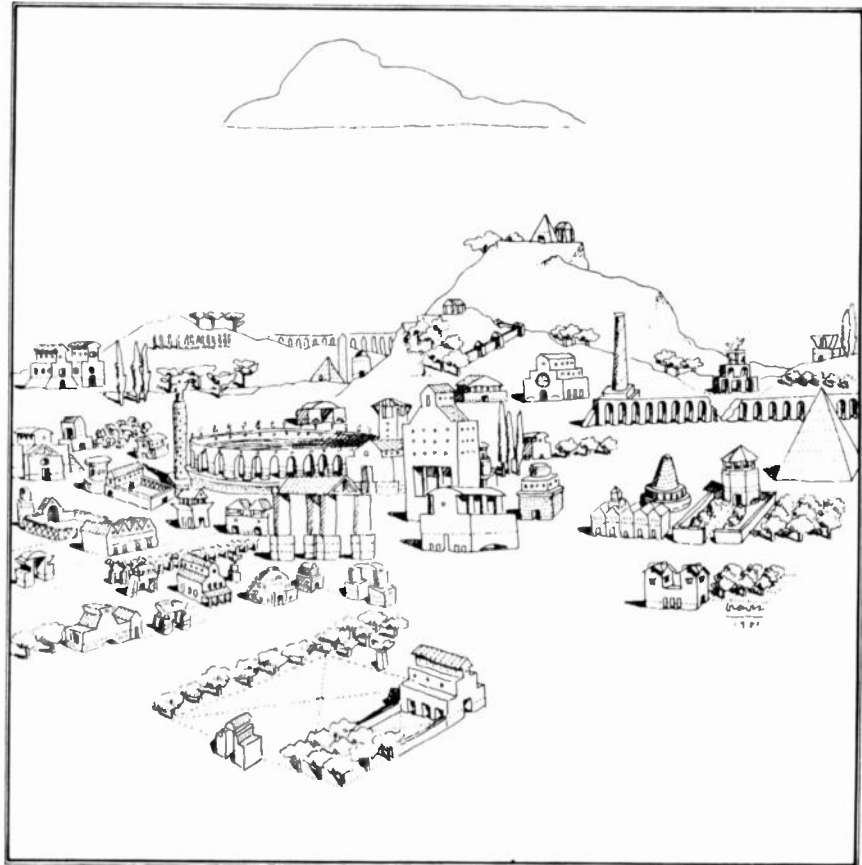


Figure 11. (*Architecture*) Michael Graves, "Rome 1981." From *Michael Graves: Buildings and Projects 1966–1981*, New York: Rizzoli, 1982, p. 9.

architectural form is necessarily built the way it looks. The important point is that the form appears as if it were constructed in a certain way. The language of forms thus has a technological origin, in accordance with the Vitruvian concept of *soliditas*. It is therefore deeply meaningful to define architecture as the "art of building," or *Baukunst*.

The recovery of the language of architecture has to be based on a study of memories, that is, of architectural history. The quest for meaning thus goes together with a renewed interest in the past. The aim is not a nostalgic flight from the new, "open" world, but the development of a figurative language adaptable to any expressive possibility. Only in this way may architecture restore its original communicative purpose and reestablish itself as an art.

See also AESTHETICS; DESIGN; SCULPTURE; VISUAL IMAGE.

Bibliography. Gaston Bachelard, *Poetics of Space*, Boston, 1969; Sigfried Giedion, *Architecture, You and Me* (Architektur und Gemeinschaft), Cambridge, Mass., 1958; Martin Heidegger, *Poetry, Language, Thought*, trans. by Albert Hofstadter, New York, 1971; Charles Jencks and George Baird, eds., *Meaning in Architecture*, London, 1969; Christian Norberg-Schulz, *The Concept of Dwelling*, New York, 1985; idem, *Meaning in Western Architecture*, New York,

1975; Vincent J. Scully, *The Earth, the Temple, and the Gods*, rev. ed., New Haven, Conn., 1979; Rudolf Wittkower, *Architectural Principles in the Age of Humanism*, 3d ed., rev., New York, 1971.

CHRISTIAN NORBERG-SCHULZ

ARCHIVES

The records of an institution or organization that are no longer needed to conduct current business but that are preserved because they document the activities of the institution or because of the reference and research value of the information they contain. The term *archive* (or *record office*) is also used to refer to the organizational unit responsible for administering such records, as well as to the building or part of a building in which such records are maintained.

Historical Development

WRITING initially developed to facilitate business transactions, and the oldest known archives are the financial and other records of institutions created by kings, priests, and merchants during the third millennium B.C.E. The recordkeeping practices developed by the Sumerians, Hittites, and Egyptians were in-

herited and improved upon by the Greeks and particularly by the Romans. With the collapse of Roman authority, the Catholic church kept these practices alive. They were then adopted and perfected in the national states that developed in western Europe. The advantages of concentrating the archives of individual offices in a centralized repository were first recognized by the Spanish in 1543, but it was not until the end of the eighteenth century that the French, during the course of their Revolution, created a national system of public archival administration directed by a central service agency. Other countries with unitary forms of government created similar systems in the nineteenth century. The British, reflecting their governmental structure, created a Public Record Office in 1838 for the national government.

Following World War I the USSR and the countries of eastern Europe established nationwide archival systems, and in 1934 the United States finally established a National Archives. It was the last major nation to do so. The decolonization movement that followed World War II ushered in a period of renewed archival activity, with newly independent countries creating national archival agencies they considered essential to their national identities and the writing of their national histories. In international law relating to the succession of states, government archives are regarded as an attribute of the basic sovereignty of the state and, therefore, as imprescriptible and inalienable.

Historically the basic rationale for the preservation of archives has been to establish the legitimacy and to protect the rights and interests of the sovereign and, by extension, of any institution. Archives have thus traditionally been retained in the custody of the institution for its own use. The records that are the tools of administration are also products of the administrative process; they document the policies and procedures as well as the functions and activities of the institution, serving as its corporate memory. They not only ensure continuity and consistency in operations but also constitute the most comprehensive and authentic sources of information regarding the institutions that produce and preserve them. Archives have therefore increasingly attracted the attention of historians. The widespread use of archives for historical research since the eighteenth century has consequently added to the "arsenals of law" function of archival repositories the additional function of serving as "arsenals of history." This development was accelerated by the French Revolution, out of which emerged the concept of a public right of access to government archives. Government archives thus continue to establish and protect the rights and interests of the citizens of constitutional governments based on popular sovereignty.

The right of public access to government archives

is necessarily a limited right. The demands of national defense and security, the desirability of protecting personal PRIVACY and business information, and the need for a degree of administrative confidentiality if government is to operate efficiently and effectively—all require limitations on access to government archives. These requirements historically have been met by restricting access for a specified time, usually seventy-five or one hundred years. In the 1960s a movement was initiated by the International Council on Archives, a professional nongovernmental organization created in 1950 with the assistance of UNESCO, to liberalize access to archives. During the past three decades most governments have adopted a thirty-year restriction policy, with important exceptions for diplomatic, military, and personnel records and information. This basic conflict between the right to know and the need to govern has led to both freedom-of-information and privacy statutes in the Western democracies, and the issues have been further complicated by the pervasiveness of computer technology in information gathering, processing, and dissemination (*see* COMPUTER: IMPACT).

In the Soviet Union an important dimension to the uses of archives was added by V. I. Lenin in a decree of June 1, 1918. This decree asserted for archives an active and continuing role in support of Marxist-Leninist IDEOLOGY and in the development of the socialist state and society in the USSR. There have always been instances of political and ideological uses of archives, but this was the first declaration and justification for such use as a continuing public policy. The use of archives as a political weapon of the state and in support of official history written along ideological lines has been adopted by a number of socialist countries following World War II.

Archives in Transition

The basic functions of archival repositories throughout history have been to preserve and, on request, to provide access to archival material. Following World War I there were important and increasingly rapid changes in and expansion of these basic functions. Rather than accepting all noncurrent agency records, government archival repositories have been forced, because of the tremendous volume of generally routine documentation generated and accumulated by modern governments, to develop appraisal and selection criteria. As the range of government programs and information-gathering activities continues to expand, these criteria continue to be revised to ensure that basic documentation and information of significant reference or research value are not destroyed.

To assist agencies in better managing their records and to create fewer but more useful records, the U.S. National Archives during World War II developed

the theory and practice of records management, which controls the entire life cycle of records from their creation or receipt through their maintenance and use to their disposition. An integral part of this control program is the creation of purpose-built intermediate repositories, or records centers, for the economical storage and servicing of semicurrent records pending their transfer to an archival repository or their destruction. Control over recurring series of records is exercised by means of schedules, which identify each series or class, specify where each is to be retained and for how long, and authorize for each, on a continuing basis, a particular type of disposition. Records-management techniques have been widely adopted by archival agencies in countries around the world.

Equally significant have been the changing media of archives. The remarkably durable clay tablets, the predominant record medium during more than half of recorded history, were eventually succeeded by much less durable papyrus and parchment (*see WRITING MATERIALS*). The advantages and particularly the convenience of paper, however, ensured its ascendancy as a record medium from the fifteenth century on. The development of PHOTOGRAPHY and SOUND RECORDING during the last half of the nineteenth century and, more recently, the development of magnetic media to record sound, images, text, and data are challenging paper. The documentary, reference, and research value of these new media justifies their selective archival retention, and archival repositories are developing new policies and procedures to accommodate their particular characteristics and requirements.

Particularly challenging is the task of preserving fragile films and tapes, as well as modern paper. The use of wood pulp and chemicals in the manufacture of paper, for example, combined with increased atmospheric pollution chiefly from the combustion of hydrocarbons, has greatly increased the cost of archival preservation. Most of the new media are non-archival in terms of longevity, and until technology produces more durable media the content of many records can be preserved only by microfilming or otherwise copying them.

The use of archives forms another area of significant development. Forced to compete for increasingly limited financial resources with other agencies, particularly in the cultural and educational fields, archival agencies, both public and private, have expanded old services and added new ones. Descriptions of holdings in the form of general and subject guides, inventories and detailed lists of particular groups of records, and other types of finding aids have been published to inform potential users of available sources and to facilitate their use. Traditional printed documentary editions are being supplemented and in nu-

merous instances replaced by microfilm publications, which, at a fraction of the cost of printed texts, make exact copies of original documents conveniently available to academic researchers, a rapidly growing genealogical clientele, and other users. Facsimiles of laws, treaties, correspondence, maps, and photographs have been assembled into kits on a variety of historical subjects, usually with the advice and assistance of education specialists, and courses are offered to train primary- and secondary-school teachers in their use in the teaching and study of history and government. Courses have been organized to familiarize graduate students, genealogists, and other potential patrons with the nature and uses of archives and with research methods. Popular and other publications, scholarly journals, editions of conference proceedings, film festivals, and multimedia institutional and traveling exhibits all contribute to this new outreach initiative. The traditional and narrow concept of making archives available upon request has become what a 1984 international dictionary of archival terminology refers to as "communication," which it defines as the basic archival function of not only making archives available but also promoting their wider use.

An important element in each of these broad developments, and of great significance in its own right, has been the introduction of modern information-handling technology. In the life cycle of records, technology is revolutionizing the way data and information are created and received, stored and retrieved, and used and transmitted by government agencies and other institutions. New policies and procedures are being developed for the archival appraisal and disposition of electronic records as well as for their preservation and archival use. Electronic technology is also being used to establish more effective administrative and intellectual controls for traditional records, to assist in their preservation, and to promote their more effective utilization.

One final development worthy of note has been the extension of the term *archives* and of archival principles and techniques, principally in North America, to personal papers, literary and other types of historical manuscripts, and the collected archives of private institutions and organizations. Business, labor, church, and college and UNIVERSITY archives have multiplied since the 1960s; the great majority collect related personal papers and other manuscripts as well as the archives of other than their parent institutions. Discipline and special-interest archives have also been created to ensure preservation of documents in various fields of science, the performing arts, and causes and movements. State and regional networks of repositories have been created, and projects are under way to share information on appraisal decisions as well as on holdings. Like libraries—that

other long-established, institution-based information system—archival repositories are undergoing fundamental changes as they seek to remain relevant to the needs and desires of modern society.

See also ARCHIVES, FILM; BOOK; DATA BASE; LIBRARY.

Bibliography. Adolf Brenneke, *Archivkunde: Ein Beitrag zur Theorie und Geschichte des europäischen Archivwesens*, ed. by Wolfgang Leesch, Leipzig, 1953; Frank B. Evans, François-Jean Himly, and Peter Walne, compls., *Dictionary of Archival Terminology*, ed. by Peter Walne, Munich, 1984; Hilary Jenkinson, *A Manual of Archive Administration*, Oxford, 1922, reprint (rev. ed., ed. by Roger H. Ellis) London, 1965; Ernst Posner, *Archives and the Public Interest: Selected Essays*, ed. by Kenneth W. Munden, Washington, D.C., 1967; idem, *Archives in the Ancient World*, Cambridge, Mass., 1972; James B. Rhoads, *The Role of Archives and Records Management in National Information Systems: A RAMP Study*, Paris, 1983; Theodore R. Schellenberg, *The Management of Archives*, New York, 1965; idem, *Modern Archives: Principles and Techniques*, Chicago, 1956; Peter Walne, ed., *Modern Archives and Records Management: A RAMP Reader*, Paris, 1985.

FRANK B. EVANS

ARCHIVES, FILM

Film, television, and VIDEO productions are among the most fragile of all the records of communication and imaginative expression produced since the 1890s. Often created for short-term gain or effects, they are frequently destroyed or neglected once the purposes of their creation have been achieved. Unless they are properly stored, regularly inspected, and copied, they are subject to accidental and intentional damage or erasure, to the perils of mechanical deformation, physical wear, chemical deterioration, and image fading. And yet they are some of the most valuable resources for historical research and for the production of new compilation films. In 1980 the General UNESCO Conference approved a recommendation on the protection of moving images and declared that "moving images constitute one of the most characteristic features of present day cultural creation and contemporary communication." See MOTION PICTURES.

In 1898 Bolesław Matuszewski, an early film exhibitor in Warsaw (1895) and a photographer for the czar of Russia (1897), noted the importance of films as historical documents. He promoted their collection and conservation in his short book, *A New Source of History*, published in Paris in 1898. Interested in films as "slices of public and national life," he called for the creation of a MUSEUM or depository for films of DOCUMENTARY interest and for supporting research and publications.

Although film libraries and collections began as early as the first copyrighted moving-picture deposit in the U.S. Library of Congress (1894), only in Stockholm in 1933 was a film archive established for the preservation of all types of films (see ARCHIVES; COPYRIGHT; LIBRARY). The 1930s were years of rapid growth. Collections with archival potential were begun in London, New York, Milan, Berlin, Moscow, Brussels, Paris, and elsewhere. In 1938 Iris Barry and John Abbot of the Museum of Modern Art in New York, Henri Langlois of the Cinémathèque Française in Paris, Olwen Vaughn and Ernest Lindgren of the British Film Institute, and Frank Hensel of the Reichsfilmarchiv in Berlin formed the International Federation of Film Archives. Known by its French acronym, FIAF, the members of this worldwide organization of nearly eighty archives hold films, film stills, scripts, unpublished documents about films, books and periodicals on film subjects, film music scores, music cue sheets, and, increasingly, the records of the creators and producers of all types of motion pictures.

The principal aims of FIAF are to promote the preservation of the film as ART and historical document and to bring together all organizations devoted to this end, to encourage the formation and development of film archives in all countries, to facilitate the collection and international exchange of films and documents, to develop cooperation among its members, and to promote the development of cinema art and culture. FIAF's place of incorporation is Paris, but its administrative site is Brussels, a choice made as the result of internal disputes during the 1960s. The organization sponsors annual meetings, conferences, technical publications, and a film-preservation summer school supported by the Staatliches Filmarchiv der DDR. It encourages the development of archives in Third World nations. Its research functions are performed by separate commissions on film preservation, cataloging, and documentation.

Film preservation requires controlled storage conditions and sophisticated copying and processing to maintain the quality and to prolong the life of film supports and the photographic, magnetic, or digital images bound to them. Ideally, for maximum life, each type of support (e.g., nitrate, acetate, polyester, video disk, and the various ways they hold their images) requires different environmental storage conditions. Practical considerations like humidity and temperature control, fire protection, operating practices, and operating costs make less-than-ideal storage conditions acceptable. Sophisticated copying and processing are required because of shrinkage, physical deterioration, and image fading.

The access, rediscovery, recycling, and reinterpretation of forgotten or never-used footage are preceded by cataloging activities describing the physical

materials in an archive and by subject cataloging done in as complete a system as can be afforded. The collection and preservation of documents that describe and illuminate the writing, production, distribution, and marketing of films are also undertaken by film archives. In full-service archives these documentation materials are cataloged or indexed.

The use, exhibition, and distribution of moving images are often subject to legal and administrative restraints different from those applicable to printed materials. Along with the legal responsibility to obtain the right to use them, the use of archival images in new productions involves the possibility of historical distortion and falsification. Film archives diffuse a knowledge of film culture and cultural heritage through projections, individual study, distribution, archival loans, the controlled use of archival printing materials, publications, symposia, lectures, film courses, and historical research. Video plays an important role in the distribution of historical film footage for teaching, study, and research by making copies available that have a relatively long life, are easy to use, and do not wear out the originals from which they were made. When sensitively produced and not distorted, video copies of dramatic and documentary films make the classics of screen art and communication available for individual study.

See also NEWSREEL.

Bibliography. Raymond Borde, *Les cinémathèques*, Toulouse, France, 1983; Eileen Bowser and John Kuiper, *A Handbook for Film Archives*, Brussels, 1980; FIAF, *Preservation and Restoration of Moving Images*, Brussels, 1986; Paul L. Gordon, ed., *The Book of Film Care*, Rochester, N.Y., 1983; Bolesław Matuszewski, *Une nouvelle source de l'histoire*, Paris, 1898, reprint Warsaw, 1955.

JOHN B. KUIPER

ARISTOTLE (384–322 B.C.E.)

Greek philosopher and scientist, the inventor of formal logic, and the greatest biologist of antiquity. Aristotle's contributions to the history of communication are extensive. Coming after two centuries of Greek philosophical and scientific achievement (after the pre-Socratics, Socrates, and PLATO), Aristotle's universal genius fitted him for the task of systematizing existing knowledge and organizing future research. His treatises provided the framework for Western thought and expression for many centuries thereafter and also exercised a profound influence on Islamic learning (see ISLAM, CLASSICAL AND MEDIEVAL ERAS). His analyses, definitions, and systems of CLASSIFICATION are still integral to many fields—including some directly concerned with communication, such as logic (see SYMBOLIC LOGIC), RHETORIC, and DRAMA—long after most of his specific theories have been modified or rejected.

Aristotle's father was court physician to the king of Macedon, grandfather of Alexander the Great, and Aristotle was himself later tutor to Alexander. At the age of seventeen Aristotle came to Athens, where he spent twenty years in Plato's Academy. He wrote dialogues, now lost, that were admired by CICERO for their style. What we have are only the "esoteric" works designed for research and TEACHING, not for the general public. After years of travel Aristotle returned to Athens in 335 B.C.E. and began teaching in the public gymnasium known as the Lyceum; after his death his pupil Theophrastus established a regular school known as the Peripatos (named after a covered walk or arcade).

Aristotle's writings cover an astounding range of subjects, from metaphysics to biology and comparative government, from logic to LITERARY CRITICISM. The largest single group of works in the corpus is concerned with natural philosophy, including biology. The first work in this group, the *Physics*, discusses the theory of nature, the principles and causes of change, and the nature of motion, time, and place. Other physical treatises deal with the structure of the heavens, the four elements, and the phenomena of earth and atmosphere. Then come a series of treatises in biology preceded by the *De anima*, a study in comparative psychology focused on the theory of sense perception and conceptual thought (see COGNITION). Aristotle was a pioneer in comparative anatomy and also in embryology. Besides these works in natural science, the corpus includes four other main groups:

1. The *Metaphysics* consists of a dozen books or essays only loosely tied together. The title *Metaphysics* is late; Aristotle called this subject First Philosophy and thought of it as dealing with the most fundamental causes or explanatory principles of all reality. These principles include substance and its attributes (the attributes divided into eight or ten categories), matter and form as the basic components of all natural substances, potentiality and actuality as the two modes of reality, and the Unmoved Mover as the divine First Cause of all motion and change.

2. The *Nicomachean Ethics* (with a shorter, probably earlier version known as the *Eudemian Ethics*) contains the theory of the good life or happiness, including an analysis of the moral and intellectual virtues. The *Politics* sketches the social structure and educational scheme of an ideal city in the tradition of Plato's *Republic*, but it also contains a massive comparative study of citizenship, political structure, and political change throughout the Greek world.

3. The *Organon*, or "tool" of philosophical inquiry, consists of five quite different treatises collected together under this title many centuries later. The *Categories* gives a brief analysis of basic entities (substances) and modes of predication or types of attributes. The *De interpretatione* analyzes the struc-

ture of simple propositions. The *Prior Analytics* contains Aristotle's discovery of formal logic in the theory of syllogistic reasoning. The *Posterior Analytics* develops the theory of demonstrative science as an axiomatic deductive system based on the syllogism. The *Topics* expounds a system of dialectic: rules for constructing informal arguments for and against proposed theses, using premises accepted by all, by most people, or by the wise.

4. Most important for the study of communication are Aristotle's two works on ORATORY and literary criticism, respectively, the *Rhetoric* and the *Poetics*. The latter contains the classical theory of Greek TRAGEDY as "the imitation of an action that is serious, complete, and of a certain magnitude"; its influence on the history of criticism has been incalculable. The *Rhetoric* is less well known today, but its analysis of audience emotions and the devices by which the orator can appeal to them played an important role in early psychological theory—for example, in that of seventeenth-century British philosopher Thomas Hobbes. The *Rhetoric* also discusses the kinds of reasoning used to persuade an audience and the appropriate style and structure of a successful speech (see also PERSUASION; PUBLIC SPEAKING).

Because Aristotle's corpus consists of something like lecture notes, never revised for publication, the elliptical style creates innumerable difficulties for the reader. Scholars have responded by a long tradition of commentaries—first in Greek, then in Arabic, then in Latin. Commentary on Aristotle's text was a central function of the medieval UNIVERSITY. In the MIDDLE AGES Aristotle was known simply as "the philosopher." Thomas Aquinas and others regarded him as the spokesman for nature and reason; Dante refers to him as "the master of those who know." Modern science and philosophy began as a revolt against the Aristotelianism of the schools. More recently his thought has served as an inspiration for contemporary work, above all in moral philosophy, theory of action, and philosophy of mind.

Bibliography. Jonathan Barnes, Malcolm Schofield, and Richard Sorabji, eds., *Articles on Aristotle*, 4 vols., London and New York, 1975–1979; Werner Jaeger, *Aristotle: Fundamentals of the History of His Development* (Aristoteles: Grundlegung einer Geschichte seiner Entwicklung), trans. by Richard Robinson, Oxford, 1934; William David Ross, *Aristotle: A Complete Exposition of His Works and Thought* (1923), 5th ed., rev., London, 1960.

CHARLES H. KAHN

ARMSTRONG, EDWIN H. (1890–1954)

Pioneer U.S. RADIO engineer, best known for his invention of frequency modulation (FM). Along with

LEE DE FOREST, Edwin Howard Armstrong may be said to have created radio. He was an early amateur experimenter at his home in Yonkers, New York. He studied electrical engineering at Columbia University and in 1912, while a student, demonstrated his first major innovation, the regenerative circuit, which freed radio from dependence on earphones. In 1918 he invented the superheterodyne circuit, which—by transforming the carrier signal to an intermediate frequency that could be amplified far more clearly—made a basic contribution to modern radio, television, and radar systems. These first two achievements helped resolve one of the worst problems of early radio: even with enormous antennas, early receivers could not pick up signals and amplify them enough to drive speakers. Through Armstrong's designs these faint signals could be captured with the twirl of a dial and amplified enough to fill amphitheaters.

But Armstrong's greatest achievement was FM. Perfected in 1933 after years of work, it offered static-free reception and a range of frequencies not previously heard by radio listeners. Unfortunately this breakthrough brought him into conflict with formidable antagonists, including the dynamic DAVID SARNOFF of the Radio Corporation of America (RCA), which dominated the industry. Sarnoff and Armstrong had long known each other, and Sarnoff had once urged Armstrong to invent something to eliminate static. When he finally observed the result in a visit to Armstrong's laboratory, Sarnoff was astounded but also alarmed. It was not just an invention, he noted, but a revolution, an entirely new transmitting and receiving system. Sarnoff saw its introduction as certain to disrupt the hugely profitable AM radio system that RCA relied on to finance the final development and early introduction of electronic television (see TELEVISION HISTORY—EARLY PERIOD). Another problem was that both FM and television required wide new SPECTRUM allocations, which brought them into conflict before the Federal Communications Commission (FCC). The FCC commissioners were largely attuned to Sarnoff's television plans and schedule and were inclined to hold FM back. Armstrong, finding himself blocked (the FCC would grant him only an experimental license), resolved to fight for his system with all his resources. In 1937, at a cost of about three hundred thousand dollars, he built an FM station at Alpine, New Jersey, and began demonstrating FM's capabilities. Before long his gamble seemed to pay off. General Electric (GE) became an FM proponent. In 1940 the FCC decreed that U.S. television should have an FM sound system—a decision whose consequences would be felt after World War II. Also in the postwar period FM radio began to build a following, especially among music lovers.

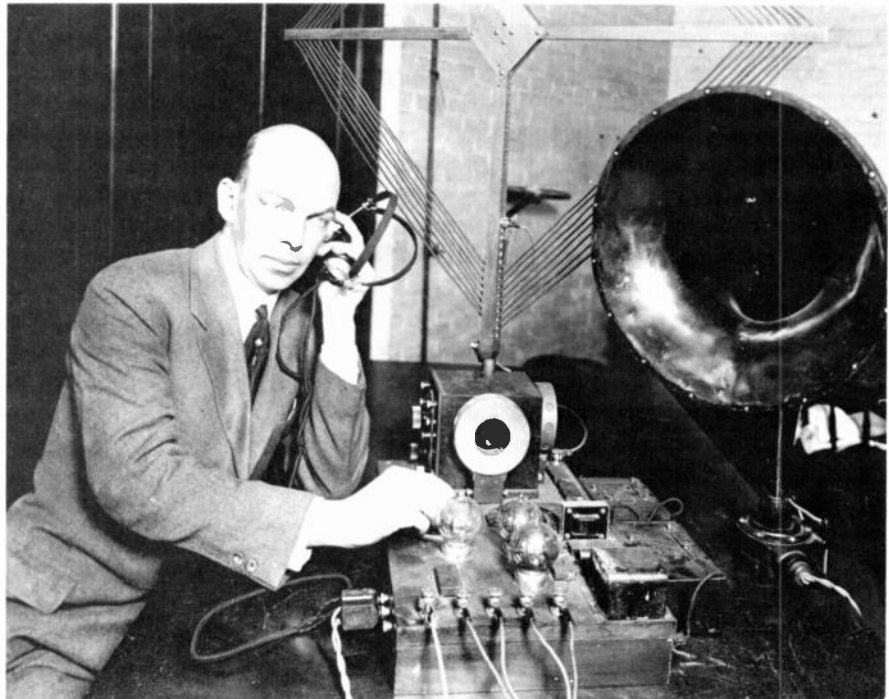


Figure 1. (Armstrong, Edwin H.)
Edwin H. Armstrong. The Bettmann
Archive, Inc.

But as his fortunes brightened, Armstrong faced a new struggle. Although GE, Westinghouse, Stromberg-Carlson, and Zenith were paying royalties for their use of FM in both radio and television receivers, RCA declined. It offered to pay a lump-sum settlement but not royalties (alleging an RCA role in the evolution of the invention). A few companies manufacturing under RCA license followed the RCA example. In 1948 Armstrong brought suit against the RCA group. For the next several years he faced batteries of renowned lawyers in agonizing, dragged-out litigation. In 1954, on the verge of bankruptcy and physical breakdown, he committed suicide. Years later the decisions in all suits went to Armstrong posthumously. By 1980 FM was the dominant radio medium.

Bibliography. Lawrence Lessing, *Man of High Fidelity: Edwin Howard Armstrong*, Philadelphia, 1956.

HARTLEY S. SPATT

ART

A term used in too many ways and applied to too many phenomena to have a simple or consistent meaning. However, common patterns can be discerned. The traditional definition of a communicative event involves a *source* who *encodes a message* that is *decoded* by a *receiver* (see MODELS OF COMMUNICATION). If one adapts this definition to the case of the arts, each term takes on a special property: an

artist creates a work of art that is appreciated by an audience.

Not all messages are considered art, and not everyone who produces a message is an artist. Art is the product of human creative skill. But as not all manufactured products are given this honorific title, other criteria must be involved in the designation. In its modern use the term is applied primarily to the products of a particular set of activities known collectively as the fine arts. Some were presided over by the Muses of the ancient Greeks: music, POETRY, DANCE, TRAGEDY; others (e.g., painting, SCULPTURE, ARCHITECTURE) were joined to the concept of fine arts through a long process that culminated in the eighteenth century and was codified in DENIS DIDEROT's *Encyclopédie* and the newly emerging philosophy of AESTHETICS. More recently the practitioners of new media—PHOTOGRAPHY, MOTION PICTURES, VIDEO—have aspired to be included in this grouping of the fine arts.

The Western designation of the *fine* arts expresses a distinction between these exalted domains of cultural production and others disqualified on various grounds. Most notably excluded are those performers and products whose appeal may be too broad (the "popular" arts) or too utilitarian (crafts). It has often been noted that these exclusions follow and reinforce lines of class and GENDER privilege. In other periods and cultures such distinctions have not been made or have derived from different social and ideological formations.

Although we know little about the origins of pre-

historic art such as the Paleolithic cave paintings of Lascaux, it is generally believed that their creation was intended to further through the magic of the VISUAL IMAGE the practical goal of hunting the animals depicted (see MURAL; Figure 1). Throughout history and across cultures, objects and performances on which we would bestow the label *art* have been created and used in ways that underscore the compatibility of their utilitarian and aesthetic functions.

Originally the term *art* (as in the Latin *ars*, meaning "skill" or "trade") was applied primarily to skillful performance according to definite rules; its modern meaning (as in the German *Kunst*) typically refers to the products of artists who are assumed to be free from such constraints and, moreover, are usually unhampered by pragmatic considerations of utility. These two definitional poles still coexist, although the balance remains tilted toward the latter. Art is generally assumed to result from the extraordinary technical abilities and personal qualities of its makers. Wide disparities exist among cultures and periods in their concepts of who can and should be seen as an artist and in the recruitment, training, and treatment of these individuals. In some instances artists are selected by clan, lineage, or gender; in others it is assumed that unique individual attributes—generally called talent—mark those eligible for the role of artist.



Figure 1. (Art) *Bison with Superposed Arrows*, Niaux, ca. 15,000–13,000 B.C.E. Ariège, France. From Paolo Graziosi, *Die Kunst der Altsteinzeit*, Florence: Sansoni, 1956, p. 201.

Concept of the Artist

In some contexts and cultures artists are valued for their virtuosity in exercising conventional skills (with the greatest accolades going to performances that approach the ideal realization of the conventional form); in others, aesthetic norms emphasize innovativeness and creative individuality (with an implicit expectation of radical novelty as the badge of genius). Each of these positions carries implications for the communicative role of the arts in society. The focus on skill is characteristic of most societies and periods, whereas the emphasis on originality is a peculiarly Western and modern perspective. Chinese art, for example, reveals a large measure of continuity over many centuries as traditional principles and practices were reworked to meet later needs. Thus a nineteenth-century critic wrote of the seventeenth-century Ch'ing painter Shih-t'ao, "How could he have attained such deep merit and strength if he had not absorbed the masters of T'ang and Sung in his heart and spirit?"

European cultures in the fifteenth and sixteenth centuries underwent a series of radical transformations with profound consequences. These upheavals, including the RENAISSANCE, originating in southern Europe, and the Protestant Reformation, originating in northern Europe, are seen as resulting in part from the political and economic developments associated with the decline of feudalism and the stirrings of bourgeois capitalism and in part from the technological revolution embodied in the invention of PRINTING. Among the legacies of this period is the Western preoccupation with the individual as the focus of theological, moral, political, economic, and social concern. Protestantism emphasizes the inescapably individual relation of each person to the deity, and the political and social philosophies of modern Western societies locate in individual citizens fundamental rights and obligations that define their relationships with the state and with their fellow citizens.

In the realm of the arts these shifts are reflected in the increasing focus on the individuality of the artist and of artistic creation. A great work of art comes to be defined as the product of creative genius transcending tradition and convention in the fulfillment of its inspiration. Thus achievement in art almost inevitably comes to be identified with innovation, as the artist's genius is manifested in the originality of style and execution. Coincidentally, the cults of genius and originality create an additional motivation and expanded market for forgery as they privilege works that can be attributed to canonical figures (see FORGERY, ART).

In the past several centuries artists in Western cultures have been expected and even encouraged, in keeping with the spirit of ROMANTICISM, to prove their worth by expressing a personal and unique

vision. The resulting pattern of constant innovation in the arts undermines their ability to embody the common experiences and meanings of the society, to serve the central communicative functions of socialization and integration—roles now assigned to the domain of the popular arts and the mass media. Artists came to see themselves as the AVANT-GARDE, the “frontier scouts” of CULTURE moving away from their contemporaries into uncharted territories. This peculiarly romantic model of the artist as quintessential outsider both justifies and maintains the alienation of art from “real life” and the ambivalence that often characterizes the relationship between artists and their audiences.

Changing Concepts of Art

Most people in modern industrial societies do not view the arts as central, essential institutions in any personal, individual fashion. The activities and products associated with the arts are generally outside the mainstream of our daily lives and important concerns. Historically the term *art*, or *the arts*, came into currency in Europe as the common rubric for a diverse class of activities and products, partially in response to their increasing irrelevance to the lives of most people. As these various objects and events moved to the periphery of Western culture, their common characteristics became more visible, their differences less noteworthy, hence their ability to shelter comfortably under a common umbrella. In other words, a process of cultural realignment resulted in the banishment of the arts to a reservation on the psychological periphery of Western culture.

The image of a reservation is used here in the sense that the arts tend to be viewed as institutions that exist at the fringe of society. These are cultural “spaces” that real people may *visit* in their spare, fringe time but that only spare, fringe people inhabit in their *real* time. The territory of the arts is foreign to most of the population, is visited briefly by some as a LEISURE-time tourist attraction, and is lived in by a very few special people.

A second reservation is adjacent to that on which the arts reside and contains another institution, RELIGION, which has moved to the periphery of modern Western culture. As with the arts, those called or chosen for full-time participation are singled out by special qualifications of soul or temperament. In both cases there is a common tendency to view such cultural specialists—artists and clerics—with a mixture of respect and contempt. They are granted a degree of respect because of their unique abilities and their somewhat mysterious status as dwellers in an exotic realm. But the very quality of being removed from real life may also make them objects of disdain. As Clive Bell wrote:

The artist and the saint do what they do, not to make a living, but in obedience to some mysterious necessity. They do not produce to live—they live to produce. There is no place for them in a social system based on the theory that what men desire is prolonged and pleasant existence. You cannot fit them into the machine, you must make them extraneous to it. You must make pariahs of them, since they are not a part of society but the salt of the earth.

However, throughout most of Western history and in most non-Western societies even today it would be inaccurate to say that religion and the arts (the rubric itself would be inappropriate) occupy positions at the fringe of real life. Certainly many of their practitioners may have been viewed as special in a variety of ways, but the activities and products we designate as artistic and religious can generally be seen at the center of life and consciousness, and often joined together. Both are carriers and articulators of basic cultural beliefs about the nature of things and about the moral order.

Religion is a nonbeliever’s way of labeling a set of beliefs about what exists in the world, about how these things came into being and how they are related to one another, about what is important and what is right. In most cultures and periods other than the modern West such commonly held beliefs and values are articulated, preserved, and communicated in a variety of symbolic modes (*see* MODE). These beliefs are conveyed through oft-told stories (what nonbelievers may call myths) and proverbs (*see* PROVERB); they are depicted in paintings, statues, stained-glass windows, and other visual forms; they are danced and sung (*see* SONG) and chanted; they are embodied in the architecture of churches, temples, monuments, mausoleums (*see* ART, FUNERARY), palaces, and public squares; they are even manifested in the role-reversing revelry of carnival (*see* FESTIVAL; MASK). All of these are means by which humans have been able to articulate their understandings of how the world works and how we should behave in it. From the outside we may view them primarily as “art” because we do not comprehend or accept their intended messages, but we do understand that their articulation is governed by a concern for form and beauty.

Communicative Functions of Art

Although in many instances the artist is producing images and objects that mimic the appearance of portions of the visible world—and is therefore often seen as a creator, even as a rival to the creator-deity—art is rarely held to be merely a representation of outward appearances (*see* REPRESENTATION, PICTORIAL AND PHOTOGRAPHIC). The choice of elements and their manipulation and form, as well as the content of the work, will generally be taken to articulate meanings that lie beyond the visible surface of

the objects and events depicted. Often the formal properties of the work of art are intended to be metaphoric representations of nonvisible truths that cannot be apprehended directly (see METAPHOR).

The Japanese monk Kukai, who introduced Shingon Buddhism to Japan in the ninth century, saw the role of art as essential to the teaching of religious truth:

The law [dharma] has no speech, but without speech it cannot be expressed. Eternal truth [*tathata*] transcends color, but only by means of color can it be understood. . . . In truth, the esoteric doctrines are so profound as to defy their enunciation in writing. With the help of painting, however, their obscurities may be understood. The various attitudes and mudras of the holy images all have their source in Buddha's love, and one may attain Buddhahood at the sight of them. . . . Art is what reveals to us the state of perfection.

The sculptors of classical Greece were not presenting copies of particular individuals but rather were constructing on the basis of natural appearances geometrically perfected surfaces and shapes that the beholder's eyes would contemplate with enjoyment and the beholder's mind would intuitively recognize as representing the true form and ideal essence of humanity (see HELLENIC WORLD; Figure 2). In the Italian Renaissance the Greek conceptualization of the world in mathematical terms was revived and applied to painting, sculpture, and buildings. The architecture of sacred buildings is at all times a matter of great importance, as these edifices are the embodiment of the divine spirit. The goal of Renaissance architects was to unite the mathematical perfection of geometry, which they learned from the Greek classical sources, with the spirit of Christian theology (see CLASSICISM). One solution came from combining a classical aesthetic dictum—Vitruvius's assertion that a well-built man fits with extended hands and feet exactly into the most perfect geometric figures, the circle and square (Figure 3)—with the Christian belief, derived from Genesis, that man was created in the image of God. The resulting characteristic Renaissance church plan, based on the circle and the square and their three-dimensional expressions, the sphere and the cube, was thus a microcosmic echo of the mathematical perfection of God's macrocosmic creation (Figure 4). In the words of the sixteenth-century architect Palladio, "We cannot doubt that the little temples we make ought to resemble this very great one, which, by His immense goodness, was perfectly completed with one word of His." This is strikingly similar to the ancient Indian belief quoted from the Sanskrit by Ananda Coomaraswamy: "Our scriptures teach that the architecture of our temples is all made after the heavenly pattern, that is of forms prevailing in Heaven."

In the seventeenth century the artist and architect

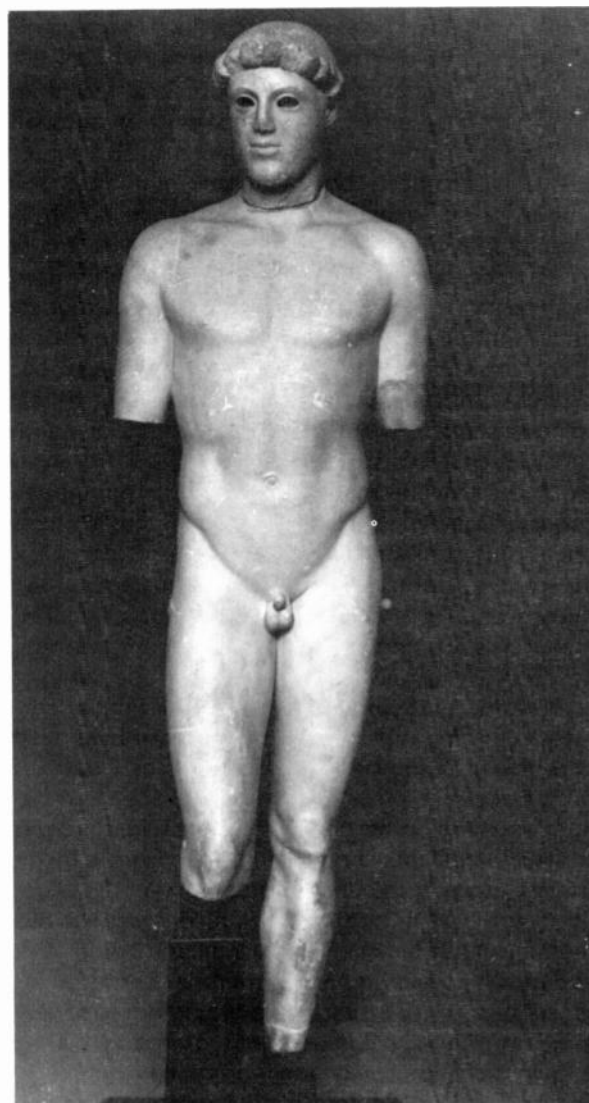


Figure 2. (Art) *Kritios Boy*, ca. 480 B.C.E. Acropolis Museum, Athens. Marburg/Art Resource, New York.

Giovanni Lorenzo Bernini designed the final form of St. Peter's in Rome, adding to the magnificent edifice an enormous oval square surrounded by a colonnade (Figure 5). This was not merely an aesthetic decision, as Bernini's words reveal: "For, since the church of St. Peter's is the mother of nearly all the others, it had to have colonnades, which would show it as if stretching out its arms maternally to receive Catholics, so as to confirm them in their faith, heretics, to reunite them to the Church, and infidels, to enlighten them in the true faith."

The evocative power of images has not been universally embraced by the world's religions, as can be seen in the prohibitions against images in orthodox JUDAISM and Islam (see ISLAM, CLASSICAL AND ME-

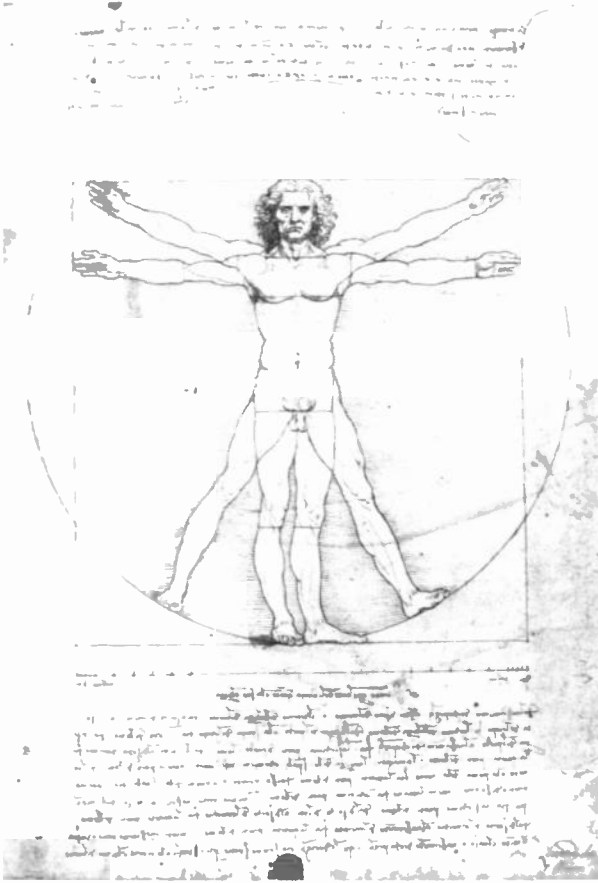


Figure 3. (Art) Leonardo da Vinci, *Vitruvian Man* ca. 1490. Gallerie dell'Accademia, Venice. Alinari/Art Resource.

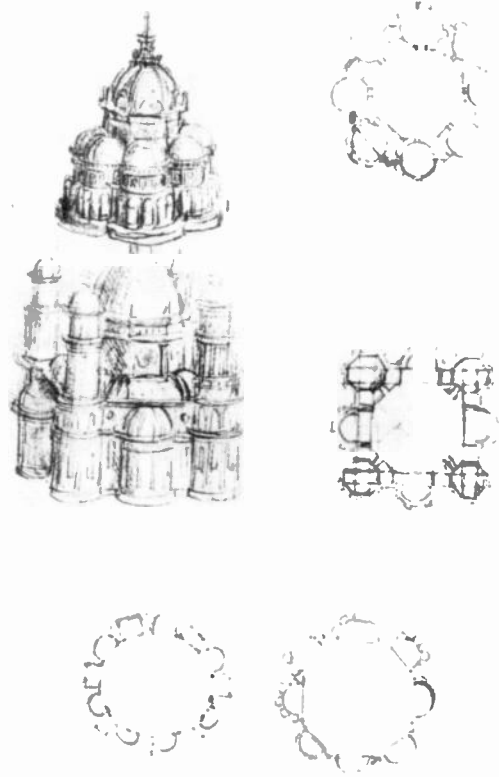


Figure 4. (Art) Leonardo da Vinci, designs of churches, Ms.B25b. Bulloz/Bibliothèque de l'Institut de France, Paris.



Figure 5. (Art) Aerial view of St. Peter's, Rome. Alinari/Art Resource, New York.

DIEVAL ERAS) and the violent disputes over icons in the early Christian church. However, in most societies images have been created for the purpose of focusing devotional attentions (e.g., figures of deities and saints; Figure 6), encouraging and celebrating civic virtues (allegorical figures; Figure 7), and manifesting power and authority (figures of rulers and military leaders; Figure 8).

The possibility of reproducing the features of particular individuals leads to the peculiarly though not exclusively Western practice of PORTRAITURE. Portraits preserve for posterity the memory of loved ones and glorify important and powerful persons; they also identify the physical image of rulers with the authority of the state (e.g., as on COINS). Departures from the goal of honorific representation can lead to the moral and political criticism often found in CARICATURE and to portraits that seem to reveal psychological characterization manifested in the physiognomy of the subject (Figure 9).

Works of art also serve to present and interpret social experience. NARRATIVE works such as drama often present social roles and relationships and instruct members of a culture in the norms of society and the price for transgression. The stories societies

tell one another through the arts, both "fine" and "popular," are prime vehicles for the cultivation of images of human motivations and personalities and thus provide individuals with the basis on which they understand (or misunderstand) one another. Consequently societies often feel the need to monitor and control the content of art works to ensure that they support and do not subvert the established order. Creative works, wrote English critic Leslie Stephen in 1875, are both the producer and the product of society and should therefore "stimulate the healthy, not the morbid emotions."

Artistic Creation

Artistic communication is a form of symbolic behavior in which an artist creates or arranges objects and/or events so as to imply meanings and evoke emotions according to the conventions of a CODE, and these objects or events elicit inferences and emotions in the artist and in others who possess competence in the same code. For artistic communication to occur it is not necessary for the artist and the audience to coexist in either time or space; however, it is

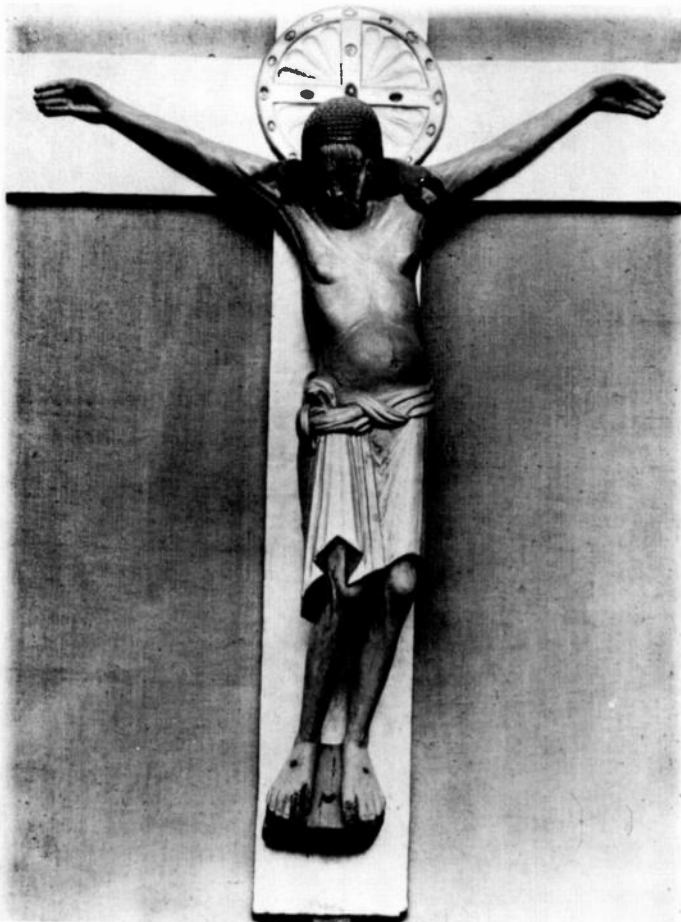


Figure 6. (Art) Crucifix of Archbishop Gero, ca. 969–976 C.E. Cathedral of Cologne, FRG. Marburg/Art Resource, New York.



Figure 7. (Art) Frédéric-Auguste Bartholdi, *Statue of Liberty* ("Liberty Enlightening the World"), 1886. The Bettmann Archive, Inc.

necessary that they share to a significant extent a common symbolic code.

The process of artistic creation occurs within the boundaries of specific modes of symbolic thought and action, and in terms of the conventions of specific stylistic codes. A poetic style in English employs a limited set of SOUND elements and orders them according to principles that differ from other LANGUAGE usages. A style can be defined as a set of rules that influences the choices made by an artist operating within a specific code. Some of these rules are culturally determined and may constitute what is considered at that time and in that culture the only possible style in art. Other rules are more individual and tend to be identified with the particular artist and his or her followers.

Successful communication in a symbolic mode re-

quires at a minimum that communicator and audience share the basic rules of implication and inference in the appropriate code. The artist, in a crucial sense, is the initial member of the audience. As Leonard Meyer has noted, "It is because the composer is also a listener that he is able to control his inspiration with reference to the listener." This does not mean, however, that the audience experiences whatever emotions were felt by the artist either before or during the act of creation. The artist's creative experience is rarely equivalent to the felt experience of any emotions that are conveyed by the work of art, despite a romantic faith in the false assumption that an artist can only convey emotions and experiences that he or she has lived through personally.

There are important differences between the artist's experiences and the process of appreciation by

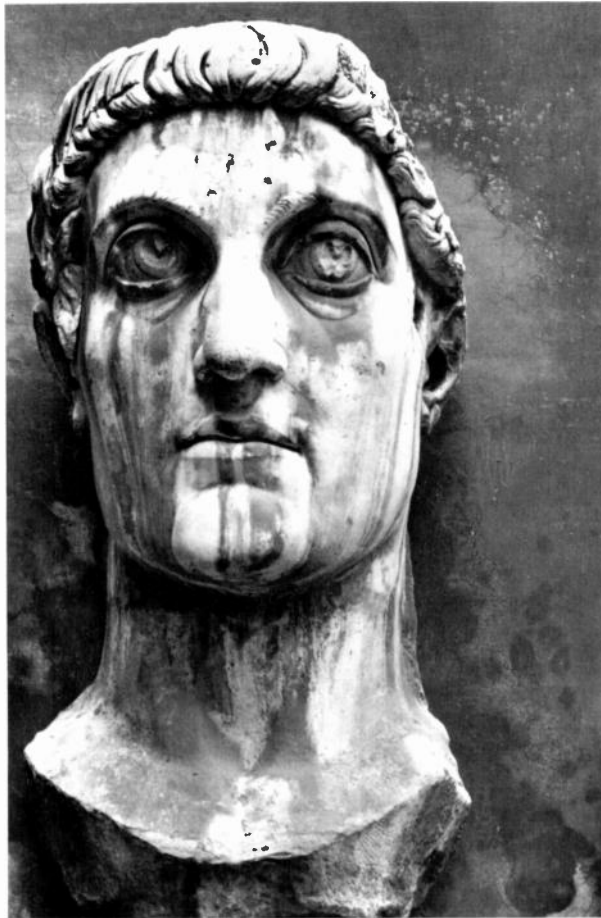


Figure 8. (Art) *Constantine the Great*, ca. 330 c.e. Ali-nari/Art Resource.

even the most sophisticated audience. First, the artist is actually making choices and the audience is at best anticipating and enjoying them. Moreover, in the vast majority of media, acts of creation are different in time, space, and pace from acts of appreciation. The artist interacts with a work of art in the process of creation in ways that can never be repeated by the artist or by anyone else. Audiences encounter a finished work of art or witness the articulation of a rehearsed performance. The process will always be in some sense closed and determined by the actions of the artist. For the artist, in contrast, the process is to some degree always open; whether within or beyond the bounds of convention, the artist always has a potential to succeed—or fail—in the realization of artistic goals.

The actions of the artist in creating a work of art can be schematically characterized as the *selection* of elements (subject, media, materials, etc.), the *manipulation* and transformation of selected elements, and the organization of an overall *structure*. This is not typically a chronological sequence; in fact, it might

be more accurately seen as a constant dialectic of actions and responses on the part of the artist and, in the case of performances, the audience, which shapes the emerging work. These choices can, however, be seen as foci of aesthetic attention and evaluation in the response to the work of art. They are always made and are generally responded to within the framework of conventions and standards of artistic legitimacy and skill that obtain in the particular art world. Works of art, like all symbolic creations, are produced and perceived as figures set against the ground of the conventional forms of the particular medium, style, and context. The challenge to the artist is to reveal sufficient mastery of conventional skills and forms to provide the audience with a basis for understanding and appreciation, and at the same time to demonstrate an individuality that distinguishes his or her work from that conventional ground.

The artist's selections of elements, manipulations, and structures are governed by a sense of their fittingness to the present task, which often results in modifications or violations of the conventions embodied in previous works. The artist may follow intuition across the borders of convention, guided by personal standards of taste. For the audience, which has not shared in the choices and decisions through which the work was shaped, an important judgment to be made is that of legitimacy: is it art? Unless and until they are satisfied that the work in question is indeed a work of art, audiences typically will not invoke the response strategies considered appropriate to art. For many audiences, in many cases, the setting of the encounter with the work (e.g., hanging in an art gallery or MUSEUM, played by a symphony orchestra, published in a poetry magazine) suffices to ensure its legitimacy; for other audiences, in other cases, this judgment depends on the degree to which the work conforms to conventions of selection, manipulation, and structure.

The loudest controversies often center on unconventional choices made by artists and attacked as illegitimate by other artists, by critics, by patrons, and by audiences. In times and cultures in which aesthetic conventions are considered absolute and even divinely sanctioned, artists have been punished for violating them. In the modern world, owing in part perhaps to the diminishing role of orthodox religions and to the technological availability of vast realms of past and present art, rigid standards of legitimacy have been largely abandoned. The expectation that artistic achievement is marked by radical individuality, and therefore radical innovation, has guaranteed that conventions will be continually violated and legitimacy constantly in doubt.

The quickest road to recognition, if not acceptance, of a new style is by extending or contracting the bounds of legitimacy through changes in the

distinctive features of a code or style. Audiences may be shocked by the inclusion of subjects or elements hitherto considered at best irrelevant and at worst taboo in works of art. In the nineteenth century, U.S. poet Walt Whitman was accused of figuratively bringing the slop pail into the parlor; in the twentieth century, French artist Marcel Duchamp did so literally by exhibiting a urinal as a work of art (Figure 10). Some of the clearest ways in which standards of legitimacy are debated and enforced are conventions governing the use of erotic images in art and disputes over whether particular works are art or PORNOGRAPHY (i.e., not exculpated by the status of art). An example that is less dramatic because there is no longer dissension about it is the introduction of working-class characters and concerns into nineteenth-century FICTION (e.g., in the work of Charles Dickens or Émile Zola), which violated conventions of proper subject matter for an essentially bourgeois art form (see REALISM).

Judgments of legitimacy also operate in response to manipulations and orderings used by artists. A new verse form may be attacked as barbaric and unpoetic. The musical innovations of twentieth-century Austrian composers Arnold Schoenberg, Alban Berg, and Anton Webern aroused vocal condemnation from critics and audiences. The original performances of Russian composer Igor Stravinsky's *Le sacre du printemps* (The Rite of Spring) in Paris in 1913 provoked such vociferous debate between supporters and attackers that the music itself was drowned out. A style becomes accepted when its originators are granted the legitimacy of their actions and their intentions. Its characteristic patterns of choice and organization may now be used as the ground against which particular works can be appreciated.

Appreciation of Art

An important part of the process of appreciation is the perception and evaluation of the competence displayed by the artist. The fundamental criterion for the evaluation of artistic competence is the degree of skill that can be attributed to the acts of selecting, transforming, and ordering the elements constituting the work of art. Skill is attributed to the artist to the extent that these actions reveal both intention and ability: did the artist intend particular outcomes, and were these intentions realized?

Art works that follow conventional lines may highlight failures to achieve artistic intentions. A poet who is clearly stretching the meaning of a line to achieve a rhyme, a singer who reaches for but cannot attain a high note, a filmmaker who cannot edit a sequence coherently—all these reveal inadequacies of ability. Conversely, artists working in familiar forms are rewarded with appreciation when they succeed



Figure 9. (Art) Vincent van Gogh, *Self-Portrait*, 1889–1890. Louvre, Paris. Giraudon/Art Resource, New York.

in meeting the challenges of their craft. The line of poetry that perfectly fits the meaning and feeling of the poem, the singer who seems to effortlessly traverse a coloratura passage, the filmmaker whose pacing of images and action leaves audiences gasping—all these reveal the successful realization of artistic intention.

Artists who make unconventional choices evoke somewhat different responses: are their actions the successful realization of an unconventional intention or the failure to achieve a conventional one? Are they departing from the familiar territory of the conventional because they cannot meet its demands, and seeking the ambiguity of novel terrain? Not surprisingly, critics faced with unconventional works from an established artist often comfort their audiences with the assurance that the artist has earned the right to be taken seriously through previous conventional performances.

The appreciation of aspiration as well as achievement requires a knowledgeable audience capable of perceiving the artist's choices and the manner in which they are carried out and comparing them to the choices and skill embodied in other works and performances. Appreciative competence evolves through constant involvement with works of art in which the audience learns to distinguish the conventional from the idiosyncratic, the difficult from the flashy, the controlled from the random. Many of the

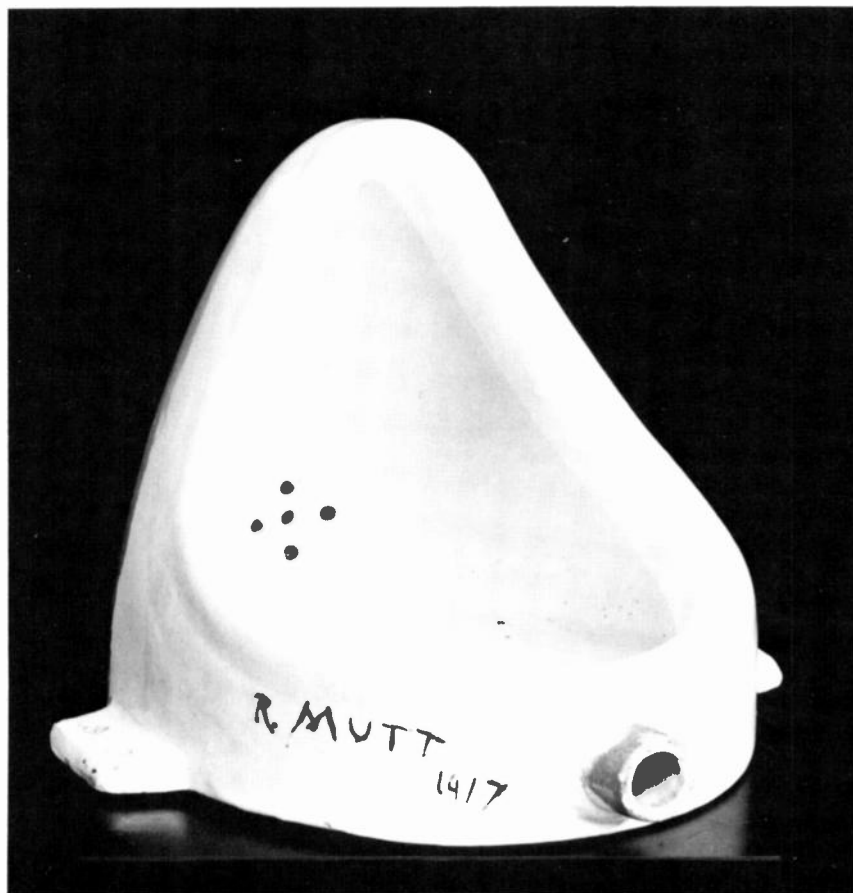


Figure 10. (Art) Marcel Duchamp, *Fountain*, 1917. Courtesy Sidney Janis Gallery, New York.

elements of skill in art tend to be invisible; creative performance often appears effortless precisely when it achieves the highest levels of competence. Sophisticated appreciation may require an understanding of the structural conventions that give weight and meaning to elements and operations purposively excluded as well as to those that are included. The high level of appreciative skill labeled connoisseurship thus involves the evaluation of creative products and performances as figures set off against a rich array of grounds provided by extensive exposure to and recall of artists and their works.

This description of the appreciative process need not be limited to the audiences for those works and performances that fall within the boundaries of the "fine arts." The audiences for most of the "popular arts," as well as such nonartistic domains as SPORTS, cooking, and even politics, can readily be seen as acquiring and exercising similar competence in the PERCEPTION, evaluation, and enjoyment of skillful performance by both professional and amateur practitioners. Any activity that requires skill can afford the aesthetic pleasures of competent performance and appreciation.

See also ARTIST AND SOCIETY; CHILD ART; ICONOGRAPHY; TASTE CULTURES.

Bibliography. Clive Bell, *Art*, London, 1914, reprint New York, 1958; Daniel P. Biebuyck, ed., *Tradition and Creativity in Tribal Art*, Berkeley, Calif., 1969; Georges Charbonnier, *Conversations with Claude Lévi-Strauss* (Entretiens avec Claude Lévi-Strauss), trans. by John Weightman and Doreen Weightman, London, 1969; Ananda K. Coomaraswamy, *The Transformation of Nature in Art*, Cambridge, Mass., 1934; Arnold Hauser, *The Sociology of Art* (Soziologie der Kunst), trans. by Kenneth J. Northcott, Chicago, 1982; Eugen Herrigel, *Zen in the Art of Archery* (Zen in der Kunst des Bogenschiessens), trans. by R. F. C. Hull, New York, 1971; Leonard B. Meyer, *Emotion and Meaning in Music*, Chicago, 1956; Charlotte M. Otten, ed., *Anthropology and Art*, New York, 1971; Osvald Siren, *The Chinese on the Art of Painting: Translations and Comments*, New York, 1963; Barbara Herrnstein Smith, *Poetic Closure: A Study of How Poems End*, Chicago, 1968; Janet Wolff, *The Social Production of Art*, New York and London, 1981.

LARRY GROSS

ART, FUNERARY

Historically, few religious systems have seen death as a natural event; rather, it has been surrounded with fear and superstition. The dead were often regarded as a threat to the living, and had to be appeased to keep them at bay. Different cultures supplied their dead with elaborate housing, prepared them for long journeys, and gave them gifts, and these concepts helped to create funerary ART and ARCHITECTURE.

Concepts of Death

While a desire to protect human sensibilities from the physical facts of decomposition has played some part in the practice of burying or entombing the dead, a consideration of duty toward the dead has also had a role. Even early burials had ritualistic aspects, some designed to propitiate the dead and to ensure that the living would not be disturbed by uneasy or maleficent spirits. For example, inhumations where bound corpses have been found in a crouching position may have been intended to prevent the dead from escaping to threaten the living. Fear of contamination led to the development of elaborate rites of purification involving washing, the

burning of incense, and the airing of premises. Similarly, corpses themselves were washed, dressed in special clothes, anointed, and otherwise prepared for disposal, not only to protect them from demons but also to shield the living from the displeasure of the deceased. Gifts for the dead, the creation of a permanent abode of the dead and its proper equipment, libations and ceremonies on anniversaries and other significant dates, and the performing of rites of remembrance as a token of respect for antecedents all point to a desire to please the dead in order to keep them benign.

The finality of death has often been rationalized as a moment of transition from one aspect of existence to another, less obvious, plane. The concept of the dead setting off on a voyage seems to have been widespread and involved crossing mysterious rivers, bridges, valleys, and other obstacles to reach some distant place. Such passages involved payment of fares, and money was often placed in the mouth to settle the bills of ferrymen and to bribe guards, toll-keepers, and the like.

A remarkable number of civilizations have regarded burial rites as preparation for a new existence in which food, drink, companions, weapons, jewelry, furniture, vessels, and servants would be as necessary as during life. In ancient Mesopotamia, for example,



Figure 1. (*Art, Funerary*) Burial, Guatemala, 1976. © 1986 Rosalind Solomon.

the burial of important personages involved killing and entombing people and animals so that they could accompany the deceased to a new life beyond death. The slaying of large numbers of dependents seems to have been an Indo-European custom from the Neolithic period, and the Hindu practice of suttee was a survival of this RITUAL.

Just as objects and people were sometimes entombed with the dead, they were also burned with the corpse at cremation so that they could accompany the dead. The effect of such practices on primitive economies was considerable. It is significant that the more developed a culture, the less luxurious was the furnishing of tombs. Predynastic tombs in Egypt already contained models, statuettes, and substitute offerings instead of real objects and human beings—a practice that was cheaper and less of a temptation to grave robbers. In several cultures, pottery and other artifacts were “slaughtered” by being broken so that their “souls” would go with the dead. Some Chinese royal tombs have been discovered to contain whole armies of terra-cotta statues representing foot soldiers and cavalry. Remnants of ancient customs can be found in the modern world, as when mourners

place rings or COINS in coffins or when a riderless horse follows the coffin in a state funeral.

Many religions make the important distinction between the soul, which is immortal, and the body, which quite clearly is not. One concept is that the soul exists before the body is formed and continues to exist after the body is destroyed; incarnation, therefore, is only a phase and may even be punishment for wrongs committed, while after the death of the body the soul's future is determined by the quality of the life lived during incarnation. This cyclical idea of destiny is found in Hinduism and Buddhism and was common among some cults of the Greco-Roman world. Enlightenment, the Buddhist nirvana, can be achieved only when the material world recedes and the personality is no longer slave to fleshly desires. This spiritual notion is far removed from the crude materialism of cultures that stressed the burial of valuable objects with the corpse.

It was a belief of the ancient Hebrews, Mesopotamians, and Greeks that the dead person became a wraithlike creature enduring a wretched existence in some miserable abode of the dead. Inhumation suggested that the abode of the dead was somewhere in

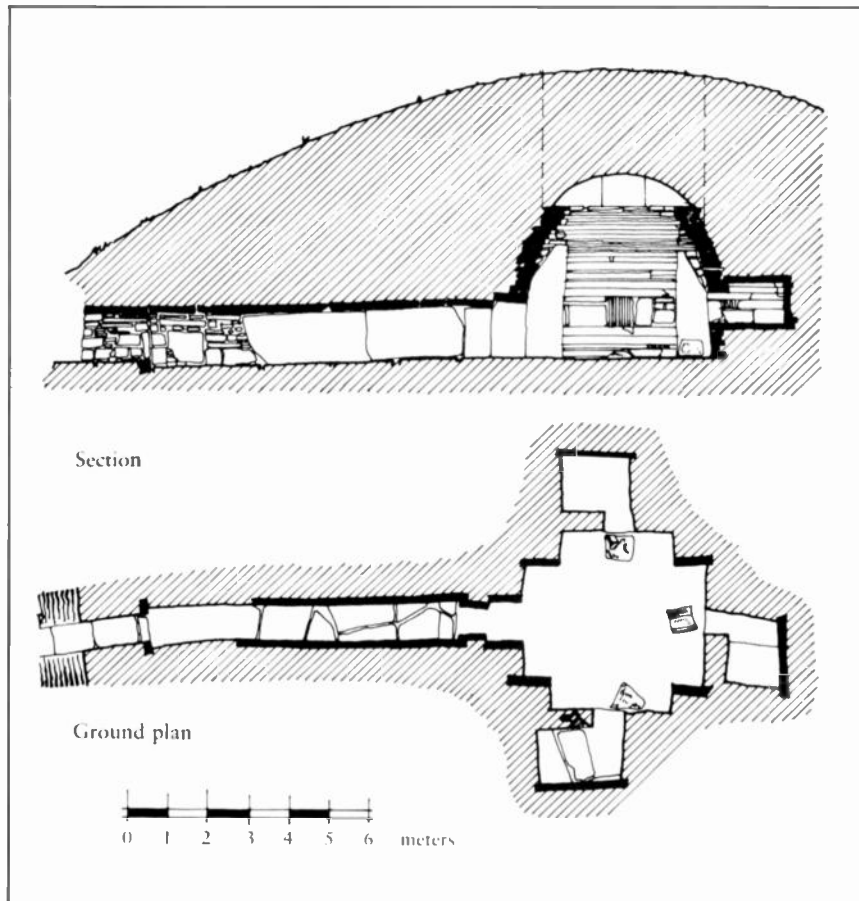
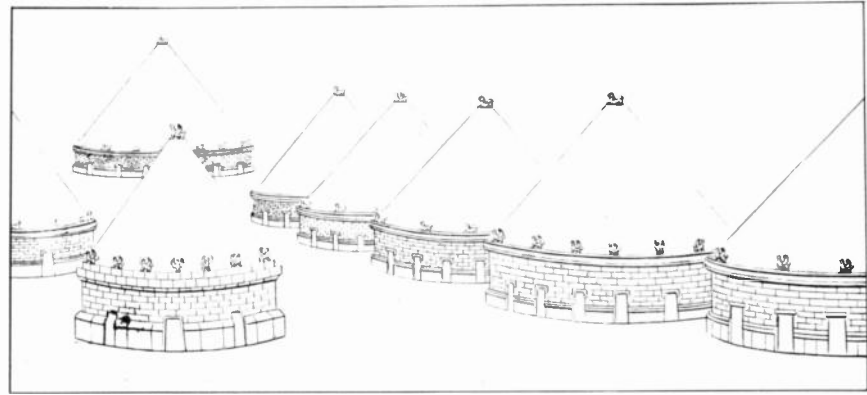


Figure 2. (*Art, Funerary*)
Megalithic chamber tomb, Maes
Howe, Orkney, Scotland. Section
and ground plan. Courtesy of Dr.
James Stevens Curl.

Figure 3. (*Art, Funerary*) Restoration of the Etruscan necropolis, Tarquinia, Italy, ca. seventh to fifth century B.C.E. From Mrs. Hamilton Gray, *Tour to the Sepulchres of Etruria in 1839*, London, 1841. Courtesy of Dr. James Stevens Curl.



the bowels of the earth in a gloomy underworld. Significantly, the religions of ancient Egypt, as well as those of JUDAISM, Zoroastrianism, Christianity, and Islam, all incorporated the notion of the preservation of the personality as an essential part of “survival” after death. The resurrection of the body became an important belief, especially to ancient Egyptians and Christians, sometimes even involving elaborate practices to prevent physical decay. *See* ISLAM, CLASSICAL AND MEDIEVAL ERAS; RELIGION.

Types of Funerary Structure

The Egyptians’ tombs were their permanent dwellings and were thus superior in architectural quality to the houses of the living. Elaborately decorated burial chambers had chapels attached to them where ceremonies would take place, and in this respect they were not unlike the chantry chapels associated with tombs in medieval Christian churches. Tombs were endowed to ensure that they were kept in good repair, and priests were paid to perform rituals.

Significance has been given to burial places by the erection of structures, mounds, or symbolic markings over them. Several tomb types resemble burial mounds, while formal planning is a feature of tombs found in China, Egypt, Europe, and other civilizations. Burial chambers, often of imposing architecture and with long passages leading to them, are features of Orca-dian, Irish, Mycenaean, and other tombs, all covered by mounds of earth. The Etruscan necropolis at Tarquinia contained many lavishly decorated burial chambers covered with conical mounds surrounded at the base with walls of masonry. These Etruscan tombs were models for the vast imperial mausoleums of the Roman emperors Hadrian and Augustus, and indeed Egyptian pyramids may be viewed as huge, regularized masonry mounds with elements symbolic of steps to the heavens and the rays of the sun. In Rome large underground sepulchers known as hypogaea were created for families, groups, or sects; the even larger underground public cemeteries were known

as catacombs. Roman funerary customs also demanded large columbaria for the reception of the ash-chests of extended family groups. Individual house-tombs built along the roads to Rome often were surrounded with gardens, the produce of which helped to pay for upkeep. They were pleasant places for commemorative family gatherings. The interiors of such tombs were plastered and painted or finished in more permanent materials.

In the classical world places of cremation or entombment were outside city walls. Early Roman tombs were simply marked holes in the ground. The rectangular house-tombs of the Via Appia or Pompeii were more elaborate, and larger tombs often resembled temples. Ambitious tombs were constructed for the reception of cremated remains as well as for whole bodies; several cultures in antiquity preserved the ashes instead of scattering them. Where the ashes were cast into rivers or otherwise dispersed (as in Hindu custom), permanent memorials seem to have been eschewed. When bodies could not be found—often regarded as a disaster in the ancient world—cenotaphs (literally, “empty tombs”) were erected both as memorials and as gifts to appease the dead. *See* HELLENIC WORLD; ROMAN EMPIRE.

Modern Funerary Art

With the ascendancy of Christianity in the Western world, the dead were buried in churches or in churchyards. Cults of saints contributed to a lessening of fear of the dead; relics were sought after, and it became desirable to be buried as near the holy shrines as possible. The building of tombs in churches and the custom of saying masses for the repose of the souls of the dead (chantries) were responsible for a great flowering of funerary art in Europe that included the creation of sarcophagi, ledger stones, altar tombs, canopied tombs, effigies, and chantry chapels of exquisite design (as in Winchester Cathedral in Hampshire, England). The Christian rituals of preparation for death, the burial or entombment of the

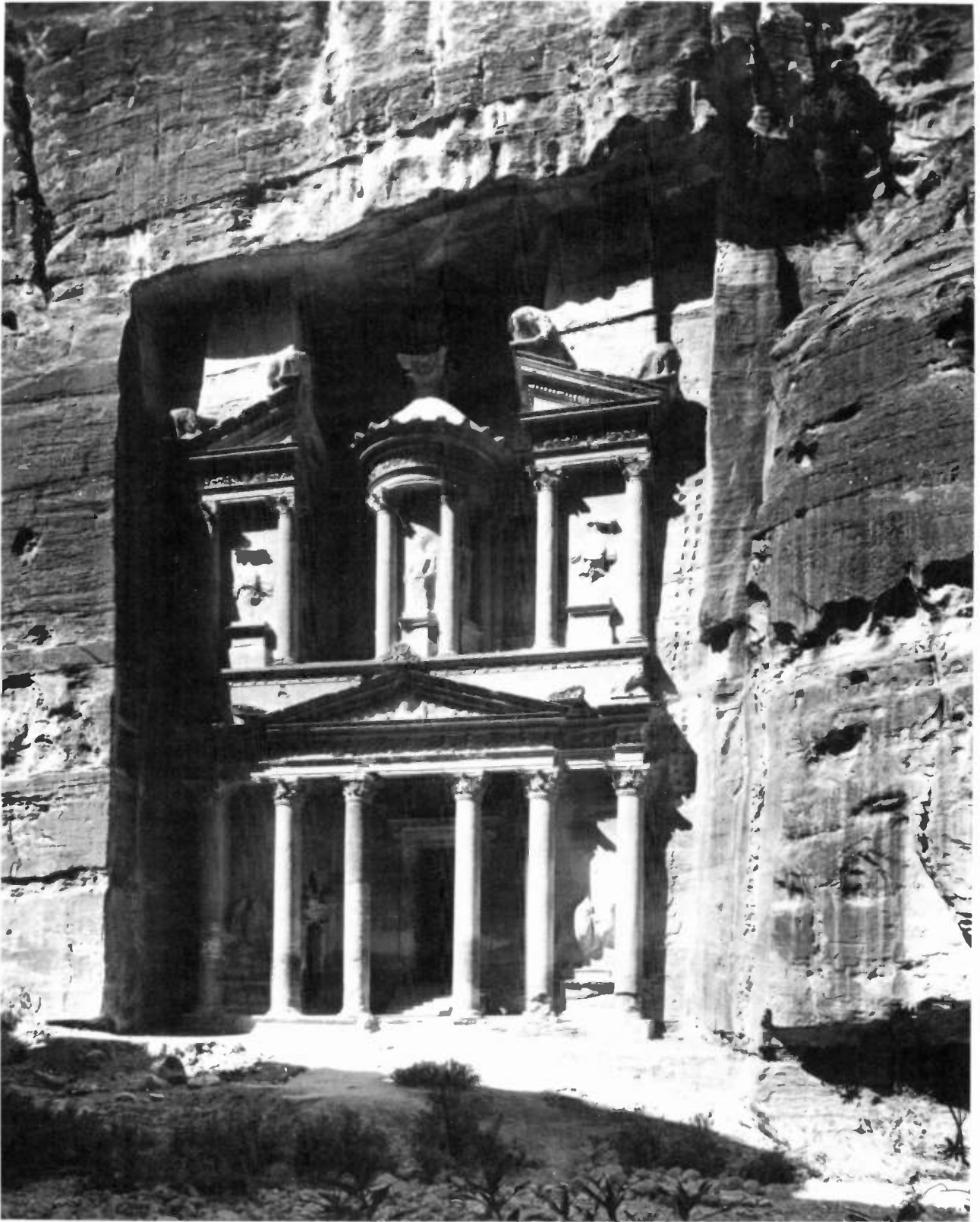


Figure 4. (*Art, Funerary*) Rock-cut tomb, "el-Khazneh" ("The Treasury"), Petra, Jordan (Eastern Roman Empire), first to second century C.E. Collection of A. F. Kersting.

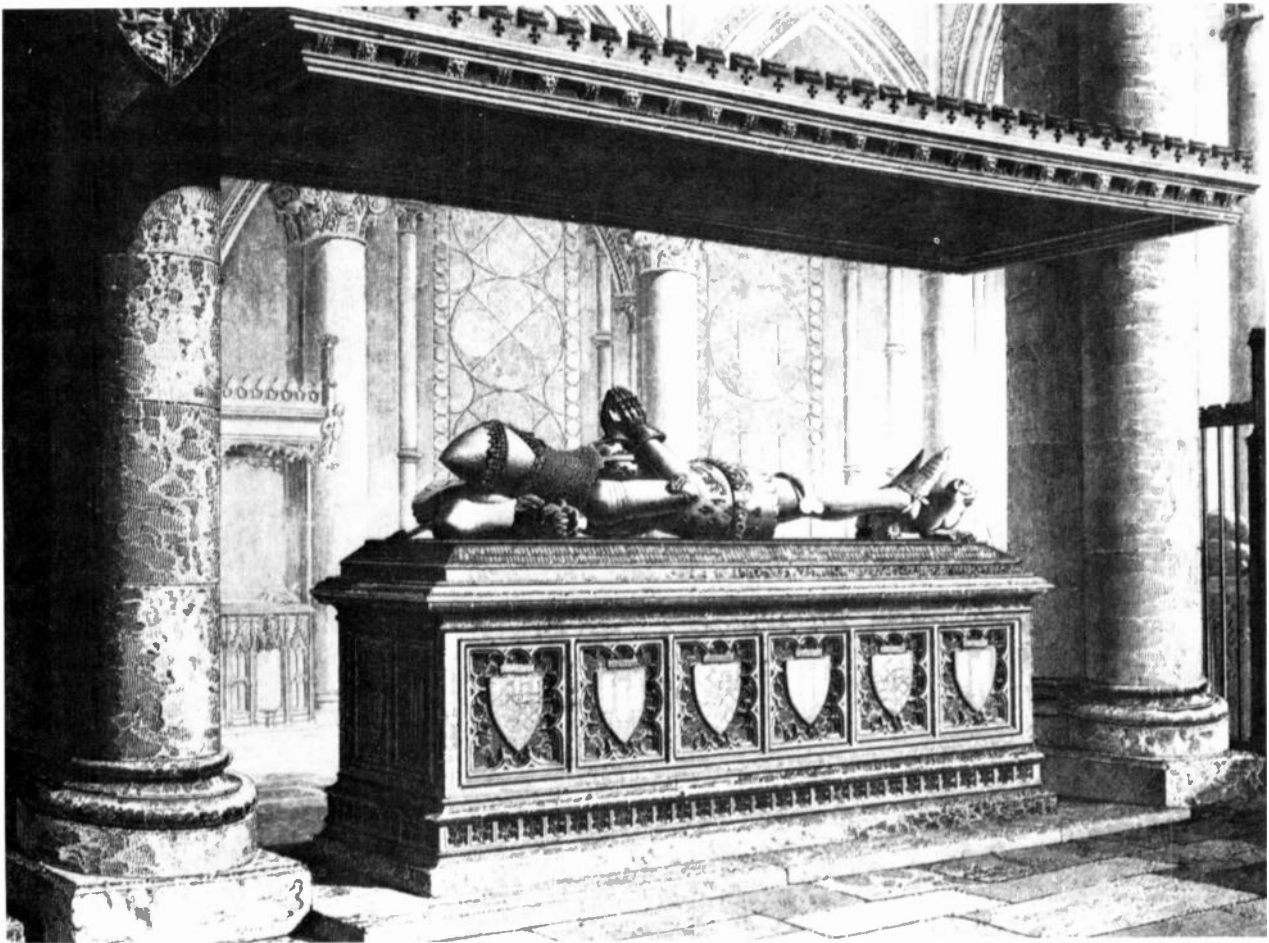


Figure 5. (*Art, Funerary*) Medieval funerary monument of Edward, the Black Prince, Canterbury Cathedral, 1377–1380. Drawn and engraved by Edward Blore. Courtesy of Dr. James Stevens Curl.

dead, and the practices designed to assuage purgatorial existence played a major role in financing the church and in sponsoring funerary art. For example, the dispersal of parts of the body by burying the heart in one church, the bowels in a second, and the shell of the body in a third meant that three monuments would be erected (heart monuments are among the most interesting of medieval sculptures to have survived), while the clergy benefited from the endowments given to each church for burial privileges.

Toward the end of the MIDDLE AGES the physical facts of death were commonly represented in funerary art, and the *memento mori* or *gisant* admonitory figure of the decomposing corpse often was placed under or near the effigy of the deceased. These representations of mortality derive from the *danse macabre*, or “dance of death,” recounted in a thirteenth-century poem about three young men who saw their own decomposing bodies. Illustrations of this occur at the Campo Santo in Pisa, Italy, and in other cloisters of ecclesiastical establishments throughout Europe. Admonitory skeletal figures oc-



Figure 6. (*Art, Funerary*) Hans Holbein the Younger. *The Peddler*, from *The Dance of Death*, 1523–1526. Bibliothèque Nationale, Paris. Giraudon/Art Resource, New York.

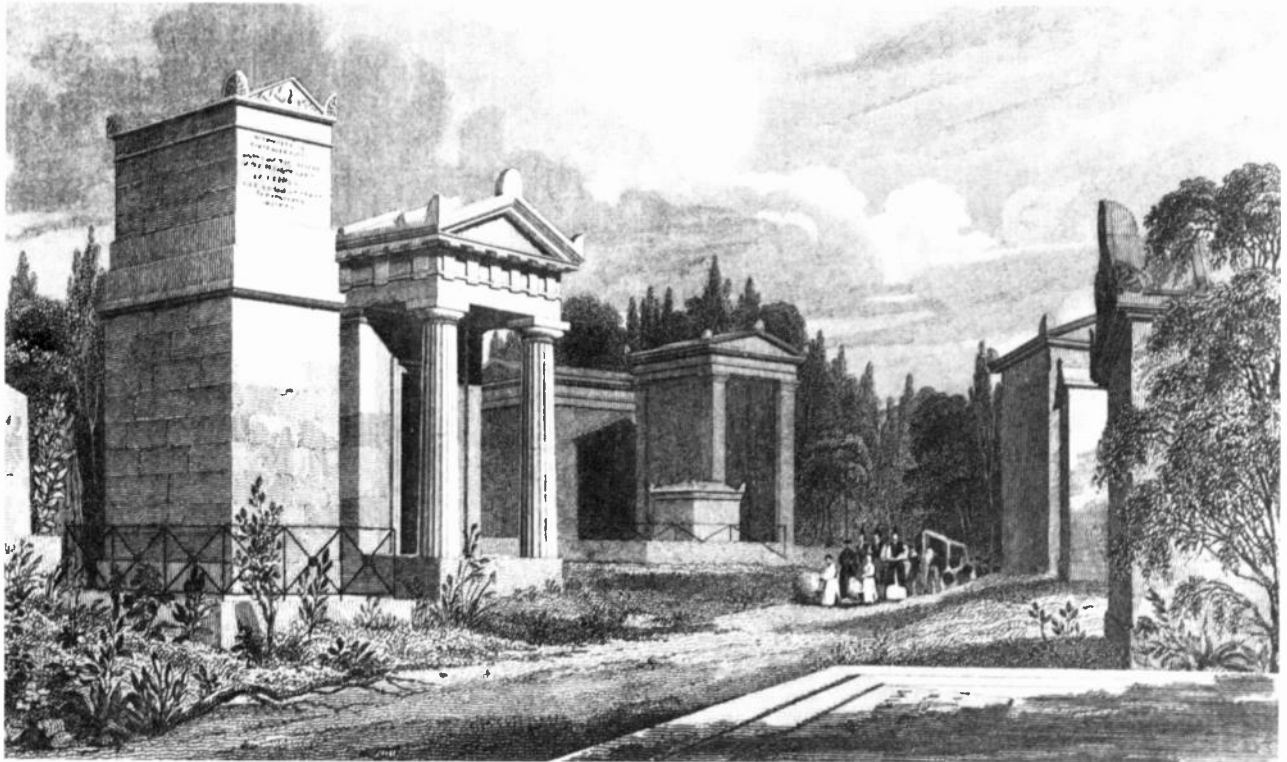


Figure 7. (*Art, Funerary*) Neoclassical tombs, Père-Lachaise Cemetery, Paris, early nineteenth century. Courtesy of Dr. James Stevens Curl.

curred in the decor of Pompeian dining rooms and on Roman drinking vessels, to remind revelers of the transient nature of life; they were the precursors of the gleeful skeletons of the *danse macabre*. Medieval “dooms,” or representations of the Last Judgment, often decorated chancel arches or even portals of churches, and conveyed in startling imagery the torments of the damned.

Burial grounds attached to churches filled up rapidly, and it became usual to disinter the bones and store them in charnel houses. One of the largest of such urban cemeteries was that of the Innocents in Paris, which was surrounded by arcaded cloisters above which were the charnels for the storage of bones. This type of walled, arcaded enclosure developed from medieval cloisters and is exemplified by the celebrated Campo Santo, begun in 1270.

While canopied tombs, effigies, and elaborate memorials were made during the RENAISSANCE period, figures became more animated and were shown sitting up, resting on an elbow, or kneeling; the architectural detail changed with prevailing style. The *gisant* figure, often a mere skeleton, was also found as late as the seventeenth century, but with the baroque style the skeleton became an animated, threatening figure, as in Giovanni Bernini’s tombs for the popes or the Nightingale monument in Westminster Abbey. With Bernini, too, came the pyramidal form

of the sculptured group, often set against a squat obelisk—a type of funerary monument common throughout Europe.

Modern cemeteries. Gross overcrowding of churchyards and the problems of intramural interment in the eighteenth century led to an essentially secular movement to bury the dead in new cemeteries laid out on hygienic principles and set apart from places of worship and away from the living. Among the first were the Surat Cemetery in India, dating from the seventeenth century, and the South Park Street Cemetery in Calcutta, founded in 1767, both featuring spacious layouts in magnificent classical tombs. Although small burial grounds outside towns had been established by various Dissenting sects in the eighteenth century, the first large modern metropolitan European cemetery, carefully designed as a landscape in which tombs could be erected, was that of Père-Lachaise in Paris, dating from 1804. It was admired by many contemporaries and became the model for the great nineteenth-century cemeteries of Britain, the United States, and elsewhere. Most of these cemeteries contain tombs of considerable architectural quality, mortuary buildings of distinction, and layouts important in the history of landscape DESIGN.

Mausoleums, above-ground structures with the character of a roofed building set aside for the en-

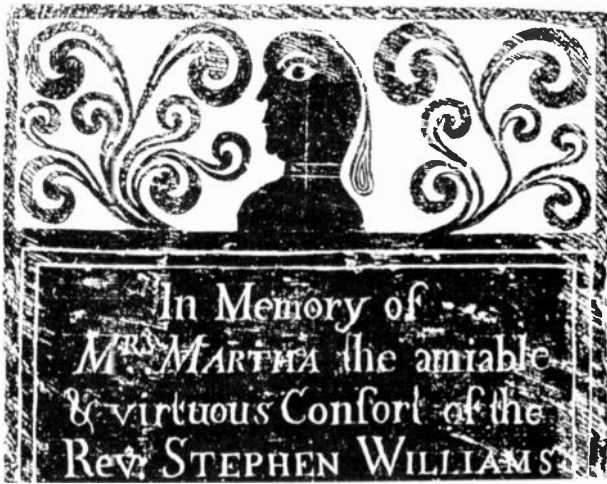
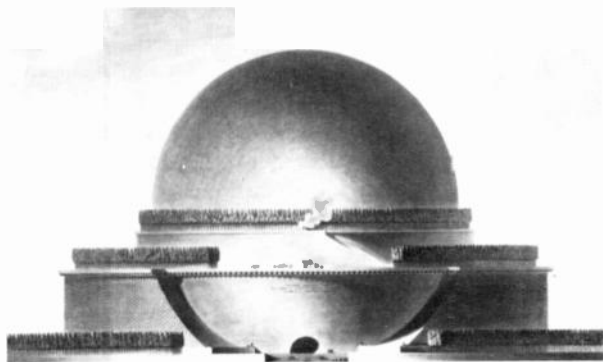
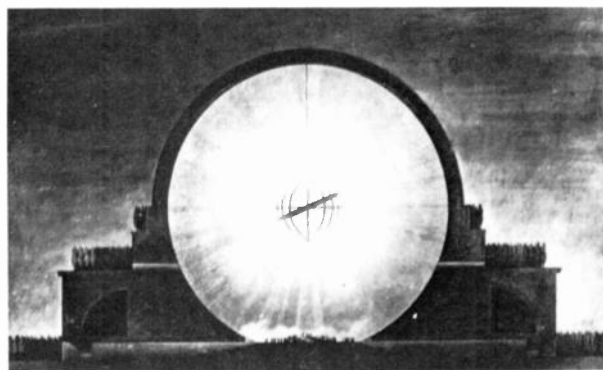


Figure 8. (*Art, Funerary*) Wax crayon rubbing of a New England gravestone, West Woodstock, Connecticut, eighteenth century. From Edmund Vincent Gillon, Jr., *Early New England Gravestone Rubbings*, New York: Dover Publications, Inc., 1966, plate 68.



a



b

Figure 9. (*Art, Funerary*) Étienne-Louis Boullée, project for a cenotaph to Sir Isaac Newton, 1784: (a) exterior; (b) sectional view, with lighting to resemble day and a blazing globe in the center. Phot. Bibl. Nat., Paris.

tombment of the dead, were built in large numbers in Europe from the eighteenth century on (although they had been common in antiquity, notably in Greco-Roman civilizations). Great mausoleums based on formal plans had been built by the Islamic civilizations of Persia and Mogul India, and they astounded Europeans who saw them. The Taj Mahal at Agra, with its formal gardens, and the tomb of the Mogul emperor Humāyūn at Delhi are two serene and splendid examples that were the inspiration for European tombs at Surat and elsewhere. Mausoleums of special significance, such as the tomb of Muhammad at Medina or V. I. Lenin's neoclassical mausoleum in Moscow, are themselves places of pilgrimage. Other buildings, like the "towers of silence" of the Parsis in which the dead were laid out in trays to be devoured by carrion birds, have their own characteristic and unique forms reflecting the religious ethic of giving back to nature something in return for life.

Modern memorials. The nineteenth and twentieth centuries saw an unprecedented increase both in the technological means of waging warfare and in the



Figure 10. (*Art, Funerary*) Ossip Zadkine, *The Destroyed City*, 1953, Rotterdam. Giraudon/Art Resource, New York.

casualties inflicted by war. Vast, formally designed military cemeteries—for example, those at Arlington in the United States and Verdun in France—reflect a need to commemorate death on a scale unknown in the past. Such monuments as Edwin Landseer Lutyens's Cenotaph at Whitehall in London, the Thiepval Memorial on the Somme River in France, and the many tombs of unknown soldiers around the world serve as national shrines for the remembrance of human sacrifice in war. Yet even the language of art is inadequate to express the outrage and profound loss suggested by such horrors as the extermination camps at Auschwitz or Sobibor. Only the remarkable Deportation Memorial in Paris seems to rise to the occasion with its controlled geometry and severe economy of means.

Public memorials to individuals, usually representations of those commemorated, have their place as civic art. Portrait memorials, including coins, medals, paintings, and SCULPTURE, have a long history. Mummy portraits of the Ptolemaic and Roman periods in Egypt are startlingly realistic, while Greco-Roman funerary busts, statuary, and reliefs attempted to capture the appearance of the deceased. Death masks, fashionable in the eighteenth and nineteenth centuries, not only provide accurate records of the faces of the dead but were themselves models for funerary sculpture and PORTRAITURE. See MASK.

Art and architecture celebrate death by transcending the ordinary. It is paradoxical that as death becomes more hidden from daily experience and the dead are disposed of discreetly, fear of the dead and of death is more apparent than in societies in which funerary art is a valuable and functional part of life.

Bibliography. Philippe Ariès, *The Hour of Our Death* (L'homme devant la mort), trans. by Helen Weaver, New York, 1981; T. S. R. Boase, *Death in the Middle Ages: Mortality, Judgement, and Remembrance*, New York and London, 1972; James Stevens Curl, *A Celebration of Death: An Introduction to Some of the Buildings, Monuments, and Settings of Funerary Architecture in the Western European Tradition*, London and New York, 1980; Leslie V. Grinsell, *Barrow, Pyramid, and Tomb: Ancient Burial Customs in Egypt, the Mediterranean, and the British Isles*, Boulder, Colo., and London, 1975; Donna C. Kurtz and John Boardman, *Greek Burial Customs*, Ithaca, N.Y., and London, 1971; J. M. C. Toynbee, *Death and Burial in the Roman World*, Ithaca, N.Y., and London, 1971; F. Parkes Weber, *Aspects of Death and Correlated Aspects of Life in Art, Epigram, and Poetry*, 3d ed., New York, 1918.

JAMES STEVENS CURL

ARTIFACT

The word (*arte + factum*) literally means "something made by skill or craft" and may refer to any

artificial product. In common usage, artifact denotes an object manufactured or modified by human hands. Most dictionary definitions and representative examples not only confer simplicity and primitiveness upon artifacts, but are themselves deceptively simple, concealing both the tangled connotations of the term and the overwhelming diversity and complexity of human makings as well as the uses, meanings, and valuations thereof. The domain of artifacts (otherwise known as material CULTURE) has been endlessly subdivided and variously modified: implements, tools, weapons, ornaments, domestic utensils, religious objects, antiquities, primitive artifacts, folk materials, vintage clothing, and so on. The primary division, however, is into practical or utilitarian versus aesthetic or expressive things, with "artifact" or "craft" usually denoting the former and "art" or "art object" the latter. This distinction is problematic and confusing and is best discarded because the idea of ART as a separate category of things "beyond necessity" is alien to most of the world's cultures. All artifacts have an aesthetic dimension, and aesthetic valuation is extremely relative. Artifacts are perhaps best and most broadly understood in German sociologist GEORG SIMMEL's terms as "objective culture"—the world of cultural forms and their material artifacts that define and shape human life and that, however simple and mundane, are essential elements in the production and reproduction of cultural persons and social relations.

Artifacts are distinguished among cultural forms by their tangible substantiality and relative imperishability. Frequently used interchangeably with "remains" or "survivals," artifacts imply both residue and surplus, those products of human work that have been used but not consumed in the business of living and that survive as witnesses (sometimes the only ones we have) to what once was. Artifacts are uniquely detachable from their contexts of production and use and are thus eminently collectible. In Western cultures artifacts are associated, both literally and figuratively, with museums and collections—accumulations of exotic things appropriated from peoples who are temporally, spatially, or culturally remote. See MUSEUM.

Implicit in the conception and the collection of artifacts is the assumption that cultures not only create, represent, and re-create their distinctive patterns through what they say and do, but through articulations of the material world, and that the former not only can be but, in many cases, can only be reconstructed and "read" through the latter. The making and using of objects (*homo faber*) coexist with LANGUAGE, thinking, and symbol-using (*homo sapiens*) in all definitions of humanity. Clearly, we would not have collected, arranged, and displayed millions of artifacts if we did not believe that the

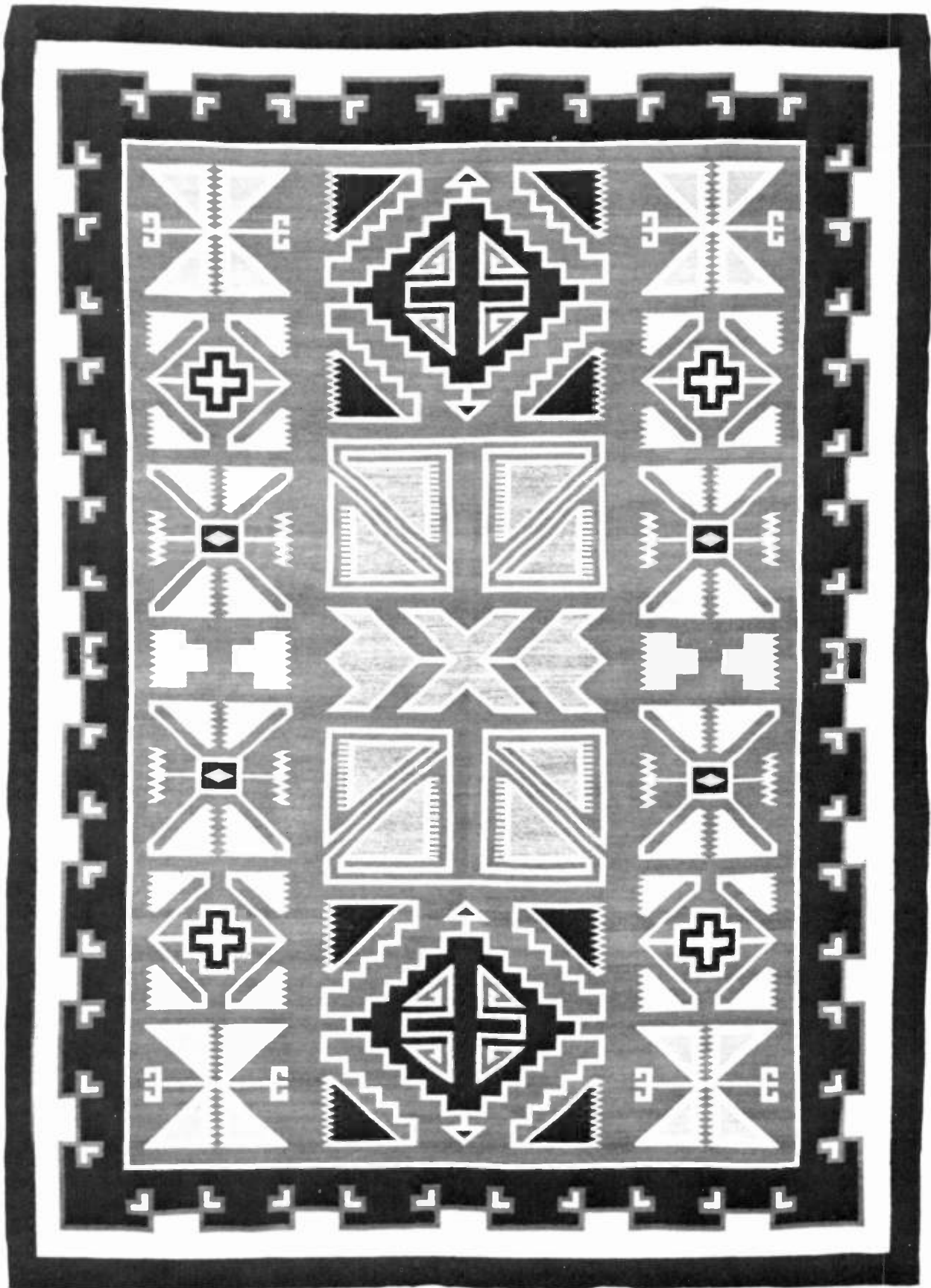


Figure 1. (*Artifact*) Navajo Two Gray Hills rug, 1947–1948. Woven by Daisy Touglechee, New Mexico and Arizona. © 1981 Denver Art Museum.



Figure 2.



Figure 4.

things people have shaped to their use and pleasure are informed with significance, and that artifactual communication is constitutive of the human condition. Nonetheless, social scientists have been far more concerned with the meanings of words and actions and patterns of relationship than with the meanings of things. With a few notable exceptions, such as Petr Bogatyrev's analysis of folk costume and anthropologist Nancy Munn's analysis of Walbiri iconography, even structural and semiotic studies analyzing culture as a system of signs have neglected objectual sign systems (*see SEMIOTICS; STRUCTURALISM*). Fortunately, some of the more insightful social scientists, such as anthropologists Marcel Mauss, FRANZ BOAS, and Bronislaw Malinowski, have resisted the widely shared assumption that things, especially primitive things, are simple and self-evident.



Figure 3.

Figure 2. (*Artifact*) Karok twined basket with lid, 1890. Karok, Salmon Mountain Area. © 1985 Denver Art Museum.

Figure 3. (*Artifact*) Wooden comb, Uganda. Collected in 1946. Neg./Trans. No. 2A 10444 (Photo by Logan). Courtesy Department Library Services, American Museum of Natural History, New York.

Figure 4. (*Artifact*) Persian pottery bowl, tenth century. Samanid period. Courtesy of the Freer Gallery of Art, Smithsonian Institution, Washington, D.C. (Acc. no. 57.24)

The study of artifacts has shifted since the mid-1960s from things themselves to their producers and the processes and contexts of production and use. Psychologists, sociologists, and symbolic anthropologists as well as folklorists and archaeologists are reviewing the things with which we fill our lives and demonstrating that they *are* "interpretations," "objectifications," or "materializations" of experience; that artifacts are indeed repositories of significance, both embodying and collecting cultural meanings; and that "objects speak" and are vehicles as well as vestiges of human communication and interaction.

Artifacts as Signs

If, as Mauss and others have argued, nearly all phenomena of collective life are capable of expression



Figure 5. (*Artifact*) Susa "A" painted goblet, Persia, ca. 4000 B.C.E. By courtesy of the Visitors of the Ashmolean Museum, Oxford. Long-term loan from the Louvre, Paris.



Figure 7. (*Artifact*) Urn from Prunay, France, late La Tène culture. Fourth century B.C.E. Reddish ware painted with brown pigment. Reproduced by courtesy of the Trustees of The British Museum.



Figure 6. (*Artifact*) Animal (coyote?) effigy vessel, "plumbate" earthenware. Early postclassical period, 900–1200 C.E. Toltec, Mesoamerica, location unknown (Maya area?). The Saint Louis Art Museum, Anonymous Loan.

in objects, the problem of interpreting artifacts and how and what they communicate is much more complex and demanding than is commonly assumed. Existing studies of objects as signs and as sign systems reveal at least five distinctive and problematic aspects of artifactual communication. *See also* SIGN; SIGN SYSTEM.

Multifunctionality and polysemy. In contrast to verbal signs, most objectual signs are not used only

or primarily as signs. Like written rather than spoken discourse, artifactual messages can be produced as well as received (appreciated, interpreted) in isolation and are easily and frequently desituated. Since all artifacts are not intended as signs but any artifact may be used or interpreted as a sign, we need to distinguish between what U.S. folklorist Henry Glasie terms "intentional and interpretative signifying" as well as to determine a thing's manifest and latent functions. For example, even though it may signify a great deal about Pueblo culture and worldview or personal and village identity, a traditional pottery jar, or olla, was shaped primarily to carry and store water. This practical, manifest, and necessary function determined both its form and its painted designs, for the latter frequently incorporated motifs "to call the rain," such as rain clouds, lightning, and water serpents. Without reducing meaning entirely to function, it should be noted that significance and use are inextricably connected and that few if any artifacts have but one function and one meaning. In their respective contexts, such typical handmade objects as Anglo-American quilts and Mesoamerican huipils (one-piece blouselike garments) have multiple functions and meanings in addition to the obvious utilitarian *and* aesthetic functions of warmth or covering and decoration. Bogatyrev suggests that artifacts have bundles of hierarchically arranged functions, ascribes no less than six functions to Moravian holiday dress alone, and demonstrates that how and what an artifact communicates is intimately related to how, where, when, and by whom it is used.



Figure 8. (*Artifact*) Massimo and Adriano Lagostina, Stockpot, 1955. Stainless steel, 7¼ in. high. Collection, The Museum of Modern Art, New York. Phyllis B. Lambert Fund.



Figure 9. (*Artifact*) Wilhelm Wagenfeld, Teapot, 1932. Heat-resistant glass, 4½ in. high, 6 in. diameter. Collection, The Museum of Modern Art, New York. Gift of Fraser's, Inc.

Multiple frames and contextual determinants. The use and meaning of an artifact can change radically depending on the context in which it is placed and the perspective from which it is viewed. For example, in its indigenous context, the carved and painted wooden figure of a Zuni Pueblo war god is a powerful religious being; in the National Museum of Natural History's Pueblo collection, it is an ethnological artifact; and in New York's Museum of Modern Art's "Primitivism in Modern Art" show (1984), it is an art object. Context can alter an artifact's shape and substance as well as its meanings and functions. Studies of the arts of acculturation have demonstrated that the presence of an alien art market that changes an indigenous object's context of destination and use produces marked changes in form, size, materials, and technique. Pueblo potters, for example, began making nontraditional forms such as ashtrays and candlesticks for tourists at the turn of the century, and although they have continued to produce traditional utilitarian shapes as well, most of these are smaller and less finely made, many are painted with commercial paints, and none of them can hold water or cook food.

Multiple channels and multivocality. The analysis of artifacts as signs is also complicated by the fact that objects speak in many voices, for all artifacts have more than one signifying dimension—shape, material(s), size, technique, color, design elements, and structure, for example. Changes in any one of these aspects may radically alter function and meaning as well as signify a shift in context. A dress made in gold brocade says something very different from a similar dress made in homespun; a miniature bow and arrow may be a native child's toy, a tourist item, a funerary object, or a ceremonial prop; a Navajo sand painter making a "Holy Person" on a board for sale to tourists will desacralize the figure by changing or omitting at least one element in the design, the color symbolism, or the composition; the defunctionalizing modifications made by a Mexican-American turn a Detroit assembly-line vehicle into an art object and self-advertising status symbol, a "lowrider."

Recycling and bricolage. The multivocality of popular artifacts, as exemplified by the lowrider, is further complicated by the widespread practice of recycling and transforming industrial objects. Like collage in fine art and INTERTEXTUALITY in verbal art, the bricolage of handmade things such as patchwork quilts involves the construction of a significant object out of the bits and pieces of one's life, the fragments of other signs and sign systems. Tires become flower planters; horseshoes are fashioned into mailbox stands and countless other functional/decorative farm and ranch items; the handlebars of a bicycle are turned into the horns of a roping

dummy; beer cans are a primary material in the construction of Sonoran tin *retablos* (religious pictures) and countless other tourist items. The list is endless, but as the French anthropologist CLAUDE LÉVI-STRAUSS and others have demonstrated, the practice of recycling is by no means limited to modern industrial debris. For centuries, Pueblo potters have been using cracked and broken "potteries" to make chimneys and grinding up sherds for temper.

Ephemerality. Many artifacts leave no residue, even in recycled form. One of the major difficulties in studying objectual sign systems such as Navajo sand paintings is that a great many highly significant cultural products are ephemeral, are meant to be used and used up, and can never be collected. Ice sculptures, sand castles, arrangements of food, floral displays, and Tournament of Roses floats are as evanescent as the events of which they are a part. Many ephemeral forms such as Mbari houses and sculptures, Navajo sand paintings, or Pueblo prayer sticks that collectors have contrived either to preserve in controlled environments or to record in drawings, photographs, and other less perishable media were never meant to be fixed and, if not consumed or allowed to disintegrate, were deliberately destroyed. The practice of burning masks, costumes, and other ritual paraphernalia, for example, is widespread (*see MASK*). Ephemeral forms demonstrate that the study of material culture cannot and should not rely only on the products and remains of cultural processes and events. The extent to which perishability and process are central to the semantics and aesthetics of many cultural things should be considered as well. What does it mean to invest months of creative energy in the production of something that will be erased, eaten, or burned in minutes?

Approaches to Artifacts

Numerous methods have been devised (some already implied) for studying artifacts and their meanings and uses. The principal approaches are grouped according to focus and arranged more or less chronologically following the development of material culture studies in the last century.

Description and classification. Confronted with a chaotic collection of things, the curator's first job was to describe and define the objects themselves; to divide and catalog them according to type and material, date, and place; and then to classify them into typologies and sequences on the basis of formal and morphological features.

Stylistic analyses. Nineteenth-century theories of evolutionism and diffusionism produced two primary arrangements of formal features that are still used in both archaeological and art-historical approaches to artifacts: vertical or chronological and horizontal or

spatial. Recent stylistic analyses have become much more elaborate and refined, frequently using structural linguistic models, but they are still focused on the patterning of formal features and the spatial and temporal configurations thereof.

Technique and technology. Attention to things in themselves and to the evolution of forms and designs inevitably included an interest in the processes by which they were constructed. But, more than simply investigating specific techniques of, for example, basketry, early students of material culture and evolutionists such as the U.S. ethnologist Otis T. Mason were concerned more generally with human/environment adaptations, with the development of primitive technologies, and with the changes in modes of production and social organization made possible by material inventions.

Social uses and cultural meanings. As anthropologists moved out of the museum and into the field, they began to examine the social uses as well as technologies of artifacts and the relationship of things to larger, less tangible sociocultural patterns and



Figure 10. (*Artifact*) Vanity bag (*istratal*). Baluchi tribes, Nimroz (Chakhansur), Afghanistan. Reproduced by courtesy of the Trustees of The British Museum.



Figure 11. (*Artifact*) Woman painting a Kwakiutl chief's hat. From Edward Curtis, *The North American Indian*, vol. 10, plate 329. The University Museum, Philadelphia.

structures. More specifically, Boas's study of the potlatch of Northwest Coast tribes, Malinowski's analysis of the Melanesian kula, and Mauss's cross-cultural analysis of gifts focused attention on the circulation of things in society and the political and economic as well as symbolic role of objects in engendering, maintaining, and controlling social relationships. These early studies are still exemplary in their attention to the interrelationships of technological, social, and symbolic/linguistic systems.

Communication and interaction. All studies of this sort are stylistically based, but in contrast to many formal analyses of style that are virtually a-cultural, these are concerned with what and how a system of forms communicates within and between human groups—with what anthropologist Victor Turner has described as “operational meanings.” Since the mid-

1960s the emphasis has shifted from what artifacts reflect of sociocultural matrix to how objects communicate and what they actually do in RITUAL or exchange systems, to the influence of interactional patterns—social, economic, residential, kinship—on both the consistency and the variability of stylistic features.

Structural or semiotic. In contrast to operational meanings, these studies have been more concerned with iconographic and “positional meanings.” Exemplary analyses by Glassie, Nancy Munn, and ROLAND BARTHES show the structures and SEMANTICS of artifacts in relation to the total configuration or structure of the sign system of which they are a part and in the relation of that sign system to other cultural subsystems. Such analogies frequently delineate homologies between artifactual structures and,

for example, social, religious, cognitive, narrative, or ideological patterns. Those artifactual interpretations influenced by the work of the U.S. anthropologist Clifford Geertz are somewhat less structured and diagrammatic but no less concerned with art "as a cultural system."

Ethnosemantic or ethnoaesthetic. These studies focus on "exegetical meanings," aesthetic categories and valuations, and artifact classification "from the native point of view." Despite the value of such studies in material culture since the mid-1970s, the native too often disappears behind "his" categories and the analyst's formal models. Such, however, is not the case in older, less "scientific" ethnoaesthetic work, such as U.S. anthropologist Ruth Bunzel's classic 1929 study of Pueblo potters.

Producer- or artist-centered. Such studies have overturned both the product-centered bias and the myth of the anonymous primitive or folk artist that have dominated material culture scholarship. Despite Boas's dictum that "we have to turn our attention first of all to the artist himself," few artifact studies did so until the mid-1960s. Since then an increasing number of folklorists and anthropologists have followed Warren d'Azevedo's lead in contributing significantly to our understanding of meaning from the maker's point of view without reducing art to biography or psychology.

Acculturation. Acculturation has wrought changes in the lives of producers and in all aspects of artifact production and consumption. Traditional items of everyday use such as Navajo blankets and Pueblo water jars are still made but are now made differently and have acquired new value as items of economic exchange and statements of ethnic identity. Since 1970 several important studies have examined the extent to which artifacts reflect and participate in intercultural communication, cultural change, and cultural survival.

Politics of the production and reproduction of things. Influenced both by French neo-Marxism (in particular the work of Pierre Bourdieu) and by feminist theory, post-1975 material culture studies have gravitated toward a truly materialist approach. Their focus has been the relation of things to cultural, symbolic, and economic power, and the social and sexual division of labor in the production and manipulation of material signs. In studies such as Annette Weiner's reanalysis of the kula, artifacts are analyzed in terms of both use-value and representative-value—what Bourdieu calls "symbolic capital"—in expressing, maintaining, and subverting power relations. *See also* FEMINIST THEORIES OF COMMUNICATION.

Performance- or event-centered. In this approach of the 1970s and 1980s, material as well as verbal art is conceived as PERFORMANCE and is studied in

the context of the public performances in which it appears. Several important museum exhibits have revived and recontextualized previously collected artifacts by presenting them to the public in multimedia reconstructions of the events in which they once participated.

Ideally, our readings of objective culture should combine all the preceding approaches, for they are all relevant to how artifacts exist, function, and communicate in society. Ironically, one study that comes especially close to that synthetic vision, *Zuni Breadstuff* (1920), by U.S. ethnologist Frank Hamilton Cushing, is often absent from material culture bibliographies. This unique account of the role of corn, the mother food, in all aspects of Zuni life is a telling demonstration that much of a people's artistry and finest artifacts is associated with subsistence activities and the necessities of life, that material objects do indeed signify a whole context of meaning in the life of a people, that human beings create "a mirror of their ways" in the things they make as well as in the stories they tell and the ceremonies they perform, and that attention to the material world can yield invaluable and in some cases otherwise unattainable insights into cultural life.

See also FOLKLORE.

Bibliography. Roland Barthes, *The Fashion System*, New York, 1983; Franz Boas, *Primitive Art*, New York, 1955; Petr Bogatyrev, *The Functions of Folk Costume in Moravian Slovakia*, The Hague, 1971; Ruth Bunzel, *The Pueblo Potter*, New York, 1929, reprint 1972; Mihalyi Csikszentmihalyi and Eugene Rochberg-Halton, *The Meaning of Things: Domestic Symbols and the Self*, 2d ed., Cambridge and New York, 1981; Frank Hamilton Cushing, *Zuni Breadstuff*, New York, 1920; Warren L. d'Azevedo, ed., *The Traditional Artist in African Societies*, Bloomington, Ind., 1973; Nelson Graburn, ed., *Ethnic and Tourist Arts*, Berkeley, Calif., 1976; Ian Hodder, *Symbols in Action: Ethnoarchaeological Studies of Material Culture*, Cambridge and New York, 1982; Bronislaw Malinowski, *Argonauts of the Western Pacific*, New York, 1922; Marcel Mauss, *The Gift: Forms and Functions of Exchange in Archaic Societies*, New York, 1967; Nancy Munn, *Walbiri Iconography*, Ithaca, N.Y., 1973; Victor W. Turner, ed., *Celebration: Studies in Festivity and Ritual*, Washington, D.C., 1982; Annette B. Weiner, *Women of Value, Men of Renown*, Austin, Tex., 1976.

BARBARA A. BABCOCK

ARTIFICIAL INTELLIGENCE

A discipline concerned with simulating intelligent behavior on the computer so that computers can perform tasks more intelligently. In addition artificial intelligence (AI) is the study of general principles of intelligent behavior, regardless of physical embodi-

ment. It suggests the computer METAPHOR for mind, the effort to understand human COGNITION by analogy with computation. Artificial intelligence is therefore one of the principal elements in cognitive science, and it has had a deep influence in recent years on psychology, LINGUISTICS, and the philosophy of mind.

The principal branches of artificial intelligence are PERCEPTION, expert systems, robotics, reasoning, and natural LANGUAGE PROCESSING.

Perception. Most research in perception has been concerned with vision, although some AI work has dealt with SPEECH recognition and other sensory modalities as well. Research on vision has concentrated on the problem of how to use viewer expectations about what will be in a scene to identify patterns in the sensory information from an image that correspond to semantically important objects. In particular the effort has been to reconstruct three-dimensional scenes from two-dimensional images. Some problems that have been worked on extensively have been edge detection, texture and shading analysis, extracting shape information from these low-level features, determining corresponding elements in images slightly displaced spatially or temporally (for stereopsis and motion detection), and using all of this information to identify the objects in a scene.

Expert systems. An expert system is a computer program intended to capture the specialized knowledge of an expert in some field. The major examples of expert systems implemented so far have been for medical diagnosis, financial advice, evaluation of geological sites, and determination of computer configurations. Expert systems are intended to make the expertise widely available. They typically work by applying a large number of general rules to specific data in order to draw conclusions about the situation described. A programmer building an expert system tries to reduce the expert's knowledge to a set of such rules. In addition weights are often attached to the rules to allow for uncertainty and to encode heuristics (procedures that give the correct answer almost always but not always).

Robotics. Much research in robotics has dealt with industrial automation. As such it is concerned with perceiving and manipulating objects of particular shapes and sizes with a robot arm equipped with a television camera or other sensing device. Other research has focused on individual robots and autonomous vehicles. This research is directed largely toward the perception, planning, and motion problems involved in moving across various sorts of terrains and through environments with various kinds of obstacles. Recently researchers have begun to investigate the problem of individual robots communicating with one another, on the model of communication described below.

Reasoning. Research in reasoning lies at the heart of artificial intelligence, in that virtually every AI project involves problems of reasoning. Reasoning must be *about* some knowledge, and this knowledge must be represented in a form that is accessible to a computer. Thus much research has centered on the representation of knowledge. Three of the most common representational schemes have been semantic nets, frames, and expressions in formal logic. They are very similar, but they emphasize different aspects of the knowledge. Semantic nets encode subset, superset, instance, and other relations among concepts in a way that lends itself to determining associations among concepts. Frames encode highly structured knowledge about complex objects by associating properties and values for these properties with each object. Formal logic allows one to state both general and specific knowledge about implication and other logical relations among predications made about individual entities. The relations among these representational systems and the advantages and disadvantages of each are controversial issues in the field.

Some of the earliest research on reasoning with this knowledge was in the domain of theorem proving. In theorem proving one expresses knowledge in formal logic and attempts to draw conclusions from it using deductive rules, in particular *modus ponens* and universal instantiation (inferring specific instances from general laws). Work on theorem proving began as an attempt to simulate what mathematicians do when they prove mathematical theorems. Later, however, it was recognized that many, if not all, kinds of computation could be viewed as deduction and that theorem proving was therefore perhaps the central problem in AI. On the other hand, many researchers feel that deduction is a poor model of human reasoning and are investigating other modes. One such mode is nonmonotonic logic, or logic in which, unlike classical logic, acquiring new information can make previously true conclusions false. Another mode is reasoning with uncertain information, frequently according to probabilistic models.

A particularly important kind of reasoning is *planning*, that is, reasoning about what to do. In planning one begins with a goal to be achieved or maintained and then tries to determine a sequence of actions that will bring about that goal. This is done by decomposing the goal into subgoals and these subgoals into further subgoals until one has a sequence of executable actions. Among the research issues in planning are how to optimize the outcome when there are conflicting goals and how to modify plans in response to failure or to new information from the environment.

Central to virtually every effort in AI is the prob-

lem of *search*. Most AI tasks can be formulated in terms of successively applying rules to a current state of knowledge to transform it into a new state of knowledge until a solution is discovered. For example, drawing inferences in a deductive system and decomposing a goal into subgoals can both be seen as transformations of this sort. However, for most tasks there are so many rules and therefore so many possible transformations that the set of possibilities is far too large to be examined exhaustively. The problem, therefore, is how to search through a subset of these possibilities efficiently and in a manner that will always or almost always guarantee the right, or at least a good, solution. The search problem is seen in its purest form in programs for playing chess and other games. Because of the large number of possible moves at each turn and the number of turns per game, it is estimated that there are 10^{120} possible chess games, a more than astronomical number. It is impossible to search through all of these exhaustively, so a chess-playing program must use knowledge of chess strategies to select only the most plausible moves at each turn and must use some kind of evaluation function to estimate the goodness of intermediate positions in the game. This process is known as *heuristic search* because the evaluation function is not exact; analogous processes are required in most other AI programs.

Natural language processing. The field of natural language processing is the effort to use AI techniques in the comprehension and production of natural language texts. It is typically divided into syntax, SEMANTICS, and pragmatics. Syntax is the study of the logical structure of sentences, including the predicate-argument relations among elements in the sentence. The formalisms for specifying the syntax of natural language sentences generally have two parts: a phrase-structure rule that specifies the structure of a grammatical construction in terms of the classes of its constituent words or phrases, such as a sentence being composed of a noun phrase followed by a verb phrase; and a set of constraints on the application of the phrase-structure rules, expressed in terms of the agreement of features associated with the constituent phrases, such as a noun phrase and a verb phrase having to agree in number. These rules are used by parsing algorithms to analyze sentences into "parse trees" representing their syntactic structure. Syntactic processing, in the absence of semantic and pragmatic processing, reveals most sentences to be highly ambiguous. The sentence "I saw the man in the park with the telescope," for example, has six different interpretations, depending on what the prepositional phrases are taken to modify.

Semantics is the study of the meanings of words and how they compose into the meanings of sen-

tences. Rules are specified for translating parse trees of sentences into logical expressions encoding the MEANING of the sentences. Beyond this two principal emphases in research in semantics should be noted. First of all, in natural language systems operating in the context of some limited domain, or microworld, there has been work on determining what entities and actions in the microworld are being referred to by phrases and sentences in a text. This requires reasoning with knowledge about the microworld and about the language in the text. Second, there has been work on drawing the appropriate inferences from the information conveyed in the text for the purpose of paraphrasing the text, generating expectations about the portion of the text to follow, or solving INTERPRETATION problems posed by the text itself, such as the problems of resolving syntactic ambiguities and resolving the reference of pronouns and definite noun phrases.

Pragmatics is the study of the ways sentences and larger texts are used by speakers. It differs from semantics because many utterances are indirect. For example, we often ask someone if he or she knows the time as a way of requesting that person to tell us the time. The most common approach in this area combines insights from speech-act theory in the philosophy of language with AI research on planning. Utterances are seen as actions in some plan by the speaker to realize some goal or goals. Research on the production of texts has therefore followed the planning paradigm. A goal is broken into a sequence of subgoals and these into further subgoals until a sequence of utterances results. A speaker can appeal to the rich resources of language to achieve the best possible outcome when there are conflicting goals, and he or she can modify or elaborate the original plan "on the fly" in response to failures to communicate and to unexpected contributions from other participants in a CONVERSATION. In this paradigm the principal problem for comprehension becomes the recognition of the speaker's intention. The hearer must determine what the goals of the utterance could be. These goals are often unclear, but because the speaker and the hearer are attempting to communicate with each other, the speaker presumably has constructed the utterance in such a way that, given their common knowledge, the hearer will be able to interpret it unambiguously. Researchers in pragmatics hope that this fact will constrain the search for correct interpretations.

The major applications of natural language processing so far have been in programs that allow a user to request information from a data base and in machine translation, generally of scientific or technical documents. These efforts have had moderate, but only moderate, success.

Future prospects. The prospects for the success of artificial intelligence have been hotly debated. Some critics of AI argue that the achievements so far have been meager because intelligent thought is much more than can be modeled by formal computation. They argue that AI will never have anything to say about such human capabilities as creativity and, indeed, ordinary common sense. Defenders of AI reply that if the achievements of AI have been meager it is because the field is young and that research in AI reveals more productive lines of inquiry than dead ends. To the extent that AI does succeed, there is still the question of whether it tells us anything specific about *human* intelligence. It may be that the intelligent computer would be to the human mind as the airplane is to the bird. Against this, many defenders of AI argue that it will reveal general principles of intelligent behavior, independent of the particular embodiment of that intelligence, and that these principles will delimit the possibilities for the mechanisms of human intelligence. Finally, there has been much debate about the social consequences of having intelligent computers. Some believe that they would be no more than tools in the service of humanity, no different in kind from the other tools developed by technology over the centuries. Others feel there is a real danger of losing control of the tools.

Bibliography. Dana H. Ballard and Christopher M. Brown, *Computer Vision*, Englewood Cliffs, N.J., 1982; Margaret A. Boden, *Artificial Intelligence and Natural Man*, New York, 1977; Ronald J. Brachman and Hector J. Levesque, eds., *Readings in Knowledge Representation*, Los Altos, Calif., 1985; Eugene Charniak and Drew McDermott, *Introduction to Artificial Intelligence*, Reading, Mass., 1985; John J. Craig, *Introduction to Robotics: Mechanics and Control*, Reading, Mass., 1986; Barbara Grosz, Karen Sparck-Jones, and Bonnie Lynn Webber, *Readings in Natural Language Processing*, Los Altos, Calif., 1986; Frederick Hayes-Roth, Donald A. Waterman, and Douglas B. Lenat, eds., *Building Expert Systems*, Reading, Mass., 1983; Wendy G. Lehnert and Martin H. Ringle, eds., *Strategies for Natural Language Processing*, Hillsdale, N.J., 1982; Nils Nilsson, *Principles of Artificial Intelligence*, Palo Alto, Calif., 1980.

JERRY R. HOBBS

ARTIST AND SOCIETY

The antithesis of artist and society is a commonplace in discussions of ART. A widespread romantic vision sees artists as creative individualists who, as they produce works of art, are in perpetual conflict with a constraining and repressive society (see ROMANTICISM). It is perhaps more realistic to see artists and art works simply as one aspect of the elaborate

networks of cooperative activity which any society consists of and in which artists and their work are embedded.

A work of art requires the coordination of a number of activities. In such fully developed arts as contemporary literature, music, or the visual arts, the list of relevant activities is very long. Someone must have a conception of what the work should or could be. Someone must have created the conventional forms and practices used to make the work and the artistic tradition against which it will make sense. Someone must provide the materials and tools to execute that conception. Then someone must actually make the object or perform the work. Someone must provide the space in which all this will take place. Someone must provide some form of financing so that materials and tools will be available and so that the people who do the work will have the time to do it. Someone must distribute the work so that an audience can experience it, and someone must preserve it so that people not immediately present can experience it at other times. People must then experience the work. Critics must discuss and evaluate it, and aestheticians must produce the arguments underlying their critical principles. See AESTHETICS.

These activities can be done in a variety of ways, simple or complex, elaborated or truncated. The work can exist even if they are not all done, but then it will be different from what it would have been had all these activities occurred. The activities can be divided among a large or small number of people. We can imagine a limiting case in which one person would do everything, including experiencing the work, but then we would not be talking about art as a living social institution but as some sort of private activity. More realistically, the necessary work is usually divided among a number (sometimes a large number) of people, often organized into named, specialized occupations routinely responsible for particular portions of it. The combined efforts of these specialists produce the art work.

To be specific, a HOLLYWOOD film may be conceived by a writer, director, producer, or other studio executive. Actors, camera operators, editors, designers, composers, musicians, electricians, and a host of other highly specialized craftworkers execute the conception, using film, cameras, lights, and other equipment on sound stages or at real-life locations (each creating special problems handled by still other specialized occupations), all of this financed with money raised by financial specialists. The films are distributed through organized networks of theaters to be seen by audiences recruited by ADVERTISING campaigns, the opinions of critics, and the informal circulation of opinion in existing social networks ("word of mouth").

Even art forms that appear on the surface to be



Figure 1. (*Artist and Society*) Robert Rauschenberg watching the printers moving one of the lithographic stones for the Stoned Moon project, Gemini workshop, 1969. Photograph by Malcolm Lubliner. Courtesy of Gemini G.E.L., Los Angeles.

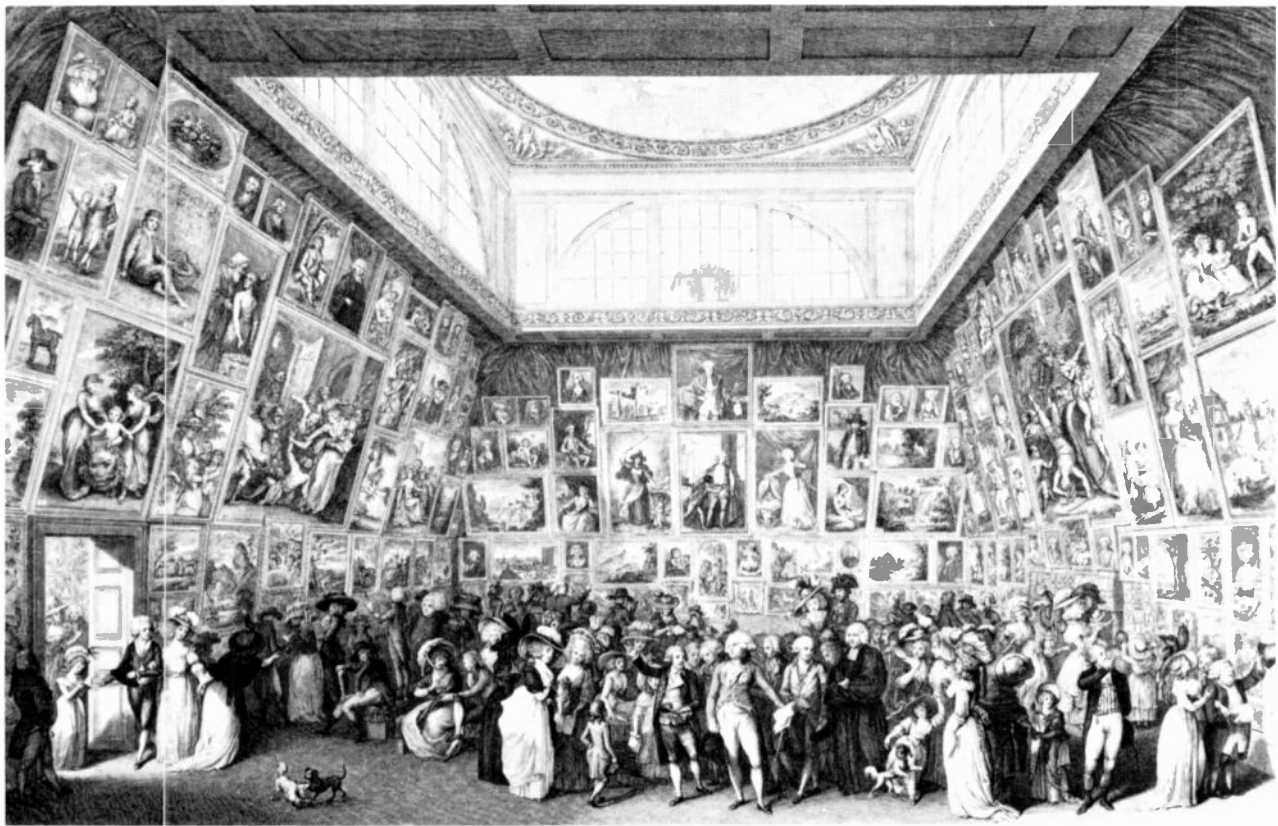


Figure 2. (*Artist and Society*) H. Ramberg and P. S. Martini, *The Exhibition of the Royal Academy, 1787*. Reproduced by courtesy of the Trustees of The British Museum.



Figure 3. (*Artist and Society*)
Interior view of Solomon R. Guggenheim Museum, New York. Photograph by Robert E. Mates. Collection, Solomon R. Guggenheim Museum, New York.

done by one person involve similar networks of cooperative activity carried out by specialists. Poetry requires the work of editors, publishers, printers, critics, bookstore employees, and readers. Painting requires the work of makers of paints and canvasses, curators and critics, museum guards, art historians, art dealers, collectors (sometimes patrons), and viewers. The network of social relations embodied in the cooperative activities of all these people can be called an *art world*. Art worlds, themselves small societies, are linked through the other social relationships of their members to other institutions. This is the chief sense in which art is a part of society rather than standing in opposition to it.

Since so many specialists contribute to the art work, which of them is the artist? Every society in which art exists as a specialized activity has some method, usually employed by specialists, for choosing who is to receive that honorific title. This involves defining some of the specialized activities that go into

an art work as requiring a special gift that only a rare few have, and defining the people who have it as artists. The people who do other work, thought to require only ordinary abilities, are defined as support personnel. Different media and forms in different societies make the choices differently. Nothing in the nature of any medium makes any particular choice more reasonable than any other. In contemporary Western music, for instance, the symphonic classical tradition defines composition and performance as separate artistic activities requiring different artistic gifts. Rock music defines the two as inseparable, and jazz ignores formal composition in favor of improvised performance (*see MUSIC COMPOSITION AND IMPROVISATION*). Who the artist is is decided by convention, custom, and tradition, as those are invoked in specific situations characterized by differential distributions of cultural, economic, and political resources.

The resulting art work shows the marks of the

organizations in which this cooperative activity takes place. Every *cooperative link*, where some of the work is done by someone else, serves both as an opportunity for artists to devote more of their time and resources to what they regard as key artistic tasks, and as a constraint, since the way these specialized professionals are accustomed to do things may not be the way the artist wants them done. A composer may want a passage played in a way that violates the craft standards of players; a painter may want a MUSEUM to display a work that is too large, too sexually explicit, or in some other way outside the limits museums ordinarily observe in choosing works for display. If the people defined as artists do not accept the customary limits imposed in these cooperative links, they must recruit or train new people and organizations who will do it in some other way, or they must do it themselves. Since artists who divert time or other resources to such support work produce less art work, most artists will prefer to accept the constraints of cooperation in return for its advantages. The opportunities for cooperation on what might be called art-world terms thus act as a conservative force, influencing artists to produce conventional work.

The editors and publishers who helped produce the classic novels of Charles Dickens, George Eliot, William Makepeace Thackeray, and Thomas Hardy, for instance, were in a position to (and often did) suggest or require that authors produce works in a particular style, sometimes influencing the smallest details of the novels we attribute to those writers. Art patrons like Pope Urban VIII played a direct role in the DESIGN and ICONOGRAPHY of the works of such artists as Giovanni Bernini. Specialized occupations develop special professional interest, and most art forms embody chronic conflicts between those groups over control of the work's final form, appropriate aesthetic standards, and patterns of deference and hierarchy.

Many art forms develop conventional organizational solutions to these problems, often reflected in such mundane documents as a union contract, but in others the issues remain undecided, theoretically if not practically. The Hollywood film is a classic example: while ultimate control (the right to the "final cut" of the film, for instance) is usually exercised by the banks and other investors involved, theoreticians cannot agree about whether film is primarily a director's, an actor's, or a writer's medium. Such occupational groups as editors argue, in addition, that the ultimate shape of the film results from *their* work.

Art worlds may as a result be conservative, but that does not mean that innovation and creativity are stifled. On the contrary, though patterns of cooperation constrain much of what goes into an art work, they also increase the available resources, al-

lowing artists to do things they could not do themselves (e.g., composers can write music they cannot themselves play). In addition, artists can (and often do) decide to pay the price of doing it themselves, whenever they think the constraints imposed by the involvement of others unduly limit their aesthetic options. Photographers who wish to make prints on platinum paper, which the manufacturers of photographic materials no longer make, can produce it themselves. The process is difficult, expensive, and time-consuming, and many photographers prefer to do without the added artistic resources rather than make their own paper.

The resources an art world provides for artists come in connected packages, so that rejecting any of them may lead to an enormous amount of extra work. Suppose a composer rejects the system of twelve equidistant tones conventional in Western music, as the twentieth-century U.S. composer Harry Partch did in favor of a system of forty-two tones. Forty-two-tone scores cannot be played on conventional instruments, and what can be played on the appropriate instruments cannot be conveniently written in the conventional notation. As a result, a composer with such a conception must invent and build new instruments and create a new notational system, as Partch did. But then conventionally trained musicians cannot read the resulting scores or play the new instruments, so such a composer must recruit and train instrumentalists whenever the music is to be played (*see* MUSIC THEORIES—NOTATIONS AND LITERACY). Partch's example shows that the existence of the networks of cooperation characteristic of art worlds does not make innovation impossible, but at the same time the cost of innovation is so high that few people can or will make the extensive investment required.



Figure 4. (*Artist and Society*) U.S. jazz musicians. The Bettmann Archive, Inc.



Figure 5. (*Artist and Society*) Filming on the set of *Blue Thunder*, 1983. National Film Archive, London/Columbia Pictures.

Artists often view audiences as troublesome and extraneous participants, but audiences play an important role in the cooperative networks in which art is made. The art of contemporary societies is seen and heard by a multitude of audience members. Art works come into existence anew each time someone experiences them. The character of the art work thus created results not only from the work itself as a physical and conceptual object but also from the way audience members interpret it. What members know how to respond to sets the limits for what they can make of an art work.

Italian painters of the RENAISSANCE, for instance, routinely used iconographic references whose effect depended on viewers having a detailed knowledge of biblical events now available only to people who have studied art history. The typical Renaissance viewer knew from the attitude of the Virgin in a painting what stage of the Annunciation was being portrayed. The painters expected many of their patrons to know how to interpret the arcane geometric jokes they embedded in their paintings. Contemporary ballet relies for some of its effects on audiences recognizing duets as abstract versions of a familiar boy-meets-girl story, and music requires listeners to

recognize the conventional tones, scales, harmonies, and cadences through which it achieves its effects. In all these instances, the audience's contribution is as necessary as the contributions of the professionals who collaborate to produce the art work.

Art results, then, from the activities of highly organized art worlds, themselves part of the larger network of organized activities that makes up society. Artists are those people, out of everyone involved in the production of art, who have been so defined by people empowered to make the definition.

Bibliography. Michael Baxandall, *Painting and Experience in Fifteenth Century Italy*, Oxford, 1972; Howard S. Becker, *Art Worlds*, Berkeley, Calif., 1982; Aljean Harmetz, *The Making of the Wizard of Oz*, New York, 1977; Francis Haskell, *Patrons and Painters: A Study in the Relations between Italian Art and Society in the Age of the Baroque*, 2d ed., rev. and enl., New Haven, Conn., 1980; Raymonde Moulin, *Le marché de la peinture en France*, Paris, 1967; Harry Partch, *Genesis of a Music*, 2d ed., enl., New York, 1974; J. A. Sutherland, *Victorian Novelists and Publishers*, Chicago, 1976.

HOWARD S. BECKER

ASIA, TWENTIETH CENTURY

Communication patterns and communications institutions in twentieth-century Asia have been shaped by three fundamental processes: (1) Western domination, (2) the success and consequences of modernization by Japan, and (3) national integration and development, or nation building.

Asia, as defined here, encompasses the territory from Iran to Japan, excluding the USSR. This territory is the world's largest continent and holds over three-fifths of its population. The majority of Asia's peoples live in rural, predominantly agricultural villages; only about 15 percent live in the fast-growing cities, yet the total Asian urban population is huge. Some research has suggested that one of the primary causes of urbanization and modernization is the growth and use of modern mass media.

The geographical boundaries of modern Asian states tend to conform to traditional and cultural boundaries that in most cases are more than a thousand years old. The predominant cultural traditions affecting the content and form of communications remain the Hindu-Buddhist tradition originating in India, the Confucian-Taoist from China, and the Islamic from Arabia. They should be recognized as major factors in the process of conflict and/or accommodation between tradition and modernization in Asian developments in this century, particularly in the postindependence period. In addition, there are many ethnic minorities, languages, religious sects, and cults mostly indigenous to the region but more recently also of external origin. The other main sources of traditional communication have been the various political systems, from the nomadic empire of the Mongols to the centralized bureaucracies of China, Japan, Vietnam, and Korea to the decentralized kingdoms of India, Tibet, and most of Southeast Asia. *See* EAST ASIA, ANCIENT; SOUTH ASIA, ANCIENT.

Asian communication must also be considered at three levels: within societies (usually equivalent to the modern state), within the regions (a function of both commercial and religious interests as well as political movements), and between Asia and the West (primarily commercial).

Western Dominance

The dominance of Asia by European powers, in which the United States joined in the mid-nineteenth century, was at first motivated primarily by a desire to reach India for luxury commodities and spices and to circumvent Muslim control of land routes to India, across areas bordering the eastern Mediterranean. Aided by superior military organizations and weapons, the development of rapid transportation (steamship), communications (telegraph wires, submarine

cables), and the practice of a skillful "divide and rule" policy, Western powers achieved control of most of Asia (except for Japan, Thailand, and parts of China) by the beginning of World War I (*see* COLONIZATION). That control was not only military, economic, and political, but also cultural, especially in urban areas. Western education and modern mass media (newspapers, radio, movies) were introduced in the cities. Films were first imported from Europe and the United States and later were produced locally. They continue to be the most popular form of entertainment in all of Asia, especially in India. Pictures in motion were nothing new to Asian audiences, who were familiar with various types of shadow plays in their traditional THEATER. Combinations of the heroic, the fantastic, the tragic, and the romantic, as well as goodness and evil in modern movie themes, were hardly different from themes of Indian and Chinese classics. *See* MUSICAL, FILM—BOMBAY GENRE; MOTION PICTURES; MYTHOLOGICAL FILM, ASIAN; PHALKE, DHUNDIRAJ GOVIND; PUPPETRY.

Modernization Strategy

The adoption by Asian nationalists of modernization as a strategy for national independence, particularly before World War I, was localized and sporadic. Asians who attended colonial schools began to recognize the need for an objective look at the strength of the "white masters"—their machines, their institutions, and their ideas—while still refusing to accept the cultural superiority of Europeans. This painful recognition of European superiority in military, transportation, and telecommunications technologies as well as economic and political organizations created among sensitive Asian intellectuals a deep feeling of humiliation. This feeling led to a search for a way to "use the master's stick to beat the master's back" and a model to follow. The solution was modernization, and the model was Japan.

In 1858 Japan was forced by American warships to open its doors to trade with the United States and Europe (*see* TOKUGAWA ERA: SECLUSION POLICY). From these contacts with the West, Japan learned the art and weapons of modern warfare, the economic and political systems, and the communications technologies. The beginning of the Meiji Restoration (1868) marked the beginning of Japan's path to modernization. Sakuma Shōzan (1811–1864), a samurai (feudal warrior) and counselor to a powerful lord, summed up the Japanese modernization strategy in a simple slogan: "Eastern ethics, Western science." He recommended the adoption of techniques of modern mass education and improved means of communications from the West. "Eastern ethics, Western science" has become the strategy of modernization for independence and the subject of de-

bates in all Asian countries. The debate continues and is made even more relevant with China's "four modernizations" (agriculture, industry, science, defense) in the 1980s and the Chinese fear of capitalist "cultural pollution."

The Japanese success at modernization was demonstrated dramatically to a dispirited Asia in the early years of the twentieth century by the 1904–1905 victory of the Japanese navy over Russia (considered then a European power). Nationalists from Asia flocked to Tokyo to learn Japanese "secrets." Obsessed by the evils of colonialism, they forgot that it was the same modernized Japan that had attacked China in 1894–1895. Soon the imperialist policies of westernized Japan, which joined the European powers for the conquest and dismemberment of Asia, awakened Asian patriots to a new reality: a successful imitation of Western science and technology could also lead to the adoption of the then-prevailing European political IDEOLOGY—imperialism. Asian nationalists who wanted to understand the Japanese "betrayal" and the root causes of imperialism in general left Japan and went to the metropolitan capitals of Europe and the United States to learn firsthand about imperialism and the lives of the colonizers in their homelands. They studied and communicated with those who shared their opposition to colonialism, including fellow nationals from Asia and Africa as well as "progressive" citizens of the imperialist powers.

With the outbreak of World War I, the conflicts among Western powers over spheres of influence in Asia and Africa were exposed (*see* AFRICA, TWENTIETH CENTURY). In addition, many of the colonies were forced to contribute soldiers and laborers to the war effort in Europe. India alone provided eight hundred thousand soldiers and over four hundred thousand laborers for the western front and the Mesopotamian campaign. Nearly two hundred thousand Chinese and more than one hundred thousand Indo-Chinese (mostly Vietnamese) served in labor battalions behind the French lines. Asians living and working in the metropolises watched the spectacle of Europeans slaughtering one another. Asian peasants drafted for wartime service witnessed the decadence of European societies: poverty, unemployment, crime, and prostitution. Whatever respect, admiration, or fear they had had for the colonial masters was drained away.

Wartime demands for soldiers and laborers had other consequences for the colonials in addition to exposure to the problems in Europe. Many Europeans who were officials in the colonial governments or businesses were recalled to Europe at the outbreak of World War I, and their positions had to be filled by the local inhabitants. For the first time colonial subjects were eligible for jobs with authority and

responsibility. They became more involved in economic activities and could see how dependent Europeans were on the colonies for raw materials and labor to meet production, manufacturing, and other war-related needs in Europe. The colonies were meeting these needs so successfully that there began to be talk of postwar economic development by which the colonies' economic assets could be further exploited in order to speed up recovery in Europe.

A growing anticolonial consciousness was spreading, not only because of contacts with the social, political, and economic realities of wartime Europe, but also because of ideological positions taken by two Western powers on the periphery of the conflict. In the United States, President Woodrow Wilson's Fourteen Points plan for peace and especially the principle of national self-determination (the fifth of the Fourteen Points) endeared the United States to the Asian nationalists. In Russia the 1917 victory of the Bolsheviks, V. I. Lenin's thesis that imperialism is a stage of capitalism, and the official anti-imperialist policy of the new USSR attracted Asian nationalists to Moscow. Directed by Lenin and the Third International, an Anti-Imperialist League was founded in 1924, and Communist parties were formed in several Asian countries during the 1920s. Under the league's sponsorship, the Association of Oppressed Peoples was organized, which in turn organized the Congress of Oppressed Nationalities in Belgium in 1927. Future Communist leaders like Ho Chi Minh of Vietnam and Socialist-oriented nationalists like Jawaharlal Nehru of India met at this congress to discuss strategies of modernization and tactics for anticolonial agitation.

The new international solidarity was, however, short-lived because of the subordination of the nationalist line to Soviet policies and interests. By 1935 the entire nationalist line had been discarded in favor of the "united front against fascism," which allied Soviet policies with those of non-Fascist European powers. The Japanese annexed Manchuria in 1935, and by 1938 Japan had joined the Fascist Axis with Nazi Germany and Italy. The stage was set for World War II.

World War II ended with the defeat of Japan, the weakening of Europe, and the emergence of the United States as a leading power in competition with the USSR. That competition, also known as the cold war, created both opportunities and dangers for the independence movements of Asian countries and sowed the seeds of internal ideological divisions and civil war in some, such as Korea and Vietnam.

Independence movements in Asia followed two different forms—violent and nonviolent—depending mostly on the reactions of the specific colonial power. MOHANDAS GANDHI led India to independence through a successful nonviolent struggle against Great Britain.

Vietnam, under the direction of Ho Chi Minh and the Vietnam Communist party, defeated the French in 1954 after an eight-year war. After battling the Japanese during World War II and the rival Kuo Min Tang party at home, Mao Zedong brought his Communist party into power in China in 1949. In both China and Vietnam, the "people's armies" were organized first as armed PROPAGANDA units, stressing communication and politics as basic military achievements. Both violent and nonviolent independence movements in Asia were sustained by a new pattern of communication based on the political education of the masses (the peasantry) and the extension and establishment of international and regional communication. While exploiting all available Western media (posters, pamphlets, newspapers, radio, films), Gandhi, Mao Zedong, and Ho Chi Minh did not ignore the traditional forms of communication (religious, political, social, and ethnic groups), using popular themes, languages, and symbols to explain unfamiliar situations, emphasizing all the time the importance of simplicity, personal example, collective morality, sacrifices, and optimism. But the most important development within independence movements was the participation of women in the national struggle. The decisive commitment of women, who represent over half the population of Asia, to community and national issues has transformed communication patterns. Also important were the rising political consciousness and demands for autonomy by national minorities. *See also* NEWSPAPER: TRENDS; PAMPHLET; POSTER; RADIO.

Modernization for Nation Building

By the end of the 1950s all Asian countries except Hong Kong (to be returned to the People's Republic of China in 1997) and Macao had regained their independence. Before independence, modernization was essentially a formula to get rid of colonialism; after independence, modernization became the framework for nation building. Such a task required both the mobilization of national resources and the existence of a favorable international and regional environment. Once independent, Asian countries joined the United Nations and organized new regional arrangements and international structures with other Third World nations. In 1955 at Bandung (Indonesia), an Asian-African conference met to lay the foundations for the Non-Aligned Movement, formed in 1961. The Association of Southeast Asian Nations (ASEAN) is the most recent regional organization. *See also* INTERNATIONAL ORGANIZATIONS.

Discussions at the United Nations and the Non-Aligned Movement meetings generally concentrated on the maintenance of world peace, the establishment of a New International Economic Order, and a New

World Communication and Information Order (*see* NEW INTERNATIONAL INFORMATION ORDER). The aim of a conference on communication policies in Asia and Oceania, sponsored by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 1979, was "to provide an opportunity for the exchange of experience of communication systems in relation to economic and social development, and to consider the establishment of administrative, technical, research and training infrastructures on the national and regional levels, for the formulation, implementation and evaluation of communication policies." The agenda of the conference demonstrated the following major concerns and expectations of the communication policymakers of Asia: the problem of imbalance in the field of information and the means by which the communication gap between the north and the south and between the industrialized and the developing countries could be reduced; international cooperation among countries of Asia and Oceania to increase information flow and develop mutual understanding; the role of the media in an integrated approach toward development, especially in education, science, and culture; communication as a means of affirming and preserving cultural identity and as an instrument for national integration; public participation in communication; traditional media and transfer of technology; development of endogenous production and distribution capabilities; media structures; social responsibilities of media; responsibilities and protection of communication professionals; nature, place, and composition of the most appropriate structures for the formulation of communication policies; planning of communication development; data collection, research, and evaluation; and problems of professional communication training.

Outlook

If the end of colonialism in Asia was marked by the French defeat at Dien Bien Phu in 1954, then the futility of outside intervention by proxy was demonstrated by the collapse of the U.S.-supported regime in South Vietnam in 1975, the successful fundamentalist REVOLUTION in Iran in 1979, and the Soviet quagmire in Afghanistan beginning the same year. Regional interventions such as the Indo-Pakistan wars of 1948 and 1965, the India-China war of 1962, the Chinese attack against Vietnam in 1979, and the Vietnamese invasion of Kampuchea beginning in 1978 were failures. All of these events demonstrated that problems in Asia can no longer be solved by military means.

In an environment of international peace and regional cooperation, and as demonstrated by the economic progress and technological advances in China,

India, and especially among members of ASEAN, Asian countries—individually and collectively—can find the best paths and methods for modernization, combining “Eastern ethics and Western science.”

See also DEVELOPMENT COMMUNICATION; MARXIST THEORIES OF COMMUNICATION—THIRD WORLD APPROACHES; POLITICAL COMMUNICATION—IMPACT OF NEW MEDIA.

Bibliography. Raymond F. Betts, *Uncertain Dimensions: Western Overseas Empires in the Twentieth-Century*, Minneapolis, Minn., 1985; John A. Lent, ed., *Newspapers in Asia: Contemporary Trends and Problems*, Hong Kong, 1982; Lin Yut'ang, ed., *The Wisdom of India*, New York, 1942; J. Saxon Mills, *The Press and Communications of the Empire*, London, 1924; Joseph Needham, *Science and Civilization in China*, Vol. 1, New York and Cambridge, 1954; Robert T. Oliver, *Communication and Culture in Ancient India and China*, Syracuse, N.Y., 1971; K. M. Panikkar, *Asia and Western Dominance*, London, 1953; Carlos Pena Romulo, *The Meaning of Bandung*, Chapel Hill, N.C., 1956; Donald Eugene Smith, *South Asian Politics and Religion*, Princeton, N.J., 1966; Tran Van Dinh, *Independence, Liberation, Revolution: An Approach to the Understanding of the Third World*, Norwood, N.J., 1986; UNESCO, *Intergovernmental Conference on Communication Policies in Asia and Oceania* (Kuala Lumpur, Malaysia, Feb. 5–14, 1979, Final Report), Paris, 1979.

TRAN VAN DINH

AŚOKA (d. 232 B.C.E.)

Indian emperor. For most of his thirty-seven-year rule over the bulk of present-day India, Pakistan, and Afghanistan, Aśoka kept his vast empire together through a highly developed administrative system and an active advocacy of *Dhamma*, the Buddhist concept of virtuous conduct. From his capital city of Pataliputra (modern Patna), he presented his spiritual experiences and religious faith in the form of edicts to his diverse peoples—Indians, Greeks, Iranians, Afghans—through a large number of clearly dated inscriptions on rocks, pillars, and caves spread throughout his dominions. Inscriptions at nearly forty places have been found, most of them in Brahmi, from which most of modern India's scripts have been derived.

One major rock edict refers to the emperor's conquest of Kalinga (modern Orissa) and the killing of hundreds of thousands of people, and to Aśoka's consequent remorse and increasing devotion to the Buddhist creed of nonviolence:

When an independent country is conquered, the slaughter, death and deportation of the people is grievous to the Beloved of the Gods [Aśoka] and weighs on his mind. . . . The Beloved of the Gods considers victory by *Dhamma* to be the foremost victory. . . . This inscription

of *Dhamma* has been engraved so that any sons or grandsons that I may have should not think of gaining new conquests.

Some of Aśoka's edicts preach the Buddhist principles of good conduct; others instruct the officials of the state to behave in prescribed ways of righteousness. The cave inscriptions are behests to the monks. All were used as a durable means of conveying the king's thoughts, beliefs, and instructions to a vast empire and its far-flung administration. His thinking was to be engraved “wherever there are stone pillars or stone slabs so that it may last long.” One of the major edicts refers to the conversion to Buddhism of several leaders from Syria, Egypt, Macedonia, and elsewhere by missionaries sent out by Aśoka. Aśoka's awareness of the importance of communication expressed itself further in the well-planned roads he laid out across his empire, with banyan trees planted alongside “which will give shade to men and beasts . . . and I have had wells dug and rest-houses built. . . . I have done many things that my people might conform to *Dhamma*.”

Some scholars have challenged the conventional view of Aśoka's benevolence, asserting that his conversion to Buddhism was not a sudden step occasioned by the Kalinga war but a gradual movement toward a subtle and deliberate policy of promoting central control over a vast and highly centralized empire. However, Aśoka is regarded, particularly in Buddhist countries, as a model ruler for his tolerance and his nonviolence. Modern India invoked his revered image when it adopted as its national emblem the four back-to-back lions of the Sarnath pillar.

Bibliography. D. R. Bhandarkar, *Aśoka*, 4th ed., Calcutta, 1925, reprint 1969; S. Bhattacharya, *Select Aśokan Epigraphs*, 2d ed., Calcutta, 1960; Romila Thapar, *Aśoka and the Decline of the Mauryas*, London, 1961.

CHIDANANDA DAS GUPTA

ATTENTION. See CHILDREN; COGNITIVE CONSISTENCY THEORIES.

ATTITUDES

The concept of attitude is frequently used in efforts to explain and/or predict human behavior. It is generally defined as a mental predisposition toward persons (including oneself), objects, and events that guides or influences one's behavior toward those objects. The concept has played a central role in social psychology, in the history of communications research (see COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT), and is a factor in many forms of social communication such as EDUCATION, PERSUASION, and INTERPERSONAL COMMUNICATION.

Sometimes communication tactics are aimed specifically at creating, accounting for, or changing attitudes—as when employers attempt to improve employee job satisfaction, politicians try to sway PUBLIC OPINION, or advertisers seek to create a brand image (see ADVERTISING). Attitudes are seen as a means to change people's behavior. Thus, for example, antismoking campaigns focus on the consequences of smoking, consumer promotions emphasize product attributes, and fund-raising drives appeal to moral and social beliefs in order to get people to act in desired ways.

A very large body of literature is devoted to the study and analysis of attitudes, much of it coming from the disciplines of psychology, social psychology, and MASS COMMUNICATIONS RESEARCH. In the 1930s Gordon W. Allport published an influential review of the already large number of studies, and his definition of attitude as “a mental or neural state of readiness, organized through experience, exerting a directive or dynamic influence on the individual's response to all objects and situations with which it is related” became widely though not unanimously accepted. In the 1950s the research team led by CARL HOVLAND at Yale University conducted a series of experiments investigating different factors influencing processes of attitude formation and change, and its findings influenced a generation or more of social psychologists and communication researchers.

Two directions characterize contemporary attitude research. Most studies concentrate on the mediating psychological *processes* occurring between communication cues (e.g., messages) and attitude change. The goal of this research is to discover which psychological reactions govern ultimate attitudinal responses to particular communication cues. Attitude in these studies typically has been construed as a unidimensional *affective* or *evaluative* outcome of information processing. Rather than examining the nature of effects of attitudes per se, studies in this tradition stress the conditions under which attitudes arise or change.

The second stream of research is *structural*. Inquiry here looks at the content and form of attitudinal responses. In contrast to process theories, structural theories place more emphasis on the *formation* of attitudes and their cognitive representation and on the influence that attitudes have in decision making and on behavior. Attitude in this tradition has been modeled as both unidimensional and multidimensional constructs.

Process Theories

Two major approaches have emerged under this general framework. One argues that attitude change is a consequence of people's superficial processing of

external (peripheral) cues; the other maintains that people process information deeply, paying close attention to everything from message claims and structure to an evaluation of their goals in relation to the attitude object. The former is called the *peripheral* route to attitude change, and the latter the *central* route.

Peripheral routes. Research into the external conditions (e.g., rewards and punishments) producing attitude change has a long tradition and has taken many directions. One particularly influential framework for investigating the antecedents of attitude change is HAROLD D. LASSWELL's categorization of contextual forces into *source*, *message*, *media* (channel), and *receiver* factors. Whereas early research tended to be stimulus-centered (focusing on the design of message content, message structure, media, and other input variables), research since at least the early 1980s has been more response-centered.

An important approach in this regard is the heuristic model of persuasion. In this model people are assumed to process certain structural characteristics of communications in order to ascertain their validity or meaningfulness. Structural characteristics refer to particular features of the communicator (e.g., attractiveness), the message (e.g., use of promises versus threats), the media (e.g., visual versus verbal modes), and/or the receiver (e.g., self-esteem). The heuristic model hypothesizes that exposure to a communication leads to an interpretation of it in terms of *decision rules* (abstract, stored cognitive relations that often have policy or evaluative overtones). A cue such as “Many positive arguments,” for example, might be interpreted as activating a decision rule such as “The more of a good thing, the better.” An attractive spokesperson might engender the implicit response “Likable people tend to tell the truth,” and a person about to begin reading a long article might be influenced in his or her prejudgments by a “Length implies importance” rule.

The heuristic model asserts that such rule-based responses are more or less automatic and involve only a surface assessment of any communication. Rather than deeply processing the semantic content and implications of a message, say, people are assumed to make a relatively superficial assessment of the structural cues surrounding the message. This is apt to occur especially when a receiver lacks the ability or motivation to process a message. In sum, under the heuristic model simple cognitive rules are assumed to mediate the impact of communications on attitude change.

A number of other theories also presume information processing of peripheral communication cues but, unlike the heuristic and similar models, provide no formal explanation of cognitive processes per se. Rather, attitude change is represented as a function

of attributions or inferences one makes about one's own behavior or psychological state, the behavior or psychological state of another person, and/or the context of the communication.

Self-perception theory hypothesizes that people form their attitudes on the basis of an awareness of how they performed in the past and an assessment of why they performed that way. For example, as illustrated by the "foot-in-the-door" tactic, people are more likely to comply with a costly request after they have acquiesced to a significantly less costly request than if they had been asked to comply with the costly request only. The rationale is that the person asked to comply with a costly request after complying with a less costly one infers that, because he or she complied with the less costly request, he or she must have had a personal reason for doing so (e.g., "I am the type of person who does this sort of thing"). Therefore, when the person is asked to comply with a more costly request, the self-perception attitude so formed leads to a greater chance of compliance with the more costly request. The person confronted only with the costly request lacks the same internal information and therefore sees himself or herself as a relatively less compliant individual.

Still another peripheral processing model of attitude change is attribution theory. In one version of the theory people are hypothesized to make inferences about the cause of a communicator's behavior. The causes might be personal characteristics of the source and/or forces in the situation. In either case a message recipient is believed to compare the actual position taken by the source of a persuasive communication with the position inferred from the source's personal characteristics and/or the situation. When the inferred position conforms to the actual one, a discounting of the believability of the message position results because, with many possible causes of the actual position, attribution to any particular one is less likely, thus inhibiting attitude change. On the other hand, when the actual position goes *against* the one inferred from source characteristics or the situation, an augmentation of the believability of a message advocacy ensues because the position was taken (from the receiver's point of view) in the face of counteracting personal and/or situational determinants. Hence attitude change should be enhanced.

Attribution theory can also be applied to the nature of a message's advocacy and the content of its delivery. To the extent that a particular advocacy achieves consensus across communicators, consistency over time and media, and distinctiveness in its content, form, and relevance to an audience, it will be perceived as valid and attitude change will occur.

Central routes. Attitude change resulting from peripheral cues does not entail extensive information processing of these cues and does not involve much thought about message content or structure. People,

of course, do respond deeply and complexly to messages: they concentrate attention on claims made in messages; they attempt to comprehend arguments; they organize, store, and retrieve information in coherent ways; and they evaluate data in relation to their needs, decisions, and goals. This more complete processing of communications is largely cognitive and has been termed the central route to attitude change.

The most thoroughly researched framework in the central-route tradition is known as the *cognitive response* approach. Here it is assumed that people react to information (e.g., a persuasive communication) with unique, self-generated thoughts in an effort to relate the information to their existing knowledge and attitudes. Any communication is believed to stimulate one or more of three broad cognitive responses: favorable thoughts, unfavorable thoughts, or irrelevant thoughts with respect to an actual or anticipated message. Whether a person agrees or disagrees with a message, or whether or not it changes the person's attitude, is hypothesized to depend on the net polarity of all thoughts. If favorable thoughts outweigh negative ones a person will change or form an attitude in agreement with the message advocacy; otherwise no attitude change will occur. In sum, cognitive responses mediate the effect of information on attitudes.

In addition to counterargumentation and support argumentation (i.e., mentally upholding, corroborating, or backing a point made in a message with additional favorable arguments) a receiver might react to a spokesperson with self-generated elaborations of disparagements or negative evaluations (i.e., source derogations) or, alternatively, positive evaluations and respect (i.e., source bolsterings). On occasion cognitive responses relate to neither the message nor the source. Rather, they entail tangential or random thoughts or feelings stimulated by the communication that are loosely associated with a person's deeper needs and values, recent exigencies, or situational distractions. These "irrelevant" responses interfere with the processing of a message or, alternatively, lead to greater agreement or disagreement with a message depending on the polarity and strength of the particular mental associations.

Cognitive response analyses provide insights into the effects of peripheral cues and help to resolve ambiguities not handled well by classic approaches such as the source-message-media-receiver framework or the attention-comprehension-acceptance model of Hovland and his colleagues. For example, contrary to early thinking, it has been found that sources with low credibility sometimes induce more attitude change than sources with high credibility. A cognitive response interpretation helps account for this finding: high ego involvement or considerable prior knowledge about an issue tends to lead to

increased attention to the message and extensive cognitive response to the topic at hand (because it is more personally relevant). However, when involvement is low or knowledge is lacking, a person is relatively more vulnerable to the augmenting or weakening effects of such peripheral cues as source credibility. Under these latter conditions a person exposed to a proattitudinal communication delivered by a source *high* in credibility will think *less* about the message than one exposed to a source low in credibility. Therefore, high source credibility will lead to fewer support arguments and counterarguments than low source credibility. Because receivers will initially respond favorably to the message (because it is proattitudinal to begin with), more support arguments than counterarguments are expected to occur. Thus persons exposed to proattitudinal messages and low-credibility sources will be expected to develop more positive attitudes than those exposed to high-credibility sources. Note that the opposite is predicted for exposure to counterattitudinal messages: high credibility leads to greater attitude change than low credibility, the classic prediction. Again, both outcomes are expected only under conditions of low involvement or low prior knowledge.

The central route to attitude change is not limited to cognitive responses but might also involve affective or motivational factors. For instance, according to Jack Brehm's reactance theory, a restriction (or merely a threat of restriction) of a person's freedom to act, think, or feel in a way to which he or she is accustomed leads to a drive to reestablish the lost (or threatened) freedom. This might be done by counterarguing against the reasons for the restriction; evaluating more positively the focal behavior, thought, or feeling lost (or threatened); or even initiating the focal action in spite of the restriction (or threat).

Other motivational routes to attitude change can be explained by dissonance theory and impression management theory. In the former, perceived incongruities between elements comprised of thoughts, feelings, or actions lead to psychological discomfort and a drive to reduce the incongruity. This might be done by changing one's beliefs, affect, or behavior. Under impression-management theory, people present whatever attitude is needed to obtain social rewards. That is, one's own attitudes are seen as means to achieving approval from others, and attitudes are managed accordingly. *See also* COGNITIVE CONSISTENCY THEORIES.

Structural Theories

Process theories treat attitudes as undifferentiated, summary reactions toward persons, acts, or objects. A common practice is to measure attitude simply as the sum of responses to multiple SEMANTIC DIFFER-

ENTIAL items (e.g., good-bad, pleasant-unpleasant, like-dislike). The *nature* of attitudes is not an issue. Instead, focus is on the antecedents of overall attitude change. Structural theories, in contrast, take the content and form of attitudes as their subject matter. Depending on the level of abstraction one assumes, attitudes can be considered as either molar or molecular representations. A *molar* attitude is one *defined* as a function of certain mental states (e.g., beliefs and evaluations) that are hypothesized to combine and aggregate according to specific rules. The mapping process between the unaggregated elements and the aggregated molar construct is nonspecific in that it does not posit a one-to-one correspondence between the elements and the molar construct. Thus, for example, the same molar attitude may be represented through different combinations of levels of the same beliefs and evaluations for any one person, and different people may achieve identical molar attitudes but react with different levels of the same beliefs and evaluations.

A *molecular* attitude is a hypothetical construct that achieves meaning through *relationships* to mental states such as beliefs and evaluations. The relationships between the molecular construct and its implied mental states are expressed through *correspondence* rules. The most common way to operationalize correspondence rules is through formative or reflective indicators (e.g., measures of beliefs and evaluations) of a latent variable (i.e., the molecular attitude) through the use of structural equation models. As with the molar attitude, the mental elements of the molecular attitude are hypothesized to combine in specific ways (e.g., additively or multiplicatively), but, unlike the molar attitude, the mapping process for the molecular attitude is specified in a one-to-one sense. For instance, any particular attitude of a person will be represented through only one combination of beliefs and evaluations at the molecular level of analysis.

Molar attitudes. Perhaps the most well-known attitude model is that of Martin Fishbein (see Figure 1), which implies that one's attitude is determined by a multiplicative integration of beliefs and evalu-

$$A_{act} = \sum_{i=1}^n b_i e_i$$

A_{act} = one's attitude toward performing a particular behavior ("attitudes toward the act")

b_i = one's belief that performance of the behavior will lead to consequence i

e_i = the evaluation of consequence i

n = the number of consequences

Figure 1. (*Attitudes*) The Fishbein model of a molar attitude.

ations of act consequences and that these information products add up to produce a singular, overall attitude.

Many researchers have attempted to discover the conditions under which attitudes and behavior are related. It has been found that attitudes and behavior relate most strongly when measures of both correspond closely as to *action, target* (at which the action is directed), *context* (in which the action is performed), and *time* (at which it is performed). Perhaps more important, a number of variables have been identified as moderators of the attitude-behavior relation. The relationship is enhanced when one has had direct prior experience with the attitude object or behavior, when the cognitive and affective elements of attitude are in agreement, when one holds strong confidence in one's attitude, when one is less inclined to engage in self-monitoring, and when the occurrences of extraneous, unplanned events are anticipated. Even personality variables such as need for approval have been found to moderate the relation.

Although it is possible to improve the association between attitude and behavior by considering the conditions under which both occur, one is faced with a bewildering number of minitheories explaining each contingency. Parsimony and generality are sacrificed for the proliferation of variables and theories and the pursuit of specificity.

$$\begin{aligned}
 B &= f(I) \\
 I &= f(A_{\text{act}}, \text{SN}) \\
 A_{\text{act}} &= \sum_{i=1}^n b_i e_i \\
 \text{SN} &= \sum_{i=1}^m (\text{NB})_i (\text{MC})_i
 \end{aligned}$$

B = focal behavior or act
 I = intentions to perform the act
 SN = felt subjective norm to perform act
 NB = normative beliefs (i.e., expectations that specific significant others feel one should perform act)
 MC = one's motivation to comply with the expectations of these significant others
 m = number of significant others
 f = "a function of"

Figure 2. (*Attitudes*) The Fishbein and Ajzen model for the explanation of human behavior: A person's behavior (a particular act) is a function of the person's intention to perform the act, which in turn is a function of the person's attitudes toward himself or herself performing the act and the felt subjective norm to perform the act.

An alternative to reliance on many contingency theories is to search for a general theory or a small number of general theories. For example, Fishbein and Icek Ajzen have proposed a general framework for explaining behavior in a wide range of contexts (see Figure 2). The Fishbein-Ajzen model has been found to explain behavior in a wide range of situations, has had significant influence on theory building in social psychology and other areas of the social sciences, and continues to receive extensive application in various applied areas such as marketing, health care, and public policy.

Nevertheless, two broad shortcomings of the Fishbein-Ajzen model limit its power as a general explanatory framework. One limitation lies in the model's internal consistency. A number of studies have challenged the hypothesized functional relations among endogenous (internal) variables in the model. For instance, intentions do not always moderate the influence of attitude on behavior, and on occasion attitude has been found directly to influence behavior. Similarly, the $\sum b_i e_i$ component has been found to influence intentions both directly and indirectly through A_{act} , contrary to theory. Still another anomaly concerns the possible confusion between attitudinal and normative variables. Not only has the construct validity of the normative variables been questioned, but a number of researchers have found crossover effects (often reciprocal) between A_{act} and SN, between $\sum b_i e_i$ and SN, and between $\sum (\text{NB})_i (\text{MC})_i$ and A_{act} .

Even the central component of the Fishbein-Ajzen model (i.e., $A_{\text{act}} = \sum b_i e_i$) has come under attack on the basis of theoretical and methodological arguments. For example, the purposeful-behavior conception of attitude (see Figure 3) has been shown to overcome a fundamental ambiguity in the way evaluations are represented and integrated with beliefs in the Fishbein-Ajzen model and to outperform the model empirically. Finally, potential measurement problems can be identified in the Fishbein-Ajzen model, and these will be discussed under "Measurement Issues," below.

$$A_{\text{act}} = \sum_{i=1}^n b_i P_{\text{act}/b_i}$$

A_{act} = the person's attitude toward the act
 P_{act/b_i} = the subjective conditional probability that a person would perform a focal act, given that he or she believes that such a performance will lead to consequence i

Figure 3. (*Attitudes*) The purposeful-behavior conception of attitude, which overcomes certain problems with the Fishbein and Ajzen model and other formulations.

A second broad shortcoming of the Fishbein-Ajzen model is that it omits important social-psychological antecedents of behavior and is perhaps too parsimonious. At the same time, by focusing on the explanation of volitional behavior only, it fails to account for behaviors only partially under volitional control and for goal achievement. One theory that attempts to address these latter phenomena as well as behavior is the *theory of goal-directed behaviors and outcomes*, which builds on the Fishbein-Ajzen model but reformulates attitude structure and introduces new antecedents and intervening variables between attitude and goal attainment/behavior performance.

The central feature of the theory of goal-directed behaviors and outcomes is the conceptualization of attitude into three antecedents: attitudes toward succeeding, attitudes toward failing, and attitudes toward the process of trying to reach a goal or perform a behavior. Each attitudinal antecedent in turn is hypothesized to be a function of its own unique set of beliefs and evaluations of the consequences of goal attainment/behavior performance. Further, expectations of success and failure function as self-efficacy judgments (*see* SOCIAL COGNITIVE THEORY) and interact with the attitudes toward succeeding and failing, respectively, in the theory. Attitudes then influence the intention to try to reach a goal or perform a behavior. Intention is also hypothesized to be a function of social norms to strive for the goal or perform the behavior and of the frequency of having achieved the goal or performed the behavior in the past (for repeatable goals and behaviors). Next, intentions are hypothesized to initiate mental (e.g., plans) and/or physical steps toward goal attainment/behavior performance. These steps are termed *trying* in the theory and are also expected to be influenced by the frequency and recency of goal attainment/behavior performance (for repeatable goals and behaviors). Trying is then predicted to interact with actual control of the means to achieve the goal or perform the behavior to influence goal attainment/behavior performance. In addition to having greater explanatory power, the theory of goal-directed behaviors and outcomes has been tested against the Fishbein-Ajzen model and others and has outperformed them in terms of explained variance.

Molecular attitudes. The notion of molecular attitudes was first introduced in the 1980s and therefore has not received as much attention as molar and process theories of attitudes. However, molecular attitudes provide a means to perform detailed analyses of how attitudes form, what influences attitudes, and what effects attitudes have on other psychological processes and behaviors.

A molecular attitude consists of multidimensional attitudinal reactions. In the case of expectancy-value attitudes, a molecular attitude might be represented as interrelated networks of individual belief-times-

evaluation products; alternatively, attitude might be conceptualized as substructures of beliefs and evaluations organized as indicators of higher-order expectancy-value latent variables. In the case of attitudes toward an act or object, attitudes most often exist as unidimensional variables. On occasion attitudes toward an act or an object might entail a molecular structure comprised of multidimensional reactions (e.g., separate but possibly associated dimensions of pleasantness, arousal, and dominance).

As an example, consider the molecular attitude one researcher discovered underlying reactions toward the act of giving blood. It was found that people's responses consisted of four distinct but interrelated expectancy-value substructures: attitudes toward immediate external physical pain (e.g., a sore arm), immediate internal sickness (e.g., nausea, dizziness), delayed costs of a means-end variety (e.g., time lost from work, reduced resistance to colds), and altruistic concerns (e.g., helping others). The first three substructures were replicated across four samples in two different cultures; the fourth was also found in two samples within one culture.

Aside from demonstrating construct validity and thus the possibility of multidimensional attitudes, what is to be gained by investigating molecular attitudes? At least four benefits can be identified. First and most generally, the basis is provided for a deeper explanation and understanding of attitude formation and the impact of attitudes on intentions, decision making, and goal attainment/behavior performance. Second, from both a pragmatic and a theoretical standpoint, the representation of molecular attitudes permits the researcher the opportunity to discover the relative effects of different attitudinal substructures on intentions, behavior, and other dependent variables. For example, given the four expectancy-value reactions noted above, the Red Cross might learn which substructure affects the decision to donate blood most strongly and thereby allocate limited promotional resources to influence the attitudinal subdimension that would be most successful in stimulating blood donations. The basic researcher might obtain a more detailed picture of the influence of attitudes and develop new hypotheses not considered before.

A third benefit, related to the second, is the framework provided for examining the antecedents of attitude in greater depth. Instead of construing the effects of communication cues and other stimuli in a global way (i.e., their effects on molar attitudes), there is a means to examine specific communication effects on deeper attitudinal responses. This could lead to research into particular mechanisms of persuasion within the context of attitude research, something lacking in the field to date. Finally, molecular attitudes allow investigation of causal or inferential relations among beliefs and evaluations. Molar atti-

tudes, of course, obscure or confound such intricacies. But with a molecular attitudinal model one can explore the effects of a change in one belief on changes in other beliefs or the effect of a change in evaluations on beliefs, among other possibilities.

Measurement Issues

Researchers using expectancy-value attitudes have generally ignored scaling issues and have implicitly assumed ratio scale properties. The typical study either treats behavior, intentions, or A_{act} as dependent variables in a multiple regression solution, with the $\Sigma b_i e_i$ as predictor, or else bases analysis simply on the correlation between the $\Sigma b_i e_i$ and a criterion. Such an approach can be shown to be flawed in that allowable transformations of the scaling of either b_i or e_i could result in meaningless inferred relations.

One solution to the scaling problem is the use of hierarchical regression. This procedure detects valid interactions even if the variables are at best ordinal. However, hierarchical regression is sensitive to measurement error in the independent variables, and thus the possibility of Type II errors (i.e., accepting the null hypothesis when it is in fact false) exists. Contemporary advances in structural equation models overcome the measurement error limitation but still technically assume ratio scaling. More work is needed to develop a method that does not require ratio scaling yet takes into account measurement error. Until then we are in the unenviable position of relying on the findings of a vast number of previous studies that have not performed proper tests of hypotheses. For this reason it is likely that many of the time-honored assumptions, predictions, and proscriptions associated with the expectancy-value model lack empirical support.

Future Research

William J. McGuire predicted that the 1980s and 1990s would bring renewed interest in attitudes and attitude systems in general and in the structure of attitudes in particular. Indeed, a comprehensive review of the field by Shelley Chaiken and Charles Stangor supports the view that as of the mid-1980s attitude research has made a comeback from two decades of decline and shows every reason to continue unabated into the twenty-first century.

We are likely to see a greater convergence between the process and structural approaches in the years ahead. Whether this will mean that processual frameworks will incorporate structural ideas or that structural frameworks will become more processual is difficult to say. But one thing is certain: attitude theories and research have reached a new level of

maturity, and they promise to enhance our understanding and practice of many forms of social communication.

Bibliography. Icek Ajzen and Martin Fishbein, *Understanding Attitudes and Predicting Social Behavior*, Englewood Cliffs, N.J., 1980; Richard P. Bagozzi, "Attitude Formation under the Theory of Reasoned Action and a Purposeful Behavior Reformulation," *British Journal of Social Psychology* 25 (1986): 95-107; idem, "Expectancy-value Attitude Models: An Analysis of Critical Theoretical Issues," *International Journal of Research in Marketing* 2 (1985): 43-60; Shelly Chaiken and Charles Stangor, "Attitudes and Attitude Change," *Annual Review of Psychology* 38 (1987): 575-630; Robert B. Cialdini, *Influence: How and Why People Agree to Things*, New York, 1984; Alice H. Eagly and Shelly Chaiken, "Cognitive Theories of Persuasion," in *Advances in Experimental Social Psychology*, Vol. 17, ed. by Leonard Berkowitz, New York, 1984; Martin Fishbein and Icek Ajzen, *Belief, Attitude, Intention, and Behavior*, Reading, Mass., 1975; William J. McGuire, "Attitudes and Attitude Change," in *Handbook of Social Psychology*, 3d ed., Vol. 2, ed. by Gardner Lindzey and Elliot Aronson, New York, 1985; Richard E. Petty and John T. Cacioppo, *Attitudes and Persuasion: Classic and Contemporary Approaches*, Dubuque, Iowa, 1981; Harry C. Triandis, *Interpersonal Behavior*, Monterey, Calif., 1977.

RICHARD P. BAGOZZI

AUDIENCE. For information on this subject viewed from varying perspectives, see the following articles.

The concept of audience is approached from a theoretical perspective in CROWD BEHAVIOR; DIFFUSION; INTERACTIVE MEDIA; MASS COMMUNICATIONS RESEARCH; MASS MEDIA EFFECTS; MODELS OF COMMUNICATION; PERSUASION; SOCIAL COGNITIVE THEORY; TASTE CULTURES.

Measurement issues are discussed in CONSUMER RESEARCH; EVALUATION RESEARCH; OPINION MEASUREMENT; POLL; PRINT-AUDIENCE MEASUREMENT; RATING SYSTEMS; RADIO AND TELEVISION.

The contributions of specific theorists are mentioned in the entries ADORNO, THEODOR; HOVLAND, CARL; LAZARFELD, PAUL F.; LEWIN, KURT; LIPPMANN, WALTER; MCLUHAN, MARSHALL; TARDE, JEAN-GABRIEL DE.

For media influences on society, and on the media's audiences in particular, see AGENDA-SETTING; BANDWAGON EFFECTS; CULTIVATION ANALYSIS; CULTURAL INDICATORS; ENTERTAINMENT; LEISURE; OPINION LEADER; POLITICAL COMMUNICATION; POLITICIZATION; PUBLIC OPINION; SLEEPER EFFECT; VIOLENCE.

The entries CHILDREN and MINORITIES IN THE MEDIA deal with two specific audiences that have been the subject of considerable research attention.

AUDIOVISUAL EDUCATION

The provision of special learning experiences to implement and supplement the instruction that teachers can provide. The term became common early in the twentieth century when mass media—filmstrips, slides, films, sound recordings, RADIO, and television (*see TELEVISION HISTORY*)—began to be used widely for EDUCATION.

History

Though associated with modern times, audiovisual education appears to have had early precursors. There are reasons to believe that cave paintings, CLAY TOKENS, sculptures, and even some architectural forms may have served educational purposes. A more decisive advance in audiovisual instruction came after PRINTING, which encouraged the rise of LITERACY, the creation of textbooks, and the spread of schools (*see SCHOOL*). Pictures began to appear in the printed text. In 1658 Johann Amos Comenius (1592–1670), a Czech clergyman, wrote and published *Orbis Sensualium Pictus* (The Visible World in Pictures), the first illustrated textbook. It was based on the theory that the pictures would both help students establish direct links between words and things, and lead them through the process of induction to generalized knowledge.

Under the leadership of scholars like Johann Heinrich Pestalozzi (1746–1827) in Switzerland, Jean-Jacques Rousseau (1712–1778) in France, and JOHN LOCKE (1632–1704) in England, new thinking about education bloomed in the eighteenth and nineteenth centuries. More instruction was given in the mother tongue than in the classical languages, sciences began to play an active part in the curriculum, and there was a new emphasis on examining the question of how to teach (*see TEACHING*). Throughout the Western world in the second half of the nineteenth century there was an emphasis on the student's own learning activity: on learning rather than being taught.

By 1900 the new communication technology of the Industrial Revolution was reflected in study materials. The invention of cameras (*see PHOTOGRAPHY*) and of methods for printing illustrations from photographs resulted in effective pictures and maps in texts and on the walls of the CLASSROOM. Printed pictures were soon succeeded by pictures that could be viewed in a stereopticon (which produced the illusion of three dimensions), and then by filmstrips and slides that could be seen at the same time by a whole class or study group. When actual moving pictures became familiar, few educators imagined how many thousands of "teaching films" would soon be made and circulated (*see MOTION PHOTOGRAPHY; MOTION PICTURES*).

Perhaps the initial means of bringing audiovisual materials widely into schools was the establishment of cooperative arrangements between the MUSEUM and the school system. The first of these in the United States is believed to have been in St. Louis, Missouri, in 1905. Other arrangements for borrowing made it possible in many countries for teachers to show their students drawings, photographs, lantern slides, and models. As more countries took over the support of their elementary and secondary schools, the schools built up some of their own supplies of what was coming to be called "audiovisual aids." Government departments and school and college systems began to make teaching films and radio programs. In the 1920s and early 1930s a number of research projects on the effects of films and radio were organized where educational research personnel and facilities were available (*see CHILDREN—MEDIA EFFECTS*).

World War II had a positive, though unforeseen, effect on audiovisual education. The military services turned to the audiovisual resources of educators for help in training soldiers and civilians to take part in the war effort. This was notable in Germany, England, and Japan as well as in the United States, where it is estimated that more than ten thousand training films and an untold number of filmstrips, slides, and recordings were used to teach skills and shape soldiers' attitudes (*see PROPAGANDA*). Furthermore, many of the countries engaged in the war co-opted some of their best researchers to study the effectiveness of audiovisual materials, thereby setting a fashion for future educational and communications research (*see COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT*).

Once the war was over, educators and researchers turned to the development of "programmed instruction"—self-teaching books and machines. This was soon adapted to the computer, and satellites were used to share television and radio lessons over wide areas (*see SATELLITE*). By the 1970s all the new communication technologies had been called on to address the problems of learning and teaching. It was estimated that by that time more than fifty thousand schools throughout the world had acquired motion picture projectors, and more than one hundred thousand schools were receiving radio and television broadcasts. Perhaps more important than numbers, however, was the fact that educational media and other materials of audiovisual instruction had been accepted and were being widely used from preschool to UNIVERSITY levels.

Effectiveness of Audiovisual Learning

Between two thousand and three thousand experiments on audiovisual learning indicate that audio-

visual experience can contribute to learning in a variety of situations and for a variety of learners, and that a certain number of general propositions are supportable on the basis of present knowledge:

1. *People learn from any medium.* This does not imply that the student learns a particular skill or subject matter as well as another, from one medium or combination of media, regardless of how the desired content or skill is taught. However, the student does learn from any medium, appropriately used. This seems to hold regardless of grade level, mental ability, or age.
2. *People learn also from experience in which media play no part.* The teacher's skills usually include an ability to make good use of experiences that are not a part of formal instruction as well as those that are.
3. *People learn from media and direct experience whether we want them to or not.* Children learn behaviors their parents want them to learn and other behaviors parents do not want the children to pick up. An example of this is the way many children learn to imitate the behavior they see modeled on television (see SOCIAL COGNITIVE THEORY).
4. *There is no "best medium" for all learning tasks and all learning.* Many new media have been hailed as "the great one." Print was the first, television the most recent—the former because it could serve every literate person and the latter because it offered sound, speech, pictures, and movement all in one package. But learning to speak a LANGUAGE, which is perhaps humanity's greatest learning achievement, is accomplished mostly without the aid of any media. For any given task, one medium is likely to be more effective than another, but that superiority does not extend to all tasks.
5. *For any given learning task, some combination of media and direct experience is likely to be more efficient than others.* Print is especially useful for summarizing knowledge, pictures for visual recognition, speech or recorded audio for language learning, graphs for comparing quantities, moving pictures or television for studying motion, and so on. A teacher uses what is available and what there is time for.
6. *The events of instruction are sufficiently varied to call for a variety of media.* Every learning task requires several "events of instruction"—that is, the experiences that, in a given situation, will most efficiently contribute to a student's learning. Not only every task but even every part of the task is likely to call for the use of more than one medium.
7. *Consequently, a combination of media is likely*

to produce more learning than any one medium alone. An ideal fit of media to learning task, therefore, is likely to require a very complex shifting back and forth among media, and the choice of audiovisual media must necessarily be a compromise with the ideal. Logistical and financial considerations must enter in, along with educational theory.

8. *Research is beginning to guide media and content choices.* Only examples can be given here. Robert M. Gagné and Leslie J. Briggs have been building instructional theory on such bases as the events of instruction. Gavriel Salomon suggested a rule for the selection of media: "The better a symbol system conveys the *critical features* of an idea or event, the more appropriate it is." The code of the audiovisual media will be most effective "if it is isomorphic to the learner's symbolic way of thinking." In other words, the symbolic "language" of the medium should make it as easy as possible for the student to interpret, store, retrieve, and ultimately use and transfer the particular lesson that is to be learned.

What Is Audiovisual Instruction Used For?

Audiovisual instruction has proved helpful in large as well as small activities—from national educational reform projects to individual study—and for short-term as well as long-term work. The following examples of larger projects in which users have reported successful results demonstrate the scope and power of the audiovisual revolution.

National educational reform. Niger has used television to upgrade the curriculum, train teachers, and expand availability of schools. American Samoa used television and expert teachers imported from the U.S. mainland to upgrade teaching while Samoan teachers and administrators were preparing to take over the system. El Salvador used television teaching to triple enrollment in the seventh, eighth, and ninth grades (see DEVELOPMENT COMMUNICATION).

Supplementing the school. In the United States a CABLE TELEVISION experiment in Washington County, Maryland, was launched to supply the needs of schools in which teachers of special subjects were not available. Later, cable was replaced by VIDEO recordings in each school. Colombia's national school system, mountain schools in Japan, and schools in the neighborhood of Delhi, India, all used television to upgrade the curriculum. Radio has been used to supplement teaching in upland villages of Thailand. The Central African Republic and other school systems in Africa have made use of radiovision (radio broadcast, tapes, and teacher) to improve teaching of certain subjects. In Rhodesia (now the Republic

of Zimbabwe) programmed instruction was used with considerable success to augment classroom teaching.

Extending the school. The British Open University, which opened in 1969, has used correspondence study, radio, television, science kits, and short periods of residence teaching in the summer. Other countries using mostly television to make extended schools possible are the German Democratic Republic (Television Academy), the Federal Republic of Germany (Telekolleg), the Netherlands (Telemac), Poland (Television College), France (RTS), and Thailand, which now has three open universities. Australia has offered both elementary and secondary education to remote students by correspondence study and radio since 1933; many students have gone directly from this extended system into the city universities. France, the Federal Republic of Germany, Kenya, Austria, and Mexico all offer extended education by radio and/or television.

Nonformal education outside the school. Nonformal education is instruction offered outside the boundaries of the formal school system and ordinarily without academic credit. Such education puts high emphasis on local group and individual activity. Group nonformal study is stimulated by radio broadcasts in most of the radio rural forums (e.g., in Canada, India, Ghana, Malawi, Togo, and Benin). Acción Cultural Popular (Popular Cultural Action) in Colombia and several large programs in Brazil offer literacy and other elementary training to study groups totaling several hundred thousand people. A related pattern, popular in Africa, consists of groups, served by radio broadcasts and led by an *animateur*, who meet to discuss local problems, leading toward community action and learning.

The Cost of Instructional Media

Detailed figures on the cost of instructional media are scarce. There is a considerable leap in cost between "little" media (e.g., filmstrips and slides) and "big" media (e.g., television, sound films, and computer-assisted instruction). Another consideration is economy of scale. Original costs of television and radio are comparatively high, but the unit cost decreases as the amount of use increases. Some unit costs, however, do not decrease notably with extent of use; examples are motion pictures, filmstrips, and slides. A third consideration is quality. The cost of all instructional media increases with quality, but the difference is most notably apparent in the cases of television, motion pictures, computer-assisted instruction, and radio. Cost decisions, therefore, are difficult but important to a school system that is considering audiovisual instruction, and costs must be balanced against what the new technology can be expected to accomplish.

See also COMPUTER: IMPACT—IMPACT ON EDUCATION; EDUCATIONAL TELEVISION.

Bibliography. Robert M. Gagné, *The Conditions of Learning*, 2d ed., New York, 1970; Robert M. Gagné and Leslie J. Briggs, *Principles of Instructional Design*, New York, 1974; David Hawkrige and John Robinson, *Organizing Educational Broadcasting*, London and Paris, 1982; Gavriel Salomon, *Interaction of Media, Cognition, and Learning*, San Francisco, 1979; Wilbur L. Schramm, *Big Media, Little Media*, Beverly Hills, Calif., 1977; UNESCO, *The Economics of New Educational Media*, 2 vols., Paris, 1977.

WILBUR SCHRAMM

AUSTRALASIA, TWENTIETH CENTURY

The area known as Australasia has witnessed rapid change in its communication patterns since World War II, brought on by the conjunction of new media and worldwide political shifts. Although the term has never been defined precisely, *Australasia* is generally used to encompass Australia, New Zealand, Papua New Guinea, Fiji, and other island nations in the South Pacific. As with other attempts at grouping based on geographical proximity, the nations included are quite diverse in terms of population, national geography, political organization, and history.

Background. Long before European EXPLORATION in the late eighteenth century ventured farther south and east to reach what is now known as Papua New Guinea and the northern and eastern Australia coast, Polynesian, Melanesian, and other peoples had inhabited some of the islands for thousands of years. Their diverse ethnic origins, differences in LANGUAGE, and physical barriers (seas, forests, mountains, deserts) made communication among them difficult or impossible, although they were able to survive and develop indigenous cultures of varying levels of sophistication. But beginning in the late 1700s and early 1800s European COLONIZATION produced dramatic changes. Portuguese, Dutch, and English explorers were among the first Europeans to come to this part of the world, but the English established colonies of growing importance in the late eighteenth and all through the nineteenth century in Australia, New Zealand, and Papua New Guinea, constantly reinforcing them with new arrivals and a sizable military presence.

The indigenous populations suffered greatly. Their claims on ancestral lands went unrecognized, treaties were often ignored, and wars fought against them left them severely disadvantaged and much reduced in numbers. By the nineteenth century, English subjects represented a majority of the population, turning the aboriginal populations into "minorities" with limited rights and opportunities in the new societies.

The twentieth century has witnessed rapid and important changes in many areas of society within the different nations of the region. In terms of communications the tendency has been to decrease the importance of the old ties to the colonial powers—particularly England—in favor of closer and more extensive links with other countries in the area. A silent motion picture industry thrived in Australia from the late nineteenth century until the introduction of sound (*see* MOTION PICTURES). It withered because the patents covering the new sound motion picture technology were controlled by U.S. and British film-production organizations. But by and large, until midcentury it was common to look to Europe rather than to neighboring Asian and Pacific nations for everything from commodities to CULTURE. Film and broadcasting units, for example, were created and evolved following the British model. They included DOCUMENTARY film services organized by JOHN GRIERSON in Australia and New Zealand; BBC-style RADIO operations reinforced by an Empire Broadcasting Service shortwaved from England, as organized by JOHN REITH; and television experiments begun along similar lines (*see* TELEVISION HISTORY). Provided with such services, and with populations of small or moderate size, the Australasian nations were slow to develop substantial communications industries of their own. For example, Fiji and Papua New Guinea did not develop television services until the 1980s. Australia was to some extent an exception, developing a powerful press and, in the 1970s, a film industry that began to gain an international reputation. Other nations in the area increasingly looked to Australia and Australian organizations for expertise and capital.

During the postwar decades new waves of MIGRATION began to effect a rapid transformation of Australia's population. Under a postwar population program large numbers of people came from Greece, Italy, Germany, the Netherlands, Yugoslavia, Poland, Malta, Turkey, and Lebanon; others arrived from Vietnam and Malaysia. In three decades some 3.5 million immigrants arrived in Australia, and the country began to think of itself as a multiethnic, multilanguage nation, with the full range of problems this could involve. One of the major challenges was to its communications system. Australian responses to these challenges have had wide implications for Australasia as a whole.

The press in Australia is privately funded and exists with minimal GOVERNMENT REGULATION. There has been a strong trend toward concentration of ownership (*see* MONOPOLY). The major daily and weekly press is in English, and its interest is in the dominant English-speaking readership. Yet new needs and demands have arisen; in response, one or more privately funded newspapers came into being for

almost every language group. Broadcasting and telecommunications, however, have faced special problems.

Almost two-thirds of Australia's 15 million people live in the southeastern coastal region. The rest are clustered in smaller regional centers or are scattered throughout the remote and often inhospitable outback. Most Aborigines live outside the major urban areas. Because of the uneven spread of the population and the vast distances involved, access to Australia's broadcasting and telecommunications services has varied markedly. Where one lives has long determined the range and quality of services.

The regulation of broadcasting and telecommunications in Australia is the responsibility of the Commonwealth government. As in Great Britain, broadcasting began noncommercially but has shifted to a dual system, with one service receiving public funds and the other supported wholly by ADVERTISING. Neither service was prepared for the complex impact of the latest population wave.

During the 1970s Australia's communication system was radically transformed by two government initiatives stemming directly from Australia's population changes and geographic dispersal. One was designed to meet the needs of the country's multiplying ethnic communities. The other was designed to overcome geographic barriers by means of a SATELLITE system—which soon acquired Australasia-wide significance.

Ethnic and multilingual broadcasting. This initiative resulted from the POLITICIZATION of members of ethnic groups and from increased sensitivity to the political and cultural consequences of media coverage. In particular the mass media were seen to be carriers of negative stereotypes of immigrants and Aborigines that both reflected and perpetuated prejudice and injustice. As an alternative to reform of the mainstream media, some ethnic and Aboriginal groups began LOBBYING for the provision of ethnic broadcasting outlets so that they would be able to broadcast their own views directly.

By the mid-1970s a number of immigrant organizations had established themselves as effective political pressure groups (*see* PRESSURE GROUP). These years saw the political mobilization of immigrant communities and the adoption by government officials of an ideology of diversity or "multiculturalism." The need for ethnic broadcasting was acknowledged on many fronts, and the stage was set for specific action to meet minority needs. *See* MINORITIES IN THE MEDIA.

An experimental access station (*see* CITIZEN ACCESS) had been set up in 1976. Though it was not specifically designed as a broadcast outlet for immigrants, many immigrant groups applied for use of the station, and within months there were regular

weekly broadcasts in twenty-six languages other than English. An additional seventeen languages were broadcast from time to time. There was also a weekly program produced by Aborigines.

Soon after this access venture the government established experimental ethnic radio stations with a specific charter to broadcast to immigrants. They were to transmit community and government information to more than two million immigrants in Melbourne and Sydney—people not reached by other facilities—and were also to give recognition to the cultures and traditions of the immigrant groups and encourage tolerance and understanding among all sections of the Australian community.

The experimental seasons of ethnic radio precipitated debates about who should control the service. As a result the government created the Special Broadcasting Service (SBS). In 1980 the government initiated a multicultural television service that was designed to meet the needs of the various ethnic communities and to appeal to the wider Australian community. It aimed to increase the awareness within the whole community of the diverse multicultural nature of Australian society and increase mutual understanding among ethnic communities. It would assist in the maintenance and development of community languages and cultures and contribute to greater self-esteem and identity; at the same time it would help new arrivals to adjust to life in Australia and to learn about Australian history and culture.

Because Aborigines have resisted being described as an ethnic group, the relationship of the SBS to Aboriginal broadcasting has been ambiguous. (Aborigines have argued that they should be considered a "people" made up of a number of ethnic groups.) Although the SBS did support the production and broadcast of Aboriginal radio programs on SBS and other public radio stations, Aborigines concentrated their attention on the public broadcasting system. The Central Australian Aboriginal Media Association (CAAMA) took the initiative with a half-hour radio series. CAAMA obtained a license for an Aboriginal public radio station in Alice Springs, South Australia, and developed a network. It distributed audiocassettes containing news, interviews, and music to Aboriginal communities. It also developed VIDEO production facilities as a means of serving Aboriginal communities in the outback.

The creation of Aussat. The outlook for Aboriginal broadcasting in rural and remote areas was further enhanced by the second of the government initiatives—the Aussat satellite system. In 1977—when public discussion of a domestic communication satellite system was initiated—residents of Sydney and Melbourne had high-quality TELEPHONE, postal, and telecommunications services and access to up to twenty radio and five television stations. But for many resi-

dents of the remote outback telephone services and broadcast television were nonexistent, shortwave radio provided the only timely news and ENTERTAINMENT service, and unreliable high-frequency radio provided the only communication link for business, health, and educational services.

With the launching of Aussat's first satellites in 1985, remote homesteads and communities that could not receive television, radio, and data services by conventional means could acquire them through low-cost satellite ground stations. Outback telephone services were also improved. In addition, Aussat made possible a series of specialized video and audio services transmitted to hotels, motels, and other public places.

Aussat brought television programming into areas with the greatest concentrations of Aborigines. Research by the Australian Institute of Aboriginal Studies showed how European-style programs could be offensive to Aboriginal cultural traditions. But it also illustrated the differences between the responses of various Aboriginal groups to the same program. To ensure that Aboriginal culture was enhanced and not threatened by direct-broadcast satellite television, CAAMA created an Aboriginal consortium, *Imparja*, which obtained a license to engage in direct satellite-based television and was thus able to provide Aboriginal programming to South Australia and the Northern Territory, the parts of Australia with the highest concentration of Aborigines.

Although the debut of communications satellites in Australia fulfilled many expectations, the implications for Australasian communications were clearly even more far-reaching. The existence of Aussat stimulated a new evolution of the area's communication systems. For a region as fragmented as Australasia, satellite interconnection was a revolutionary technology.

Australasian vistas. The satellite's meaning for the area had already been glimpsed and discussed in the 1960s. During the following decade, the loan of a communications satellite by the U.S. National Aeronautics and Space Administration (NASA) allowed communities and schools of the region to experiment with satellite-based audio-teleconferencing, with assistance from the University of Hawaii in Honolulu and the University of the South Pacific in Suva, Fiji. These offered not only a vision of possibilities but also hands-on experience. Indonesia's launching of its PALAPA satellite system, which began operation in 1976 and likewise sought to serve a vast array of islands, offered a further model and inspiration—as did India's SITE experiments of 1975–1976, using another satellite on loan from NASA.

Regional linkages of various kinds followed the launching of Aussat. Aussat agreed to provide domestic communications links for the New Zealand

Post Office, which has jurisdiction over the nation's telecommunications services. One of Aussat's satellites can switch beam coverage to serve Papua New Guinea; there and in Fiji, the television systems are operated by Australian organizations. Further regional communications challenges and issues are being considered by the South Pacific Telecommunications Development Programme, which is part of the South Pacific Economic Commission based in Fiji. This organization has played a role in telecommunications planning and in negotiating for proposed communications services from Intelsat.

Other new technologies are also having their impact. As in Australia, various Aboriginal and other groups find in the video medium and in low-power community radio welcome instruments for self-expression. Concern about the content of imported videos and their implications for indigenous culture has encouraged interest in both local origination and local control of broadcast television. Amid this new media environment, the nations of Australasia seem to be moving toward new patterns of self-expression and interdependence.

Bibliography. Bill Bonney and Helen Wilson, *Australia's Commercial Media*, Melbourne, 1985; Allan Brown, *Commercial Media in Australia: Economics, Ownership, Technology and Regulation*, St. Lucia, Queensland, 1986; Miriam Gilson and Jerzy Zubrzycki, *The Foreign Language Press in Australia 1848-1964*, Canberra, 1967; Ian K. Mackay, *Broadcasting in Papua New Guinea*, Melbourne, 1976; Henry Mayer, *The Press in Australia*, Melbourne, 1964; Eric Michaels, *Aboriginal Invention of Television*, Canberra, 1986; Charles Moses, *Diverse Unity: The Asia Pacific Broadcasting Union 1957-1977*, Sydney, 1978; Ann Moyal, *Clear across Australia: A History of Telecommunications*, Melbourne, 1984; Ian Reinecke and Julianne Schultz, *The Phone Book*, Melbourne, 1983; Naomi Rosh White and Peter B. White, *Immigrants and the Media*, Melbourne, 1983; Keith Windshuttle, *Media*, Melbourne, 1984.

PETER B. WHITE

AUTHORSHIP

The notion of authorship centers on the act of inauguration and the complementary concept of an original inventor, composer, or author who undertakes it. The communicative impulse itself conventionally presupposes an author, a purposive initiator of the communicative process.

As far as written communication is concerned, the author traditionally appears as the individual source of a text designed to communicate specific messages to a reader or readers. From a literary standpoint the text may appear capable of transmitting more or less

directly the author's individual point of view with regard to the subject in question. And in its most intimate MODE the text may even assume the status of a virtually direct expression of the author's self, a closely personal utterance brought forth, like SPEECH, from an inner source (the word *utter* has a shared root with the word *outer*; to utter is in one sense to bring out).

This sense that the text springs from deeply personal origins has long seemed to confer rights of ownership on its author. Burgeoning "inside," the text retains a complex connection with its roots, the author's real presence, even when it moves "outside." The author can thus appear to inhabit the text as part of an intimate relationship involving dimensions far deeper than those normally at stake in the possession of property. The author may even claim, or have proclaimed on his or her behalf, a fundamental *authority* (again, the words share a common root) over the text that extends to the text's MEANING. The text means what the author intended it to mean, no less and no more.

These ideas of authorship make two literary crimes possible. The first can be termed *misinterpretation*, in which meanings other than those intended by the author are wished onto the text, which is twisted or perverted to sustain them. The second is *plagiarism*, in which the author's text is appropriated by another, and his or her proprietary rights over the words are violated.

However, these apparently straightforward and commonsensical notions rest on a number of presuppositions that have come under attack in the twentieth century as a result of developments in two particular fields, one historical and the other philosophical. In both cases a fundamentally damaging charge is laid at the door of our present notion of authorship. Far from enjoying universal validity, the notion turns out to be the result of specific pressures—social, economic, political—of our own time.

Historical Development of Concept

The briefest glance at the procedures and presuppositions governing the production of texts in the medieval period yields a notion of authorship very different from the one we take for granted (*see* MIDDLE AGES). This was a manuscript CULTURE without benefit of the PRINTING press, in which texts were produced literally by hand. Medieval books were largely collective efforts, depending on the work of armies of scribes. Having determined to produce a BOOK, the medieval "author" would be unlikely to retire to look inward and write. On the contrary, one would be far more likely to look outward, beyond the self, toward a LIBRARY. Authorship in that culture was less a question of personal creation than a matter of

assembling a body of appropriate material from other books, rather like putting together the pieces of a jigsaw puzzle. In addition, both librarians and those who used the books could be expected to take part in the assembly, since, for reasons of economy, works of relatively short length would be bound together with other works to which they were not necessarily related.

If we also take into account the practice whereby a volume containing, say, twenty different pieces would end up listed under the single name of the author of the first piece, we can see that our more recent notion of authorship represents a major departure from long-established practices. The assigning of the name of an author to a text was almost an arbitrary matter in the Middle Ages. Not only were many texts unsigned or unattributed, but, as E. P. Goldschmidt makes clear, people did not attach the same importance to ascertaining the precise identity of the author of a work as they do now. To the medieval scholar the question "Who wrote this text?" was far more likely to be an inquiry concerning the identity of the scribe than of the author.

Our notion of authorship can be said to be a product of the RENAISSANCE. It reflects that age's expanding interests in individualism, self-expression, and other modes of encountering the material world in which the extension and development—even the invention—of private experience found a fruitful location. By the eighteenth century, when its first use is recorded, the term *authorship* refers primarily to an occupation or career as a writer of literary texts. So James Boswell proves anxious to preserve SAMUEL JOHNSON from any hint of a connection with one of the major literary crimes, saying that "the strength of his memory which at once detected the real owner of any thought made him less liable to the imputation of plagiarism than, perhaps, any of our writers." By the nineteenth century Samuel Taylor Coleridge could refer definitively to "the profession of literature or, to speak more plainly, the trade of authorship" and was notoriously concerned with defending himself against the charge that he had plagiarized the German writer August Wilhelm von Schlegel.

It is not surprising that the growth of this concept of authorship appears also to be concomitant with the rise of capitalism, Protestantism, LITERACY, and the printing press (see PUBLISHING), or that it is involved in the complex value system implicit in those developments. In the last analysis our modern, post-Renaissance notion of authorship reflects a no less modern notion of individual authority over personal property. In the process it invests that relationship with ideas of truthfulness and validity whose essential features surface in the sense of firsthand, self-sufficient, and primary authority to which we give the name *authenticity*.

Philosophical Considerations

It is precisely this notion of an authentic relationship between author and text that is brought into question by a set of philosophical considerations generally known as deconstruction (see STRUCTURALISM). The essence of deconstruction lies in its questioning of precisely the relationship presupposed by the notion of the text as the authentic representation of the thoughts and feelings of its author. Indeed, a deconstructionist would argue that the suggestion of an originating and authenticating "presence" beyond any SIGN, apparently serving to "authorize" its validity, instances one of the major limitations pressing upon the Western mind.

In terms of READING and WRITING, this limitation appears in the form of the persistent delusions that writing is the expression of a preexisting and deeply personalized speech, that it gives immediate access to the inwardness of its speaker, and that reading is capable of piercing the veil of writing, of traveling back through it to the inner and "real" recesses of the author, and of making contact, without mediation, with the author's originating thoughts and the "presence" that embodies them. The most devastating attack on the "metaphysics of presence" that supports these concepts has been offered by French philosopher Jacques Derrida in his *De la grammatologie* (1967) and other volumes.

The work of Swiss linguist FERDINAND DE SAUSSURE made the case that LANGUAGE creates meaning through the differences and distinctions among its terms. Any sense of a direct one-to-one correspondence between words and the "real" world to which they refer can be only an illusion, albeit a powerful one, in which certain societies have found it ideologically profitable to invest. Derrida attacks the extension of that illusion into the body of our conceptual presuppositions. At its center lies the notion that there exists somewhere, in the purest form, beyond all mediation, a pristine voice, an antecedent speaking "presence," a graspable origin, an ultimate author, one whose palpable existence guarantees the authenticity of the signs that confront us. The grip of that illusion is powerfully anesthetic; it functions effectively as a formative force, determining and limiting our apprehension of the world we inhabit. But in truth, says Derrida, that world offers no comforting, unmediated, original, and authenticating presence with which we can at last come face to face. Instead, a multiplicity of different sign systems confronts us, all referring endlessly one to another in the free play of their differences (see SIGN SYSTEM).

The consequences of this for our inherited notions of authorship are clearly considerable. Whereas examination of the historical point of view revealed our sense of the author's ownership of the text as a

fairly recent response to specific social developments and not the universal given we tend to suppose, a deconstructive analysis similarly depletes our sense of the text's ultimate dependence on its author as the final arbiter of meaning. Released in this way, the text's innate productivity may be encouraged to flower, its suppressed meanings to blossom. And at the furthest reaches of the implications of deconstruction, the way in which the fabric of meaning has been constructed in the text may finally be revealed. To reveal the method of its construction is of course to point to its seams and to unpick them, to deconstruct the fabric along the lines of its construction and thus to show that the text leads, not back to its originating author, but only and finally to itself, or to the functioning of signs that has generated it.

The aim of deconstructive analysis therefore can hardly be the reinforcement, reconstitution, or recuperation of the author's original meaning. On the contrary, such analysis aims to demonstrate that no such meaning governs the text and that no simple process of reading can uncover it. As critic J. Hillis Miller has argued, all texts are equally unreadable "if by 'readable' one means a single definitive interpretation." By turning the presuppositions of reading on their heads, by systematically unraveling the carefully woven strands that make up the text's sense-making surface, by focusing attention on those contradictory features that the author is unable to control and that his or her writing strives always to conceal, by showing that these offer, not the guarantee of a restricted presence beyond themselves, but entry into the realm of language at large, the deconstructionist puts forward the case that all texts ultimately give priority to the free play of language over meaning. As Geoffrey Hartman expresses it, deconstruction "refuses to identify the force of literature with any concept of embodied meaning"; rather, it recognizes that words offer, not the restrictions of authorial presence, but the freedom of "a certain absence or indeterminacy of meaning."

With this, the concepts of author and authorship, and of an author's authority over the text and the authenticity of his or her relationship with it, finally expire, to be replaced by the rise of the deconstructing reader as the active and creative element in the reading-writing nexus. If the fundamental opposition of speech to writing can be dissolved (or deconstructed), as Derrida argues, to show that speech is finally merely an aspect of writing, then the cognate opposition of writing to reading can be deconstructed to show that writing is finally an aspect of reading. See *READING THEORY*.

This fundamental realignment, in which the author functions ultimately as a particular category of reader, or is even perceived as a specific and distinctive set of strategies deployed by the text itself, entirely un-

dermines the property rights supposedly involved in the production of the text. And without them the two crimes mentioned above disappear from the intellectual statute book. In deconstructionist terms, plagiarism ceases to be an offense, since writing (seen by Derrida in its largest sense as the impingement of culture on nature) is a universal human activity, and a principle of radical intertextual relationships ensures that no individual text can be available for single ownership (see *INTERTEXTUALITY*). And misinterpretation ceases to be an offense, since no pure, unmediated *INTERPRETATION* of any text is possible. In the absence of access to the author's originating presence or to the original meaning of a text, all reading, as Harold Bloom puts it, can only be misreading. The author, conceived as the controlling factor governing the text's possibilities, thus dies, as does authorial authority, to be followed to the grave by the concept of authenticity as the ultimate guarantor of communicative good faith. Clearly the situation demands a new model of the process of communication itself.

See also *ARTIST AND SOCIETY*; *COPYRIGHT*; *LITERARY CRITICISM*; *STYLE, LITERARY*.

Bibliography. Harold Bloom, *The Anxiety of Influence*, New York, 1973; Harold Bloom, Paul de Man, Jacques Derrida, Geoffrey Hartman, and J. Hillis Miller, *Deconstruction and Criticism*, New York, 1979; Jacques Derrida, *De la grammatologie*, trans. by Gayatri Chakravorty Spivak, Baltimore, Md., 1977; Ernst P. Goldschmidt, *Medieval Texts and Their First Appearance in Print*, Oxford, 1943; Marshall McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man*, London, 1962; Walter J. Ong, *Orality and Literacy: The Technologizing of the Word*, London and New York, 1982; idem, *Ramus: Method and the Decay of Dialogue*, Cambridge, Mass., 1958.

TERENCE HAWKES

AUTOBIOGRAPHY

The form of literature in which authors narrate or otherwise describe their own lives. It is a peculiarly direct, personal communication between author and reader, commonly founded on the mutual belief that whatever is recounted in an autobiography is truthful. As readers of autobiography we trust that its authors are not knowingly deceiving or misinforming us about themselves, but are confiding to us certain truths about what has happened to them in the course of their lives or about the kind of person they believe themselves to be. It is a *GENRE* characterized by considerable freedom so far as technique goes; the autobiographer ranks among the least constrained of writers in deciding how to represent his or her life.

Autobiography has customarily been looked on as a branch of the wider literary genre of BIOGRAPHY, even though an author writing an account of his or her own life clearly stands in a relation of greater intimacy with the subject matter than a biographer commissioned to write the life of someone previously little known or unknown to him or her. The autobiographer has the capacity—and in the modern age almost an obligation—to bring before us facts about himself or herself that no biographer could expect to discover. The evolution of autobiography has been toward an ever-greater confidentiality, with the consequence that modern readers demand revelations of the author's inner life and an ever-increasing candor, these now being seen as the specific inducements of the genre.

Unlike a DIARY or journal, an autobiography is reflective, written some time after the events it is recalling. It may well be based on written records made at the time of those events, but turning this topical record into an autobiography is a work of literary composition in which the contemporary record will be quite recast. Similarly, autobiography may be broadly distinguished from memoirs as being more concerned with the private, emotional, and intellectual life of the author rather than with his or her public activities. The great many so-called autobiographies written—or, in the past fifty or sixty years, more often ghostwritten—by famous public figures, athletes, actors, and politicians are conspicuously free from any revealing engagement with the subject's developing inner self.

If autobiography is bordered on one side by these less "literary" forms of commemorative writing, it is bordered on the other by the fully literary form of FICTION. Autobiography approximates fiction not in its content but in its NARRATIVE form. The most common form for an autobiography to take is that of a story, beginning with the author's birth or earliest memories and leading on to some appropriate end point, which may be the present moment or alternatively some conclusive landmark in the autobiographer's earlier life. But stories are not always felt by readers to be true; by adopting the narrative form the autobiographer risks the wholesale distortion of his or her life as it has actually been, since few of us experience our lives as the purposeful, causal sequence that any narrative is bound to impose on the past. This powerful element of literary artifice will seem to some to endanger the genre's reputation for complete authenticity, and in the latter part of the twentieth century a certain experimentalism has come into the writing of autobiography, whereby the narrative model is played down and the sequence of the work is determined more by the sequence in which the author remembers the past in the act of writing.

Historical development. The German scholar Georg Misch traces the origins of autobiography back even beyond the literature of Greece and Rome to commemorative practices in ancient Egypt, where the tombs of dead rulers were furnished with brief accounts of the achievements of their reigns. These accounts might be written in the first person, as if they were autobiographical, even though in fact their form was purely conventional and they were composed after the ruler's death. Such inscriptions introduce, at the outset, a principal motive in the writing of autobiography, which is to achieve a certain immortality by leaving a permanent—and flattering—trace of a particular life.

The emergence of autobiography as a literary form goes hand in hand with the slow emergence in the philosophy and literature of Greece and Rome of a sense of individuality. The first "conscious and deliberate literary autobiography," according to Misch, was the so-called *Antidosis* of the Athenian publicist Isocrates, published in 353 B.C.E., which takes the form of an imaginary speech made in his own defense in a court of law (a reminder of the rhetorical function active in all autobiography; see RHETORIC). Later, Roman literature produced such proto-autobiographical works as the letters of CICERO (see LETTER) or the *Meditations* of the emperor Marcus Aurelius.

The first recognizably modern autobiography is the *Confessions* of St. Augustine, written at the end of the fourth century C.E. when its author was the Christian bishop of Hippo in North Africa. The *Confessions* have a new unity of both form and purpose. They are narrative, insofar as they recount the story of Augustine's conversion from paganism to Christianity; they are confessional, revealing certain private facts about his life that we could not otherwise have learned and that do not necessarily do him credit (a famous episode concerns his stealing pears from an orchard as a boy); and they are exemplary, because this is a spiritual leader's account offered for the edification and encouragement of others.

It was in Italy during the RENAISSANCE that autobiography came at last into its own. Two great poets had shown the way: Dante Alighieri in the *Vita Nuova* (1295) and Petrarch in *The Secret* (1358), in which he analyzes his own nature in the form of an imaginary dialogue with St. Augustine. Later came the *Life* of the sixteenth-century sculptor, goldsmith, and bravo Benvenuto Cellini, a most competitive and vainglorious figure whose autobiography is prized for its reckless but revealing incredibility. Contemporary with Cellini was Girolamo Cardano, physician, mathematician, and gambler, whose *Life* is more sympathetic for containing, in a very capricious sequence, accounts of its author's failings, afflictions, and neuroses as well as his successes in life.

If, in autobiographies such as Cellini's, simple vanity appears to be the author's principal inspiration, in the seventeenth century a more complex, spiritual motive was introduced into the genre, reminiscent of Augustine. This was the desire, among Protestant writers, to produce accounts of their religious experience and publicly to examine their conscience. John Bunyan's *Grace Abounding to the Chief of Sinners* (1666) is an example of this peculiarly intense kind of autobiography, telling in a biblical and hortatory language of how he came to find salvation in the Christian doctrine.

In the following century it was another Protestant author who wrote what remains perhaps the most remarkable single work of autobiography: Jean-Jacques Rousseau, whose *Confessions* were published only after his death in 1778, instituting the great age of romantic autobiography in Europe (see ROMANTICISM). After Rousseau it no longer seemed as indecorous or egocentric as it once had to write at length about oneself, or to reveal episodes of one's past or aspects of one's nature that urbane autobiographers earlier in the eighteenth century would not have thought of including. Romantic views of the singularity and importance of the "poetic" intelligence produced much fervent autobiographical writing throughout the nineteenth century (see AUTHORSHIP). Notable works were produced by the German poet Johann Wolfgang von Goethe, by the French writer Stendhal, and by the English philosopher John Stuart Mill, among others. Such works may be read as monuments to an age of confident and ambitious individualism, the tone of which began to change in the twentieth century.

Changing face of autobiography. The great influence on the writing of autobiography in the twentieth century has been the development of PSYCHOANALYSIS and the theories of SIGMUND FREUD concerning the influence of early experience on human lives. Authors and readers alike have come to expect in autobiography a greater concentration on childhood and the exploration of past events. The modern autobiographer is often likely to start writing in a more consciously exploratory frame of mind than would have been the case a hundred years ago, in the hope of being surprised and enlightened by recollection. The writing of autobiography has assumed a more or less therapeutic role in the life of the autobiographer, closer to the role it has always had in the lives of those who like to read the autobiographies of others.

Autobiography exists less to bring back certain moments of the past as they were experienced at the time than to communicate to us the autobiographer's present, and thus constantly shifting, perspective on his or her past. The approximation to the forms and devices of fiction, which autobiography can never

avoid, does not mean that those who read autobiographies must become skeptical about their claims to being always true; everything that they contain is autobiographical, whether or not it corresponds with the historical facts. Autobiography is a form of literature and a form of words; life is neither. Autobiography transforms life, endowing it with a pattern and consistency that as readers we find reassuring. Autobiography makes life meaningful by offering us the example of a life narrated or otherwise made sense of. It uses certain literary conventions for persuasive ends in demonstrating that our own life too is susceptible of such retrospective reordering.

Bibliography. Jerome Hamilton Buckley, *The Turning Key: Autobiography and the Subjective Impulse since 1800*, Cambridge, Mass., and London, 1984; Philippe Lejeune, *Le pacte autobiographique*, Paris, 1975; Georg Misch, *A History of Autobiography in Antiquity* (Geschichte der Autobiographie), 2 vols., trans. by E. W. Dicks, with the author, London, 1950; James Olney, *Metaphors of Self: The Meaning of Autobiography*, Princeton, N.J., 1972; William C. Spengemann, *The Forms of Autobiography: Episodes in the History of the Literary Genre*, New Haven, Conn., and London, 1980; Karl J. Weintraub, *The Value of the Individual: Self and Circumstance in Autobiography*, Chicago, 1978.

JOHN STURROCK

AVANT-GARDE

The term *avant-garde* (French for "advance guard") is military in origin but was popularized in the aftermath of the French Revolution as a figurative expression for political vanguards. In contrast to its later reference to iconoclastic and subversive cultural activities, the term was originally used in the Enlightenment context of reformist philosophies of history to refer to the cultural elites, the advance guard of progress endeavoring to organize a better society. Only since the last quarter of the nineteenth century has the term come to signify artists' iconoclastic defiance of linguistic or formal conventions, a development reflecting major changes in the function of ART in modern societies.

The current iconoclastic meaning of *avant-garde* emerged during the 1880s and 1890s when the CULTURE industry exploded in the West and when derogatory labels for art with a mass appeal (especially the term *kitsch*) were coined and gained ground in aesthetic theory and elitist cultural politics (see AESTHETICS). In (social) modernity and (cultural) modernism, concepts signifying "high" and "low" art are interdependent; the very meaning of each term depends on its opposite (see TASTE CULTURES). The increasing currency of dichotomous labels such as "avant-garde" and "kitsch" reflects a breakdown in

the social function of art as envisioned by the Enlightenment and its ideological heirs, a breakdown conditioned by consumer culture. Artists began reacting against an emergent consumer culture as early as the late eighteenth century, especially in early German ROMANTICISM, which can be called the first modernist movement in art history. This reaction was strongest, however, between 1890 and 1930, a period of particularly radical experimentation with iconoclastic and hermetic forms. These four decades, which theorist Peter Bürger has termed the historical avant-garde, brought forth a wealth of avant-gardist movements, including futurism, cubism, EXPRESSIONISM, dadaism, Russian constructivism, and surrealism, the latter representing a culmination in the history of avant-garde movements.

Critics have argued that the historical avant-garde was an exclusively European event, whereas the postmodernist movement of the 1960s and 1970s was an exclusively North American phenomenon. The historical avant-garde was indeed concentrated in Europe, especially in France, Germany, Russia, and, for a short time, Switzerland. Postmodernism developed in the United States, where the term was first introduced around 1960. Yet the two movements are similar in their reaction to qualitative changes in the circulation of signs within consumer capitalism and to the defusing effect that the institutionalization of art had on the arts' critical content. The differences between the two movements are due to a sixty-year interval in the development of consumer capitalism. Nevertheless, historically and aesthetically the two phenomena clearly belong together. Even the intellectual roots of so-called poststructuralism, the major philosophical influence on Western intellectual activity of the late twentieth century, can be traced back to the avant-garde movements of the 1920s, particularly to the influence of French novelist and philosopher Georges Bataille and French dramatist and poet Antonin Artaud (see STRUCTURALISM).

Theoretical Approaches

Academic studies of the avant-garde employ two distinct conceptual approaches. The first tends to emphasize the linguistic or formal radicalism of the avant-garde's artistic practice and investigates the epistemological and sociohistorical reasons underlying its iconoclasm. The second approach focuses on the avant-garde's attack on the institution of art as a whole—its attempt to alter the function of art in modern societies—and, similarly, seeks to uncover the epistemological and sociohistorical reasons underlying this interest. It stresses the avant-garde's attempts to overcome or at least rupture the institutionalization of art as a separate, autonomous social sphere. These approaches are exemplified by two

studies: Renato Poggioli's *The Theory of the Avant-Garde* (1962) and Bürger's *Theory of the Avant-Garde* (1974).

Art and cultural renewal. According to Poggioli, linguistic hermeticism, "one of the avant-garde's most important characteristics of form and style," was designed to serve "as a corrective to the linguistic corruption characteristic of any mass culture." Linguistic hermeticism and poetic obscurity aim "at creating a treasure trove of new meanings within the poverty of common language, a game of multiple, diverse, and opposing meanings." There is indeed sufficient evidence in the history of the arts from romanticism through postmodernism to support the statement that modern artists share a preoccupation with the commodification of LANGUAGE and the resultant erosion of its expressive potential. Many modern artists see cognitive as well as linguistic atrophy induced by consumer capitalism. Thus the avant-garde's use of innovative techniques is founded on epistemological premises and cannot be ascribed simply to what U.S. art critic Harold Rosenberg called "a tradition of the new." The avant-garde does not consider language (or any other artistic material) a neutral tool that can be utilized for mimetic purposes without affecting the content of human PERCEPTION; rather, it sees language as a medium whose constitutive effect on human COGNITION cannot be erased. The avant-garde attempts to employ linguistic techniques in ways that help to reestablish critical, reflexive (imaginative, nonlogocentric) reasoning in society.

Increasingly, however, the emphasis has shifted from questions of linguistic or formal renewal, of the replacement of worn-out stereotypes with fresh expressions, to an awareness of the epistemological inadequacy of simply renewing language and to strategies whose intent is to deconstruct rather than replace established linguistic patterns of perception. Theories such as Poggioli's that overlook this shift encounter difficulties in accounting for qualitative differences between, for instance, late-nineteenth-century aestheticism and the historical avant-garde. In addition, theories emphasizing iconoclasm as the germinal feature of the avant-garde often fail to consider another fundamental obstacle to the ability of art to renew languages and forms outside its own sphere—namely, the modern institutional separation of the aesthetic from the political and economic. This institutional and, ultimately, functional separation may well preclude the ability of avant-garde works substantially to affect other activities. If, as has been convincingly argued by theorists such as MAX WEBER, social interaction and individual consciousness are indeed differentiated in terms of practices or activities (economic, moral, political, aesthetic), then a MODE of thinking or speaking in one realm may have no

effect whatever on other realms. Furthermore, it is possible that contradictions between modes of expression and action are not experienced as such so long as an institutional framework keeps those modes apart. A radical mode of expression, thought, or activity in the aesthetic realm might simply compensate for its lack in other spheres of life. A formally radical artistic practice, in other words, can easily fit within the compensatory function of the aesthetic in society.

In addition to linguistic atrophy, the avant-garde fears psychological atrophy. It sees any postulation of a moral or normative effect of art as leading inevitably to psychic atrophy because any mimetic representation of life has to accept the established rules in order to achieve its desired effects. Therefore the avant-garde artist is not interested in restoring or revising identities but in producing difference. French poet André Breton, for example, worked toward "a future resolution of . . . dream and reality, which are seemingly so contradictory, into a kind of absolute reality, a *surreality*," while never suppressing the idiosyncrasy of each individual's dream state. The utopian ideal of a "surreality" remains opposed to the reformist tradition of the European Enlightenment and in accordance with an anarchistic concept of change insofar as it envisions a resolution that cannot grow out of the existing state of affairs: it presupposes a breakdown of modernity's organizational demarcations.

Although their expression is perhaps most extreme in avant-garde movements, none of these features is unique to the avant-garde. From romanticism on, with a few exceptions in nineteenth-century REALISM, the thrust of high art has been its adversarial relation to society in terms of both content and form. Underlying this tension is a pessimistic analysis of modernity culminating in the assertion that nonutilitarian, reflective thinking is increasingly sacrificed to an instrumental rationality that focuses on the human capacity to exploit nature and to make life more comfortable. A theory of the avant-garde that overemphasizes art's adversarial relation to society and its consequences for artistic forms runs the risk of blurring the distinctions between artistic movements from romanticism through postmodernism. This is where the second approach to the phenomenon of the avant-garde can offer a corrective understanding.

Art as autonomous institution. Bürger sets forth a Hegelian conception of art history in bourgeois society whose starting point is the peculiar tension within emergent bourgeois art between social concerns on the level of content (heteronomy) and separateness from society on the level of form (autonomy). Form includes the ways in which people's interactions with art are institutionalized in society. Art is invested with the specialized function of serving hu-

manity's expressive needs in areas alien to and increasingly removed from rationalized realms of life. Thus its autonomy is the necessary result of the division of labor in capitalist societies.

The functional specialization of the arts gradually penetrated the very contents of the arts as the arts began to reflect their altered status in society. Although artists adhered to and participated in the development of the political ideals of wholeness, harmony, and community—both on the level of content, which often anticipated the golden age of true harmony, and on the level of form in the individual work of art—the institution of art was marginalized in bourgeois society as a recreational and compensatory sphere. As artists experienced the futility of their moral interventions, they began to see art's autonomous status as problematic. Art's social content began to be supplanted by the preferred content of reflecting on its form. According to Bürger, the history of art from romanticism through aestheticism can best be described as a gradual transformation of form into content. The historical avant-garde reacted to the futility of aestheticism's self-reflexive formal concerns by attacking the very institutionalization of art in bourgeois society. The avant-garde is seen in this approach as the first movement that tried to escape the developmental logic of the bourgeois institution of art by destroying or transforming it.

It is clear from an examination of both approaches to the avant-garde that an adequate theory must take into account the avant-garde's concern with both the institutional separation of art in bourgeois society and the commodification of language. Both issues address the fact that human cognition is not simply influenced but is actually constituted by established differential systems, for the system of separate institutions created by the differentiation of modern societies into functionally separate realms is as much a semiotic phenomenon as is the differential system of language (see SEMIOTICS). The avant-garde's epistemological concern with language is therefore not independent of its equally epistemological concern with institutions.

Modernism. Any theory of the avant-garde and postmodernism must come to terms with the basic difference between these movements and modernism. The modernist gesture of *épater les bourgeois* ("shock the middle classes") claims to criticize society from a detached, intellectual point of view. Modernists reject the revisionist optimism of the Enlightenment, yet the lack of a teleological philosophy of history does not affect the rigor and epistemological self-confidence with which they critique society. Modernism claims that the artist can inhabit a place outside society and its established discourses; modernism thus perceives itself as its own agent of linguistic and perceptual renewal. Modernism attacks modernity

without reflecting on how this critique is defused by the autonomous institutionalization of its own artistic practice. Modernism, then, is the cultural complement of social modernity that cannot, however, understand its own position within modernity.

Unlike modernism, the avant-garde and its postmodern successors radically challenge the legitimacy of the organizational demarcations constituting modernity. Furthermore, the avant-garde doubts the existence of an epistemologically stable and independent vantage point from which to launch an affirmative, productive critique of society leading to meaningful reforms. A revisionist critique of established linguistic and institutional boundaries in bourgeois society always presupposes that language, logical categories, figures of thought, and disciplines exist outside and independent of history and society; that is, they are neutral tools that can be utilized for various critical purposes without affecting the nature of those purposes. Because modernism shares such epistemological premises, they offer an appropriate category by which to distinguish between modernism and the avant-garde/postmodernism. The avant-garde and postmodernism attempt to be critically effective from within established boundaries by deconstructing these boundaries. They seek to create a space from which, however fleetingly, a reflection of modernity undetermined by its established demarcations becomes possible. From the perspective of an affirmative (neo-Enlightenment) philosophy of modernity, attempts by the avant-garde and postmodernism to break down the institutional boundaries of modernity by celebrating and freeing untamed human energies (imagination, desire, madness, intensity) are bound to result in an unreflected anarchism that will destroy historical achievements without offering a substitute. Poststructuralism and postmodernism are in this view variants of the same cultural movement.

Postmodernism. Discussion of the historical avant-garde is inseparable from that of so-called postmodernism. French theorist Jean-François Lyotard sees postmodernism as a trans-avant-gardism. The justification for such a label is the premises shared by the historical avant-garde and contemporary postmodernism, the most important being that both movements see the status of art in modern societies as radically problematic. The concept of the sublime that figures most prominently in Lyotard's theory of postmodernity (as in this context gained renewed importance. Lyotard notes that Immanuel Kant's aesthetic theory revolves, as do most Enlightenment theories, around the notion of community. Kant circumscribes the aesthetic as the presentation of a utopian projection of an ideal society, the only possible contemporary representation of that ideal (*see* UTOPIAS). Emphasizing that "an Idea in general has no presentation," Lyotard foregrounds a tension be-

tween a "real" and a "promise" in all representations of an ideal. This gap or tension, which Lyotard sees as constitutive of postmodernism, is for him the site of the sublime. By highlighting the gap, postmodernism questions the very possibility of representing the utopian in art. Lyotard's theory of the sublime is therefore the philosophical precipitate of postmodernism's intent to call into question the aesthetic and social project of modernity. The insistence on the sublime nature of all artistic representation is designed to remove art, at least perceptually, from its self-inflicted linguistic and institutional closure.

From the perspective of cultural politics—a perspective that lies at the very core of the avant-garde and postmodernism—the question remains whether a cultural project intending to lead art back into life is not subject to misuses that threaten its very legitimacy. Bürger maintains that the avant-garde failed in its attempt to sublimate art and life in a new mode of praxis. But how is this failure to be assessed, and what are its consequences for contemporary cultural politics? The historical existence of false sublations—such as those noted by Andreas Huyssen "in fascism with its aestheticization of politics, in Western mass culture with its fictionalization of reality, and in socialist realism with its claim of reality status for its fictions"—forces later cultural movements to rethink and refine the avant-garde project.

The avant-garde's failure leads Bürger to the conclusion that critics and artists should revive the notion and practice of autonomous art and, as agents of a cultural politics, should defend art's autonomy. Such a suggestion is both nostalgic and historically impossible because it pleads for a return to traditional spatial and temporal differentiations that have been irretrievably altered or lost in postmodern societies. Moreover, it contradicts the very functionalist arguments that were its point of departure. The cultural revolution of the late 1960s and 1970s consisted, in part, of a reorganization of spatial and temporal boundaries in which demarcations between the aesthetic, public, and private spheres became blurred. One result has been that aesthetic pleasure as a publicly institutionalized activity, particularly when such activity is mediated and supported by electronic media, has become a functionally differentiated social subsystem of experiences that is no longer restricted to a functionally differentiated space. The all-pervasive presence of music in public places and the penetration of the landscape by advertising images serve as examples.

This collapse of the spatial differentiation of public spheres seems to be connected with the simultaneous replacement of actual with imaginary spaces, a process contributing, in turn, to an aestheticization of public spheres. The aestheticization of politics discussed by WALTER BENJAMIN in reference to Nazi

mass rallies was by no means peculiar to Fascist societies; rather, a general aestheticization of politics seems to be one of the major effects of electronic media on social interaction. The aestheticization of the public sphere through the electronic media has led both to an erosion of moral-political discourse and to the proliferation of unconnected images. One effect of this proliferation has been the undermining of the relationship between the symbolic and the event, the image and the real. According to French theorist Jean Baudrillard, the contemporary condition is such that phenomena have lost or are in the process of losing their referential dimension. They are becoming effects of signification, that is, the reality of phenomena is increasingly grasped as a product of the structural codes organizing its perception (see CODE; SIGN). As he asserts, "All media and the official news service only exist to maintain the illusion of actuality—of the reality of the stakes, of the objectivity of the facts."

The modernist claim of resisting modernity, most pronounced in THEODOR ADORNO's theory of modernism, presupposes a mode of socialization that allows intellectuals to turn themselves into resilient, fortified entities. But if one's perspective is already informed by the circulation of images, then one cannot criticize society from a secured epistemological position outside those signs. The circulation of signs can be undercut only from a position within it. This may be why postmodern art at times seems more concerned with the parodic undercutting of signifying practices than with critical reflections on the institutional status of art in society. Both the historical avant-garde and postmodernism broke with the referential mimetic aesthetic of modernism. Yet the breakdown of institutional boundaries, which finds its most obvious example in the aestheticization of politics, has gradually rendered obsolete the avant-garde's attack on the institution of art; reality has surpassed the historical precondition for that attack.

The avant-garde's break with a referential mimetic aesthetic was motivated by the possibility of an innovative, unfettered reconnection of sign and object; postmodernism's break, by an ostensibly subversive replacing of sign with sign. Whereas the avant-garde resulted in a false sublation of the art/life dichotomy, the postmodern project has led to an ornamentalism in the style of pop art that accepts the inevitability of art's status and its compensatory function. Thus the most pressing question of a contemporary cultural politics may be whether the legacy of an avant-garde whose aim was to short-circuit signs and events that enable a working through of social experience has indeed been rendered obsolete.

See also AVANT-GARDE FILM; IDEOLOGY; VISUAL IMAGE.

Bibliography. Peter Bürger, *Theory of the Avant-Garde* (Theorie der Avantgarde), trans. by Michael Shaw, Minneapolis, Minn., 1984; Linda Hutcheon, *A Theory of Parody: The Teachings of Twentieth-Century Art Forms*, New York, 1985; Andreas Huyssen, *After the Great Divide: Modernism, Mass Culture, Postmodernism*, Bloomington, Ind., 1986; Jean-François Lyotard, *The Post-Modern Condition: A Report on Knowledge* (La condition postmoderne), trans. by Geoff Bennington and Brian Massumi, Minneapolis, Minn., 1984; Renato Poggioli, *The Theory of the Avant-Garde* (Teoria dell'arte d'avanguardia), trans. by Gerald Fitzgerald, Cambridge, Mass., 1968; Charles Russell, *Poets, Prophets, and Revolutionaries: The Literary Avant-Garde from Rimbaud through Postmodernism*, New York, 1985; Jochen Schulte-Sasse, ed., "Modernity and Modernism, Postmodernity and Postmodernism" (special issue), *Cultural Critique* 5, 1987; John Weightman, *The Concept of the Avant-Garde: Explorations in Modernism*, LaSalle, Ill., and London, 1973.

JOCHEN SCHULTE-SASSE

AVANT-GARDE FILM

An international movement of aesthetic iconoclasts whose works proclaim new modes of representation and NARRATIVE. Their existence reflects the conflict between dominant and emerging form-content codes by which the arts evolve. In film, alongside the dominant HOLLYWOOD code (conventional narrative and pseudorealism reflecting nineteenth-century storytelling norms), there exist alternative trends that parallel developments in other twentieth-century arts.

If the arts represent systems of messages, particular message systems are relevant to particular audiences—in film, a mass audience for Hollywood, a specialized audience for the AVANT-GARDE. In both cases, the messages (delivered by illusory images in illusory motion) are the fantasies, nightmares, and myths of the particular group. The transmission of meaning occurs in both content and form.

Characteristics. The parameters of opposition between the dominant Hollywood CODE and the avant-garde are clearly drawn. Most or all of the following attributes are characteristic of avant-garde films:

- The emphasis is on film as a visual rather than a storytelling medium. The VISUAL IMAGE is viewed as an active process, not as a dead record.
- The avant-garde film is made not by a committee or a team hired for the occasion by a third party but by one individual who almost always also photographs and edits it. The film is not tailored to a market for profit purposes but results from a desire for self-expression.



Figure 1. (*Avant-Garde Film*) Luis Buñuel *L'âge d'or*, 1930. The Museum of Modern Art/Film Stills Archive.



Figure 2. (*Avant-Garde Film*) Sergei Eisenstein, *Stachka (Strike)*, 1925. National Film Archive, London/Sovexport.

- The “REALISM” of the commercial cinema is unmasked as neither a self-evident, ordained mode of expression nor a true rendition of reality; its seeming transparency appears fraudulent to the legatees of SIGMUND FREUD, KARL MARX, and others who have shown hidden texts underlying the “commonsense” readings of self and society. Realism is viewed merely as one possible system of representation, as much a construct as any other.
- The conventional, straightforward narrative of Hollywood is attenuated or destroyed, its horizontal progression from inception to closure superseded by vertical exploration of states of mind, atmosphere, interior universe, and the nature of film itself. Discontinuity, ellipsis, ambiguity, and aleatory elements abound—in short, a development paralleling modernism in the other arts.
- Space and time are no longer seen as separate but as a continuum; absolute space and time have disappeared. Time and space are manipulated or shattered, telescoped or expanded.
- The illusory nature of film, so carefully masked by Hollywood, is explicitly undermined by a strongly anti-illusionist stance: “This is a film, a made object.” By the subverting of this hitherto unquestioned, invisible code, its underlying system of meaning-making is revealed. Thus, editing and camerawork are overt and intrusive instead of invisible; conventional punctuation and composition, insistence on “cutting on movement” or establishing direction are eliminated.
- There is a stress on improvisation and lack of polish, seen as expressions of a new artistic freedom and casualness.
- Themes are often subversive, reaching beyond the commonly accepted for the taboo. Shock is viewed



Figure 3. (*Avant-Garde Film*) Maya Deren, *Meshes of the Afternoon*, 1943. Courtesy of the Amos Vogel Collection.

as a basic tool for heightening awareness. The on-screen splitting of an eyeball in the first scene of LUIS BUÑUEL'S *Un chien Andalou* (1929)—suggesting that the old vision must be destroyed before the new one can come in—is the prototypical image of the avant-garde. The shock of the unfamiliar and the violation of conventional narratives are seen as breakthroughs to new codes.

The confluence of these attributes makes it apparent that the film avant-garde is an inextricable part



Figure 4. (*Avant-Garde Film*) James Broughton, *The Bed*, 1967. Courtesy of the Amos Vogel Collection.

of the modernist impulse in the arts. Each of the modernist schools—from surrealism to abstraction, EXPRESSIONISM to cubism, dada to pop—finds its counterpart here.

Evolution and classification. The beginnings of the avant-garde movement date back to the enormously fertile period of its first wave (1919–1930), which sprang up in various parts of Europe: in France, with Louis Delluc, Jean Epstein, Germaine Dulac, Man Ray, Fernand Léger, Marcel Duchamp, Buñuel, and Salvador Dalí; in Germany, with Viking Eggeling, Hans Richter, Walther Ruttmann, and Oskar Fischinger; and in the USSR, an early center of FILM THEORY and experimentation, with SERGEI EISENSTEIN, V. I. Pudovkin, DZIGA VERTOV, Aleksandr Dovzhenko, and Lev Kuleshov. During the 1930s, German fascism, Joseph Stalin's counterrevolution, and growing international tension inhibited the avant-garde. From the 1940s on, its center shifted decisively to the United States, where a second wave of the avant-garde reached its peak during the 1950s and 1960s, contributing in turn to a new European avant-garde surge and to a parallel movement in Japan.

Two main lines of development are discernible in the movement from its inception: a psychoanalytically influenced subjective-film tendency, an outgrowth of surrealism, expressionism, and dada; and a film-as-film tendency, grounded in abstract art, cubism, constructivism, futurism, and minimalism.

Subjective film includes emotive-expressive works of dream or trance states, myths (personal or collective), self-revelation, and the unconscious; they are



Figure 5. (*Avant-Garde Film*) Dusan Makavejev, *WR—Misterije Organizma* (WR—Mysteries of the Organism), 1971. The Museum of Modern Art/Film Stills Archive.

commonly symbolic, expressionist, surrealist, psychedelic, or metaphysical. Pioneers in the subjective film field were Maya Deren, Sidney Peterson, James Broughton, and Stan Brakhage in the United States; Dulac, Abel Gance, and Philippe Garrel in Europe.

Film-as-film extends from abstract to structural works. Abstract films feature rhythmically structured configurations of geometric or nonfigurative shapes and colors, offering an emotion, if not a narrative. Structural films dismantle the medium itself, exploring its very materiality (light, rhythm, projection,

and image sequence). Here films no longer exist in the service of something else (the narrative), but for themselves.

While subjective film continues to use narratives, albeit modernist ones, the film-as-film tendency rejects narrative entirely. Both trends are synchronous in time, though the period from the 1920s to the late 1960s was mainly stamped by the subjective trend, with film-as-film in steady ascendancy since then. Early catalysts in this field were James and John Whitney, Robert Breer, Andy Warhol, Michael Snow, and Hollis Frampton in the United States; Eggeling, Man Ray, and Malcolm Le Grice in Europe.

Still another group bridges the two major avant-garde tendencies. Its members include collage artists, such as Bruce Conner and Stan Vanderbeek in the United States, and the directors of mixed-media presentations, filmic happenings, multiple projections, and light shows.

At various times there has also existed a semi-avant-garde in the commercial cinema, whose pioneering in form and content has been of great

significance. Contributors to this movement have been Carl Theodor Dreyer in Denmark; Jean Cocteau, Robert Bresson, Jean-Luc Godard, and Alain Resnais in France; ORSON WELLES in the United States; Michelangelo Antonioni in Italy; Nagisa Oshima in Japan; Roman Polanski in Poland; Dusan Makavejev in Yugoslavia; Ranier Werner Fassbinder and Werner Herzog in the Federal Republic of Germany; and Sergei Paradzhanov and Andrei Tarkovsky in the Soviet Union.

Social position and role. Though the avant-garde attempts to set itself against the culture industry and, in fact, propounds a countermessage—in the 1960s, one reflecting oppositional lifestyles and world-views—it has always remained tied to society. The first wave of the avant-garde was ideologically linked to the rise of the socialist and anarchist movements, sharing the common goal of total social transformation, with art to serve as a means of changing consciousness. In the second wave, these radical impulses were attenuated with the decline of radical politics. They flared briefly during the youth move-



Figure 6. (*Avant-Garde Film*) René Clair, *Entr'acte*, 1924. Courtesy of the Amos Vogel Collection.

ment of the 1960s, but in the following decades they rarely made large claims regarding sociopolitical intentions or effects.

Significantly, the avant-garde appears to be concentrated largely in technologically advanced, affluent societies. Here its creations are in constant danger of becoming commodities (if found sufficiently marketable) or of being shunted to the sidelines by mass culture. The avant-garde has had its own showcases, critics, magazines, distribution collectives, archives, and festivals—but this autonomy may cloak its social ineffectuality.

It can be argued that the ever-growing power of the culture industry has signified some neutralization of the avant-garde's radical impulse. Shock need not be merely an avant-garde technique but can be domesticated by being expected, as in popular adventure or horror films. Staccato editing, fluid camera movements, and attenuated narratives can also be found in music videos, station breaks, and COMMERCIALS.

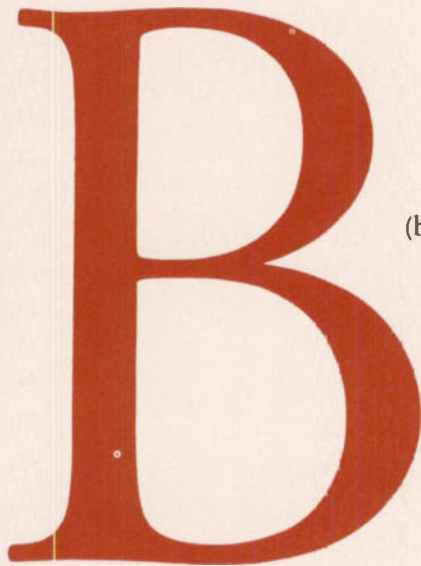
The emergence of cheaper, more mobile VIDEO cameras, the growth of the videocassette recorder market, and even the success of music videos as a

format will undoubtedly contribute to the rise of new avant-garde talents. It is safe to surmise, however, that they will remain outsiders, given the growing domination of new cable and satellite markets by large corporate structures. Yet the avant-garde's delight in the unpredictable, its insistence on the deconstruction of ossified codes, its probing of the unacceptable, signify gestures of freedom in an increasingly commercialized cinema.

See also CINEMATOGRAPHY; FILM EDITING; SPECIAL EFFECTS.

Bibliography. Peter Bürger, *Theory of the Avant-Garde* (Theorie der Avantgarde), trans. by Michael Shaw, Minneapolis, Minn., 1984; David Curtis, *Experimental Cinema*, London, 1971; Renato Poggioli, *The Theory of the Avant-Garde* (Teoria dell'arte d'avanguardia), trans. by Gerald Fitzgerald, Cambridge, Mass., 1968; Hans Scheufl and Ernst Schmidt, *Eine Subgeschichte des Filmes*, Frankfurt am Main, 1974; P. Adams Sitney, ed., *The Avant-Garde Film*, New York, 1978; Parker Tyler, *Underground Film*, New York, 1969; Amos Vogel, *Film as a Subversive Art*, New York, 1974.

AMOS VOGEL

A large, bold, red capital letter 'B' is positioned on the left side of the page. It has a classic, slightly stylized font with a thick stroke and a slight shadow effect.

(*bī*), the second letter of the Roman alphabet, ancient and modern, corresponding in position and power to the Greek *beta* and Phœnician and Hebrew *beth*, whence also its form is derived; representing the sonant labial mute, or lip-voice stop consonant. The plural has been written *Bees*, *B's*, *Bs*. . . . Used, like the other letters of the alphabet, . . . to indicate serial order, with the value of *second*. . . .

BABBAGE, CHARLES (1792–1871)

English mathematician, scientist, and early experimenter with calculating machines. The son of a wealthy banker, Charles Babbage was educated at home and at Enfield before entering Cambridge University. A mathematical prodigy, he found that his knowledge of mathematics exceeded that of his Cambridge tutors. After graduation he pursued investigations into such diverse topics as actuarial tables, life insurance, lighthouse occultation, machine tools, lock picking, organ-grinding, and operations research.

Babbage is best known, however, for his work on computation by machine; his "difference engine" and "analytical engine" prefigured twentieth-century computers (*see* COMPUTER: HISTORY). While a student at Cambridge, he was frustrated by inaccuracies he discovered in mathematical tables and wondered whether calculations of trigonometric functions could be generated by a machine driven by steam. By 1820 he had roughed out a design for his difference engine and had constructed a small working model, consisting of eighteen gear wheels and three axes, with which he could calculate squares of successive numbers. His design was enthusiastically approved, and he received a promise of assistance from the Exchequer. He established a workshop in London and

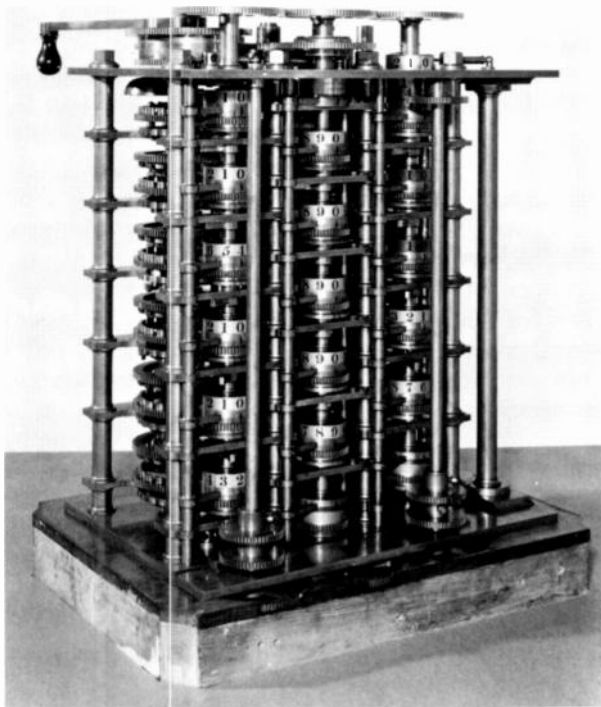


Figure 1. (Babbage, Charles) A portion of Charles Babbage's Difference Engine Number 1. Trustees of the Science Museum, London.

hired technicians to build his machine, but almost at once ideas for improving the machine's capacity filled his mind and outstripped both his funds and the capacities of the machine shops of his day. He hoped to build a difference engine that would produce differences of the sixth order to twenty decimal places. Work on it had begun when Babbage became interested in an even grander scheme, an analytical engine that would perform arithmetic operations on any of 1,000 fifty-digit decimal numbers. This machine was to be actuated by two sets of punched cards (modeled on those developed by the French inventor Joseph-Marie Jacquard for looms)—one set containing the program, the other containing data—and would incorporate a device to record its results on copper printing plates.

An important supporter of Babbage was Augusta Ada Lovelace (the daughter of the English poet Lord Byron), who translated and added explanatory notes to an Italian article on Babbage's analytical machine. When it was published in 1843, this translation was the only English-language description of Babbage's machine. Her contributions to the computer model were deemed significant enough that a computer language, Ada, was named for her.

Because of wavering support from the Exchequer and squabbles with workers, Babbage's engines were never completed. However, the soundness of his concepts was demonstrated when a Swedish engineer, working from a description in the *Edinburgh Review* of Babbage's difference engine, built a difference calculator that was in operation for many years.

Babbage's work foreshadowed the development of computers more than a century later, incorporating many of the principles—punched cards, separate entry of data and program, retention by the machine of previous calculations for use in future calculations—that were to be used in computers.

See also COMPUTER: IMPACT.

Bibliography. Philip Morrison and Emily Morrison, eds., *Charles Babbage and His Calculating Engines: Selected Writings by Charles Babbage and Others*, New York, 1961; Maboth Moseley, *Irascible Genius: The Life of Charles Babbage, Inventor*, Chicago and London, 1964.

ROBERT BALAY

BAEDEKER, KARL (1801–1859)

German publisher, originator of the famous Baedeker guidebooks for travelers. Member of a bookselling and PUBLISHING family, Karl Baedeker started a bookshop of his own in 1827 in Essen, the city of his birth. He moved his business to Koblenz and in 1828 bought a small publishing house that was failing but had at least one popular book, a guide to the

Rhine. Baedeker revised it, preserving its scholarly content but making it more practical for the traveler, and issued his edition in 1835. Its success encouraged him to go further into guidebook publishing, especially as he observed growing numbers of British travelers coming to Europe with the new user-oriented guides published in English by John Murray III in London. The *Baedeker Guides*, in German, began with a completely new Rhineland book in 1839 and continued with volumes on Holland and Belgium (1840), one on Germany and the Austrian Empire (1842), and Baedeker's first spectacular success, on Switzerland (1844). Also in 1844 the guides began the practice of using one or more asterisks as a way of rating places to see, stay, and eat. The first Baedeker guides translated into other languages were issued in French in 1846; versions in English began to appear in 1861.

In prefaces to some early editions Baedeker acknowledged his borrowing of some features of the Murray guides: their size, to fit a large pocket; arrangement according to routes; and strong attention to facts bearing on the traveler's comfort. He tried to improve on these qualities, to make his books even more comprehensive, and to offer more frequently updated revisions. The Murray firm finally sold rights to its guides to another house, and in 1854 Baedeker adopted Murray's binding colors: raspberry red cloth with gold stamping.

Baedeker wrote in a crisp, unadorned style, objective yet reflecting his love for his subjects; he often added enlivening comments and included short essays by experts in special areas. Baedeker himself insisted that he would not write about things he had not actually seen. He checked and rechecked, traveled under assumed names, walked wherever possible. His life was exuberant but hard-driving, and he died at fifty-eight. Already, however, his name was becoming a term commonly used to denote reliability in guidebooks. Under one of his seven children, Fritz (1844–1925), the number and scope of the guides were greatly expanded.

By setting standards of comprehensiveness, Baedeker and his successors influenced all travel-guide publishing. This contributed to the growth of TOURISM, with its evolving role in enhancing both cultural relations and the lives of travelers.

See also LEISURE.

Bibliography. "Baedeker," *Supplement to the Oxford English Dictionary*, Vol. 1, A–G, Oxford and New York, 1972 ed.; "Federal Republic of Germany: Publishers," *International Literary Marketplace* 86–87, New York, 1986; "Karl Baedeker" (biographical note on Rhineland personalities), *Baedeker's Rhine* (Baedekers Autoführer-

Verlag), Englewood Cliffs, N.J., 1985; Herbert Warren Wind, "The House of Baedeker" (Profiles section), *The New Yorker* (Sept. 22, 1975): 42–44, 49–85, 88–93.

CHANDLER B. GRANNIS

BAKHTIN, MIKHAIL (1895–1975)

Russian literary theorist and philosopher of dialogue. Mikhail Mikhailovich Bakhtin's place in the history of communications is secured by his lifelong insistence on the central place of dialogue in human affairs.

Bakhtin completed his education as a classical scholar at Saint Petersburg University in the revolutionary year of 1918. Then, moving to the Vitebsk area, he became deeply involved in the first of several circles that were to grow up around him. The focus of this early group was recent German philosophy, especially Marburg neo-Kantianism. In 1924 Bakhtin moved back to Leningrad, living precariously for the next five years, during which he was involved with several philosophical and religious discussion groups. He managed to publish revised versions of some earlier texts, as well as a number of new works under the names of his friends and disciples P. N. Medvedev and V. N. Vološinov, including *Freudianism* (1927), *The Formal Method in Literary Scholarship* (1928), and the magisterial *Marxism and the Philosophy of Language* (1929). Later a lively debate arose concerning the authorship of these texts, but no one disputes that Bakhtin was *primus inter pares*. In 1929 he succeeded in publishing *Problems of Dostoevsky's Poetics* under his own name; in the same year he was arrested as part of a roundup of religious discussion groups. He was exiled to Kazakhstan, where he continued to research and write, particularly on the theory of the novel. During this period he produced a book on François Rabelais and the essays published in English as *The Dialogic Imagination*. After his release Bakhtin spent the years of World War II in various parts of European Russia. From 1946 until 1969 he lived and taught at the Mordovian State University in Saransk. A second edition of his Dostoyevsky book in 1963 created an enormous enthusiasm for his work that led to publication of other texts and eventual translation into several languages. He died in Moscow on March 7, 1975.

In Bakhtin's earliest, "philosophical" phase (1919–1924) he worked on a number of projects, all concerned with different aspects of what he called the "architectonics of responsibility." The general project consisted in a phenomenological description of self/other relations. Bakhtin begins by assuming that no person or thing has an existence in itself: everyone and everything is interconnected by a web of rela-

tions so vast and complex that its extent and nature can never be fully comprehended. Any appearance of closure or stoppage is therefore a fiction; not only is everything and everyone connected, but the relations holding them together are dynamic, in constant flux. For human beings this interconnectedness makes itself present as our total immersion in LANGUAGE. The word *language* as used by Bakhtin has relatively little to do with the formal constructs of GRAMMAR, syntax, or PHONOLOGY. Rather, he takes pragmatics to a radical extreme, which is why much of his work is a polemic with FERDINAND DE SAUSSURE, particularly Saussure's master distinction between *langue* and *parole*. See also LINGUISTICS; MEANING; SEMANTICS.

Saussure had ascribed a great deal of freedom to the speaker; any given SPEECH act was subject not only to the vagaries of personal differences between individuals but also to the sheer contingency of the constantly changing environment in which real-life utterances are made. He concluded that speech performance was so random that it would not lend itself to scientific study: "We cannot put [individual speech performance] into any category of human facts, for we cannot discover its unity." Bakhtin, by contrast, argues that utterance is neither random nor free; the restraints present at the abstract level of language system cannot be abrogated at the particularized level of speech performance. According to Bakhtin, "Saussure ignores the fact that besides the forms of language there exist as well forms of combination of these forms." In order further to distinguish his dialogism from the practice of linguists, Bakhtin rejects the dualistic opposition between system and performance and posits *communication*—and not language as such—as the subject of his investigations. The two basic units in the study of communication as conceived by Bakhtin are the utterance and speech genres.

Utterance is Bakhtin's overall term for a simultaneity of roles that is usually obscured by the assumption that speaking and listening are unitary, mutually opposed activities, that one does either the one or the other. Bakhtin's argument is that we do both at the same time. For example, when two persons talk, speaker listens to self and to the person speaker is addressing, and listener speaks to self and to listener's internal image of the speaker even as the speaker speaks. Utterances, in Bakhtin's terminology, enact "addressivity" (*obrashchennost'*) or the awareness of the otherness of language in general and the otherness of given dialogic partners in particular. The work of addressivity is constantly to turn a general system of language to the needs of specific experiences.

Bakhtin saw communication not only as a human

activity but as a basic feature of existence. He was intensely interested in science, and throughout his work there are suggestions that the natural world seems to be organized as a series of exchanges, responses to responses in a great dialogue of being, from the interaction between subatomic particles, between the most primitive cellular organisms and their environment, to the relation that whole solar systems bear to one another. But Bakhtin's central concern was to understand better the dialogue within the world of signs (see SIGN) rather than the world of things (although he refuses to posit a cutoff between the two)—different interacting levels between dialogue within the individual psyche at one end of the spectrum and dialogue between social classes and whole CULTURE systems at the other. Bakhtin's dialogism may be understood, then, as a particularly capacious theory of communication with procedural implications for a broad range of the human and social sciences.

See also COMMUNICATION, PHILOSOPHIES OF.

Bibliography. Mikhail Bakhtin, *The Dialogic Imagination* (Voprosy literatury i estetiki), ed. by Michael Holquist, trans. by Caryl Emerson and Michael Holquist, Austin, Tex., 1981; idem, *Problems of Dostoevsky's Poetics* (Problemy poetiki Dostoevskogo), ed. and trans. by Caryl Emerson, Minneapolis, Minn., 1984; Katerina Clark and Michael Holquist, *Mikhail Bakhtin*, Cambridge, Mass., 1984.

MICHAEL HOLQUIST

BANDWAGON EFFECTS

In ELECTION campaigns, the tendency of some voters to join the supporters of an apparently winning candidate. In PUBLIC OPINION research the term *bandwagon effects* has come to mean such a tendency brought about specifically by exposure to public opinion polls indicating that one candidate is in the lead. In this limited version, the effect has never been demonstrated. However, PAUL F. LAZARSELD and his associates showed in 1944 that *expectations* of who will win an election do influence voter preferences. Public opinion polls may therefore affect voter preferences by influencing expectations. But it is also considered possible that the votes of those who are motivated to jump on the leading candidate's bandwagon will be counteracted by the lost votes of supporters who no longer feel an incentive to vote (because they believe their vote is not needed) and by those moved to vote for an underdog.

Some evidence for *postelection* bandwagon effects comes from studies showing that after an election the preferences of those who claim to have voted go

disproportionately to the winning candidate. The following explanation has been proposed: when a particular social group is found to have voted overwhelmingly for the winning candidate, members of the group assume, after the fact, that they too voted for this candidate, even if they did not. Such bandwagon effects may thus be explained, it has been argued, in terms of *reference groups*. That is, some voters, on the basis of later information, may unconsciously adjust their recollections to conform to the voting pattern of the group with which they identify.

In recent years the term has been extended to cover the effects of election-day projections based on early returns or exit polls (polls taken as people leave the voting place). The evidence for such bandwagon effects on voter preferences has been mixed, but the hypothesis of some effect on turnout is at least tenable.

Although no evidence exists for the classic version of the bandwagon hypothesis, wide dissemination of POLL findings can have other significant effects. In the United States they have been shown to affect the flow of financial contributions as well as the attention paid to candidates by the media. Early studies of bandwagon effects were done in a very different media environment; in the 1940s, poll results were reported neither on television nor on the radio and were seen by no more than one-fifth of the public in newspapers or magazines. Whether the now widespread broadcast dissemination of poll results likewise fails to produce effects remains an open question. Polls may also affect voter preferences in more complex ways—for example, by defining which candidates are to be considered seriously. All of these potential effects are a matter of increasing public concern.

See also OPINION MEASUREMENT; PERSUASION; POLITICAL COMMUNICATION.

Bibliography. Kurt Lang and Gladys Lang, *Voting and Nonvoting*, Waltham, Mass., 1968; Paul F. Lazarsfeld, Bernard Berelson, and Hazel Gaudet, *The People's Choice* (1944), 3d ed., New York, 1968; Elizabeth Noelle-Neumann, *The Spiral of Silence*, Chicago, 1984; Percy H. Tannenbaum and Leslie J. Kostrich, *Turned-On TV/ Turned-Off Voters*, Beverly Hills, Calif., 1983.

ELEANOR SINGER

BARGAINING

A process whereby two or more interdependent parties attempt to settle their differences through an exchange of proposals and counterproposals. A number of theorists treat *negotiation* and *bargaining* as synonyms, while others define bargaining as the exchange process taking place within the act of nego-

tiation. Here negotiation and bargaining are treated as synonyms.

Characteristics of Bargaining

Five characteristics distinguish bargaining as a form of problem solving. First, bargaining is generally treated as a subset of conflict in that the parties hold or perceive that they hold *incompatible goals* or interests. Second, the two parties engaged in bargaining are *interdependent* in that one party's gain or loss depends on the other party's choices. Within a framework of competition, then, the two parties must cooperate to reach their individual goals. Each party has the power to constrain or prevent the other from attaining a goal.

The third characteristic, *social interaction*, refers to the means through which the bargaining is carried out. Interaction can be both tacit and explicit. Explicit communication consists of the messages conveyed openly between the bargainers, such as demands, concessions, and information; tacit communication refers to hints, signs, nonverbal gestures, and other indirect messages that shape interpretations of the interaction. Tacit bargaining typically accompanies explicit messages, but in conditions of low trust, bargainers might substitute tacit maneuvers for explicit communication. Fourth, bargaining occurs through an *exchange of offers and counteroffers* that represents each party's effort to find a mutually satisfactory solution. Thus proposals, concessions, and policy arguments form the substance of the interaction. Finally, bargaining is a *strategic activity* in that both parties plot moves and countermoves based on estimates of their opponents' behavior and intentions and on their system of shared rules.

Bargaining is an activity that is found in most interpersonal, intergroup, and international contexts. At the interpersonal level, bargaining undergirds buyer-seller relations, employment negotiations, reprimand situations, legal transactions, and consumer relations. Husbands and wives negotiate household chores, subordinates bargain for salary raises, and public relations personnel negotiate with media employees. At the intergroup level, negotiations take place between racial groups, organizations involved in environmental or regulatory disputes, and departments vying for scarce resources. International negotiations provide the basis for treaty formation, hostage release, and trade contracts (see also TERRORISM).

The preceding types of bargaining situations differ in terms of their overall purpose; their tasks; the number, importance, and sequencing of issues; the role of constituents; the presence of deadlines and legal constraints; and the cultural norms that govern the behavior of negotiators. Thus, communicative patterns in bargaining are different in situations with

different constraints. For example, a one-shot, one-issue negotiation without constituent representation differs in the type, amount, and sequencing of messages from a serial negotiation with constituent pressures exerted on multiple issues.

The Study of Bargaining

Historically, game theory and social exchange models have dominated research on bargaining. Game theory is derived from classical economics and assumes that bargainers are rational, want to maximize their gains and minimize their losses, have perfect knowledge of the possible outcomes and the values attached to each, and are able to calculate their relative advantage from the moves of their opponent.

Social exchange theory, a derivative of the pure game theory model, centers on the rewards and costs incurred from the bargaining exchange. Early studies on communication and bargaining employed game and social exchange models to test the impact of amount and medium of communication on bargaining outcomes. At first, researchers concluded that increased communication led to cooperative outcomes; but in highly competitive bargaining, more communication increased distortion and manipulation, which, in turn, heightened error and misunderstanding. Research also demonstrated that face-to-face interaction facilitated cooperative outcomes more frequently than did audio, video, or written modes of communication (*see* INTERACTION, FACE-TO-FACE). Thus the frequency of communication enhanced cooperative settlements only if bargainers were predisposed to be cooperative and were bargaining face-to-face.

Research on information exchange and message strategies has also adopted game theory models of bargaining. Bargainers use strategies and tactics as ways of increasing their own strength, reducing their opponents' strength, or gaining control over the negotiation context. A strategy represents the overall plan—for example, to be cooperative on problems of working conditions and to be tough on resource issues. Tactics consist of the communicative behaviors that make up a strategy, such as threats, commitments, and agreements. Bargainers reach agreements by making reciprocating concessions and by avoiding firm commitments that signal freezing into a set position. Threats and promises, while generally successful in inducing compliance, tend to intensify a conflict and make it more difficult to reach a satisfactory settlement.

Message strategies are also examined through the use of process models of communication and bargaining. Process models center on the evolution of bargaining over time. Researchers focus on behavioral patterns and regularities that indicate how bar-

gaining goals, issues, and values change through the interaction process. Unlike game theory, this perspective assumes that bargainers have minimal knowledge of alternative outcomes and rely on types and sequences of tactics to anticipate their opponents' moves.

Process theories of bargaining frame the research on conflict cycles, information management, issue development, and phase analysis. Here discourse and conversational analysis models are used to study bargaining arguments and interaction sequences (*see* CONVERSATION). Studies of conflict cycles reveal that bargainers typically balance offensive and defensive maneuvers to buffer the escalation of conflict. A pattern of matching either offensive or defensive tactics, however, frequently produces uncontrollable escalation of the conflict. One type of buffer used to reduce conflict spirals is information exchange. Questions obligate an opponent to respond, a pattern that produces an information-expansion sequence of questions and short, abrupt answers. Bargaining interaction is also controlled by shifting the claims of an argument and redefining an issue. This shift in argument occurs as negotiators begin to package agenda items, drop or simplify subissues, accent or sharpen issues, and reveal their interpretations of a problem.

The study of conflict cycles has led researchers to examine phases or stages of bargaining development. Ann Douglas in *Industrial Peacemaking* (1962) uncovered three major stages of bargaining: establishing the bargaining range, jockeying for position, and precipitating the decision-reaching crisis. Not all bargaining sessions pass through the same stages, however. Procedural restrictions and deadlines may preclude a set pattern of phasic development. A spin-off of the work on phases focuses on bargaining history and the annual recurrence of bargaining events. Some organizational researchers treat bargaining as an annual rite of conflict characterized by ritualistic behavior and stories of past negotiations that are enacted in tacit and explicit communication. These studies reveal that procedural norms, nonverbal behaviors of participants, and the historical precedent of tactics and strategies become ritualized over time and affect the bargaining settlement.

Fact Finding, Mediation, and Arbitration

When the outcome of bargaining is an impasse, the conflicting parties typically turn to third-party intervention, such as fact finders, mediators, or arbitrators. Fact finders are outsiders who are called in to examine the information presented by both parties and to uncover additional data that might help move the sides toward a settlement. Mediators are primarily facilitators who control the communication pro-

cess between the two sides. Mediators control topics of interaction, provide advice to both parties, offer proposals, and help the two parties to save face. Thus mediators function as communication counselors by clarifying and interpreting complex issues, providing background information, setting up the agenda, and focusing the interaction. Arbitrators, unlike fact finders and mediators, act as judges and have the power to make decisions. The two disputing parties typically bring final offers or argument briefs to the arbitrator, who rules in favor of one side or the other.

Communication is the essence of mediation activities, and it serves a dominant information-processing role in fact finding and arbitration. In bargaining, communication is also crucial: for information processing, PERSUASION, identification of patterns and regularities, and coordination of outcomes.

See also GROUP COMMUNICATION; INTERPERSONAL COMMUNICATION; NONVERBAL COMMUNICATION.

Bibliography. Samuel B. Bacharach and Edward J. Lawler, *Bargaining: Power, Tactics, and Outcomes*, San Francisco, 1981; Max H. Bazerman and Roy J. Lewicki, eds., *Negotiating in Organizations*, Beverly Hills, Calif., 1983; Ann Douglas, *Industrial Peacemaking*, New York, 1962; Jay Folberg and Alison Taylor, *Mediation*, San Francisco, 1984; Philip H. Gulliver, *Disputes and Negotiations: A Cross-Cultural Perspective*, New York, 1979; Ian E. Morley and Geoffrey M. Stephenson, *The Social Psychology of Bargaining*, London, 1977; Jeffrey Z. Rubin and Bert R. Brown, *The Social Psychology of Bargaining and Negotiation*, New York, 1975; Richard E. Walton and Robert B. McKersie, *A Behavioral Theory of Labor Negotiations*, New York, 1965.

LINDA L. PUTNAM

BARNUM, PHINEAS T. (1810–1891)

“The great American showman.” Entrepreneur, circus proprietor, trickster, lecturer, politician, author, and considered by many a progenitor of modern ADVERTISING, Phineas Taylor Barnum built a career on the public’s eagerness to believe and its fascination with the outrageous. He began his vocation in 1835 by exhibiting Joice Heth, a black woman who claimed that she was more than 160 years old and had been George Washington’s nurse. Barnum even managed to get considerable publicity from Heth’s eventual exposure as a fraud, claiming that he too had been duped. In 1841 he acquired Scudder’s American Museum in New York, renaming it Barnum’s American Museum. There he presented wild animals, natural history specimens, lectures, plays of a “moral” nature, novelties, oddities, and hoaxes. Exhibits included the “Feejee Mermaid,” a female monkey torso



Figure 1. (Barnum, Phineas T.) Caricature of Phineas T. Barnum. From *Vanity Fair*, New York, September 13, 1862. National Portrait Gallery, Smithsonian Institution, Washington, D.C.

coupled with a large stuffed fish tail, and Siamese twins Chang and Eng. Finding that patrons paused too long to gawk at the presentations, Barnum erected a sign proclaiming “To the Egress,” and customers in pursuit of another strange exhibit soon found themselves on the street.

In 1842 Barnum became the manager of Charles Stratton, a five-year-old midget whom he renamed General Tom Thumb. After exhibiting his discovery in the United States, Barnum toured Europe, where he and Stratton were received at the courts of London and Paris. It was this venture that truly made Barnum’s name and fortune. In 1850 he engaged Jenny Lind, “the Swedish Nightingale,” for a widely acclaimed and highly lucrative concert tour of the United States.

In spite of the considerable financial reward these ventures brought him, Barnum went bankrupt in 1855 as the result of an unwise investment in a clock company. He recouped much of his wealth in 1857, however, by persuading Stratton and Cordelia Howard, a nine-year-old child prodigy, to star in a production of *Uncle Tom’s Cabin* that toured Britain and the Continent. By the following year Barnum had attained such celebrity status that he began to

give lectures to packed houses on such topics as the art of "moneygetting" and the virtues of temperance.

Having achieved notoriety as a producer and public speaker, the self-professed Prince of Humbugs next decided to enter politics. He was elected to the Connecticut legislature in 1865 and 1866, and in 1875 he served a term as mayor of Bridgeport, Connecticut.

In 1871 Barnum entered into partnership with W. C. Coup and Dan Costello to present a huge traveling circus featuring a menagerie, a museum, and a hippodrome, as well as acrobats, clowns, and a variety of dwarfs, giants, and other special attractions. In a short time the operation had expanded into the world's first three-ring circus. Costello left the partnership after quarreling with Barnum, and in 1881 Barnum joined forces with his foremost rival, James A. Bailey, to create "The Barnum and Bailey Greatest Show on Earth." Among the circus's many famous attractions was the giant elephant Jumbo, purchased in 1882 from the Royal Zoological Society in London and exhibited by Barnum as "the only mastodon left on earth."

During the course of his career Barnum wrote a number of books, including *The Humbugs of the World*, *How I Made Millions*, and his autobiography, *The Life of P. T. Barnum*. He died on April 7, 1891. His last words were reported to be a request to know the day's circus receipts at Madison Square Garden.

See also DECEPTION; ENTERTAINMENT; SPECTACLE.

Bibliography. Neil Harris, *Humbug: The Art of P. T. Barnum*, Boston, 1973.

RICHARD PILCHER

BARTHES, ROLAND (1915–1980)

French literary critic, essayist, and semiotician. Born in provincial France, Roland Barthes studied literature at the University of Paris. After a long illness he taught at universities in Romania and Egypt, then returned to France as a member of the Centre National de la Recherche Scientifique. Barthes became director of studies at the École Pratique des Hautes Études, and in the late 1960s, as STRUCTURALISM came into fashion in France, he passed from being something of a marginal enfant terrible on the Parisian intellectual scene to the status of Parisian eminence, attracting some of the media attention and cult following previously devoted to Jean-Paul Sartre. He published numerous books, essays, and reviews and was finally honored by a professorship at the prestigious Collège de France. He died in 1980 as the result of a road accident.

From beginning to end Barthes's work displays an

intense, well-nigh erotic passion for LANGUAGE, for the sheer creative act of writing, that situates it in some twilight world between full-blown semiotic theory (see SEMIOTICS) and imaginative FICTION. An inveterate transgressor of frontiers, Barthes cavalierly mixes the academic and autobiographical, journalism and "high" literature, scientific LINGUISTICS and baroque meditations. His early interest in semiology (*Elements of Semiology*, 1964) reflects his fascination for a discourse that indifferently traverses the jealously demarcated disciplines of the academic establishment, boldly reducing everything from Balzac to restaurant menus, Michelet to wrestling matches, to the common terrain of the rule-governed SIGN. Aware that *system* is denounced by bourgeois humanism as the enemy of *art* and *personality*, Barthes in his early years impudently schematized and manhandled the most revered cultural objects, importing Freudian PSYCHOANALYSIS into the study of the work of Jean Racine (*On Racine*, 1963), deploying intricate semiotic techniques for the analysis of popular cultural objects (*Mythologies*, 1957), and treating the Marquis de Sade's endless sexual permutations as a kind of structuralist "combinatoire" (*Sade/Fourier/Loyola*, 1971).

Barthes is an unrepentant formalist, convinced that it is in form rather than in semantic content that the subtlest operations of IDEOLOGY and the unconscious can be most valuably mapped. His early tour de force *Writing Degree Zero* (1953) accordingly sets out to provide a social and political history of French writing from the mid-nineteenth century on that is constructed wholly in terms of what one might call the "ideology of form," the intricate ways in which a writer's stance toward language itself speaks eloquently of his or her mode of engagement with the world. Everything for Barthes begins and ends in technique, but technique grasped in some deeply historical and political sense. Scornful in high structuralist fashion of "depth," "expression," "interiority," and "human nature," he dreams of a world of pure signs, textures, and surfaces (*Empire of Signs*, 1970) and of a writing that doubles constantly back upon itself, liberated from the deadweight of a referent. His work is in this sense a theoretical equivalent of literary modernism—not simply a theory of modernism but a modernist theory, which will overlap the boundaries between "critical" and "creative," intellectual and sensual, and put itself continuously into ironic question.

Barthes's early espousal of structuralism and semiology sprang from a fierce hatred of the "natural," which he consistently regarded as simply an alternative term for repressive ideology. His project from the outset was accordingly to unmask the received, spontaneous, and taken-for-granted as constructed artifice, no less rigorously rule-governed (and

hence no less transformable) than such blatantly cultural matters as fashion in clothes (which he submitted to semiotic analysis in *Système de la mode*, 1967). From about the time of the publication of his celebrated *S/Z* (1970), a phrase-by-phrase semiotic analysis of a relatively obscure novella of Honoré de Balzac, a certain shift in his writing can be observed, parallel to the more general intellectual transition in France from structuralism to poststructuralism. Previously it had seemed to Barthes that system, artifice, and schematization were the weapons most likely to scandalize bourgeois humanism and expose its ideological prejudice; but ironically such semiotic systematization tends itself to display all the closure, inexorability, and uniformity of ideology. His work will accordingly turn increasingly to the disruptive and transgressive—to those unformalizable gestures, signifiers, and sensations that elude the mastery of closed systems and suggest some irreducible materiality that evades the grasp of MEANING. In such works as *The Pleasure of the Text* (1973) the body itself becomes symbolic for Barthes of these preoccupations; READING is now less the tracing of some stabilized SIGN SYSTEM, less a question of codes and conventions, than a ceaseless dance of signifiers, without origin, essence, or end, a fading or explosion of meaning equivalent to sexual orgasm or *jouissance*. Barthes will later explore such issues further in two apparently “confessional” texts: *Roland Barthes by Roland Barthes* (1975) and *A Lover’s Discourse* (1977).

Barthes began his career as a Marxist fellow traveler, championing the work of Bertolt Brecht and writing about the political significance of cultural forms. He ends in a kind of pluralistic hedonism, expressing a libertarian distaste for all settled system and meaning, turning inward from political society to writing, pleasure, and the body. Horrified by the thought of orthodoxy, he keeps his writing restlessly on the move, endemically skeptical and provisional in its formulations, so that each of his books has about it a certain tantalizing unpredictability, a momentary resting on a topic that, like all the others, will pass quickly into the archives. Beneath this well-cultivated inconsistency, however, runs a range of repetitive themes: writing as an “intransitive” passion, unsettling all “natural” assumptions in its outrageous arbitrariness and artifice; the “death of the author,” whose own intended meanings are constantly outrun and overturned by the sportive ambiguities of his or her texts; the tedium and tyranny of all realist or representational art, which fixes reality in some frozen posture and represses the artifice of its own construction (see REALISM). Above all, perhaps, Barthes’s work is distinguished by its rare combination of delicacy and astringency, as a sensibility nervously alert to nuance is yoked to a kind of

dry, fastidious Gallic irony. His own literary style, at once somehow sumptuous and restrained, is the mark of this extraordinary blending of qualities.

See also AUTHORSHIP; FOUCAULT, MICHEL; LITERARY CRITICISM; STYLE, LITERARY.

Bibliography. Roland Barthes, *The Pleasure of the Text* (Le plaisir du texte), trans. by Richard Miller, London, 1976; idem, *Writing Degree Zero* (Le degré zéro de l’écriture), trans. by Annette Lavers and Colin Smith, New York, 1968; Jonathan Culler, *Barthes*, London, 1983.

TERRY EAGLETON

BATESON, GREGORY (1904–1980)

U.S. scholar who made contributions in anthropology, biology, psychology, AESTHETICS, learning theory, CYBERNETICS, and—drawing on all of them—communications. Gregory Bateson was born in Cambridge, England, into a family with a strong intellectual tradition. His father, William, was an important figure in the early days of genetics even before that science had its name, and other Batesons, before and after, have been members of England’s Royal Society, home to the intellectual elite. Bateson received his B.A. and M.A. degrees at Cambridge and later moved to the United States and became a U.S. citizen.

Unlike many other Batesons, however, whose fame resided in one particular field, Gregory’s fame and influence have a more universal character. He almost seems a dilettante, so varied were his interests, yet the thread that connects them gives evidence of a systematic development of complex ideas. Central to these have been issues related to communication, by which he meant not merely the exchange of messages between individuals but also the metaphoric transfer of information in the process of evolution. Bateson’s great talent as a theorist and teacher lay in his uninhibited willingness to use the tools of other specialists that were spurned by his more narrowly focused colleagues.

He began a synthesis of his ideas, he wrote, when “in late 1969 I became fully conscious . . . that in my work with primitive peoples, schizophrenia, biological symmetry, and in my discontent with the conventional theories of evolution and learning, I had identified a widely scattered set of bench marks or points of reference from which a new scientific territory could be defined. These bench marks I have called ‘steps.’” (He used the term in *Steps to an Ecology of Mind*, a book that made him something of a guru of the environmental movement.)

Bateson’s first major work was conducted in Bali, much of it in collaboration with MARGARET MEAD, his first wife. An important publication during the period of their marriage was the artistically brilliant



Figure 1. (*Bateson, Gregory*)
Gregory Bateson with Margaret
Mead in New Guinea. The Institute
for Intercultural Studies/Library of
Congress.

Balinese Character: A Photographic Analysis, which foreshadowed his interest in signs (see SEMIOTICS; SIGN; SIGN SYSTEM) and also demonstrated the importance of still PHOTOGRAPHY and film in ethnographic research (see DOCUMENTARY; ETHNOGRAPHIC FILM). Bateson and Mead also collaborated in developing the science of cybernetics and in pointing out its applications in social science research. Bateson in particular applied concepts from cybernetics to problems in family therapy and ecology.

Bateson's paper "Pidgin English and Cross-Cultural Communications" (1944) provided a more explicit if aesthetically less revealing indication of his interest in signs and was followed in 1951 by *Communication: The Social Matrix of Psychiatry* (with Jurgen Ruesch). During this period and the following decade he appeared to shift from studies of South Sea cultures to work on mental illness, though the emphasis on communication ensured continuity in his writings.

Many feel that Bateson's most important contribution was the double-bind hypothesis. He applied British philosopher Bertrand Russell's theory of logical types to an analysis of communication in schizophrenics. He argued that a double bind results when the victim, usually a dependent child, is repeatedly given conflicting signals by another family member, usually a parent figure, so that no matter what the victim does it will be wrong. For example, mother asks daughter, "Have you given the gentleman a cookie?" and if daughter answers affirmatively, mother says, "What do you mean by giving away my cookies?" Or, if daughter answers negatively, mother says, "Why must you wait for me to tell you to offer our guest a cookie?" Bateson argued that it is repeated exposure to such unresolvable communicative

conflicts, not unique traumatic incidents, that underlies much mental disorientation.

Parallels to the double bind are found in the animal world, but here it is a conflict such as that between fighting and fleeing that must be resolved. Young animals play-fight, but only rarely do the movements that among adults would cause blood to flow lead to violence among playing pups. Bateson addresses this issue in a 1956 article, "The Message, 'This Is Play,'" which heralds his move from a psychiatric to a zoological institute and a fully focused effort to grasp the complexities of communication in nonhuman organisms, especially whales and porpoises.

Probably Bateson's most lasting influence in studies of communication will be seen in his emphasis on the importance of METAPHOR. Ironically, this view of his is best represented by a statement from his daughter, Mary Catherine, who has concluded, ". . . we have incomplete access to the complexity that we are . . . we're just not organized to be aware of it. One reason why poetry is important for finding out about the world is because in poetry a set of relationships gets mapped onto a level of diversity in us that we don't ordinarily have access to. . . . So we read poetry as knowledge about the world and about ourselves, because of this mapping from complexity to complexity."

Bibliography. Gregory Bateson, *Naven*, 2d ed., Stanford, Calif., 1958; idem, *Steps to an Ecology of Mind*, New York, 1972; Mary Catherine Bateson, *Our Own Metaphor*, New York, 1972; idem, *With a Daughter's Eye*, New York, 1984; David Lipset, *Gregory Bateson: The Legacy of a Scientist*, Englewood Cliffs, N.J., 1980.

PETER H. KLOPFER

BEAVERBROOK, 1st BARON (1879–1964)

Canadian-born British politician and newspaper publisher. Although Beaverbrook became one of the foremost British press lords and made a fortune from his three newspapers, journalism was only a subsidiary of his highly active political and business life. He made other fortunes in the commercial world, and his newspapers were primarily adjuncts to his career in government, tools in the propagation of his essentially conservative and imperialistic views.

Born William Maxwell Aitken in Maple, Ontario, the son of a Scottish Presbyterian minister, Beaverbrook was brought up in Newcastle, New Brunswick, and demonstrated an early aptitude for business. Momentarily sidetracked into the study of law, he began his career in commerce as a stockbroker in Montreal. Three years later he had made his first fortune by using his immense energy and shrewdness to merge all the Canadian cement companies into a single industry.

Moving to England in 1910 but retaining Canadian business ties, Beaverbrook plunged at once into politics. In 1911 he won a seat in Parliament as a Conservative member from Ashton-under-Lyne in Lancaster. As private secretary to Andrew Bonar Law, the new member immediately found himself in a position of power after Law became party leader a year later. From that point on, Beaverbrook's career offers a curious paradox of success and failure. Knighted in 1911 and in 1916 made a baronet, then baron, he became an influential figure in David Lloyd George's cabinet, but from the beginning he was unsuccessful in bringing about the political reforms he dedicated most of his life to pursuing and to which his newspapers were devoted.

After serving as minister of information in Lloyd George's wartime cabinet, Beaverbrook turned his attention to journalism as soon as World War I ended. He had gained financial control of the *Daily Express* in 1916 and placed himself in full charge at the end of 1918. At the same time, he founded the *Sunday Express* to expand its mass readership, and in 1923 he completed his small empire with the acquisition of the *Evening Standard*. In a short time the *Daily Express* became the most widely read newspaper in the world.

Beaverbrook's papers were the British equivalent of JOSEPH PULITZER's nineteenth-century newspaper in the United States, the *New York World*. They were sensational in their news and feature columns (although mild by late-twentieth-century standards) and politically outspoken on their editorial pages. But whereas Pulitzer's views were liberal, Beaverbrook tirelessly promoted what he called Empire Free Trade, by which he meant separating Britain from its foreign trade arrangements to concentrate on



Figure 1. (*Beaverbrook, 1st Baron*) Lord Beaverbrook. The Bettmann Archive/BBC Hulton.

Commonwealth interests. In spite of an editorial stridency not since surpassed by the London press, his campaign was not a success. Beaverbrook won only small victories despite the power generated by his newspapers.

Beaverbrook was also overshadowed journalistically by rival press lord ALFRED NORTHCLIFFE, who founded the *Daily Mail* and the *Daily Mirror* and introduced sensationalism to the British press. Beaverbrook's papers were, however, unusually well written and edited for his time. After his death they lost some of their idiosyncratic character, which had reflected Beaverbrook's personality, but continued to flourish in varying degrees as mass-circulation papers. In addition to his newspapers Beaverbrook left such books as *Politicians and the Press* (1925), *Don't Trust to Luck* (1954), and *Men and Power* (1956).

See also NEWSPAPER: HISTORY; NEWSPAPER: TRENDS—TRENDS IN EUROPE.

Bibliography. Thomas E. N. Driberg, *Beaverbrook: A Study in Power and Frustration*, London, 1956; Logan Gourlay, ed., *The Beaverbrook I Knew*, London and New York, 1984; A. J. P. Taylor, *Beaverbrook*, London, 1972; Evelyn Waugh, *Scoop*, London, 1938.

JOHN TEBBEL

BELL, ALEXANDER GRAHAM (1847–1922)

Scottish-born inventor of the TELEPHONE. In 1875 Alexander Graham Bell achieved the first electrical transmission of SPEECH, and during the following year he gave demonstrations widely, including performances at the Centennial Exposition in Philadelphia. His Bell Telephone Company expanded quickly into a powerful system that included the American Telephone and Telegraph Company (AT&T), organized in 1884 to wire the nation and link it, in the words of its charter, "with the rest of the known world." The possibility of instant communication with any part of the globe revolutionized the way people thought of their world and their place in it. But Bell's achievement had still further implications. In his patent application he described the invention as a system for "transmitting vocal and other sounds telegraphically." His demonstrations included diverse elements. An audience in Boston was invited to hear "telegraphically" a singer in Providence performing arias from *The Marriage of Figaro*. Demonstrations in other cities relayed an exhortation by evangelist Dwight Moody, a gospel hymn sung and played by Ira David Sanky, a dramatic reading of Hamlet's "To be or not to be," and a woman singing "Kathleen Mavourneen." Such cultural services, seen by some as the real destiny of the telephone, soon yielded to the more profitable servicing of two-way talk. But Bell foreshadowed the age of broadcasting as well as that of universal telephony, and AT&T would return in due time to the rest of the agenda (see RADIO).

Bell was the son and grandson of noted elocutionists. His father invented the first accurate ALPHABET for the recording of speech sounds; he called it "visible speech." The family moved to Ontario when Bell was twenty-three, in a successful effort to restore his health. Soon after, Bell moved to Boston and opened a school to teach methods of training the deaf to speak. By 1872 his interest in recording and communicating speech had broadened to include mechanical apparatuses. He began by using modulations in an electrical circuit to stimulate sounding rods, to reproduce a melody over telegraph wires; this work led to a system of multiple TELEGRAPHY, partially patented in early 1875. Bell then synthesized the principle of induced current used in his multiple telegraph with the use of a flexible diaphragm to transform sonic vibrations into electromagnetic impulses, utilizing a magnetic driver for the diaphragm based on the principle of variable resistance (what Bell called "undulatory current").

Bell's invention of the telephone precipitated legal struggles. Western Union, which had for decades enjoyed lucrative MONOPOLY control over telegraphy in the United States—and therefore over rapid long-distance communication—did not at once see Bell's

invention as a threat. When Bell offered his 1876 patent to Western Union for \$100,000, the offer was scornfully refused. Soon afterward Western Union saw its peril and launched a determined patent war but in 1879 gave up the struggle and settled with Bell's company. Ironically, Bell's victory made it far more powerful than Western Union had been, setting a pattern for the trusts that would develop during the first decades of the twentieth century. See TELECOMMUNICATIONS NETWORKS.

After his active involvement in the telephone company ended in 1880, Bell turned his energies to a dozen fields of invention, ranging from medical instruments to underwater detection, from hydrofoil ships to geodesic homes. Of these later researches, two are most relevant to communications. Bell and his colleagues developed the floating-stylus phonograph, the first commercially successful version of THOMAS ALVA EDISON's invention. About the same time, Bell also patented a "photophone," which used light beams as a communications carrier. This invention eventually became practical with the development of the laser and optical fiber (see FIBER OPTICS).

Bibliography. American Telephone and Telegraph, *The Bell Telephone*, New York, 1908; Robert Bruce, *Alexander Graham Bell and the Conquest of Solitude*, Boston, 1973.

HARTLEY S. SPATT

BENJAMIN, WALTER (1892–1940)

German Marxist and theological thinker. Born in Berlin of prosperous middle-class parents, Walter Benjamin came under the influence of the romantic and neo-Kantian thought prevalent in Germany in the years before World War I and took a deep interest in Jewish mystical and apocalyptic writing, becoming for a while a member of the Jewish youth movement. His early essays reveal a preoccupation with messianic conceptions of social REVOLUTION, laced with an element of anarchic violence influenced to some degree by the French radical theorist Georges Sorel. But he was also fascinated from the very outset of his intellectual career with the idea of LANGUAGE, and in such writings as the early *On Language as Such and the Language of Man* (1916) he explored esoteric notions of a primordial, prelapsarian language in which SIGN and object, word and deed, were harmoniously united. A conception of language as essentially mimetic rather than semiotic (see SEMIOTICS) was to thread its way through Benjamin's writing career, with complex relations to cabalistic notions of scriptural INTERPRETATION on the one hand and Marxist doctrines of the unity of theory and practice on the other.

After an early, brilliant essay on Johann Wolfgang von Goethe's *Elective Affinities* (1922), Benjamin produced his first major work, a profound, esoteric, and markedly idiosyncratic study of German baroque TRAGEDY, which was published in 1928 as *The Origin of German Tragic Drama*. Neo-Kantian and cabalistic in critical method, the work develops a startlingly original theory of allegory, viewing the German baroque DRAMA as the sluggish, melancholic record of a world that has sacrificed metaphysical truth to corrupt political intrigue. Aspects of Benjamin's theory of allegory were to pass later into his Marxist notions of the commodity, and his fascination for the multileveled, fragmentary, self-conscious dramatic forms of baroque THEATER prefigures his later championship of the Marxist poet and dramatist Bertolt Brecht. The work was written as Benjamin's postdoctoral thesis, but he withdrew it from examination, having been privately advised that his examiners had not understood a single word of it. At the time of its appearance as a published book, it was greeted with silence, irritation, or incomprehension throughout Germany. Deprived of an academic career because of the failure of his thesis, Benjamin eked out a modest existence for the rest of his life through literary journalism, devoting a large part of what little money he made to his consuming passion for collecting.

In the mid-1920s, partly under the influence of the Russian revolutionary theater director Asja Lacic, Benjamin began to turn slowly toward Marxism, without abandoning his Judaic beliefs. He was greatly stirred by the Hungarian philosopher and literary critic György Lukács's *History and Class Consciousness* and became a friend of the Marxist theologian Ernst Bloch, whose "philosophy of hope" paralleled many of the motifs of his own messianic thought. Another close friend was the Jewish theologian Gershom Scholem, who disapproved of Benjamin's shift toward revolutionary politics. That shift was first reflected in his collection of fragments *One-Way Street* (1925–1926), which broke boldly with conventional book format and proclaimed the literary critic as "strategist of the literary struggle." Benjamin struck up an intimate collaboration with Brecht and was the first critic to grasp and appreciate his revolutionary dramaturgy. *See also* LITERARY CRITICISM.

Caught precariously between Brecht's deliberately "crude" political commitment and the arcane theological interests represented for him by Scholem, Benjamin fled to Paris in 1933, when Adolf Hitler came to power in Germany, and began work on the major project of his life: a detailed study of nineteenth-century Paris, focused on the poet Charles Baudelaire and known today as the Arcades project. The work brings together "allegorical" and cabalistic

interpretation, Freudian PSYCHOANALYSIS, and historical materialism, moving with dialectical dexterity from Parisian ARCHITECTURE to the structure of the commodity, from poetic imagery to the peculiarities of the modern psychical and perceptual apparatus. In Paris Benjamin also fell under the thrall of surrealism, and in his classic essays "The Author as Producer" (1934) and "The Work of Art in the Age of Mechanical Reproduction" (1936) he boldly defended AVANT-GARDE artistic experiment against traditional ART forms. During this period Benjamin was kept financially afloat by the Institute for Social Research, center of the so-called Frankfurt school of Marxism, which was then in exile from Germany in New York.

Benjamin's last major piece of writing, the 1940 "Theses on the Philosophy of History," wove together messianic notions of redemptive apocalypse and politically revolutionary views of history to combat what he saw as a ruling-class IDEOLOGY of history as homogeneous continuum. In 1940 he fled before the advance of the Nazi troops into Paris to the Franco-Spanish frontier, where he was arrested. On being told that he was to be handed over to the Gestapo the following morning, Benjamin took his own life.

Benjamin's astonishingly varied, fertile writings, largely ignored in his own lifetime, are recognized today as among the most vital documents of Western Marxism. That Marxism was always deeply idiosyncratic, shot through with esoteric reflections on history and language; but from this unstable compound of intellectual motifs, Benjamin was able to produce searching insights into such diverse topics as the revolutionary uses of nostalgia, the materiality of the sign, the cultural potential of modern technology, and the "redemption" of precious objects by quotation, collection, miniaturization, and hallucinogenic PERCEPTION. His writing, distinguished by its cryptic, indirect, tenaciously detailed attention to stray minutiae, is a strange blending of the High German traditional intellectual and the revolutionary avant-gardist devoted to "shock effect," discontinuity, and estrangement. Like his close friend THEODOR ADORNO, he believed in "breaking open" the dreary continuum of ruling-class cultural and political history by a technique of violent "constellation," in which (as with avant-garde methods of montage) strikingly disparate or scattered images are forced suddenly into fresh, revelatory interrelations. Each of Benjamin's works represents such an unorthodox "constellation," raiding a history collapsing into barbarism for the odd bits and pieces that, properly wrenched out of context and put to use, could be deployed as weapons against the Fascist enemy from whom, as he once remarked, "not even the dead are safe."

See also MARXIST THEORIES OF COMMUNICATION.

Bibliography. Walter Benjamin, *Charles Baudelaire: A Lyric Poet in the Era of High Capitalism* (in German), trans. by Harry Zohn, London, 1973; idem, *Illuminations* (Illuminationen, Frankfurt, 1955), ed. with an intro. by Hannah Arendt, New York, 1969; Richard Wolin, *Walter Benjamin: An Aesthetic of Redemption*, New York, 1982.

TERRY EAGLETON

BENNETT, JAMES GORDON (1795–1872)

U.S. editor and publisher. Considered by his contemporaries and by journalism historians as the founder of modern journalism, James Gordon Bennett was a leader in developing the “penny press,” a new style of newspaper for “the great masses of the community.” Born in Newmill, Scotland, he emigrated to Canada in 1819 and then to the United States. Bennett began his newspaper career in 1823 at the age of twenty-eight as a reporter and correspondent for such papers as the *Charleston Courier*, the *New York National Advocate*, and the *Morning Courier and New York Enquirer*. He later served briefly as editor and publisher of the *New York Globe* and the *Philadelphia Pennsylvanian*.

Bennett began publishing the *New York Herald* in 1835 at a time when U.S. society was rapidly moving toward including the average working-class citizen in the political, social, and economic system of the country. Through extensive reporting of political activities and campaigning for the rights of the general public, the *Herald* became a newspaper that catered to the interests and concerns of the working class. Sensational in style, the *Herald* reflected the mood of a country whose language, thought, and democratic politics were rapidly changing.

Bennett’s newspaper soon gained the reputation of being the most aggressive in news gathering and could be expected to contain the latest “intelligence” from New York and other places throughout the United States and the world. Bennett was one of the first U.S. newspaper publishers to report financial, sports, social, and religious news on a regular basis. An innovator in news gathering at a time when editors sat in their offices and waited for news to come to them, Bennett sent his enterprising staff into the field to gather the news and rush it back for publication by any means available—carrier pigeons, pony express, steamboat, special trains, and eventually the new telegraphic system (see TELEGRAPHY). He forced his competitors to compete or lose out in the circulation wars in New York and the nation as a whole. The *Herald*’s reporting of the U.S. Civil War reflected Bennett’s style of journalism at its peak. At various times during the war the *Herald* would have over sixty correspondents in the field, more than all other New York newspapers com-



Figure 1. (Bennett, James Gordon) Cartoon showing James Gordon Bennett of the *New York Herald* and his chief rivals in New York’s “penny press”—Horace Greeley of the *New York Tribune* and Henry Raymond of the *New York Times*—whose witches’ brew of aggressive journalism was a frequent “botheration” to government. *Vanity Fair*, October 5, 1861. From Don C. Seitz, *The James Gordon Bennetts: Father and Son*, Indianapolis: The Bobbs-Merrill Company, 1928, opposite p. 216.

bined. Through his efforts he helped to establish the pattern for modern wartime reporting.

Bennett also developed ADVERTISING as a major source of income, thereby keeping the cost to the reader at a reasonable rate. At first he sold his newspaper on the street for one cent per copy, later raised it to two, and eventually to three cents.

Even among his contemporaries Bennett was the undisputed leader in news gathering. Bennett’s competition drove Henry Raymond, founder of the *New York Times*, to say it would be worth a million dollars “if the Devil would come and tell me every evening what the people of New York would like to read about next morning.” HORACE GREELEY’s biographer, James Parton, wrote in 1866 that “it is impossible any longer to deny that the chief newspaper in New York is the *Herald*.” At Bennett’s death Greeley himself, Bennett’s bitterest competitor

for newspaper supremacy, admitted that it was as a "collector of news that Bennett shone conspicuously."

Bennett himself saw the newspaper's role as something far more than news collecting. He was given to grandiose statements about the social role he thought newspapers were destined to play:

Books have had their day—the theatres have had their day—the temple of religion has had its day. A newspaper can be made to take the lead of all these in the great movements of human thought and human civilization. A newspaper can send more souls to Heaven, and save more from Hell, than all the churches or chapels in New York—besides making money at the same time.

As *Herald* publisher and editor Bennett was succeeded by his son, James Gordon Bennett, Jr., who in 1887 started the famous Paris edition of the *Herald*.

See also NEWSPAPER: HISTORY; NEWSPAPER: TRENDS—TRENDS IN NORTH AMERICA; PRINTING—HISTORY OF PRINTING.

Bibliography. Oliver Carlson, *The Man Who Made News: James Gordon Bennett*, New York, 1942; Don C. Seitz, *The James Gordon Bennetts*, Indianapolis, Ind., 1928.

PERRY J. ASHLEY

BENSHI

Japanese motion picture "explainer," a man who, through the entire era of silent film and even after, sat at one side of the screen and explained, commented upon, and often acted out the accompanying film. So great was the popularity of these men that the film can be truly said to have merely accompanied them. During the first three decades of the twentieth century the benshi were often a greater audience attraction than the film. The audience would come to see Musei Tokugawa or Raiyu Ikoma (two of the most famous) "in," for example, *Way Down East* (United States, 1920).

Not only foreign films needed benshi, though here their role was plainly to help explain novel foreign ways. Japanese motion pictures also used their talents, so much so that a certain incoherence in a film did not seem to matter much; inconsistencies could always be explained away by the benshi. Inconsistencies were also created by this system. Since benshi were STARS, each wanted to be unique. Individual interpretations of a given film varied widely. Seeing a film with one benshi was quite different from seeing it with another.

Historically, Japan has always favored a storytelling mode of NARRATIVE (the Bunraku doll-drama, some Kabuki, and such popular entertainments as

naniwabushi and the *kodan*, and the vaudevillelike *yose*), and so it was natural that the benshi should have made their appearance and proved so durable. Their demise was not caused by lack of popularity but was the result of technological change. Though the sound film was bitterly fought by the benshi, in the end the soundtrack drove them from their place beside the screen. Not right away, however: the benshi took to turning down the sound and talking over it, or actually used the new apparatus to record themselves onto a dubbed version. One such print, a benshi version of *Der blaue Engel* (The Blue Angel, 1930), still exists.

In the end, the new order triumphed and the benshi were rendered obsolete. They remained only as rather self-conscious adjuncts to occasional evenings of nostalgia, comparable to "an old-fashioned night at the flickers."

See also MOTION PICTURES—SILENT ERA; MOTION PICTURES—SOUND FILM.

Bibliography. Joseph L. Anderson and Donald Richie, *The Japanese Film: Art and Industry*, Rutland, Vt., and Tokyo, 1959.

DONALD RICHIE

BERGMAN, INGMAR (1918—)

Swedish filmmaker and stage director. Son of a stern Lutheran minister, Ernst Ingmar Bergman drew heavily on theological and metaphysical preoccupations in his work. To filmgoers throughout the world he communicated a vision of Sweden as a starkly beautiful panorama marked by loneliness, as in *Smultronstället* (Wild Strawberries, 1957); by explosions of sexuality, as in *Jungfrukällan* (The Virgin Spring, 1960); by occasional rollicking humor, as in *Sommarnattens leende* (Smiles of a Summer Night, 1955); and always by the presence of an inscrutable deity who never answers humankind's most searching questions, a theme reflected in *Tystnaden* (The Silence, 1963).

Born in Uppsala, Bergman studied ART and literature at the University of Stockholm. After directing plays he began a scriptwriting apprenticeship at Svensk Filmindustri in 1943. The success of his first screenplay, *Hets* (Torment, 1944), won him a directing assignment in *Kris* (Crisis, 1946). Bergman went on to direct more than forty major films. During the years after World War II he gained international standing, especially through the impact of *Det sjunde inseglet* (The Seventh Seal, 1957), a medieval allegory set in the time of the Black Death; it won the Grand Prize at the Cannes Film Festival. Its gaunt leading performer, Max von Sydow, became a fixture in



Figure 1. (Bergman, Ingmar) *Smultronstället* (Wild Strawberries), 1957. The Museum of Modern Art/Film Stills Archive.

many Bergman films, including *Såsom i en spegel* (Through a Glass Darkly, 1961) and *Nattvardsgästerna* (Winter Light, 1963).

During most of his career Bergman kept together a virtual stock company, which performed in films during summer months (sometimes on desolate Fårö Island) and in stage productions during the winter at Stockholm's Royal Dramatic Theater. Bergman was especially brilliant in his direction of women, and many of his films focused on dilemmas and emotional crises of women, including *Persona* (1966), *Viskningar och rop* (Cries and Whispers, 1973), and the six-hour television series *Scener ur ett äktenskap* (Scenes from a Marriage, 1973). Such actresses as Harriet Andersson, Eva Dahlbeck, Bibi Andersson, Ingrid Thulin, and Liv Ullmann gave memorable performances in Bergman films. Cinematographers Gunnar Fischer and Sven Nykvist helped give Bergman's films a keen visual sense and imagery, often presented in bleak natural surroundings with almost a DOCUMENTARY style. See also ACTING; THEATER.

Many of the conflicts running through Bergman's work seemed to find a final summation in *Fanny och Alexander* (Fanny and Alexander, 1982), a saga of two interlocking families—one theatrical and loving, the other clerical and self-righteous—as seen through the eyes of two children. In an introduction to his published screenplays Bergman offers further insight into the drives behind these themes:

A child who is born and brought up in a vicarage acquires an early familiarity with life and death behind the scenes. Father performed funerals, marriages, baptisms, gave ad-

vice and prepared sermons. The devil was an early acquaintance, and in the child's mind there was a need to personify him. This is where my magic lantern came in. It consisted of a small metal box with a carbide lamp—I can still remember the smell of the hot metal—and colored glass slides: Red Riding Hood and the Wolf, and all the others. And the Wolf was the Devil, without horns but with a tail and a gaping red mouth, strangely real yet incomprehensible, a picture of wickedness and temptation on the flowered wall of the nursery.

He received his first film projector at the age of ten. It became his "first conjuring set."

See also CINEMATOGRAPHY; MOTION PICTURES.

Bibliography. Peter Cowie, *Ingmar Bergman: A Critical Biography*, New York, 1983; Frank Gado, *The Passion of Ingmar Bergman*, Durham, N.C., 1986; Vernon Young, *Cinema Borealis: The Art of Ingmar Bergman*, New York, 1975.

RICHARD PILCHER

BIOGRAPHY

It could be argued that literature began with biography. One of the oldest human impulses is to record for posterity something of the lives of one's fellows, and its expression is found on prehistoric slabs of stone and scraps of papyrus. No more splendid biography has been written than the four words carved on the tablet commemorating the English architect Christopher Wren in his masterpiece, St. Paul's Cathedral in London: *Si monumentum requiris, circum-*

spice (If you seek his memorial, look round you). The significance of the lives of others for one's own life has been a theme of the finest biography.

Similarly, the elegiac poem (JOHN MILTON's *Lycidas*, 1637; Percy Bysshe Shelley's *Adonais*, 1821) and the funeral oration are forms of biography. Even the humble journalistic obituary can be admirable ART when composed by an old friend of the deceased. Brief lives of those deemed worth remembering continue to be recorded in successive volumes of *Who Was Who* and the necrologies in the annual reports of learned societies throughout the world.

The dividing line between biography and FICTION has always been hazy. The great Greek and Roman epics are, in an important sense, biographies. They begin, as later biographies often do, with a brief profile of their subjects: Odysseus (Ulysses), "that ingenious man, who saw the cities of many peoples, and knew their minds"; Aeneas, the founder of Rome, "who, exiled by Fate, first came from the shore of Troy to Italy, much buffeted on sea and land by divine power and the unsleeping wrath of Juno." Even the Iliad, dealing with a far shorter period of time than the other two, proposes a psychological biography of its central character: the work, we are told at the start, is to be about the source and progress of the anger of Achilles, which had such direful consequences for the Greeks and Trojans.

For centuries during the MIDDLE AGES the careers of these and other great, sometimes more historical, figures—Alexander, Charlemagne, King Arthur, and their illustrious companions—were the subjects of innumerable popular romances (see ROMANCE, THE). In both epics and romances, as in modern popular biographies, the family lives and encounters of the central characters are not neglected: Aeneas's meeting with his mother, Venus, and his affair with Dido; Odysseus's involvements with the temptress Circe and the nymph Calypso, with his faithful wife, Penelope, his father, Laertes, and his son Telemachus; Arthur's with his unfaithful Guinevere and her lover, Lancelot. The epics and romances are the ancestors of the modern novel, and their quasi-biographical origin should be kept in mind.

We now think of a biography as a prose NARRATIVE, based on serious historical investigation—though INTERPRETATION and judgment by the author are expected—of the life, achievements, and milieu of some individual prominent enough to arouse a general wish for more detailed knowledge than appears in the official accounts. Among the best early ones are Xenophon's biography of Socrates; Suetonius's scandal-filled lives of the twelve Caesars; Tacitus's fine life of his father-in-law, Agricola; and, above all, Plutarch's *Parallel Lives* of eminent Greeks and Romans, regarded for centuries as the classic of biog-

raphy. The Middle Ages contributed that curious branch of biography called *hagiography*—the lives of the saints. Since canonization requires the performance of miracles, miracles abound in them. Nevertheless, the Middle Ages did furnish some serious attempts at biographies of historical figures, such as Eginhard's of Charlemagne and Asser's of King Alfred, even though they and their like could not always resist including such delightful, if apocryphal, stories as those of Roland's far-heard horn and Alfred's burning the cakes he had been set to watch.

Biography blossomed in the RENAISSANCE and after. Giorgio Vasari's monumental *Lives* (1550–1568) of the great Italian painters was a landmark. From England came William Roper's charming life of his father-in-law, Sir Thomas More; Izaak Walton's lives of five famous contemporaries, including John Donne (1640) and Richard Hooker (1665); and John Aubrey's *Brief Lives*, published first in 1813 and filled with hilarious anecdotes of eminent figures of his time. It was in the seventeenth century that the word *biography* (from the Greek *biographia*, "life-writing") was introduced into English by John Dryden, in the preface to his translation of Plutarch. Around this time, too, the subbiographical GENRE of ana began to flourish—records of casual conversation or "table talk" of eminent people. First, and most famous, was that of MARTIN LUTHER; then, in France, of Gilles Ménage, the collection of whose witticisms, *Ménagiana*, gave birth to the name of the genre. In England the *Table Talk* (1689) of jurist John Selden and, later, of poet Samuel Taylor Coleridge were popular; in Germany there was Johann Eckermann's *Conversations with Goethe*. James Boswell ends his *Journal of a Tour to the Hebrides with Samuel Johnson* (1785) with a defense of it as a specimen of this worthy genre. Nevertheless, the temptation for the compiler of ana to include quips (sometimes found in old jest books) dubiously attributable to the subject is often hard to resist. One eminent biographer of Luther warns that the serious scholar will not use a remark found in *Table Talk* unless the opinion expressed in it is confirmed from Luther's own writings.

At this time, too, multivolume dictionaries of biography began to be published, later culminating in such tremendous works as the French *Biographie universelle* and such ongoing enterprises as the British *Dictionary of National Biography* and the *Dictionary of American Biography*, with similar national biographical dictionaries in many other countries. Nor should the very competent biographical content of many encyclopedias be overlooked.

The eighteenth century in England experienced what has been regarded, perhaps with some exaggeration, as a revolution in the theory of biography.

Previously the justification had been that biography's purpose was to teach morality by giving its readers, on the one hand, examples of virtuous lives to be imitated and, on the other, examples of vice and folly to be avoided. Plutarch goes so far as to recommend that the biographer conceal from the reader occasional lapses from strict virtue by a subject presented as a model. SAMUEL JOHNSON, in perhaps the greatest statement on the subject of biography ever composed, his *Rambler* essay No. 60, rejected both the doctrine that the only proper subjects for biography are individuals who have become publicly famous and the doctrine that the biographer, in the cause of promoting morality, should suppress factual information about the subject:

I have often thought that there has rarely passed a life of which a judicious and faithful narrative would not be useful. We are all prompted by the same motives, all deceived by the same fallacies, all animated by hope, obstructed by dangers, entangled by desire, and seduced by pleasure.

The scholar, the merchant, the priest are at least as worthy of attention as some military conqueror or enterprising politician. This is because the reader is better able to identify with and empathize with such a subject. And, for the same reason, it is not the public triumphs of the military or political hero that the biographer should be chiefly concerned with, but the seemingly minor, even if undignified, details of the subject's private life. Johnson's essay was a manifesto for what later became known as *psychological biography*.

Johnson practiced his own preaching in his early biography of his friend, the obscure writer Richard Savage (1744), who was a good deal of a psychopath, talented but continually self-defeating. The analysis of motivation is also important in the biographical parts of Johnson's fifty-two *Prefaces, Biographical and Critical, to the Works of the English Poets* (1779–1781; usually, but inaccurately, called *The Lives of the Poets*). To be sure, Johnson may only have been formulating what had long been felt unconsciously by dedicated biographers. For all Plutarch's insistence on the didactic purpose of biography, Dryden notes that he enjoys and lets his readers enjoy minor and seemingly (though Johnson would argue, not really) irrelevant details in the lives of his subjects. So did Johnson's contemporary Voltaire, in his life of Charles XII of Sweden (1731), which Johnson greatly admired.

The nineteenth century became the age of the "official biography"—what Lytton Strachey deplored as "those two fat volumes . . . with their ill-digested masses of material, their slipshod style, their tone of tedious panegyric." Readers in the early twentieth century were shocked when Strachey pro-

mulgated what is essentially Johnson's view—"Human beings are too important to be treated as mere symptoms of the past. They have a value which . . . is eternal, and must be felt for its own sake"—and then in 1921 went on to write a life of the sacrosanct Queen Victoria that treated her as a human being.

The popularity of Strachey's *Queen Victoria* inspired, in the 1920s and 1930s, a flood of semifictional biographical works, sometimes containing invented conversation, factual inaccuracy, and amateur psychologizing. Gamaliel Bradford's *George Washington* he described as a *psychography*. (The later term *psychobiography* refers to a specialized technique that employed a narrowly Freudian approach, finding nearly everything in the later life of the subject accounted for by psychic trauma in youth; the best-known example is Erik Erikson's *Young Man Luther*.) There were justified objections to some of this output, but those who dismissed it as "debunking," as when attention was called to Washington's problems with his ill-fitting false teeth, missed Johnson's and Strachey's point.

In the late twentieth century the popularity of ephemeral biography was never higher. A new semifictional work by Irving Stone about Michelangelo or Freud or Pissarro became an instant best-seller. Biographies of film or rock STARS were similarly profitable. Many candidates for high public office felt the need for a "campaign biography." How much of this mass production would ever be read more than a year or two after publication remained a question. At the same time, a higher standard prevailed for serious biography, at once scholarly, perceptive, and readable. A long list of titles could be given to support this claim; one example is Richard Ellmann's masterly *James Joyce* (1959).

The problem of the dividing line between biography and fiction became acute when, in the 1920s and later, Boswell's enormous cache of private diaries was discovered and began to be made available to the public. Boswell's *Life of Samuel Johnson*, published in 1791, seven years after Johnson's death, was proclaimed by the historian Thomas Babington Macaulay in a striking journalistic review to be the greatest of biographies and Boswell the greatest of biographers. Macaulay's ranking of the work was accepted almost without question for more than a century. But with the publication of the original DIARY jottings from which Boswell constructed his recension of 1791, doubts began to be expressed—as well as the complaint that what Johnson was doing during long periods in his later life was not recorded. Contrary to what many have thought, Boswell, whose home was in Edinburgh, not London, spent only a limited time in Johnson's company; sometimes whole

years passed without any contact between them, and the gaps are often filled with undated and unauthenticated anecdotes passed on to Boswell by acquaintances. And even what Boswell, in the *Life*, asserts to have been said by Johnson in his presence sometimes turned out, on inspection, to vary widely from what his diary recorded as having been said at the time.

Such complaints were answered by defenders of Boswell on the grounds that his final version is very amusing and appealing—is, in fact, a great work of art—and that, in any case, no biographer can possibly reproduce the past exactly as it was; that any modern “Samuel Johnson” must be some writer’s construct, and “none has pleased so many or so long as Boswell’s.” To which their opponents have replied that biography is, in the end, a branch of history rather than fiction and that the biographer’s primary responsibility must always be to try to arrive as closely as possible to the truth, not to provide entertainment, however delightful; that indeed the intelligent reader of biography will get greater enjoyment from the account of an incident in the subject’s life that one knows probably happened than from one it is suspected did not. The debate continues.

See also AUTOBIOGRAPHY; LETTER.

Bibliography. James L. Clifford, ed., *Biography as an Art: Selected Criticism 1560–1960*, New York, 1962; Samuel Johnson, “The dignity and usefulness of biography” (*Rambler*, No. 60), “Biography, how best performed” (*Idler*, No. 84), in *Essays from the “Rambler,” “Adventurer,” and “Idler,”* ed. by W. J. Bate, New Haven, Conn., and London, 1968; Jeffrey Meyers, ed., *The Craft of Literary Biography*, New York and London, 1985; Harold Nicolson, *The Development of English Biography*, New York, 1928; John A. Vance, ed., *Boswell’s Life of Johnson: New Questions, New Answers*, Athens, Ga., 1985.

DONALD GREENE

BOAS, FRANZ (1858–1942)

U.S. anthropologist. Because of the breadth of his research, and his editorial positions, teaching, and contributions to the professionalization of the discipline, Franz Boas did more than anyone else to shape the course of American anthropology. His research in all the subdisciplines of anthropology and his ground-breaking work in American Indian ART, FOLKLORE, and LINGUISTICS have been invaluable to scholars in communications.

Born in Minden, Germany, Boas studied geography and physics at Heidelberg and Bonn and received a Ph.D. in 1881 from the University of Kiel. His first fieldwork was among the Central Eskimo on Baffin Island in 1883, and later studies involved

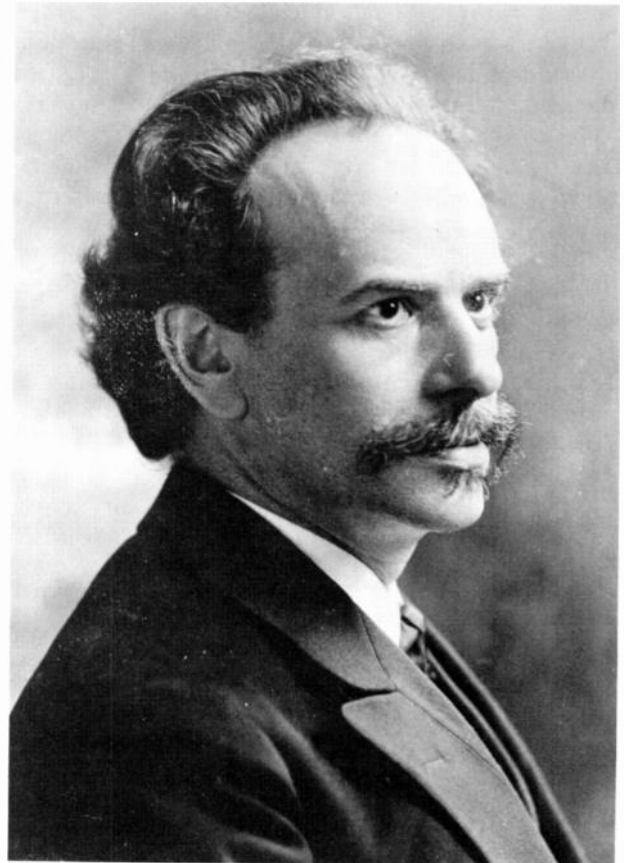


Figure 1. (Boas, Franz) Franz Boas. The Bettmann Archive, Inc.

the Indians of British Columbia (particularly the Kwakiutl). Boas’s long association with the American Museum of Natural History began in 1889, and ten years later he became Columbia University’s first professor of anthropology, a position he held for thirty-seven years. He was a founder of the American Anthropological Association and participated in the creation of the American Association of Physical Anthropologists and the Linguistic Society of America. He and his students, including Ruth Benedict, MARGARET MEAD, EDWARD SAPIR, and Alfred L. Kroeber, developed American anthropology into a professional discipline.

Boas redefined anthropology as the study of all aspects of human life and experience. He emphasized the importance of fieldwork among living cultures, particularly nonliterate cultures. He did not accept the prevailing notion of geographical determinism and showed that the same environment does not always produce the same type of CULTURE; the evolution of human society involves more than adjustments to natural habitat. To study human society, one must gather three types of data—biological, linguistic, and cultural—and analyze them individually

as well as comparatively. Boas was trained in MATHEMATICS as well as in physics and geography and was skilled at applying statistical methods to anthropological and archaeological data.

Through his own linguistic work and the work of his students, Boas effected major changes that defined the field of linguistic anthropology. His early fieldwork convinced him of the importance of studying each LANGUAGE on its own terms instead of in terms of some "preconceived abstract scheme." He objected to the categorizations of languages according to some "arbitrary classification" based on an evolutionary hierarchy of language types. Boas felt that linguistic description and analysis should be grounded in empirical data in the form of texts collected and transcribed by the field-worker. He took advantage of the technological advances in SOUND RECORDING to collect many of his texts. He stressed the importance of studying American Indian languages, many of which were nearly extinct. Boas was a founder of the *International Journal of American Linguistics* and the editor of the *Handbook of American Indian Languages*. In his own research Boas brought a new depth and diversity to the study of phonetics and morphology, discovering new evidence of borrowing among languages and emphasizing the need to study the differences as well as the similarities among languages.

In addition to his ethnographic and linguistic fieldwork, Boas studied American Indian folklore and art. He was also one of the first anthropologists to use PHOTOGRAPHY in ethnographic fieldwork and in fact took both still photographs and films. Through his example he showed students the importance of including cameras in their fieldwork equipment and also encouraged at least one of his native informants to become a photographer. Although stressing the primacy of text collection in fieldwork, Boas felt that some kinds of data, such as documentation of physical types, artifacts (see ARTIFACT), and BODY MOVEMENT, were best "described" visually.

Boas's career was multifaceted, and his contributions have had an impact on several academic disciplines and research traditions, including the field of communications. In spite of all his accomplishments his name has never been associated with a particular school or method; there is no "Boas school" of anthropology. Nevertheless, his work continues to influence American anthropology and the way in which anthropologists and others study language and culture.

Bibliography. Franz Boas, *Race, Language and Culture*, New York, 1940; Walter R. Goldschmidt, ed., *The Anthropology of Franz Boas: Essays on the Centennial of His Birth*, Washington, D.C., 1959; Melville Herskovits, *Franz Boas: The Science of Man in the Making*, New York,

1953; Ira Jacknis, "Franz Boas and Photography," *Studies in Visual Communication* 10 (1984): 2-60; George W. Stocking, Jr., "The Boas Plan for the Study of American Indian Languages," in *Studies in the History of Linguistics: Traditions and Paradigms*, ed. by Dell Hymes, Bloomington, Ind., 1974; idem, *Race, Culture, and Evolution*, New York, 1968.

BODY DECORATION

The decoration of the body provides a means of expression for our innermost thoughts and also conveys information about the society in which we live. Body painting, tattooing, scarification, and altering the shape of the body are all forms of behavior that communicate information by means of a culturally defined CODE. As a form of NONVERBAL COMMUNICATION this behavior is governed by rules similar to those found in language. Among many peoples this is acknowledged explicitly. The Indians of Paraguay say that the undecorated body is "dumb"—it has no message to convey.

Contexts of Body Decoration

The act of body decoration distinguishes a person as a social being and as a member of a particular group.



Figure 1. (*Body Decoration*) Nuer from eastern Africa between Waat and Akobo. Dr. J. F. E. Bloss/Anthro-Photo.

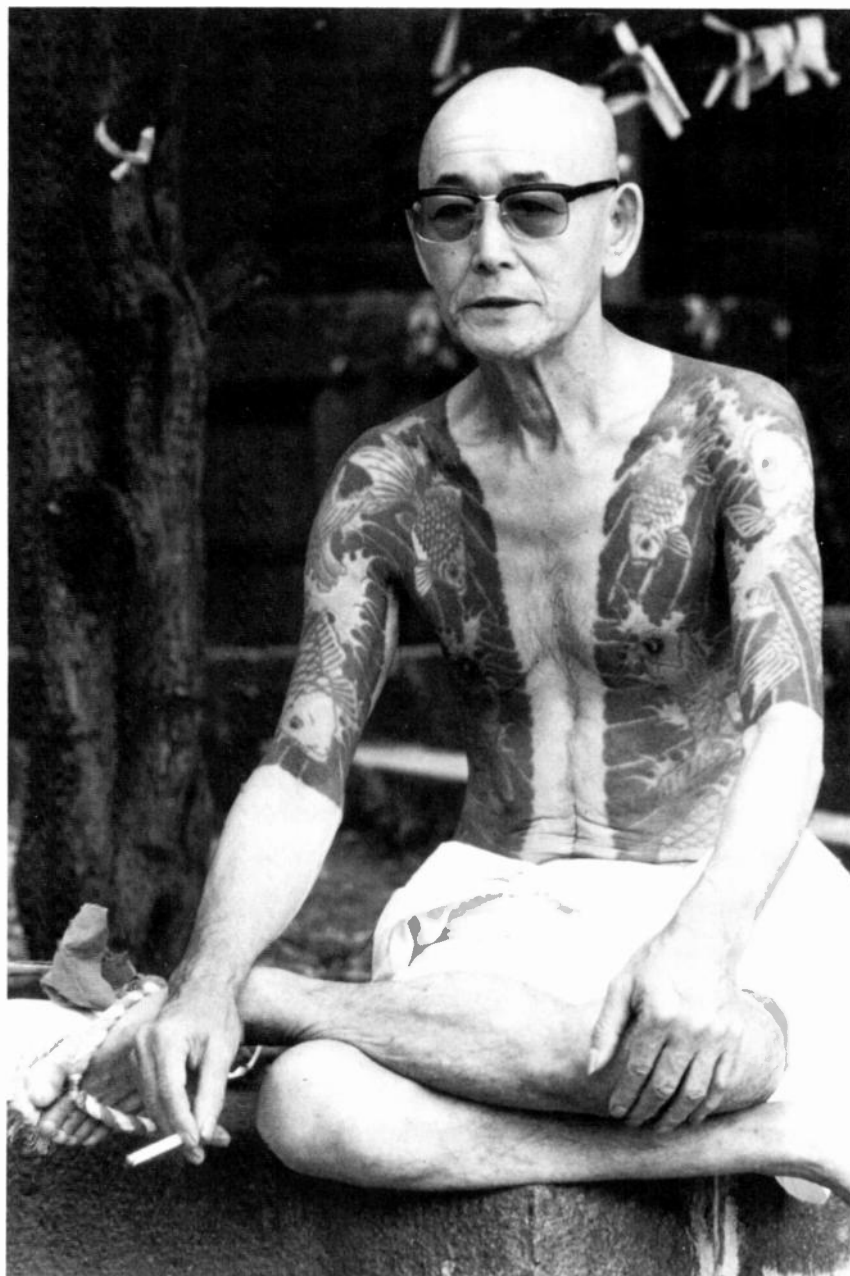


Figure 2. (*Body Decoration*) Man with an elaborate tattoo, Tokyo. United Nations photo 148563/Bruno J. Zehnder.

People who do not observe the same practices are seen as outsiders and sometimes as not fully human.

Christopher Columbus's account of his discovery of America makes only brief mention of the local peoples he encountered, and these brief descriptions are scattered throughout lengthy accounts of the peculiarities of the landscape. As Tzvetan Todorov points out in his study of the discovery of America, Columbus saw the inhabitants of these lands as features of the countryside. Doubtful that creatures so different from his notion of what was distinctively

human could be men, Columbus described them in the same terms used for the elements of the landscape, such as dogs, houses, and trees.

The distinction between the human and the animal world is frequently based on the human capacity to care for, decorate, or alter the shape of the body. The Nuba of Sudan say that humans differ from animals because they can shave their heads and bodies. It is said that in the past, monkeys had their own language and could speak like humans. People differed from animals only because they cared for their

bodies. The Roro of Papua New Guinea also make a distinction between those who do and those who do not decorate. They say that a person who does not have tattoos is "raw," like uncooked meat. This notion provides a striking illustration of CLAUDE LÉVI-STRAUSS's comparison of raw and cooked meat on the one hand and fresh and rotten fruit on the other. The former is transformed by a cultural process, the latter by a natural one. The Roro see the tattooed man as "cooked," transformed by a human process and given a social identity. *See also* FOOD.

The aim of different forms of decoration, paint, tattoo, and accessories and modifications of the body's morphology is the creation of a social identity. The identity of an individual as a social being requires a physical appearance that conforms to a culturally defined model. The process begins at infancy and continues throughout a lifetime. Among some American Indians of the Northwest Coast, a high, domed forehead was considered beautiful and also something that distinguished tribe members from neighboring groups. The Kwakiutl, the Salish, and the Nootka peoples bound a board against a child's head to produce the sloping forehead that they considered a mark of beauty. Minor variations in the technique distinguished members of one group from others.

Such practices transform a biological entity into a

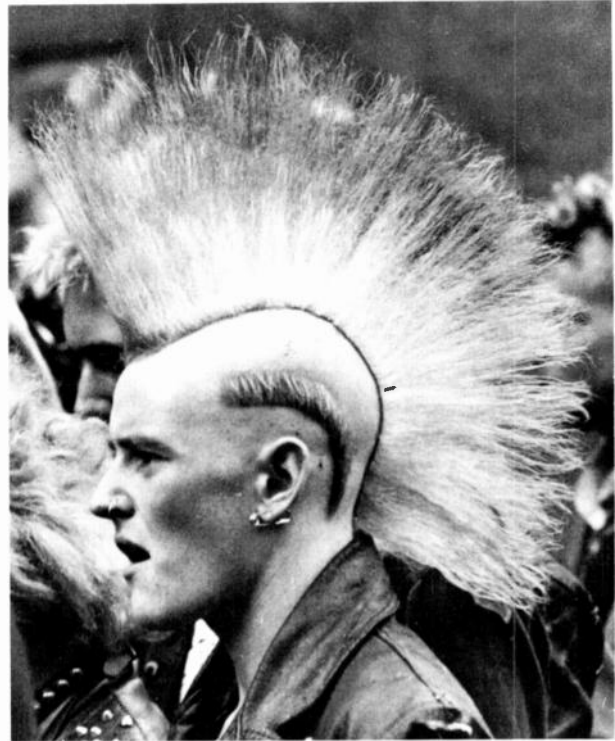


Figure 4. (*Body Decoration*) Young man dressed in punk style, London, 1985. Reuters/Bettmann Newsphotos.



Figure 3. (*Body Decoration*) Kayapo with penis sheaths, Brazil. Joan Bamberger/Anthro-Photo.

member of society. For example, the asymmetrical facial tattoos of a Cudeveo woman of Brazil obscure her features but also proclaim her membership in a particular social group. As Lévi-Strauss has noted, the design creates the individual and confers upon him or her a social identity. The body, transformed from its natural state, makes a statement about CULTURE.

Anthropologists have focused on the nature/culture dichotomy and the role of society in transforming certain "natural" processes, such as childbearing, into socially defined and regulated patterns. Social control is also manifested in the treatment of the body. In parts of Africa female excision is practiced as a way to control women's sexuality and to regulate childbearing. Moreover, a child whose mother has not been excised is considered not fully human and may be killed at birth. Such operations impose limitations on a woman's sexual activity, which itself is often seen as a potential threat to the social order.

Such practices, expressed and enacted upon the physical body, reinforce other nonverbal as well as verbal messages about social control over behavior. As anthropologist Terence Turner has shown, Kayapo men of Brazil wear a penis sheath that restricts sexual activity to socially approved contexts; in this



Figure 5. (*Body Decoration*) "La Parisienne," from the Palace of Knossos, Crete. Reconstruction after a fresco. Minoan, ca. 1500 B.C.E. Marburg/Art Resource, New York.

way potentially disruptive behavior is brought into a framework and controlled by a cultural process.

Body decoration is a form of RITUAL behavior that, like all ritual behavior, expresses a desire to gain mystical power. As Edmund Leach, the British anthropologist, has noted, such behavior is "potent in itself in terms of the cultural conventions of the actors but not potent in a rational technical sense. [It] is directed towards evoking the potency of occult powers even though it is not presumed potent in itself." In some cases body decoration equips the individual with the mystical protection necessary to withstand the threats of everyday life. The spirit medium of Ghana who claims that the white lines painted on her forehead deflect the evil invoked by her enemies relies on the magical substances from which the paint is made and also on the design itself.

The objects used in adornment are a means to invoke the magical powers believed inherent in the natural world. They enable a person to generate the powers he or she wishes to possess. A man adorns himself with feathers in the hope that he will be as successful in his quest for wealth as the eagle is in its predatory forages. By painting his body with the

spots of a leopard or by donning bird-of-paradise feathers, he endows himself with the powers of those creatures, extending his own powers beyond the world in which he lives and stepping beyond the limits of his own identity.

Objects with symbolic value are seen as highly desirable accessories. As anthropologists Andrew Strathern and Marilyn Strathern have pointed out, the Mount Hageners of Papua New Guinea wear aprons made of pigs' tails painted with red ocher; they paint their bodies and accessories with wavy white lines and put red and white feathers in their hair. These objects and colors are associated with money and wealth, and their "brightness," like the red flowers of a tree known to attract birds, is said to attract more of the same things. Mount Hageners use these objects because they represent success and are thought to be instrumental in attracting good fortune.

In Western societies body decoration allows people to "borrow" the qualities they wish to possess for themselves. Fashions in CLOTHING and cosmetics change from season to season. The use of cosmetics is necessary to create the fashionable "look," which is, in the 1980s, explicitly associated with wealth, youth, and glamour. Sometimes one person becomes the personification of all these qualities and acquires a flock of look-alike admirers. Aesthetic reasons may be primary, but one important reason behind this form of imitation is the desire for the less tangible qualities associated with the prototype's success.

The use of cosmetics dates back far into the past. In Egypt cosmetics have been found in very early burial sites. The traces of substances found on cosmetic palettes and the portraits of men, women, and children show that the use of eye paint, FACE paint, cleansing cream, and perfumed oils was widespread.

Clay palettes, often with animal motifs and a hole pierced at the top for suspension, were used to grind the pigments. The most frequently found substances were malachite and galena, which were mixed together to make eye paint, or kohl, which in addition to highlighting the EYES was also said to provide protection from the sun and sand.

Lip paint, made from red ocher and oil, was also in common use. The so-called erotic Turin papyrus shows a woman painting her lips with a brush. On a relief from the Middle Kingdom a woman is applying rouge, probably made from hematite, with a pad. In Greece and at Knossos in Crete these same substances were used to make lip and face paint.

Another popular form of cosmetic in Egypt, and later in Rome, was henna. This plant substance was made into a paste and applied in a decorative pattern on the soles of the feet, the nails, and the hair; when washed away it left a lasting stain. The practice continues in present-day Arab countries, where women

paint their hands and feet with elaborate, fanciful patterns.

In ancient times body decoration was used to render the individual more beautiful, but it also conveyed a specific message about the place of the individual in society. Archaeological evidence demonstrates that women associated with temples who were dancers and musicians tattooed their bodies. The earliest example comes from a well-preserved mummy of a dancer who had tattoo marks on her thighs, upper arms, and chest. Such marks seem to have been considered erotic and are found on the small statuettes known as the "Brides of the Dead" that were buried in the tomb of a man and were believed to arouse his procreative powers. Later examples of women musicians with tattoos have also been found on Islamic paintings in Egypt dating from the eleventh and twelfth centuries. In one painting a female figure holding a lute in one hand and a cup filled with red liquid in the other has tattoos on her face, breasts, hands, and feet. The tattoos almost

certainly had erotic associations, but they were also perhaps associated with particular professions.

Body decoration plays an important part in the presentation of status and role. Officeholders are identified by the possession of objects that represent and, at the same time, validate their positions. The body is also a field upon which people may demonstrate personal wealth. It is a display counter for objects that are in themselves worthy of display. Their value is superimposed on the physical body, and in their social presentation the two are inextricably linked. Marriage ceremonies, particularly in societies with dowry requirements, provide an example of the way in which the human body, usually the bride's, becomes an index of the transfer of wealth from her family to that of her husband.

Body decorating also identifies the individual's status within society, portraying in visible terms the individual's progression from infancy through puberty to adulthood. The outward signs of physiological development are not enough; they are also accompanied by ritual acts. Once the rites are accomplished, the individual is permitted to adorn himself or herself with objects considered appropriate to the new grade or status.

Among the Kayapo a man's age is marked by the size and shape of his lip plug. In their society PUBLIC SPEAKING is the prerogative of men, and only males have their lips pierced. Shortly after birth a male child's lip is pierced, and the hole is kept open with beads and a piece of shell. As he grows toward manhood, the size of the lip plug increases. Adult men, who have many dependents and who have the authority to speak publicly, wear the largest lip plugs. Elderly men, who have a less active role in community affairs, wear a lip plug of rock crystal. Its clear or milky color is associated with age and with ghosts; it refers to the place of the elder, whose age puts him beyond the arena of social conflict and competition.

In many societies the physical maturing of the individual is accompanied by rites of passage. Male initiation rites performed at the onset of puberty vary in their complexity but usually begin with a period of seclusion when the youth is removed from his former way of life and taught the knowledge he will need as an adult. The ordeals he undergoes demonstrate his courage and worthiness to enter the adult world and sometimes include circumcision or scarification. The rites are carried out during a period of seclusion, when the youth is removed from everyday community life. His return from this seclusion is regarded as a form of rebirth. Among the Ndembu of Zambia, the boys' return to town is a joyous occasion; the women brew quantities of beer to greet them, and they pretend not to recognize their sons in the "men" who have returned.

As the transition is marked on the physical body,

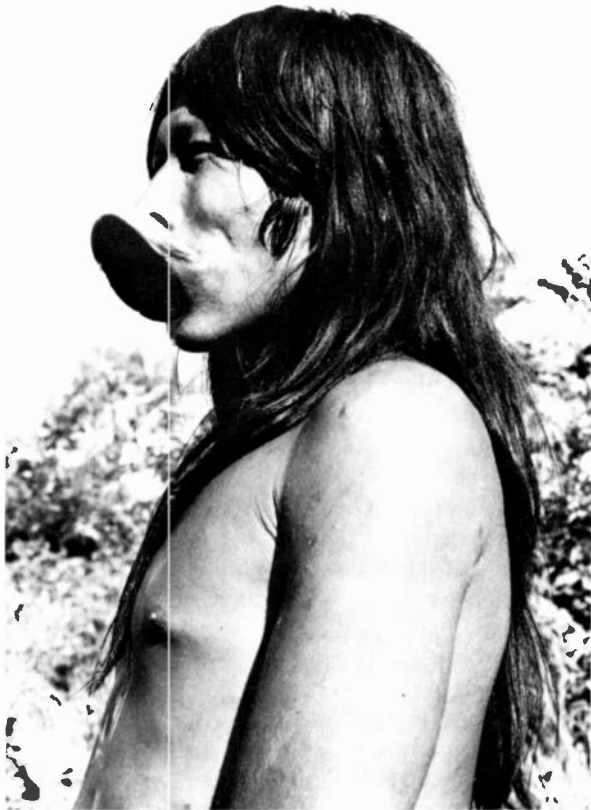


Figure 6. (*Body Decoration*) Kayapo male wearing large wooden disc in lower lip, Brazil. Joan Bamberger/Anthro-Photo.

the inner person is changed too. The possession of new and esoteric knowledge, the long period of seclusion, and the often painful and terrifying rites distance the new "adult" from his former way of life. The change is partially achieved through physical pain that is visible on the skin. The experiences of the physical body and the inner man are marked permanently on the flesh.

The relationship between the inner self and the individual's social identity is expressed by the use of accessories as well as by permanent marks on the body. In Mount Hagen, on certain occasions, people decorate themselves in order to hide their personal identities. A dancer at a formal ceremony takes pride in disguising himself beyond recognition. The decorations hide the individual, and the spectators "read" the message that the dancers wish to portray: wealth, health, and fertility.

The presence of the ancestors is also invoked by the appearance of the dancers. People adorn themselves with valuable shells and anoint their skin with oil to give it a healthy shine. This display of wealth



Figure 7. (*Body Decoration*) Paloic Dinka from Melut, Africa. Dr. J. F. E. Bloss/Anthro-Photo.

and well-being is credited to the intervention of the ancestors, and their presence is indeed visible to the observers in the material success of their descendants. Objects of value adorn their bodies and represent the powerful spiritual support of the ancestors. In this manner abstract qualities associated with inner well-being are projected into a social occasion.

The individual projects an inner reality onto the external environment. The self is bound to the outside world by imposing personal desires and thoughts onto the environment. Among the Shipibo of Peru this outward manifestation of an inner reality has a particularly compelling and pervasive character. Houses, boats, kitchen utensils, textiles, pottery, and people are all decorated with elegant geometric designs. These designs are seen as visible representations of the shamans' songs that float through the air, bringing health and well-being to the village. These patterns impose upon the Shipibo universe a harmonious unity based on the inner reality and profound knowledge of the shamans.

Outward Appearances and Inner Values

If body decoration implied anything less profound than an expression of an inner reality, we would not react so strongly to physical differences between ourselves and others. It is not simply that we are confused by individuals whose physical appearance differs from ours; our reactions are often stronger than that. Outward and physical variations from the familiar often seem to indicate a depth of difference that cannot be bridged by shared perceptions or values. Conversely, we are reassured by someone who resembles us; since this person also observes the same outward conventions, we assume that he or she shares the same value system. Making judgments about people based on their physical appearance has consequences for the individual and for societies—everything from misplaced trust in a well-dressed con artist to the violence directed toward minority groups.

Colonial history offers numerous examples of such behavior (*see* COLONIZATION). Officers and missionaries frequently gave detailed descriptions of the physical appearance of the people among whom they lived. Often at the same time that they recorded these practices they were trying to repress them as a necessary step in dismantling a people's belief system. By citing the Bible to claim that man is created in God's image, and therefore this divinely inspired endowment should not be altered, or by creating laws to ban ritual behavior, missionaries and colonial government officials succeeded in imposing their own vision of the human body. They were able to "re-make" the people according to their own stereotypes.

Artists too portrayed unfamiliar peoples to conform with their own stereotypes. A nineteenth-cen-



a



b

Figure 8. (*Body Decoration*) Tom Torlino, a young Navajo (a) in 1882 and (b) in 1884. From the Carlisle Indian School Collection of the Cumberland County Historical Society, Carlisle, Pennsylvania, 17013.

tury portrait of a South Pacific Marquesas Islander by a British painter depicts an individual who appears to be Mediterranean. His tattoos, for which the Marquesas Islanders are well known, make a brightly colored design resembling a French military uniform. The artist has succeeded in suggesting the specific qualities of the inner man—that of an aristocratic and noble “other”—by relying on signs from his own society (see SIGN; SIGN SYSTEM). The tattoos become a high-collared shirt, and the subject’s profile is markedly European. The distinctive appearance of the Marquesan was effaced by the artist’s imagination; he acquired the features and dress of societies that were more familiar to the artist yet still slightly exotic.

Our perception of others is based at least partly on assumptions about physical appearance derived from our own cultural background and personal experience. These assumptions serve as a point of reference when we encounter others. They may vary over time in response to changing values and people’s sense of invention and innovation, but the forms remain basically the same for long periods. Using the forms in radically different ways—for example, a man dressed as a woman at carnival time—makes a strong statement about the liminal nature of that particular occasion, and the message comes across so clearly because the rule it violates about male and

female dress is so fundamental. In other situations, if a person’s appearance does not conform to the expectations of his or her society, the incomprehensible nature of the message is in itself significant as an expression of antisocial sentiment.

The central point here is that an understanding of body decorations allows one to communicate information at several different levels. It demonstrates participation in a society and also refers to status, material and spiritual well-being, and the expression of aesthetic values (see AESTHETICS). The specific message, however, can be understood only when placed in the context of an assemblage of verbal and nonverbal means of communication.

Bibliography. Robert Bianchi, “The Tattoo in Ancient Egypt,” in *Marks of Civilization: Artistic Transformations of the Human Body*, ed. by Arnold Rubin, Los Angeles, 1987; Victoria Ebin, *The Body Decorated*, London, 1979; James Faris, *Nuba Personal Art*, Toronto, 1972; Angelika Gebhart-Sayer, *The Cosmos Encoiled: Indian Art of the Peruvian Amazon* (exhibition catalog, Center for Inter-American Relations), New York, 1984; Dalu Jones, “Notes on a Tattooed Musician: A Drawing of the Fatimid Period,” *Art and Archeology Research Papers (AARP)* 7 (1975): 1–14; Edmund Leach, *Culture and Communication: The Logic by Which Symbols Are Connected*, Cambridge and New York, 1976; idem, “Ritualization in Man,”

Philosophical Transactions of the Royal Society, Series B, Vol. 251, London, 1966; Claude Lévi-Strauss, *Structural Anthropology*, 2 vols., New York, 1963–1976; A. Lucas, *Ancient Egyptian Materials and Industries*, 4th ed., rev. and enl. by J. R. Harris, London, 1962; Andrew Strathern and Marilyn Strathern, *Self-Decoration in Mount Hagen*, Toronto and Buffalo, N.Y., 1971; Marilyn Strathern, "The Self in Self-Decoration," *Oceania* 49 (1979): 241–257; Tzvetan Todorov, *La conquête de l'Amérique: La question de l'autre* (The Conquest of America, trans. by Richard Howard, New York, 1984), Paris, 1982; Terence Turner, "The Social Skin," in *Not Work Alone*, ed. by Jeremy Cherfas and Roger Lewin, Beverly Hills, Calif., 1980; idem, "Tchikrin: A Central Brazilian Tribe and Its Symbolic Language of Body Adornment," *Natural History* 78 (1969): 50–59, 70; Victor Turner, *Ndembu Divination: Its Symbolism and Techniques* (The Rhodes-Livingstone Papers, no. 31), Manchester, Eng., 1961.

VICTORIA EBIN

BODY LANGUAGE. See **BODY MOVEMENT**; **KINESICS**.

BODY MOVEMENT

Studies of body movement and posture range from anatomical and physiological to a focus on their communicative functions. Posture and body movement are part of a continuum from **FACIAL EXPRESSION** to **GESTURE**. They can be analyzed at the level of individual behaviors, uses of postures and gestures in group activity, or as patterned by cultural traditions. They can also be studied from the standpoint of human biological evolution, as possible reflections of our primate ancestry. Posture and body movement serve not only practical locomotor and other somatic functions, but also an immense variety of social or cultural ends. The ability of human beings to imitate or learn from the movements of others is extremely well developed.

The Greek historian Xenophon (ca. 431–ca. 352 B.C.E.) attributed to Socrates the notion that emotions and personality traits were reflected in postures and facial expressions. In England, philosopher Francis Bacon (1561–1626) noted the importance of gestures. By the seventeenth century gesture and posture were the subject of systematic investigation, especially in connection with rhetoric. **RENAISSANCE** and post-Renaissance realism in painting and **SCULPTURE** also focused attention on bodily "attitudes," but it was **PHOTOGRAPHY** that enabled investigators to collect more accurate data. **CHARLES DARWIN** used photographs in his pioneer work on the expression of the emotions in animals and humans (1872). French physiologist Étienne-Jules Marey began to record body movement with the camera in 1882, and in

1887 Eadweard Muybridge, working in the United States, instituted a major photographic project on animal and human body movement (see **MOTION PHOTOGRAPHY**). While such studies provided accumulating data on body movement, serious research into its communicative aspects was slow to develop. In the 1920s and 1930s, psychologists such as Gordon W. Allport and P. E. Vernon in the United States were studying "expressive movement" (1933). Marcel Mauss wrote an important programmatic paper, "Les techniques du corps," in 1935.

These and other studies led to a long controversy. Are the differences among groups in posture, movement, and gesture the outcome of innate human predispositions, or are they culturally determined? That some could be innately programmed or predisposed and others clearly acquired was a middle position rarely taken. U.S. anthropologist Weston La Barre argued for almost total cultural causation. In Germany, I. Eibl-Eibesfeldt, with considerably more empirical evidence, argued the reverse. Some postures, body movements, and gestures seem to have, as Darwin believed, deep phylogenetic roots, and others are recent, even deliberate, inventions and also geographically limited, as in the case of the Nilotic one-legged standing position. The interplay of biological determinants and predispositions and cultural factors is one of the reasons scholars find this field so challenging.

Approaches to the Study of Body Movement and Posture

Muybridge photographed both humans and nonhumans in motion, testifying to a widespread and probably very ancient human interest in animal and human locomotion. Nonhuman animals, including many invertebrates, utilize postures and distinctive movements for communication. In many species, **GENDER** often affects or determines postures and movements. A commonplace example is the difference between urination postures in male and female dogs. Sex differences in human sitting postures are widespread cross-culturally. Both pelvic dimensions and fat distribution have well-known effects on differences in gait (especially in running) between most men and women. Cultural elaborations, derived from the division of labor, patterns of male dominance, **CLOTHING**, and the like, have intensified such differences.

Much of the distinctiveness of human body movement and posture arises from the bipedal stance and gait of our species. Walking and running have been studied mainly by physical educators, physiologists, and orthopedists, although walking and running styles may present individual, cultural, or other elements. Human beings also crawl, go on all fours, leap,



Figure 1. (*Body Movement*) Martha Graham in *Letter to the World*, 1944. Photograph by Barbara Morgan. International Museum of Photography at George Eastman House.

climb, swim, or dive, all in ways subject to anatomical, physiological, psychological, and cultural factors. The achievement of full bipedalism is a step in the development of human children probably recognized as significant in all cultures and is seen as a criterion of humanness, despite the existence of bipedalism in birds and a few other vertebrates. Occasional bipedalism in bears seems to have been a factor in the phenomenon of bear ceremonialism, a widespread and ancient cultic practice in which they are regarded as mysteriously humanlike. Human beings, judging from mythology and folklore, as well as from frequent dream experiences, have long been envious of the flying ability of birds—a locomotor deficiency that probably does not trouble any other nonflying species.

Even as neonates, human infants are sensitive to body movements of others and to some gestures as well. There has been much study of motor activity and development in PLAY. Young children are often trained to conform to cultural postural and motoric norms, notably with respect to eating habits, including such matters as careful avoidance of the use of the left hand. School is often another agency of postural training of the young.

Standing and walking impose energetic burdens on the human body. Much of the time we sit, squat,

kneel, recline, or lie down, and it is especially with these postures that cultural factors lead to remarkable variations. These have been plotted geographically, and they exhibit significant regional differences. Here gender differences are very evident, along with the effects of clothing (including footwear), work habits, housing, furniture, ground cover, and climate, although what is cause and what is effect may not always be apparent. While no environmental barriers would seem to preclude the worldwide occurrence of cross-legged ground-sitting postures, these are not in fact universal. Special meditation postures (as in yoga) are resting positions of a sort, but they are not found in all human cultures. Some cultures also have breathing exercises involving special postures and movements, likewise of limited geographic distribution.

Different cultures or subcultures may have different standards for what constitutes “good” or “bad” posture or movement. Postures acceptable in children or adolescents may be considered undignified in older individuals. A style of walking that may be admired in a cabaret hostess may seem improper in a female schoolteacher.

Postures and movements may be important indexes of health or symptoms, sometimes highly diagnostic, of illness, including mental illness. Catatonic



Figure 2. (*Body Movement*) Fourteen-year-old Nadia Comaneci from Romania performing during the XXI Olympic Games, July 21, 1976. UPI/Bettmann Newsphotos.

schizophrenia produces bizarre postural effects. Drugs may affect posture and locomotion, and even slight deviations from normal body movement are used in law enforcement to detect drunkenness. Obesity, illness, old age, strong emotion, and deformities produce obvious postural or body movement effects. Actors are expected to be able to simulate these effects or to exaggerate them for dramatic purposes, as in the traditional roles of Falstaff, Lear, Richard III, or Camille. *See also* ACTING; DRAMA—PERFORMANCE.

Sleeping postures and movements have been studied but mainly from the standpoint of physiology and dream behavior. Cultural differences in sleeping postures may result from the use of headrests, pillows, bedclothing, and hammocks, or the need to protect coiffures. Burial or mortuary postures are often intentional simulations of sleeping positions. The deliberate burials of Neanderthal times, eighty thousand to forty thousand years ago, in which the

corpse was flexed on its side, have been described as being in a fetal position. This is in fact the earliest evidence of culturally patterned placement of the human body, but there is no real evidence to connect it with the position of the fetus in utero and whatever that might symbolize.

Copulatory and other sexual postures and movements have been described and depicted in many different cultures, in some cases in famous treatises such as the Kama Sutra and in sculpture and painting from many periods and cultures as well: ancient Greek and Roman, medieval Indian, Chinese and Japanese, among others. Scientific studies have tended to focus on physiological and psychological aspects of such postures and movements rather than on their positional and motoric features. In this area of behavior, our species seems to exhibit greater complexity and creativity than other animals. Postural and motor effects of pregnancy and lactation have received little attention. Birth postures, sometimes dictated for the convenience of obstetricians in the Western world, have recently begun to be studied from a cross-cultural standpoint. Delivery with the mother in a squatting or sitting position is more common worldwide than the supine position characteristic of Western hospital births.

Postures used for excretion have received some ethnographic notice, as has the associated furniture, if any. There are gender differences, although it is by no means universal that males stand to urinate. Clothing affects excretory postures, and clothing design may be affected in turn. Remains of Roman public lavatories show that chair-sitting postures, rather than squatting, were customary, at least in cities.

Body orientation with respect to others in small-group situations has been exhaustively investigated. This topic has constituted the focus of research in PROXEMICS and INTERPERSONAL DISTANCE.

Despite some sharp departures from widespread nonhuman primate patterns, human postures and movements of dominance and submission show many similarities to what may be observed in other animals, suggesting that they have very old evolutionary origins. Etiquette in many cultures requires the subordinate to occupy a physically lower level, especially by lowering the head to the superior. A more general principle would seem to be that of least effort on the part of the superior, who may either remain standing while others bow or prostrate themselves or remain seated or reclining while inferiors stand. Bowing, curtsying, and kowtowing are only a part of this branch of deference behavior. Ways of tying up or torturing victims or criminals may also involve their assuming demeaning postures, with parallels in sadoomasochistic practices.

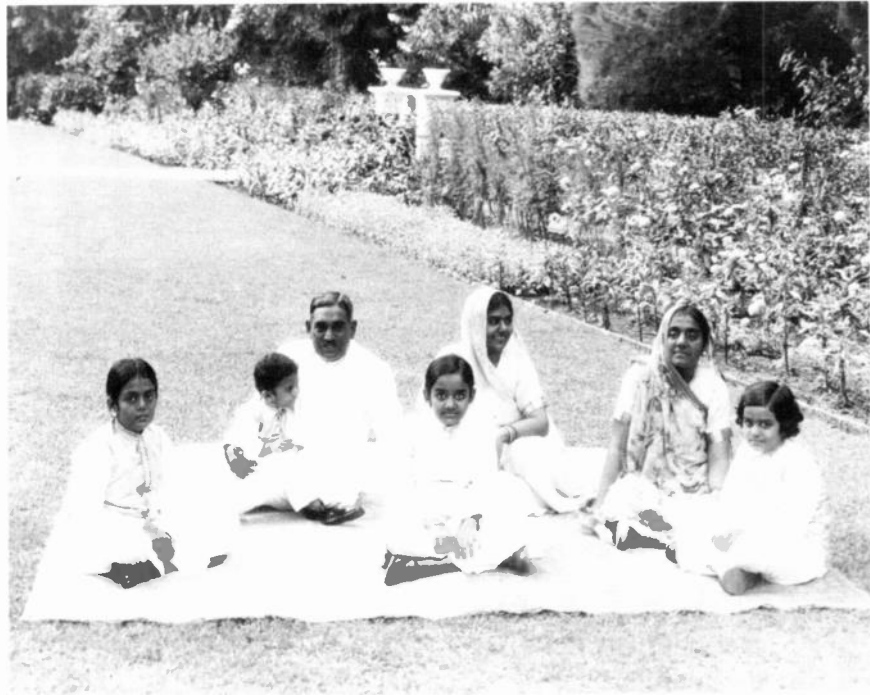


Figure 3. (*Body Movement*) His Highness the Thakore Sahib, ruler of Palitana, with Her Highness and five children, all sitting in the cross-legged position. The Bettmann Archive, Inc.

Clothing and ornament, as noted, may affect posture and gait, for example, because of stiffness or weight (as with corsets or suits of armor) or because of precarious balance (as when very high-heeled shoes are worn). Chinese foot-binding represented an extreme effect of this sort on women's gait. There has not been much serious study of such phenomena, although actors in historical costume dramas are presumably familiar with some of these bodily constraints. *See also* BODY DECORATION.

Occupation or work habits may affect posture and movement in two main ways. First, certain tasks may require special postures or movements for maximum efficiency. This is the field of ergonomics research. Second, habitual work postures or movements associated with particular jobs may produce characteristic health problems. Carrying heavy burdens and prolonged bending over work tables are common examples. Less damaging to health but occupationally characteristic are the rolling gait of sailors and the bowlegged outcome of a lifetime of horseback riding, though both may be cultural stereotypes rather than significantly frequent occupational stigmata.

Religious and related RITUAL activities commonly include prescribed postures or movements. These range from prayer positions, genuflection, and prostration to flagellation or meditation poses. Many ritual postures or movements seem to be extensions of submissive or deferential social behaviors.

DANCE is an activity involving social communication, postures, movements, and gestures, often of

great complexity. Its cross-cultural analysis by Alan Lomax and others has revealed some unexpected correlations of dance style with other aspects of culture, including the overall complexity of sociopolitical structures. There has also been some work on postures and movements associated with the playing of different musical instruments, Western and non-Western. *See also* CANTOMETRICS; CHOREOMETRICS.

Formal elaboration of movements and postures reaches a high point in many SPORTS activities, among them martial arts, gymnastics, tennis, and golf. In many forms of athletic competition, style in the performance of movements is a major criterion of excellence.

In many cultures, as mentioned in relation to eating behavior, there are specified "proper" ways of handling objects, presenting them to others, and the like. The predominance of right-handedness means that left-handed persons are at a persistent physical disadvantage with many common artifacts designed for the right-handed majority, from bolt-action rifles to schoolroom desk chairs. The proper way to mount a horse also favors the right-handed.

Sources of Data for the Study of Body Movement

Complexities and variety of phenomena related to human body movements and postures are reflected in the diversity of methods used to investigate them.



Figure 4. (*Body Movement*) Worker shoveling coal into a furnace at the Bethlehem Steel Company. F. W. Taylor was hired to reorganize this company in 1907. From his time and motion studies, he learned ways to maximize worker efficiency. Brown Brothers, Sterling, Pennsylvania.

However, many aspects of body motion and postures have been studied without reference to their possible social communicative functions. Habitual squatting produces distinctive facets on knee and ankle joints, so that the characteristic resting postures of some ancient populations can be determined from skeletal remains. Does this provide evidence for postural behavior in prolonged small-group interactions? The striding gait of three australopithecine hominids at Laetoli in northern Tanzania nearly four million years ago has been recorded in footprints, indicating two persons of different size walking side by side in a way still characteristic of modern human pairs. Evidence from later prehistoric sites often reveals the layout of working floors in relation to hearths and hut entryways. This may shed some light on ancient proxemic habits and the spatial patterning of domestic activities, from food processing and eating to toolmaking and sleeping. Sitting or sleeping platforms, benches, and occasionally stools, chairs, thrones, and other furniture found in archaeological sites provide data on ancient postural habits. Stairs and ladders in ancient sites show us that people in many different parts of the world solved the problems of ascending or descending from different levels in the same ways.

Much richer data on past postures, gestures, and movement come from figural art, providing a data base going back to the Upper Paleolithic in some regions. Art historians have been assiduous students of posture and gesture and their symbolic communicative aspects. Certain art traditions are especially

rich sources of information on postures ranging from ordinary productive tasks to court or priestly ritual, as in that of pharaonic Egypt. Literary sources are generally less helpful, but they have been used for some kinesic research. Photography, cinema, and their offshoots have produced the most complete record, but one that only began around 1840. Videotape is one of the most valuable recent recording tools. Several systems of movement, gestural, and postural notation have been devised, such as those of Rudolf Laban, Ray Birdwhistell, and Rudolph Benesh. Finally, data relating to posture and movement can be collected from interviews and questionnaires, especially to elicit responses to illustrations of posture or body movement.

See also BODY MOVEMENT NOTATION; KINESICS; NONVERBAL COMMUNICATION; TOUCH.

Bibliography. Michael Argyle, *Bodily Communication*, London, 1975; Jack Blacking, ed., *The Anthropology of the Body*, New York and London, 1977; Adam Kendon, ed., *Nonverbal Communication, Interaction, Gesture*, The Hague, 1981; Mary Ritchie Key, ed., *The Relationship of Verbal and Non-verbal Communication*, The Hague, 1980; Marianne LaFrance and Clara Mayo, *Moving Bodies: Nonverbal Communication in Social Relationships*, Monterey, Calif., 1978; Desmond Morris, *Manwatching: A Field Guide to Human Behaviour*, London, 1977; Gerard I. Nierenberg and Henry H. Calero, *How to Read a Person Like a Book*, New York, 1971; Ted Polhemus, ed., *The Body Reader: Social Aspects of the Human Body*, New York, 1978; Albert E. Scheflen, with Alice Scheflen,

Body Language and the Social Order, Englewood Cliffs, N.J., 1972; Klaus Scherer and Paul Ekman, eds., *Handbook of Methods in Nonverbal Behavior Research*, Cambridge, 1982; Karl Sittl, *Die Gebaerden der Griechen und Römer*, Leipzig, 1890; Aaron Wolfgang, ed., *Nonverbal Behavior: Applications and Cultural Implications*, New York, 1979.

GORDON W. HEWES

BODY MOVEMENT NOTATION

A system of notation is very important for the systematic study of the role of BODY MOVEMENT in communication. Once movements are transcribed into graphic form it becomes possible for an investigator to read and analyze those movements without being confined to the rapid flow of real space and time. In addition to being a recording device, a notation system provides for the development of important conceptual skills—ways of thinking with and about human movement.

Different disciplines in Western academic contexts define human movement in very different ways. For example, fundamental differences such as those between biological/physiological modes of explanation and the discourse of the social sciences or humanities have led to two major differences in ways of measuring and recording movement. Investigations of the biological/physiological kind are usually concerned with metric measurement and involve such notions as angles of displacement, muscle force, velocity, and principles of mechanics. They are generally found in kinesiological and biomechanical contexts and, in contrast to social-scientific/humanistic investigations of human movement, are ways of measuring movement that do not attempt to deal with units of MEANING.

Extant records suggest that simple notation systems began to appear in the fifteenth century (in Europe at least) as mnemonic devices for social dances. As these DANCE forms changed and more detail of steps and floor patterns was required, other systems came into being, such as the Beauchamp-Feuillet system in France around 1700. There followed a period when the ability to read dances was an expected skill of any educated person in the courts of Europe. This brief excursion into dance literacy seems to have passed with the decline of the aristocracy during the French Revolution as more elaborate theatrical dance forms developed separately from social dance forms and as nonliterate persons became theatrical dancers. Many European and later U.S. choreographers attempted to develop new notation systems. Some utilized stick-figure representations;

others relied on musical notation with various combinations and abstractions.

Dance is not the only context in which the notation of movement has been attempted. For example, a system was developed in 1806 by Gilbert Austin for the notation of gestures and body positions during PUBLIC SPEAKING. Many of these notation systems have been little used because they were developed to meet the needs of one particular movement form, dance style, or research project. The problem has been to develop a script capable of writing all anatomically possible bodily action that will preserve the identity of the movement, make possible accurate reproduction of it, and maintain its semantic content.

It is only in the twentieth century that such generalized systems have emerged. Some of the fundamental issues involved in this process are discussed here with reference to three of these extant systems: Labanotation (1928), Benesh notation (1955), and Eshkol-Wachmann notation (1958). These have continued the earlier attempts to record dances, but they also have more ambitious goals. By the 1970s, in addition to the recording of choreography, these systems began to be applied to such diverse contexts as social/cultural anthropology, physical therapy, SIGN LANGUAGE studies, kinesiological analysis, and the historical study of dance and dance composition, as well as animal behavior studies and computer GRAPHICS.

Notation Systems

It is important to note that the inventors of the Laban, Benesh, and Eshkol-Wachmann systems had different aims for their notation systems, came from different cultural backgrounds, and were familiar with different movement systems. These factors affected the choices they made in solving the problems that will be mentioned below.

Labanotation. Labanotation was invented by Rudolf Laban (1879–1958), a choreographer and dancer. Working in Austria and Germany around 1926, he set out to devise a notation system that could record any human movement, although initially it was a system for use in choreographic contexts. Laban was intrigued by Greek concerns with MATHEMATICS, the movements of planetary spheres and crystal forms, and the Bauhaus movement in visual art and ARCHITECTURE in Germany. He had wide interests in movement in diverse situations, from the physical working environment to MIME. His later work in England focused particularly on the analysis of dynamic components of manual work in industrial environments. Labanotation, or Kinetography Laban as it is known in Europe, came to be used primarily for the recording and preservation of professional THEATER dance works in the United

States and in Europe and the traditional dances of eastern Europe. More recent applications are in social/cultural anthropology, sign language studies, and kinesiology. The dynamic analysis known in the United States as Effort-Shape, mentioned below, has been used in child development studies, creative dance in education, dance therapy, and personality analysis.

Benesh notation. In contrast, Rudolph Benesh, an artist and accountant, and Joan Benesh, a ballet dancer, were both involved in the professional world of ballet in England. Benesh notation was designed specifically at its outset to record one movement language and its "dialects": the ballet. Not unexpectedly, therefore, the writing system itself underlines many of the principles of ballet, such as a concern with line and the visual results of movement. Applications apart from the recording of ballet and modern dance choreography are in social anthropology and physical therapy with handicapped children.

Eshkol-Wachmann notation. Noa Eshkol, an Israeli choreographer and dancer, and Abraham Wachmann, an architect, were the inventors of the Eshkol-Wachmann system. Eshkol's interests lay in choreography that was free of a priori connotations. Both were interested in the cognitive and creative potential of a notation system that could refer to the complex articulation of any kind of object in space. The notation has therefore been used in nonhuman contexts such as computer graphics, architectural design, and animal behavior studies as well as the recording of traditional and modern dance compositions and Israeli sign language.

The Notation Problem

Any movement notation system has to resolve several difficult technical issues. The problem is not only how to represent all the parts and surfaces of the body with two-dimensional graphic signs but also how to organize the writing of those signs when some or all of those body parts are moving simultaneously and/or sequentially in three dimensions of space. All of this necessarily takes place through time and may occur in relationship to other persons who are also moving.

The body. Solutions to the problem of representing parts and surfaces of the body on paper have included the use of words or abbreviations of words, pictographic representations, stick-figure diagrams, system-specific symbols, numbers or letters representing joints and/or limbs, and specified columns on a page for each body part. The overall number of signs required is greatly reduced in those notation systems that utilize abstract symbols rather than pictographic representations.

Space. The medium in which the parts of the body move also must be made finite in some way. Problems

arise with conventional numerical measurement because a baseline or point is needed from which to measure. In a number of studies of GESTURE and other aspects of communicative body movement attempts have been made to measure movement by plotting successive positions of a moving body part on a grid superimposed on a projected film image of the movement. Such an approach leaves out the third dimension and in effect removes the movement itself by treating it as a succession of static positions.

A different approach was developed by Laban. Utilizing a Euclidean view of space, he conceived of the body as being surrounded by a sphere of space, as if inside a balloon. This space divides into three dimensions via three axes perpendicular to each other (up/down, front/back, left/right), the body being in the center of the sphere. Each major direction and various intermediate divisions are assigned a symbol. This same scheme provides a framework for determining the direction of individual limbs and smaller body parts by locating smaller imaginary spheres at each joint. An important feature of this approach is that it allows spatial direction to be written according to the mover's perspective rather than from the standpoint of an observer.

The Eshkol-Wachmann system is based on a similar approach. The same imaginary sphere of space is divided into two planes, horizontal and vertical (each plane being a two-dimensional surface). These planes are in turn segmented into sections, and directions are assigned numbers. As with Labanotation, the basic division of space for the whole body in the Eshkol-Wachmann system applies in miniature for movement of each limb and parts of a limb, the planes being located at each joint. In both these notation systems spatial directions are represented with a small and finite set of characters that apply to all situations and to all body parts.

Other systems use part symbol, part placement on a visual representation of the mover's space. In the Benesh system, for example, the up/down and left/right dimensions are represented iconically. Representation of the third dimension relies partly on visual perspective and partly on symbols for "in front," "level with," and "behind." Characters for details such as FACIAL EXPRESSION and hand and finger movements were a later addition to the system, and the set of symbols devised for these operates on principles different from those used for the rest of the body.

Time. Scripts of all kinds deal with time by assigning a direction for reading—an axis for the sequential flow of sound or movement (e.g., left to right, bottom to top of page). In contrast to spoken language scripts, however, and because of the simultaneous actions of the body's multiple articulators, a movement script must be able to distinguish between

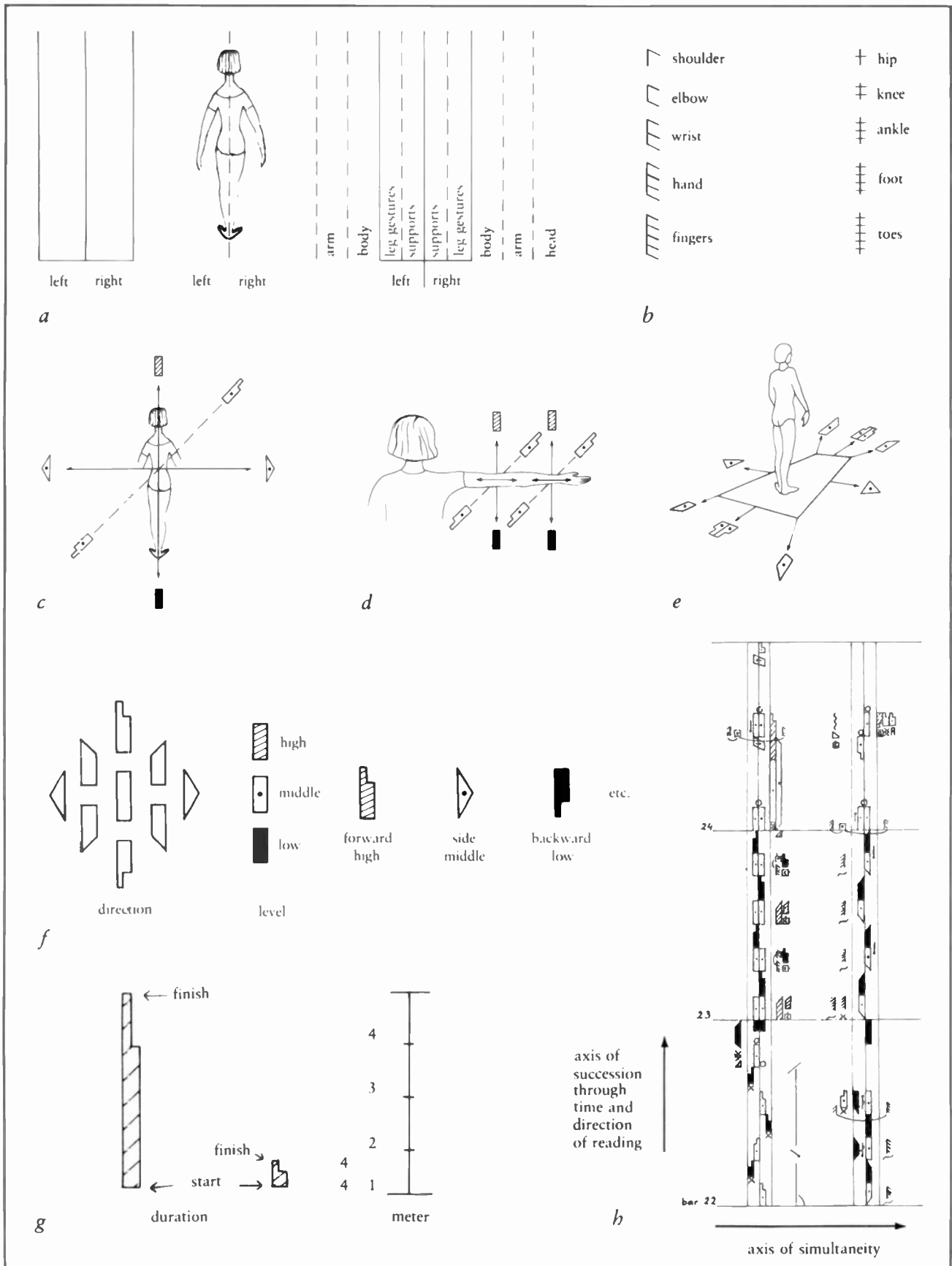


Figure 1. (*Body Movement Notation*) Labanotation system: (a) basic Labanotation staff, (b) some body part signs. Redrawn after Ann Hutchinson Guest, *Dance Notation*, New York: Dance Horizons, 1984, pp. 82, 83. (c) Main cross of directions centered in the body, (d) local cross of axes located in joints of body part, (e) direction of steps into the displacement space. Redrawn after Brenda Farnell. (f) Spatial organization, (g) timing, (h) example of writing. Redrawn after Ann Hutchinson Guest, *Dance Notation*, New York: Dance Horizons, 1984, pp. 83, 84.

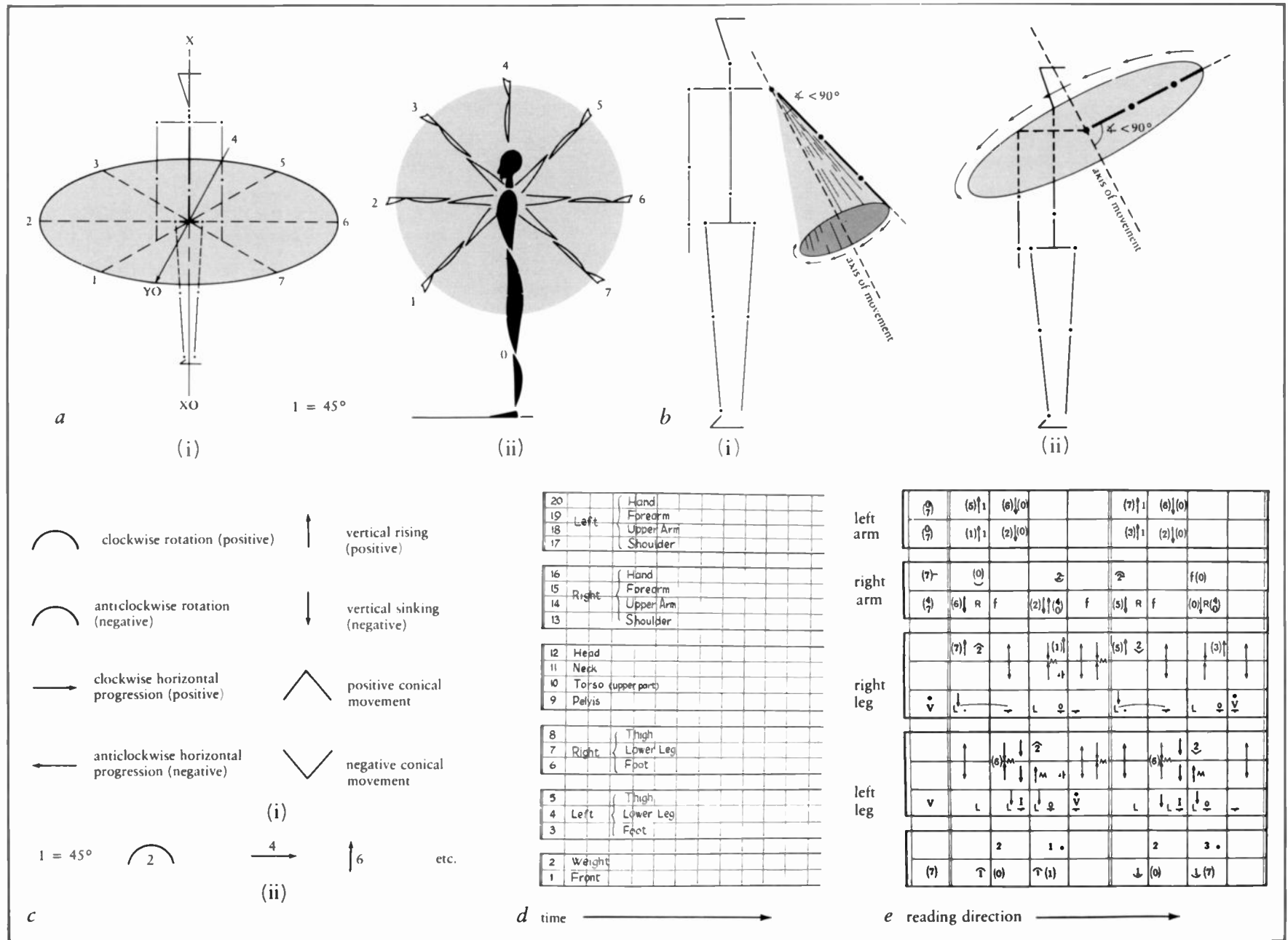


Figure 2. (Body Movement Notation) Eshkol-Wachmann notation system: (a) organization of space: (i) coordinates of the horizontal plane; (ii) coordinates of the vertical plane. Redrawn after Ann Hutchinson Guest, *Dance Notation*, New York: Dance Horizons, 1984, p. 112. (b): (i) Conical movement; (ii) planal movement. Redrawn after Noa Eshkol and Abraham Wachmann, *Movement Notation*, London: Weidenfeld and Nicolson, 1958, pp. 11, 10. (c): (i) Signs for motion; (ii) numbers are added to each of the signs for motion to state the degree of displacement. Redrawn after Ann Hutchinson Guest, *Dance Notation*, New York: Dance Horizons, 1984, p. 111. (d) The full staff; body parts. Redrawn after Noa Eshkol and Abraham Wachmann, *Movement Notation*, London: Weidenfeld and Nicolson, 1958, p. 3. (e) Example of writing. Redrawn after Ann Hutchinson Guest, *Dance Notation*, New York: Dance Horizons, 1984, p. 109.

a

(i)

(ii)

b

— extremity
+ center joint
level

| extremity
+ center joint
in front

● extremity
X center joint
behind

c

• face the audience

• a half-turn right, end facing upstage

• 6 a file of six persons

+ 6 a line of six traveling sideways to the right

∇ • a line downstage on left stage

∟ entering upstage through right wing

d

direction of reading →

time: bar lines follow the same conventions as a musical score

Figure 3. (*Body Movement Notation*) Benesh notation system: (a) body parts and staff: (i) matrix representing the performer; (ii) arm raised sideward. Redrawn after Joan Benesh and Rudolph Benesh, *An Introduction to Benesh Dance Notation*, New York: Pitman, 1956, p. 11. (b) Direction symbols for the third dimension. (c) Signs under the staff indicate stage direction faced, turning, stage location, and direction traveled. Redrawn after Ann Hutchinson Guest, *Dance Notation*, New York: Dance Horizons, 1984, pp. 99, 100. (d) Example of writing. From Julia McGuinness-Scott, *Movement Study and Benesh Movement Notation*, London: Oxford University Press, 1983, p. 117.

simultaneous and sequential action. If movement is externally motivated by music or rhythmic divisions, the time axis can be divided up in a similar manner to musical notation.

Dynamics. A movement always involves some degree of muscular tension or strength; thus acceleration and deceleration may be an important feature; the impetus or initiation point for the action might be of significance; accents, vibration, and so on can be relevant. Symbols that can capture these dynamic aspects are often useful additions to the notations for body, space, and time aspects mentioned above. Although Labanotation includes symbols for these dynamic aspects, Laban also created a detailed classification of movement dynamics that has become known as Effort-Shape. An additional Effort-Shape notation system has been developed that attempts to capture the intention or attitude of the mover toward action. Effort elements identify attitudes toward weight (strong/light), time (quick/slow), space (direct/indirect), and flow (bound/free). Shape involves relationships between the body and space in categories such as shape-flow (opening/closing), arc- and spokelike directional movement, and three-dimensional shaping in space. The emphasis on inner attitude has made this system of interest in areas such as dance therapy, child development studies, creative dance in education, and personality analysis. Assumptions of universality, however, are highly problematic, as these movement dynamics are named and classified according to values that Western cultures attach to spatial directions and bodily use.

Choosing a Notation System

Semantic concerns relating to concepts of the body and the spatial orientation of the mover can be an important consideration, especially in anthropological contexts in which notation according to the cultural concepts of the persons moving is an important goal. The "frame of reference" keys and choice of symbols in the Labanotation system provide a means for subtle alternative descriptions of movements that look alike but semantically are quite different. The iconic commitment of the Benesh system would appear to limit movement description to an observer's point of view.

In the history of writing it is widely agreed that iconic or picturelike devices that represented ideas or objects were the forerunners of systems in which the graphic marks represent units of the spoken languages themselves. In relation to writing systems for movement this suggests that greater referential value, an economy of symbols, and less ambiguity over interpretation can be achieved when graphic marks relate to elements of the medium of movement itself.

Arguments have been advanced, however (e.g., by Benesh), that because movement is perceived visually, its representation should be visual; that is, an iconic relationship between SIGN and denotatum is desirable. Indeed many dance notation systems have used some form of stick-figure representation of the body (e.g., Arthur Saint-Léon, *La sténochorégraphie*, Paris, 1852; Friedrich Albert Zorn, *Grammatik der Tanzkunst*, Leipzig, 1887; Valerie Sutton, *Sutton Movement Shorthand*, U.S., 1973; Joan Benesh and Rudolph Benesh, *An Introduction to Benesh Dance Notation*, U.S., 1955). These rely on perspective and/or use extra symbols to suggest the third dimension. However, just as in alphabetic writing systems the relationship between sound and the graphic sign that represents it is a conventional one, so there can be a conventional relationship between a movement and its written representation that need not have anything to do with visual perception. Movement notation systems that follow this principle gain greatly in symbol economy and ease of representation. *See also* PERCEPTION—STILL AND MOVING PICTURES; VISUAL IMAGE.

These systems and others that have appeared during the twentieth century continue to vie with one another for supremacy. Unfortunately, arguments for the superiority of one system over another have tended to revolve around practical considerations such as the speed of production, ease of reading, correlation between notators, and accurate reproduction. For example, the first International Congress on Movement Notation, held in Israel in 1984, focused largely on pragmatic aspects and diversity of application rather than on the many theoretical issues that require consideration. It would seem that wider academic recognition of movement notation systems will depend on attention to the creative and intellectual potential of literacy in relation to movement in addition to concerns over the historical preservation of choreographic invention.

See also CHOREOMETRICS; KINESICS.

Bibliography. Gilbert Austin, *Chironomia: A Treatise on Rhetorical Delivery*, ed. by Mary M. Robb and Lester Thonssen, Carbondale, Ill., 1966; Joan Benesh and Rudolph Benesh, *An Introduction to Benesh Dance Notation*, New York, 1955; David Best, *Philosophy and Human Movement*, London, 1978; Noa Eshkol and Abraham Wachmann, *Movement Notation*, London, 1958; Nelson Goodman, *Languages of Art*, 2d ed., Indianapolis, Ind., 1976; Ann Hutchinson Guest, *Dance Notation: The Process of Recording Movement on Paper*, New York, 1984; idem, *Labanotation*, 2d ed., London, 1970; Klaus Scherer and Paul Ekman, eds., *Handbook of Methods in Nonverbal Behavior Research*, Cambridge, 1982; Drid Williams, *The*

ories of the Dance, Metuchen, N.J., 1987; Drid Williams, Dixie Durr, and Brenda Farnell, *Labanotation for Non-Dancers*, forthcoming.

BRENDA FARNELL

BOOK

With the exception of SPEECH itself, no human invention has played so important a role in communication for so long a time as the book. Nothing else has been so prevalent and effective a means of storing and transmitting to others the records, knowledge, literature, speculations, and entertainments characteristic of human society.

In the twentieth century the idea of "the book" is embodied in the printed codex. Each of its paper leaves contains two pages (recto and verso). Each two-page leaf may or may not be joined to another leaf. The leaves themselves are brought together into gatherings, normally of thirty-two leaves. Then groups of gatherings are sewn or glued together at their back or spine and cased in paper or board covers. On the majority of its pages the modern book normally contains photolithographic images of ideographic or alphabetical word- or letterforms. Illustrations, variously created and reproduced, may also be printed with these letterforms, either on the same or on separate leaves

However, the book has taken this form only very recently. For the preceding several hundred years it had, in the West, contained images of letterforms reproduced not photolithographically but by relief. Its leaves might be paper, but, particularly in the fifteenth century, they might instead be prepared animal skin (vellum or parchment). They were not cased but bound, joined physically both to one another and to the boards and animal skins covering and protecting them by sewn cords and glue. See also WRITING MATERIALS.

For more than a thousand years before that the book's letterforms had been created not by mechanical processes but by hand. But books had, in the West, already taken on the codex form that they still use, and their texts were written generally on vellum. Earlier still, however, books had usually looked nothing at all like what we recognize as books. Their texts were written or painted on leather or papyrus, which was then rolled for storage. Other forms of the book were chiseled or written on tablets of clay or wood, or on bark, leaf, linen, or metal, and they were stored variously as the nature of their materials demanded.

The printed book in codex form is only an episode in the long history of the book. As these words are written the future of this form is open to speculation.

Electronic and digitalized storage and retrieval mechanisms, still at a very early stage in their own history, may well affect how people continue to seek and to preserve the information, literature, history, records, and entertainment for which they have long used books. See also ARCHIVES; DATA BASE; ELECTRONIC PUBLISHING; LIBRARY.

Early History

Basic to the creation of books, whatever their physical shape or means of production, are the various WRITING systems in which their contents are embodied. These can be traced back to a period beginning roughly in 3500 B.C.E. Pictographic, ideographic, syllabic, and alphabetic writing systems were devel-



Figure 1. (Book) *The Bookseller*. From Annibale Carracci, *Le arti di Bologna*, 1646, plate 44. Facsimile, Rome: Edizioni dell'Elefante, 1966.

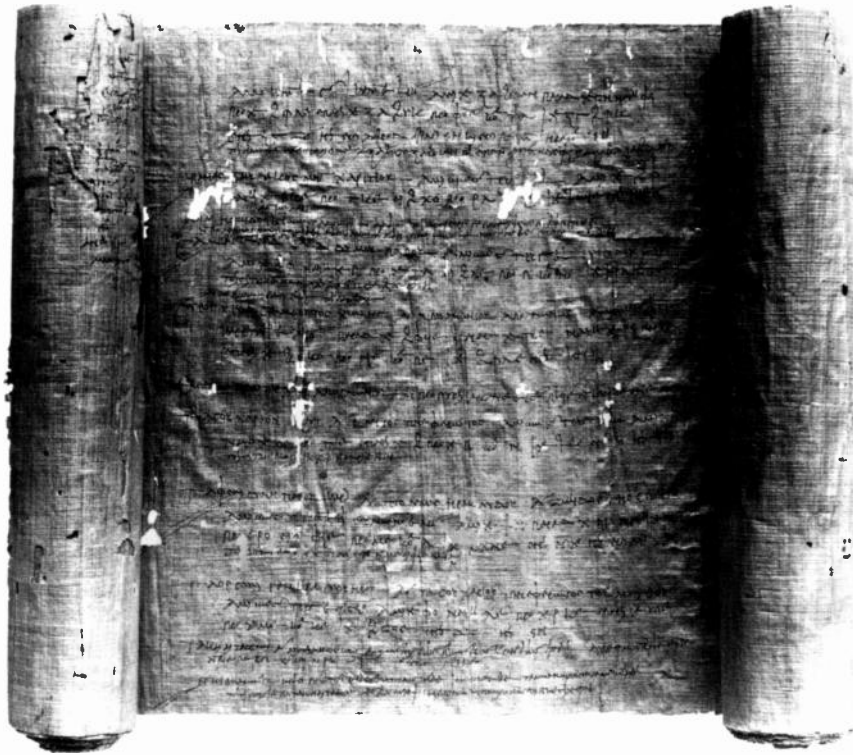


Figure 2. (*Book*) Greek tax roll from Theadelphia (Fayyum), 166 C.E. Papyrus. The reproduction depicts column 14; the others are rolled up. Staatliche Museen zu Berlin (DDR), Papyrussammlung, P11651.

oped over several millennia by the peoples of western Asia (*see* ALPHABET). Not only Near Eastern, North African, and European writing systems derive from these early developments, but also Indic and even Chinese systems have been hypothesized to derive from them.

From the very earliest periods of which we have knowledge, writing appears to have functioned in the ways it has continued to function ever since. Commercial and government records dominate, along with those created in the service of the local RELIGION. But we also find literature, high and low, and mathematical, astronomical, and medical texts. It pleases users of alphabetical systems to regard them as almost the evolutionary end product of the various writing systems thus far devised. It also appears to be historically true that alphabets were the latest of the writing systems to develop. But all systems seem equally capable of adaptation to all forms of record-keeping and literary pursuits. Various modern oriental writing systems still employ some tens of thousands of ideographs instead of the twenty-six characters and assorted punctuation marks of the Roman alphabet. They sufficiently indicate the adaptability of such systems.

In North Africa, the eastern Mediterranean, and Europe the papyrus roll eventually emerged as the dominant form of the book. The codex succeeded the roll early in the Christian era, though only with

some difficulty. The papyrus industry, well established, involved much capital investment and many laborers. At the same time, the production of vellum, fraught with technical problems, took centuries to become established on a large scale. These impediments might have proved less obstructive to the triumph of the codex form had the papyrus codex been adopted for secular literature prior to the vellum codex. But for reasons not entirely understood, the vellum codex was adopted first. Moreover, the vellum codex appears to have been invented in Rome at a time when Rome was dominated by a culture—Greek—for which only the roll meant a book. These factors reinforced a conservatism long characteristic of books and writing. Yet between the first and the fifth centuries C.E. the change from roll to codex occurred. Of the surviving exemplars of Greek secular literary and scientific writings 100 percent of those now dated to the first century are found in roll form, while almost 90 percent of those now dated to the fifth century are found in codex form. The third century saw the adaptation of books to the codex form in significant numbers. By the beginning of the fourth century the codex had achieved something like parity with the roll.

Early Christian communities evidently possessed a different idea of the book. By the second century the Christian Bible seems always to have appeared in papyrus codices. Noncanonical Christian writings

also appeared more frequently in codex than in roll form. The adoption of the papyrus codex by Christian communities may have served to differentiate their writings, both scriptural (*see* SCRIPTURE) and noncanonical, from Jewish and pagan writings—an unusual validation of the critical cliché that relates form and content. Christians had shifted to the codex by about the end of the first century. It may thus seem that the eventual triumph of the codex is directly related to the triumph of Christianity in the West. But certain practical concerns had already initiated the shift from roll to codex. These include the compact portability of the codex, its ability to bring together within one set of protective covers perhaps six times as much text as a roll could contain, and its ease of use for reference. Christianity merely gave final impetus to a change already under way.

The production of papyrus in Egypt did not cease until about the twelfth century, but papyrus had long before largely given place to vellum in bookmaking. In China a new writing material, paper, made from mulberry and bamboo bark and probably with additional vegetable fibers, had been announced as early as 105 c.e. by Ts'ai Lun. It is uncertain whether he was the inventor of paper or the official who conveyed word of its discovery. By the eighth century the technique had reached the eastern Islamic world. The Moors brought paper to Europe late in the eleventh century, when its manufacture began in Spain. Paper mills were established in Italy in the thirteenth century; in France and Germany in the fourteenth century; and in Switzerland, England, and Austria in the fifteenth century. By the sixteenth century paper was also made in Holland and Russia.

Some form of ink may have been used in China as early as the third century B.C.E. But development of the classic Chinese ink used in writing and printing is most commonly ascribed to Wei Tan (d. 251 c.e.). *See also* EAST ASIA, ANCIENT.

Printing

Also of oriental invention was the mechanical reproduction of word- or letterforms, that is, PRINTING. Early in the eighth century c.e. Chinese artisans appear to have begun printing from woodblocks. Later in that century the technique reached Japan, where in 770 Empress Shotoku ordered a million copies of a Buddhist text printed for public distribution. Some copies still survive. The earliest surviving printed book, the *Diamond Sutra* (868), also made from blocks, is Chinese. It is, incidentally, preserved in roll rather than codex form. By the eleventh century the Chinese had developed individual, movable, ideographic types. The first experiments, undertaken by Pi Sheng between 1040 and 1048, used clay rather than metal. Tin and wood types followed. Some wooden types in the Uigur script of central Asia, dated about 1300, survive. Type molds were developed in Korea early in the fifteenth century.

Evidence can be found for the routes from East to West taken by papermaking techniques. It leaves no doubt that paper was an invention of China, even though later papermakers certainly modified Chinese techniques. In part their customers needed other kinds of papers. But in part, too, they had to take account of the different materials available to them from which to make their products. The routes taken by



Figure 3. (Book) *Maestricht Book of Hours*, Flemish, thirteenth century. By permission of the British Library.

ink or printing from movable types are far less certain. These techniques appear to have been independently reinvented in the West.

JOHANNES GUTENBERG is popularly known as the inventor of the printing press, but his real contribution seems to have been the development of the type mold. This hand-held device permits the manufacture, from a molten alloy of lead, tin, and antimony, of bits of metal type, uniform in height but varied in width to accommodate letterforms of varying width. On the top of each bit (or sort) stands a letterform in reverse relief. Western printing also relied, in contrast to oriental methods, on the screw press, a technology known in Europe since the first century C.E. Such presses could transfer mechanically, under pressure, inked impressions from type to vellum or paper. Gutenberg seems also to have created an oil-based ink that would adhere to the metal surfaces of his types. His technique required a heavier paper than that needed for printing by rubbing paper over woodblocks covered with water-based inks. This form of printing, perhaps borrowed from Asia, had been used in Europe from at least the 1420s.

The new art spread rapidly, although not all early printers managed to establish stable commercial enterprises. By 1471 presses had been at work in Bamberg, Cologne, Nuremberg, Augsburg, Basel, Subiaco, Rome, Foligno, Venice, Seville, and other cities. By 1480 printing had reached many cities throughout the Germanies, the Italian peninsula, France, and the Low Countries, as well as Budapest, Prague, Wrocław, and Krakow; numerous locations throughout Spain; and, in England, London, Westminster, Saint Albans, and Oxford. By the end of the fifteenth century books had been printed in Portugal, Sweden, and Denmark, and presses continued to be established at new locations within western and central Europe. By 1539 a press was established in North America, in Mexico City. One hundred years later the English brought a press to Massachusetts.

Impact of Books

The impact of the printed book is easy to theorize about but difficult to demonstrate. A great deal of the history of the West since the end of the fifteenth century seems intimately connected to the spread of printed books. But definition of that connection is far from simple. It has, for instance, been proposed that the reproducible illustrations that printed books contain and disseminate are a far more significant factor in the retention and spread of scientific and technical knowledge than their texts. Such a suggestion is not farfetched. The difficulties that might face a botanist, an engineer, or an architect using books with no illustrations at all, or books whose handmade illustrations were drawn by a copyist or gen-

erations of copyists with no special expertise or firsthand knowledge of the objects to be illustrated, are obvious. Outside of scientific or technological fields, printed images, whether within books or issued separately, functioned to disseminate popular piety and conventional morality. Intriguing though this line of investigation may be, not enough is currently known to do more than raise questions about the effects of reproducible illustrations. Obviously, however, books also have an impact even when, like MARTIN LUTHER'S *Theses*, Thomas Paine's *Common Sense*, Adam Smith's *The Wealth of Nations*, KARL MARX'S *Das Kapital*, or Adolf Hitler's *Mein Kampf*, they are unillustrated.

Manuscript texts existed only in unique or few copies. By comparison printed texts, clearly more numerous, were more widely disseminated and more readily accessible. Amenable to standardization and correction, they offered inducements to rationalized organization of data, not only through such devices as exactly repeated page numbers and tables of contents but also through alphabetized indexes, dictionaries, atlases, and so forth. An index found in a manuscript, by contrast, could refer only to the particular exemplar within which it was found; it had no necessary relationship to other manuscript exemplars of the same text. Printing also improved data presentation. Textual corruptions could be corrected, "standardized" texts augmented, and new knowledge rapidly incorporated in old texts as they were reissued again and again. On the one hand, the existence of multiple, dispersed copies of texts and, on the other, the freeing of their contents from the sort of substantive degeneration through repeated copying to which manuscript texts were forever and inevitably subject made possible the preservation of knowledge, new and old, in a manner impossible with the manuscript book. The low rate of survival of literature in all fields from antiquity and the textual corruptions with which many surviving texts are afflicted illustrate these basic advantages of printing.

Conversely, the dissemination of outdated knowledge and old texts dressed in the authority of print could act as a brake on the development of new approaches to knowledge. The domination of scientific knowledge by ARISTOTLE characteristic of the late MIDDLE AGES, for example, was by no means ended with the introduction into Europe's intellectual economy of printed books. Moreover, the increased accessibility of books made possible by printing is also easy to overestimate. A Cambridge don who died in 1569, more than a century after Gutenberg's invention, thought it worthwhile to provide an inventory of his personal library of only 159 books in his will. Had he sought additional books in his university's library, he would have found, even as late as the end of the sixteenth century, that it con-

tained fewer than a thousand of them. Books remained expensive for a very long time. Libraries were uncommon, rarely well stocked, and open but briefly to few people. Even if the ability to read was more widespread within early modern societies than has long been supposed, relatively few could have read the libraries' contents, whether in learned or vulgar languages. LITERACY was not to become widespread till very near our own times.

Such caveats suggest the necessity of a cautious approach to gauging the impact of printed books. Yet some aspects of this impact are discernible. Even the RENAISSANCE itself, the period when Gutenberg's invention was developed and spread, felt its effects. Without the preservative capabilities of print, the pre-Gutenberg Italian Renaissance might have proved as limited in effect and duration as the Carolingian or twelfth-century renaissances that preceded it. An institutionalized or perpetual renaissance, so to speak, was inaugurated only by the post-1450 spread of

printing. Multiplied and dispersed in printed form, texts might now act as continuing prods to further scholarship instead of dropping from sight to await rediscovery in a monastic library. One scholar suggests that even that sense of self, of the significance of the individual that Swiss cultural historian Jakob Burckhardt regarded as a hallmark of the Renaissance, may be a consequence of the new fixity permitted by printing.

Religion, too, was profoundly affected by printing. Reformation historians have long realized that the reformers' ideas gained widespread circulation because of the press. But printing, in use for almost seventy years before Luther posted his Ninety-five Theses, affected Roman Catholicism just as deeply. It permitted the "standardization" of theological positions by freezing them in printed form, hardening the distinctions between viewpoints whose coexistence an earlier church had tolerated without serious strain. The dissemination of vernacular versions of

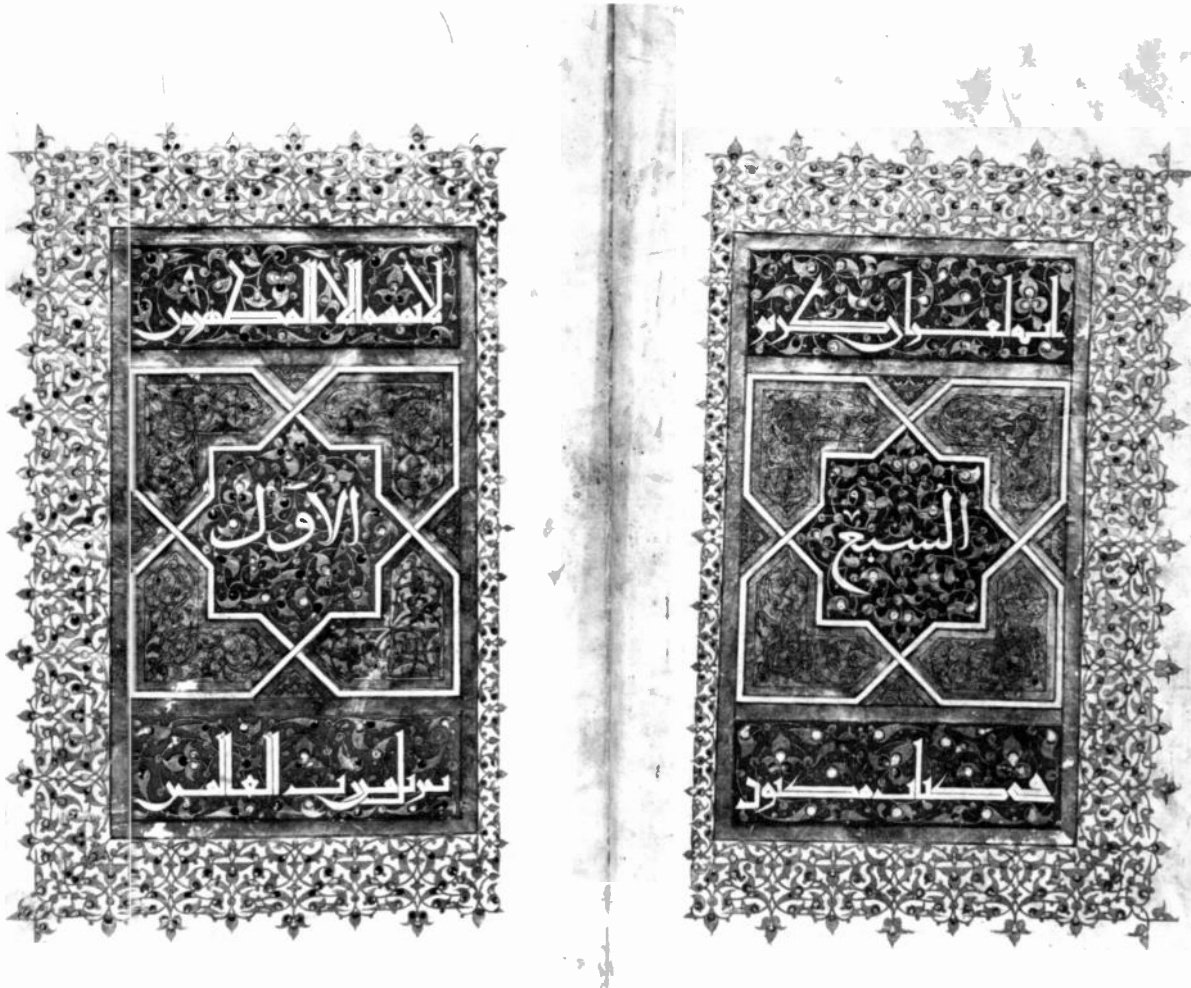


Figure 4. (Book) Muhammad bin al-Wahid, frontispiece, Qur'an of Sultan Baybars II, Egypt, 1304. By permission of the British Library.

Capitulum III



uidebat ei dimna: contra eius dignitatem. Hunc autem quicumque vestrum penes se aliquid haberet testimonium, aut nouerit aliquid super hoc, referat nobis illud, ut et nos omnia regi referamus, quoniam non est sui propositi interficere quemquam: nisi pro acquisitionem diligentem et sufficientem examinationem. Non enim uult ipse iudicare secundum propriam voluntatem, nec faciem cognoscere in suo iudicio. Et ait iudex: Respicite et attendite bene omnia: que legalis leopardus locutus est, nec aliquis vestrum occultare debet quod nouit de ista materia, siue causa, et hoc propter multas causas. Prima quidem est: quia nullus vestrum dedignari debet sententiam que lata fuerit, siue bona, siue mala. Nec uelitis aliquid mutilare de eo quod scitis. Nam modicum ueritatis maximum est, et precipue apud deum, ut rex non interficiat innocentem et absque culpa uerbis seductoris et mendacis. Secunda causa est, quia quando puniuntur peccatores iuxta peccatum suum: reliqui audientes, timebunt et cauebunt sibi, ne in simili incidant peccato, et hoc redundat in bonum regis exercitus et populi. Tertia causa est, quia quando perditur malus et seductor exercens mendaciam et dolum: est maxima tranquillitas regis exercitui suo. Nam sua conuersio cum eis in maximum et grauem turbationem redundat. Hunc igitur dicat unusquisque vestrum quod nouit, neque celet ueritatem, et confirme falsitatem. Cumque audissent uiri exercitus uerba, haec respiciebant unusquisque ad inuicem et tacebant. Dixit dimna: Quare taceris? dicat unusquisque uerum quod nouit, quoniam non credatis mihi displicere, si omnia que scribo dixeritis. Nam si ego deliquissem gauderem uobis pro uostro silencio. Uel tamen scio me esse innocentem. Et ideo in eo quod scribo loquamini. Sit tamen tunc ueritate, quia ad omnia est responsum. Et ideo cauetis ne aliquid quod nescitis, profertis. Nam et qui putat uidisse quod non uidit: et audiuisse quod non audiuit: dignus

Figure 5. (Book) *Directorium humane vite*. Printed by Johann Prüss, Strassburg, 1488. PML 56, The Pierpont Morgan Library, New York.

the Bible as well as the encouragement of new editions of scriptural texts, and hence of editorial examination of them, helped call into question the very lexical bases of faith. Ultimately printing contributed to a hardening of many differences between Roman Catholic and Protestant cultural and political worlds, quite apart from the religious distinctions that separated post-Reformation Europe.

The scientific revolution also bears witness to the impact of printing. Many recent historians have pointed out medieval advances in such fields as computation, astronomy, and mechanics. But too often such advances remained isolated and sterile. Far from provoking a progeny of further advances, they were likely to remain limited in circulation. When circu-

lated, they were likely to travel in inaccurate, inexact copies because of the difficulties that technical manuscripts posed for scribes. Only works disseminated by print, permitting widespread cumulative augmentation of knowledge instead of its haphazard creation and preservation, could promote rapid scientific advance. Even the publication of older, unreliable scientific books, retrograde from some points of view, proved an essential propaedeutic to scientific progress. Such books gave postprint scientists a stable, commonly held basis of knowledge—and error—on which to build. Merely publishing tables of numbers—standard distances, for instance, or logarithmic tables—freed investigators from some of the drudgery that quantitative studies can entail.

The increase in the dissemination of knowledge to which printed books gave rise was almost immediately understood, but it was not regarded as an unmixed blessing. Truth and knowledge could now easily circulate, but so could error. Evidence of efforts by ecclesiastical and government authorities to control the printing of and the trade in books is found very early. Precedents existed in the efforts of ecclesiastical authorities to guarantee the integrity of texts in the manuscript era. Trade in Lollard books was a punishable offense in Henry VIII's England; attempts to curb the traffic in both Protestant and Roman Catholic treatises and vernacular Bibles persisted throughout sixteenth-century English history. Copies of Copernicus's *De Revolutionibus* (1543) with passages blacked out to accommodate the censor may easily be found. The *Index Librorum Prohibitorum* is only the most notorious of many efforts to regulate what were frequently perceived as the pernicious effects of the printed book's easy circulation. Political as well as religious objections might be raised to the publication of a book; so might moral objections. A complicated industry grew up around the borders of Enlightenment France to see to the publication and smuggled import into that country of books denied license. Books published

within France needed to carry some sort of announcement that they had appeared with approbation ("avec privilège et permission du Roi"). See CENSORSHIP; COPYRIGHT.

Yet the effect of the printed book has been constantly to beat back such restrictive impulses. As books have circulated in increasing numbers the most unconventional ideas have circulated with them. Even a barely educated miller in the Friuli might, in the sixteenth century, attract the attention of the Inquisition because of his too public espousal of heterodox religious ideas garnered, in part, from printed books. As more books have circulated, the pressures to become literate so as to be able to read them have also grown. Such developments certainly did not occur in lockstep with one another. Mass literacy, at least in the West, is a phenomenon only of the late nineteenth century. But its coming was assisted by several book-inspired pressures, among them the Protestant Reformation, with its insistence on the ability to read Scripture; the growth of broad-based liberal political systems, which required a literate electorate; and the demands of an increasingly technological culture, in which the illiterate could not function and to whose progress they could contribute very little.



Figure 6. (Book) "The Preparation of Pasta for Nightingales," from Giovanni Pietro Olina's *Uccelliera*, Rome, 1684. The Houghton Library, Harvard University.

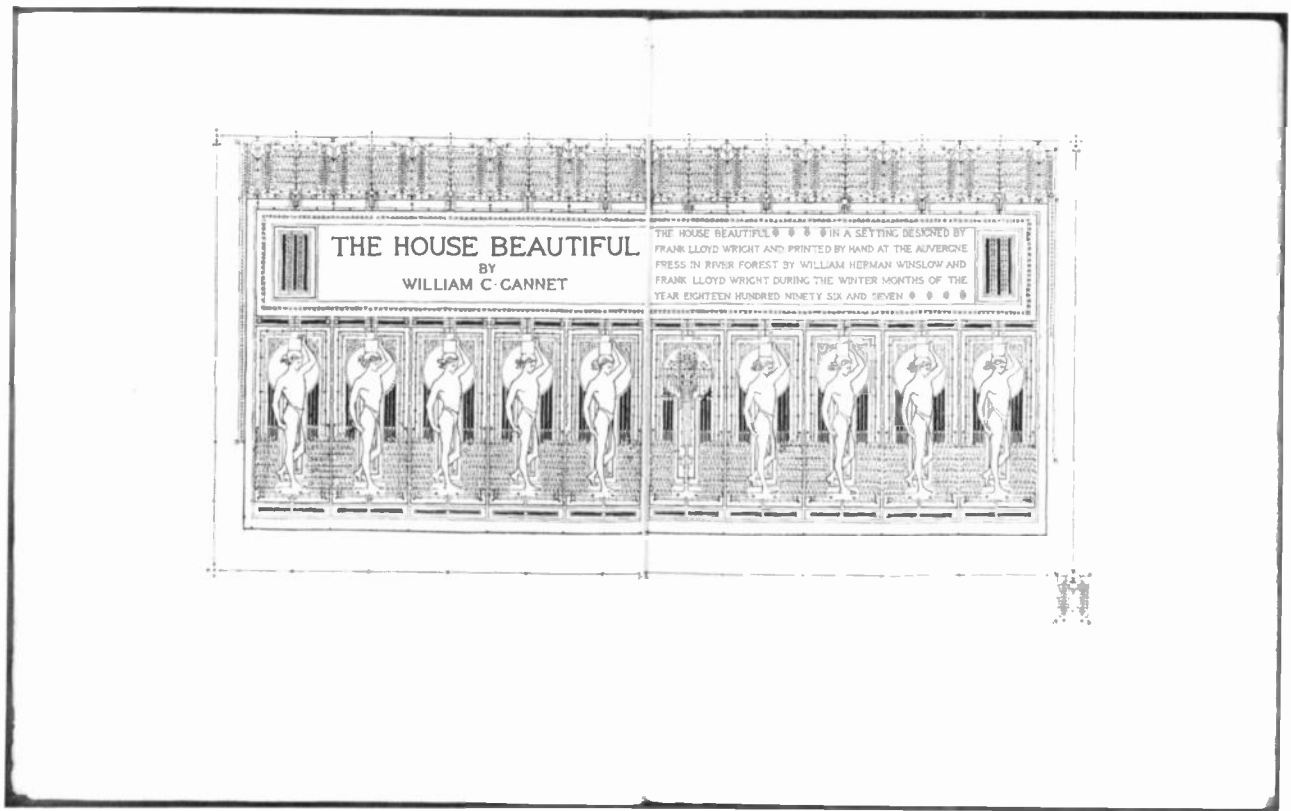


Figure 7. (Book) Frank Lloyd Wright, title page for William Ganne[t]'s *The House Beautiful*, Illinois, 1897. Courtesy of the Rare Book and Special Collections Division, Library of Congress.

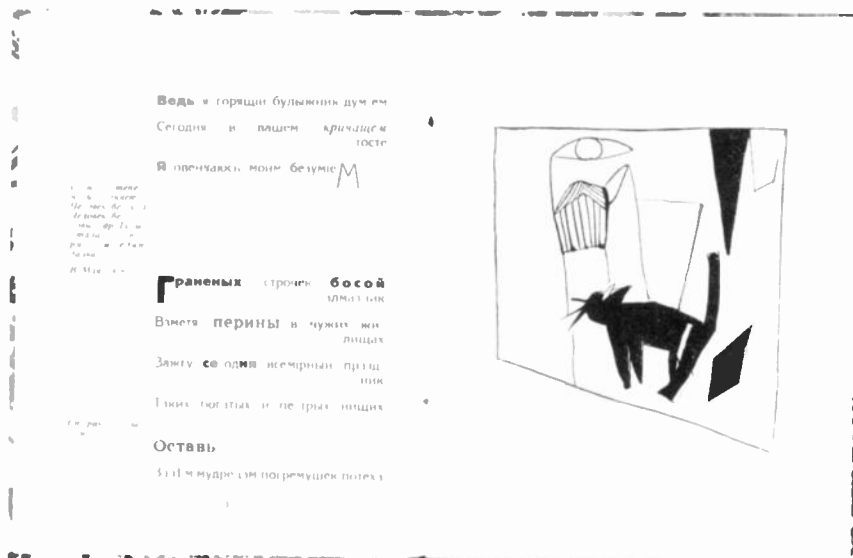


Figure 8. (Book) Page 10 and facing illustration from David Burliuk and Vladimir Burliuk, *Vladimir Mayakovsky—A Tragedy*, 1914. By permission of the British Library.

New Technologies

Growth in literacy has meant a growth in the market for print. Consequently, book production has experienced significant technological alteration since Gutenberg's day. The product of a conservative trade, books did not undergo much more than cosmetic and stylistic alterations from the fifteenth through the eighteenth centuries, nor did their mode of production change significantly. But in the nineteenth century many changes occurred. The most significant altered printing from a handpress to a machine-press industry. Powered by human beings since the time of Gutenberg, the press was provided new sources of power: water, steam, electricity. Machine presses produced print in quantities impossible for the older wooden or even metal press driven by human beings. The adoption of stereotypes—steel plates that reproduced entire forms of type with much-improved durability—in association with rotary presses gave an additional boost to productivity. The cutting and setting of type was removed from human hands and relegated to machines. Efforts to increase the availability and cheapen the price of paper, long an expense even greater than the labor for which printers also paid, were successful. Experiments enabled papermakers to shift from rag to vegetable fibers for their product, and new machinery transformed papermaking from an artisanal craft to an industry.

In the twentieth century additional changes have occurred making it possible to eliminate typesetting, whether by machine or hand, altogether. Word- or letterforms are set by computer-driven photographic processes and then printed lithographically. Hot type, deriving a letter's image from metal, has given way to cold type, from which a letter that is an image only may be reproduced. This and other related processes now dominate an industry that in the United States alone produces more than fifty thousand new books each year.

Its typography, its illustration, its binding, and its design are all aspects of the book's history that this brief survey has neglected. Studies of the book as an object of artistic interest fill many volumes. But most books are merely serviceable, not beautiful. They are meant at best to be unobtrusive while they are read. The book's function is preeminently that of container and communicator, not of object. In fulfilling this function the book has had and continues to have an inestimable effect on human history.

See also AUTHORSHIP; PUBLISHING; TYPOGRAPHY.

Bibliography. David Cressy, *Literacy and the Social Order: Reading and Writing in Tudor and Stuart England*, Cambridge, 1980; Robert Darnton, *The Literary Underground of the Old Regime*, Cambridge, Mass., 1982; Elizabeth L. Eisenstein, *The Printing Press as an Agent of Change:*

Communications and Cultural Transformations in Early Modern Europe, 2 vols., Cambridge and New York, 1979; Lucien Febvre and Henri-Jean Martin, *The Coming of the Book: The Impact of Printing, 1450–1800* (L'apparition du livre), trans. by D. Gerard, London, 1976; Philip Gaskell, *A New Introduction to Bibliography*, Oxford and New York, 1972, reprint (with corrections) 1974; idem, *Trinity College Library: The First 150 Years*, Cambridge, 1980; Carlo Ginzburg, *The Cheese and the Worms: The Cosmos of a Sixteenth-Century Miller* (in Italian), trans. by John Tedeschi and Anne Tedeschi, Baltimore, Md., 1980; Geoffrey Ashall Glaister, *Glaister's Glossary of the Book*, 2d ed., Berkeley, Calif., and London, 1980; Harvey J. Graff, ed., *Literacy and Social Development in the West: A Reader* (Cambridge Studies in Oral and Literate Culture, No. 3), Cambridge, Mass., 1981; Rudolf Hirsch, *Printing, Selling and Reading, 1450–1550*, 2d ed., Wiesbaden, 1974; William M. Ivins, *Prints and Visual Communication*, London, 1953, reprint Cambridge, Mass., 1969; F. G. Kenyon, *Books and Readers in Ancient Greece and Rome*, 2d ed., Oxford, 1951; J. C. T. Oates, *Cambridge University Library: A History from the Beginnings to the Copyright Act of Queen Anne*, Cambridge, 1986; Colin H. Roberts and T. C. Skeat, *The Birth of the Codex*, London, 1983.

DANIEL H. TRAISTER

BROADCASTING. See RADIO; RADIO, INTERNATIONAL; RELIGIOUS BROADCASTING; TELEVISION HISTORY.

BUÑUEL, LUIS (1900–1983)

Spanish-born film director. Creator of more than thirty films in a career that spanned five decades, Luis Buñuel is one of the most celebrated and iconoclastic directors in the history of the cinema. He is among only a handful of directors who have managed successfully to impose their personal artistic vision onto the process of commercial filmmaking, thereby extending the limits of what we define film to be.

The eldest son of a prosperous bourgeois family, Buñuel was raised in the Aragon region of Spain. Although his early years were spent within the confines of a traditional Catholic upbringing, he left that world behind when he began studies at the University of Madrid. He lived at the Residencia de Estudiantes, where he befriended the poet Federico García Lorca. After graduating from the university in 1924, Buñuel moved to Paris to pursue his new interest in THEATER. There he discovered the potential of filmmaking and apprenticed himself to director Jean Epstein.

When his first film, *Un chien andalou*, written with the painter Salvador Dalí, was released to shocked Parisian audiences in 1928, Buñuel became identified with the aesthetic and political radicalism of surrealism. *Un chien andalou* and his next film, *L'âge*

d'or (1930), in their juxtaposition of images to create a dreamlike logic, were to have a profound influence on AVANT-GARDE FILM. From the beginning Buñuel's work combined a pointed satire of the bourgeoisie and the Catholic church with the director's continuing fascination with the eroticism that lies beneath the surface of everyday life.

Following the triumph and scandal of his first two films, Buñuel went on to direct a remarkable and diverse series of productions in Spain, Mexico, and France, beginning with *Las Hurdes* (Land without Bread, 1932), a harsh, ironic DOCUMENTARY of the landscape and poverty in one area of his native Spain. He returned to documentaries during the Spanish civil war, after which he lived in the United States and worked at various film-related jobs. In 1946 he moved to Mexico and began directing again. There he completed his internationally acclaimed *Los olvidados* (The Young and the Damned, 1950), in which a surrealist view of the world is mediated by a seemingly natural narrative. Still in Mexico during the 1950s, Buñuel directed commercial narrative melodramas invested with a critical vision that exposed hypocrisies and neuroses that destroy individual lives; films from this period include *Él* (1952), *Nazarín* (1958), and *The Young One* (1960). In 1960 Buñuel returned temporarily to Spain to produce *Viridiana* (1961), a brilliant narrative whose characters reveal a vulnerability hidden by a naive religious belief. The film demonstrates Buñuel's characteristic surrealist twist, especially in the remarkable scene in which a group of beggars assume the pose of Leonardo da Vinci's *Last Supper*.

Buñuel returned to the more explicit surrealism of his earlier films in *El ángel exterminador* (The Exterminating Angel, 1962). This was followed by a series of outstanding works including *Belle de jour* (1966), *Tristana* (1970), and *Le charme discret de la bourgeoisie* (The Discreet Charm of the Bourgeoisie, 1972), which are marked by a polished mise-en-scène in which the language and trappings of bourgeois life are subverted by the unconscious fantasies of the characters. In his final film, *That Obscure Object of Desire* (1977), finely crafted dialogue and ACTING delineate an imaginary journey through the urban geography of an irrational modern world.

Buñuel's artistic economy, surreal representation of individual desires, and satire of social institutions created a compelling narrative style that exerted a powerful and lasting influence on directors of the new narrative cinema of the 1970s and 1980s in Europe, the United States, and South America.

See also CINEMATOGRAPHY; MOTION PICTURES.

Bibliography. J. Francisco Aranda, *Luis Buñuel: A Critical Biography*, New York, 1976; Luis Buñuel, *My Last Sigh*

(*Mon dernier soupir*), trans. by Abigail Israel, New York, 1983; Raymond Durgnat, *Luis Buñuel*, London, 1967; Gwynne Edwards, *The Discreet Art of Luis Buñuel*, London, 1983; Joan Mellen, ed., *The World of Luis Buñuel: Essays in Criticism*, New York, 1978.

JOHN G. HANHARDT

BURKE, KENNETH (1897–)

U.S. literary critic, rhetorician, and philosopher. Born in Pittsburgh, Pennsylvania, Kenneth Burke briefly attended Ohio State University and Columbia University but was largely self-educated. He began his career as a poet and FICTION writer in the 1920s but soon turned to LITERARY CRITICISM (in *Counterstatement*, 1931) and later, from the mid-1930s on, to social and cultural criticism rooted in ideas about LANGUAGE. His more than a dozen published books range over large areas of history, philosophy, and literature, but his interest in the nature of human communication and the role of language in the drama of human affairs is present in all of them.

Such themes run through *Permanence and Change* (1935) and *Attitudes toward History* (1937), in which he developed his theory of tropes (see METAPHOR). In *The Philosophy of Literary Form* (1941) he presented his theory of language as symbolic action and took DRAMA as his model for the study of human relations. His early speculations were systematized in *A Grammar of Motives* (1945), *A Rhetoric of Motives* (1950), and other essays in which he developed his dramatistic theory of language and human behavior and worked out a comprehensive dialectics, RHETORIC, and POETICS. In *The Rhetoric of Religion* (1961) Burke moved away from the system building of the *Motives* books and developed logology, a universal methodology for the study of language and of humans as symbol-using animals. *Language as Symbolic Action: Essays on Life, Literature, and Method* (1966) is an omnibus collection of Burke's ideas about language up to that point.

Burke's major contribution to the study of communication is the concept of symbolic action and the consequent development of dramatism and dramatistic analysis. Dramatism was designed (and used by such scholars as ERVING GOFFMAN and Hugh Dalziel Duncan) to study the function of symbols in society, social relations, literature, and human motivations. Arguing that action, as distinct from mere physical motion, is behavior interpreted in a symbolic context, Burke concluded that symbolic action always has material existence but is not reducible to it. In order to have a symbolic act, which can be almost any human act that means something other than its phys-

ical motion component, there must be an agent, a scene, an agency (i.e., means or medium employed by the agent), and a purpose (otherwise it is an accident, not a symbolic act). These five terms form the dramatic pentad on which dramatism as a nomenclature and method of analysis is based.

Burke's definition of humankind—from an article in *The Hudson Review*—provides a key to much of his thinking:

Man is
the symbol-using (symbol-making, symbol-misusing) animal
inventor of the negative (or moralized by the negative)
separated from his natural condition by instruments of his
own making
goaded by the spirit of hierarchy (or moved by the sense
of order)
and rotten with perfection.

Among his most resonant speculations are those that center on the negative—the *no*, the *don't*—that “marvel of language.” The negative, Burke points out, cannot exist in nature: the absence of a stone or bison or river is an idea that can exist only in the SYMBOLISM of language. In this extraordinary human invention Burke finds the wellspring of many aspects of language and of the development of the human species.

Burke argues that the beginnings of language cannot have stemmed from an impulse to name *things*. For our primal ancestors calling attention to danger—“Stop!” “Beware!”—would have been far more significant. The primal ancestor, thinks Burke, would be closer to a verb than to any other part of speech—and the verb would be used with hortatory, admonitory connotations. It might begin with a mere tonal gesture for calling attention. Burke sees language as essentially hortatory—a means by which people control other people—and this function naturally leads to hierarchies. It looks to the future, to action, and—as in drama—to resolution, fulfillment. Thus Burke sees the evolution of language as essentially dramatic.

Modern societies honor the resolutely positive over the negative and celebrate such terms as *freedom*. Burke, examining dictionaries for the meaning of freedom, finds it explained in terms of an array of negatives: “Exempt from subjection . . . not under restraint, control, or compulsion . . . not dependent . . . not under arbitrary or despotic government . . . not confined or imprisoned . . . not subjected to the laws of physical necessity . . . guiltless . . . innocent . . . unconstrained. . . .” Can it be that the idea of freedom can exist only on a foundation of negatives and that they provide the generating force behind the concept? Burke gives various other linguistic dualities a similar analysis (see LINGUISTICS).

Burke sees humankind as not only symbol using, symbol misusing, and symbol making but also as “symbol-made.” He sees many aspects of human affairs emerging from the positive-negative dualities: religion, social hierarchy, conflict, the quest for order, the quest for perfection. He sees humans goaded by their symbols to perfect what they have begun, to take the next step, to go to the end of the line, even if it may have disastrous results.

Bibliography. Hugh Dalziel Duncan, *Communication and Social Order*, New York, 1962; Armin Paul Frank, *Kenneth Burke*, New York, 1969; Frank Lentricchia, *Criticism and Social Change*, Chicago, 1983; Trevor Melia and Herbert Simons, eds., *The Legacy of Kenneth Burke*, Madison, Wis., 1987; William H. Rueckert, *Kenneth Burke and the Drama of Human Relations*, 2d ed., Berkeley, Calif., 1982; idem, ed., *Critical Responses to Kenneth Burke, 1924–1966*, Minneapolis, Minn., 1969; Hayden White and Margaret Brose, eds., *Representing Kenneth Burke*, Baltimore, Md., 1982.

WILLIAM H. RUECKERT

BYBLOS

The ancient Levantine coastal city that gave the Greeks their word for “papyrus,” “papyrus roll,” and “book.” Derivatives of this Greek word, *byblos* (later *biblos*), abound in the vocabulary of modern European languages, such as the English, French, and German words *bibliography*, *bibliothèque*, and *Bibliothek*. A plural of the Greek diminutive *ta biblia* (literally “the books”) was early applied to sacred scriptures, especially those of the Christians, and thus yielded the word *bible* in its various forms and compounds in later languages.

Byblos, situated about twenty-six miles north of Beirut on the Mediterranean coast, was a center for the shipping trade from as early as 3000 B.C.E. The site had been occupied much earlier, at the end of the Stone Age; excavations provide evidence for trade with Egypt from the very earliest period of Egyptian history. This trade with Egypt, which was the source of the papyrus rolls from as early as 1500 B.C.E., continued throughout the early history of the city, until the decline of the Egyptian Empire and the subsequent assertion of Phoenician independence (ca. 1000 B.C.E.). Along with Sidon, Byblos played a leading part in the great period of Phoenician expansion, before the submission of the city to the series of conquests by the Assyrians, Babylonians, Persians, Greeks, and Romans.

Some of the very earliest Phoenician inscriptions, which is to say, some of the earliest intelligible writ-

ing in a linear alphabetic script, are from tombs at Byblos (eleventh or tenth century B.C.E.). A small body of earlier writings from Byblos have survived; carved on bronze plates, they contain a nonalphabetic script—the Byblian hieroglyphic texts (not related to EGYPTIAN HIEROGLYPHS). These early second-millennium texts have so far resisted decipherment.

Bibliography. Maurice Dunan I, *Byblia Grammata*, Beirut, 1945; idem, *Fouilles de Byblos*, Vols. 1–3, Paris, 1937–1950; Siegfried H. Horn, “Byblos in Ancient Records,” *Andrews University Seminary Studies* 1 (1963): 52–61; Pierre Montet, *Byblos et l’Égypte*, 2 vols., Paris, 1928–1929; James Bennett Pritchard, ed., *Ancient Near Eastern Texts Relating to the Old Testament*, 2d ed., Princeton, N.J., 1955.

DELBERT R. HILLERS



(*sī*), the third letter of the Roman alphabet, was originally identical with the Greek *gamma*, Γ, and Semitic *gimel*, whence it derived its form through the successive types Γ, ζ, C. The Greek *kappa*, K, being from the first letter used by the Romans, C functioned in earlier Latin as both (g) and (k); the latter sound being the more frequent came to be viewed as the more appropriate to C, and about 300–230 B.C., a modified character, **Ϟ** or **Ϛ**, was introduced for the (g) sound, and C itself retained for the (k) sound.

CABLE TELEVISION

Begun after World War II to provide a television service that supplemented broadcast television, retransmitting programs of over-the-air stations by cable to homes in fringe reception areas, cable television gradually came to be seen as a potentially independent service, challenging broadcast television's hegemony over media (see TELEVISION HISTORY). As cable technology developed, some forecasters even saw it as the core of a revolution in telecommunications. Together with everything represented by conventional television, they saw it becoming the "one wire" that would bring into the home TELEPHONE service, computer access, facsimile capability, interactive merchandising, burglary protection, and other as yet barely imagined services. By the 1980s it was clear that such ideas were technically feasible. But even while the visions began to take shape, cable television found its position threatened by other rising technologies in an increasingly complex communications arena.

Technology. The basics of cable technology are suggested in its original name, community antenna television (CATV). Signals are received from a SATELLITE antenna, a microwave ground link, or, in the case of a local broadcast station, over the air. These signals are then retransmitted from an originating point, known as the system's headend, usually over coaxial cable, to numerous receiving points. Receivers are slightly modified conventional television sets. Although coaxial cable uses a broad band of frequencies, lying between five (5) and six hundred megahertz on the radio SPECTRUM, most cable systems are capable of sending signals in one direction only, emanating outward from one source, the headend, to subscribers' receivers. Early coaxial cable could carry only three channels; later capacity grew to twelve, long the industry standard. The majority of systems carried twenty or fewer channels for many years, though more technologically sophisticated systems carried one hundred or more. Some hybrid systems mixed coaxial cable and telephone lines as a cost-saving measure. Most local telephone lines, however, are narrow-band and cannot efficiently carry video or high-speed data signals. Some cable systems have been INTERACTIVE MEDIA, allowing users to respond by means of a keypad or terminal to signals from the headend. A pioneer in this technology was the QUBE system designed by Warner-Amex Cable Communications.

National policies. National approaches to cable development have differed widely. In the early 1980s France, the Federal Republic of Germany, Great Britain, and the United States all enacted national cable policies. At that time the first three countries had few, if any, cable systems in operation, but their

political authorities made an attempt to envision cable in industrial as well as cultural policy terms. The design, manufacture, and installation of advanced cable technology were seen to benefit the domestic economy, both as productive industrial activities in a key high-technology sector and as ways to establish a modern telecommunications infrastructure, which was strategically vital to further participation in international telecommunications markets. Culturally, cable policy in France, the Federal Republic of Germany, and Great Britain was part of a policy of liberalization that broke the traditional state-owned MONOPOLY broadcast systems. This in turn portended a greater demand for programming that might promote increased opportunities for a nation's own producers. France was especially aggressive in developing cable and committed large sums of public money to experimental projects. See TELECOMMUNICATIONS POLICY.

The policy situation in the United States was quite different. Few new media captured the attention of U.S. policy researchers more fully than cable. A succession of studies and reports was supported by such groups as the Rand Corporation and the Sloan Foundation and came also from congressional committees, the executive Office of Telecommunications Policy, and the Federal Communications Commission (FCC). They appeared in popular periodicals and books, recommended a host of policies for cable regulation, and gave cable almost unprecedented visibility.

In 1959 the FCC ruled that because cable was neither broadcast nor common-carrier communication the commission lacked jurisdiction over it. From about 1962 until 1978, a period when cable's penetration of television households in the United States grew steadily from 2 to 20 percent, the FCC imposed a variety of restrictive regulations on it. By 1984, with the Cable Communications Policy Act, Congress had formally circumscribed government authority over cable to a minimum. Arguably, the turn from broadcast protectionism to market power in U.S. cable regulatory policy reflected a perception that the rapid growth of the cable industry was an indicator of future prosperity, while over-the-air networking appeared to be growing slowly obsolete, especially for advertisers seeking smaller, more homogeneous audiences. U.S. regulatory policy, lacking a widely accepted or historically consistent view of cable—unlike western European approaches—has largely been reactive, conforming to pressures of political and economic power.

Programming, services, and ownership. Cable offers subscribers far greater potential for choice than did the earliest community-antenna systems. The turning point is generally acknowledged to have occurred in the 1970s when Time, Inc.'s Home Box

Office (HBO) began using satellites to distribute movies to cable systems scattered throughout the United States. This brought about the practice of offering "tiers" of programming and services and established the practicality of networking cable program services, thereby permitting cable to grow rapidly into a major national and transnational industry.

The economics of cable programming became perhaps more like that of the film industry than of broadcasting. Cable system operators generally buy programming for an amount based on the total number of their subscribers; subscribers, in turn, pay the cable system operator for services received. In countries where regulations permit, programming services may be partly or wholly subsidized by ADVERTISING. To reduce costs, trends toward multiple-system ownership and cross-media enterprise have been widespread. Multiple ownership of cable systems has developed rapidly in the United States, along with linkages of cable system and program service, network and program service, motion picture studio and program service—in each case with notable successes and failures. In Great Britain the country's largest wholesaler of newspapers and magazines became a major presence in cable programming. Rupert Murdoch's Sky Channel was a program service on the Continent even before he purchased the U.S. Twentieth Century-Fox studios and Metromedia television in the United States. And a German cable channel, owned in part by the Bertelsmann communications conglomerate, derived its news from local newspapers. *See also* HOLLYWOOD; MAGAZINE; NEWSPAPER: HISTORY.

Competition with cable programming emerged in several forms. Videocassette recorders (VCRs) could be used to screen tapes of movies and other programming available for purchase or rental through stores and clubs (*see* VIDEO). Direct broadcast satellites (DBSs) transmitted signals directly to the home, avoiding the need for a cable hookup. Low-power television (LPTV), intended for small, local audiences, and multichannel multipoint distribution services (MMDSs), using microwave links to offer a limited number of channels off the air, were less capital-intensive than cable television. Satellite master-antenna television (SMATV), also known as private cable, offered a cable system in miniature to large multiple-dwelling buildings. Relatively inexpensive home dish antennas could receive at no cost the signals programmers intended for cable systems—until programmers began scrambling or encoding the signals.

The global pattern of cable ownership has been varied. The French cable system was designed, installed, and maintained by the nation's ministry of post, telegraph, and telephone (PTT). Local communities, however, in cooperation with national au-

thorities, were responsible for financing construction. Within general guidelines communities also had authority for programming. In the Federal Republic of Germany, while the Bundespost (its PTT) encouraged national cable development, formal authority for cable decisions resided with the *länder* (states). Great Britain established national policy and set up a cable authority, but no public money was committed to build systems or to provide programming, which was considered a corporate task. A single company, Robert Maxwell's British Cable Services, quickly acquired nearly three-quarters of the cable systems in the United Kingdom.

In the United States ownership of cable systems became concentrated fairly early. By the early 1980s the top ten multiple-system operators (MSOs) served nearly half of all cable subscribers. Vertical integration and cross-media ownership were common, and MSOs tended to swap systems so as to consolidate their holdings within geographic regions. The ability to adapt cable programming from other media, such as magazines, reduced programmers' costs and at the same time made programming more recognizable and thus more attractive to many viewers. Some programmers had exclusive agreements with Hollywood studios to carry their films, or they coproduced films with studios or actually became their own production houses. By the late 1980s several of the largest U.S. MSOs were considered worth more than a billion dollars each.

Extent of cable television. The plenitude and novelty of cable programming made steady inroads into broadcast television viewing. In the United States, for example, the network share of the television audience declined from about 93 percent in 1975 to 80 percent in 1985; some evidence suggested that in homes with pay television the network share may have dropped to 50 percent. By the middle 1980s nearly half of all U.S. television households had cable television. Large areas of the country, however, especially rural and inner-city locations, were neglected. In Great Britain there was uncertainty at the outset about whether cable would ever be able to attain the 30 percent penetration necessary for financial viability. Other countries, in contrast, had historically high cable penetration. By the mid-1980s Belgian cable reached eight out of ten households, and in the Netherlands the figure was six out of ten. These countries plus Switzerland then represented only about 8 percent of western European homes in general but approximately two-thirds of all homes with cable television. About 60 percent of Canadian homes with television subscribed to cable. Around the same time there was no cable television development in Italy. In the less developed countries cable made few inroads; VCRs, satellite dishes, and conventional broadcasting systems expanded instead.

One factor in the up-and-down fortunes of cable television has been its continuously derivative nature. It has brought its subscribers more and clearer programming, but the offerings have largely echoed those of other media. The disconnect rate has been high. Yet vistas of a more extraordinary future, with one-wire systems encompassing an unprecedented array of two-way services, persist. These visions are based on the capabilities of FIBER OPTICS, far exceeding those of coaxial cable to deliver multiple streams of communication. The technology seems ready to revolutionize not only cable television but also telephone service and TELECOMMUNICATIONS NETWORKS. Whether these will merge or one will absorb the others, and what the social implications of any such developments might be, are questions for the next century.

See also GOVERNMENT REGULATION; VIDEOTEX.

Bibliography. Mary Louise Hollowell, ed., *Cable/Broadband Communications Book*, Vols. 1–4, Washington, D.C., 1977–1985; idem, *Cable Handbook*, 1975–1976, Washington, D.C., 1975; Don R. Le Duc, *Cable Television and the FCC*, Philadelphia, 1973; Mary Alice Mayer Phillips, *CATV: A History of Community Antenna Television*, Evanston, Ill., 1972; Ralph Lee Smith, *The Wired Nation*, New York, 1972; Christopher H. Sterling, "Cable and Pay Television," in *Who Owns the Media?* ed. by Benjamin M. Compaine, Christopher H. Sterling, Thomas Guback, and J. Kendrick Noble, Jr., White Plains, N.Y., 1982; U.S. Congress, House of Representatives, Committee on Interstate and Foreign Commerce, Subcommittee on Communications, *Cable Television: Promise v. Regulatory Performance*, Washington, D.C., 1976.

JAMES MILLER

CALENDAR

Calendars have been devised in various ways by societies throughout the world to serve in the reckoning of time; the scheduling of recurrent agricultural, religious, and other activities; and the transmitting of seasonal observations and conclusions to later generations. Early calendars were a tool of communication guiding the management of crops and the breeding of livestock. As cultures progressed, most used celestial events as the basis for their calendars.

Three celestially determined periods have traditionally marked time: the day, the month, and the year. The day—measured, for example, from one sunrise to the next—is determined by the rotation of the earth and is thus slightly variable. The month—the period between one full moon and the next—averages a little more than 29.53 days. The year is the period between, for example, one summer solstice—when the midday sun is highest in the sky—

and the next. This tropical year is about 365.2422 days, although in remote times it was slightly longer.

The day, the month, and the year are not commensurable; that is, the month and the year are not simple multiples of the day, and the year is not a simple multiple of the month. Calendar makers using these celestial periods often have taken the month to the nearest whole day and used an arbitrary value for the year, have taken the year to the nearest whole day but used some arbitrary value for the month, or have taken somewhat arbitrary values for both the month and the year.

Babylonian calendar. The Babylonians, who formulated a calendar used from the third to the first millennium B.C.E., regarded the day as extending from one sunset to the next and the month as the period from one first crescent moon visible after sunset to the next. Their month, governed by the phases of the moon, was twenty-nine or thirty days long. The Babylonians recognized quite early that twelve such months made up almost a year of the seasons. However, after three calendar years of 354 or 355 days the calendar was seen to be running about a month ahead of the seasonal year, so every now and then the Babylonian kings decreed a thirteenth, intercalated month in the calendar year. By about 500 B.C.E. the Babylonians discovered that nineteen years of the seasons contained almost exactly two hundred thirty-five lunar months, so they included an intercalated month in a regular pattern seven times in a nineteen-year cycle, later named the Metonic cycle in honor of the fifth-century B.C.E. Greek astronomer Meton.

After the Babylonian exile period of Jewish history, dating from the sixth century B.C.E., Jews adopted the Babylonian calendar with some modifications (see JUDAISM). For example, the Babylonian year began in spring, corresponding to the Jewish Passover, but the Jewish new year begins in autumn. The ancient Greeks also may have borrowed several calendars from the Babylonians.

From at least the second century B.C.E. the Chinese had a calendar basically similar to that of the Babylonians. The Chinese calendar featured months of twenty-nine and thirty days in rough alternation and had seven intercalated months in a nineteen-year period. However, the Chinese new year began some weeks earlier than the Babylonian new year, and the Chinese years were structured in a twelve-year cycle based on the orbit of Jupiter, with each year given the name of a sign of the Chinese zodiac—the rat, the tiger, the ox, and so on.

Egyptian calendars. Before about 3000 B.C.E. the Egyptians had their own calendar based on the cycles of the moon, but about 2800 B.C.E. they introduced a calendar for civil purposes as well. This new calendar had a 365-day year and twelve thirty-day



a



b

Figure 1. (*Calendar*) Two scenes from a Roman pictorial agricultural calendar in mosaic: (a) a sacrifice to Ceres, and (b) a man placing loaves in the oven. Giraudon/Art Resource, New York.

months, plus five epagomenal days outside the months. Each month was divided into three ten-day weeks, the first example of a standardized weekly cycle operating independently of lunar activity. The civil months, although derived in an approximate way from the phases of the moon, did not keep in step with them. Because the year according to the civil calendar was about one quarter-day shorter than the year of the seasons (determined by the regular flooding of the Nile, which made possible the planting of crops), over centuries the first day of the year moved steadily forward through the seasons, from the flooding of the Nile to the growth of crops to harvest. Thus, although the civil calendar may have been useful for administrative purposes such as the duration of office holding or the collection of taxes, it was poor at guiding agrarian activities.

Roman calendars. The Roman calendar, from which the modern calendar descends, underwent a series of alterations. Before about 700 B.C.E. the Roman calendar year consisted of ten named and two unnamed months, totaling perhaps three hundred fifty-five days. The named months were Martius, Aprilis, Maius, Iunius, Quintilis, Sextilis, September, October, November, and December. The first was named after Mars, the god of war; the second relates to the greening of the earth on the eve of spring; the third is named for Maia, Mother Earth; and the fourth for Juno. The last six names mean fifth month, sixth month, and so on to tenth. The two unnamed winter months were later called Ianuarius, after Ianus, the god of gateways; and Februarius, for the purification festival Februa.

After 450 B.C.E. the republican or pre-Julian calendar was in force, consisting of four months with thirty-one days, seven with twenty-nine days, and one, Februarius, with twenty-eight days. Occasionally Februarius was shortened to twenty-three or twenty-four days, and a twenty-seven-day month, Intercalaris, was let in. The decision on this matter was in the hands of the Pontifex Maximus, who for political reasons often failed to take action when it was necessary. As a result the calendar got badly out of step with the seasons.

In 46 B.C.E. Julius Caesar, then Pontifex Maximus, instituted a radical reform by adding ninety days to that year, thus restoring the seasons to their traditional places. He allotted thirty-one days to seven months, thirty days to four others, and twenty-eight to Februarius except in every fourth year, when it was given an extra day after the twenty-fourth. This brought the ordinary year to 365 days and the leap year to 366. A grateful senate decreed that the month Quintilis should thereafter be known as Iulius. Julius's successor, Augustus, later arranged for the month Sextilis to be given his name.

The Julian year is slightly longer than the year of the seasons, so that by the late sixteenth century the spring equinox, important in determining the date of Easter, was occurring around March 11 instead of on March 21 as had been decreed by the Council of Nicaea in 325 C.E. In 1582 Pope Gregory canceled ten days by declaring that the day after October 4 that year would be October 15. He further ordered that in centennial years not divisible by 400 February should not have an extra day. Over a 400-year period

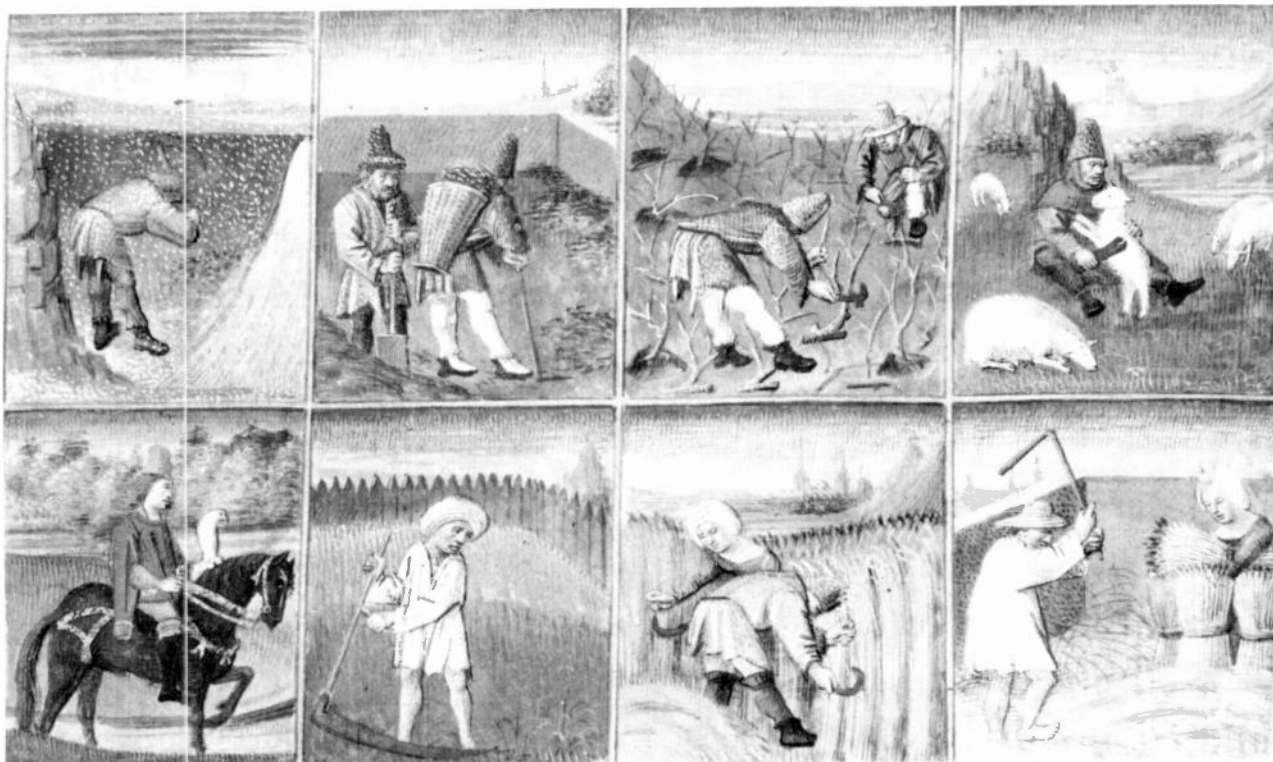


Figure 2. (*Calendar*) Pietro Crescenzi, detail of a medieval manuscript showing the labors of the months from January through August. Condé Museum, Chantilly, ms. 603. Giraudon/Art Resource, New York.



Figure 3. (*Calendar*) Aztec calendar, Mexico City. The Bettmann Archive, Inc.

the average Gregorian year thus works out to 365.2425 days, which is about .0003 day too long.

Other systems. There is much cultural and historical variation among methods of time reckoning. For example, an Indian calendar in the first millennium C.E. adopted the Julian year and, more recently, the Gregorian year. This calendar has had three sets of twelve months: one based on the phases of the moon, which has months of twenty-nine or thirty days with an intercalated month let in seven times in nineteen years; another with solar months marked by the sun's passage through a sign of the zodiac and with lengths of from twenty-nine to thirty-two days; and a third with a system of civil months, five of which have thirty-one days with the other seven having thirty days (one has thirty-one days every fourth year).

Early in the first millennium C.E. the Arabs had a calendar of twelve lunar months with an intercalated month let in on an arbitrary basis. Muhammad proscribed intercalation and fixed the months in a strict twenty-nine- and thirty-day alternation, with the twelfth month having twenty-nine days on nineteen occasions and thirty days on eleven. This yielded a month of 29.53 days (very close to lunar months) and a year of 354.36 days. The Islamic year advances through the year of seasons in about 33.56 years.

Modern Iran has had three calendars. The national

calendar, based on the Egyptian civil calendar and with a sixth day outside the months every four years, was brought back after the Persian conquest of Egypt in 526 B.C.E. The Parsis took with them a modified version of this calendar when they migrated to India. Iranians use the Islamic calendar for religious purposes and the Gregorian calendar for business.

In Central America the Mayan calendar had eighteen months of twenty days and five days outside the months, an arrangement unrelated to any celestial phenomena. Complex cycles were generated first by pairing the number of each of thirteen divinities with the names of the twenty days, yielding a count of 260 days, and then by matching the names of the eighteen months and of the five-day period with the day number, resulting in a total of 365 days. Putting the two cycles together, a calendar round was completed in 18,980 days in which each day had four indicators. *See also* AMERICAS, PRE-COLUMBIAN—WRITING SYSTEMS.

Calendar features often are the result of historical or cultural conventions. For example, years have been variously dated from the beginning of the reigns of Babylonian kings, from the foundation of Rome, from the birth of Christ, and from the flight of the Prophet Muhammad.

The seven days of the week and the twenty-four-

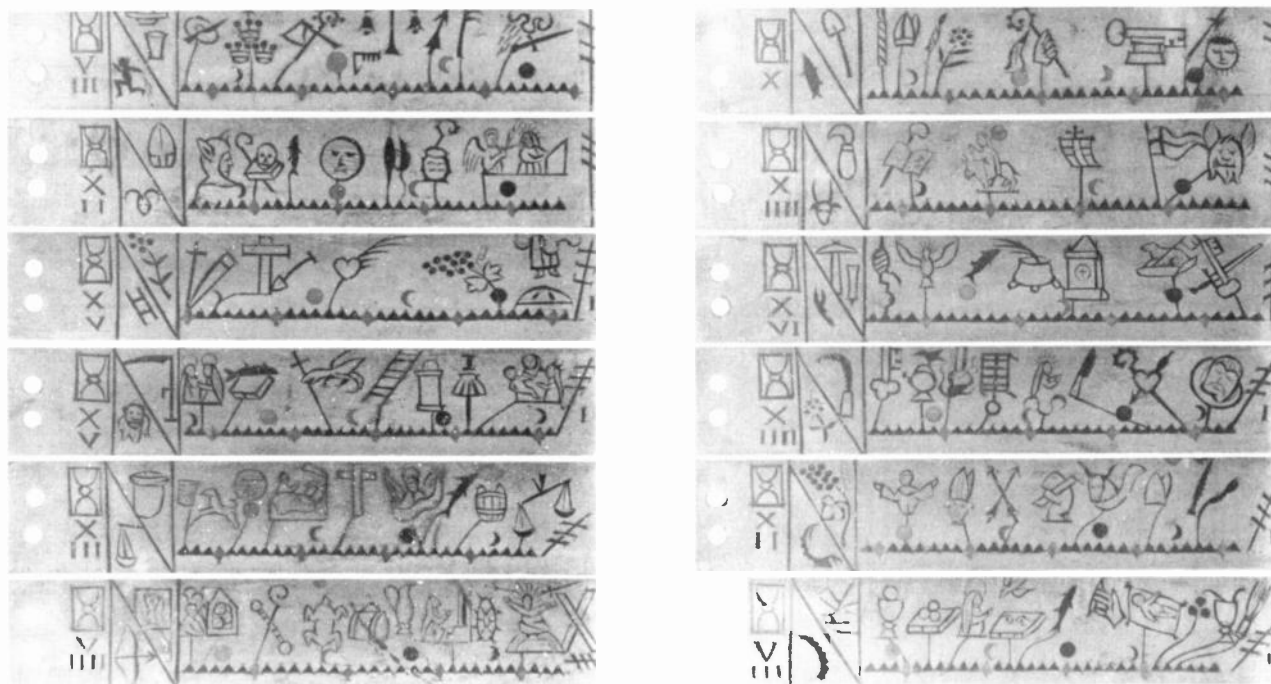


Figure 4. (Calendar) Perpetual pocket calendar. Front and back views of the six leaves of a wooden "fan" calendar that belonged to the English archbishop William Laud (1573–1645). The twelve sides of the six leaves correspond to the twelve months of the year. Along the bottom of each leaf, a row of triangles (black for weekdays, red for Sundays) represents the days of the month. The symbols probably indicate church festivals. Museum of the History of Science, Oxford.

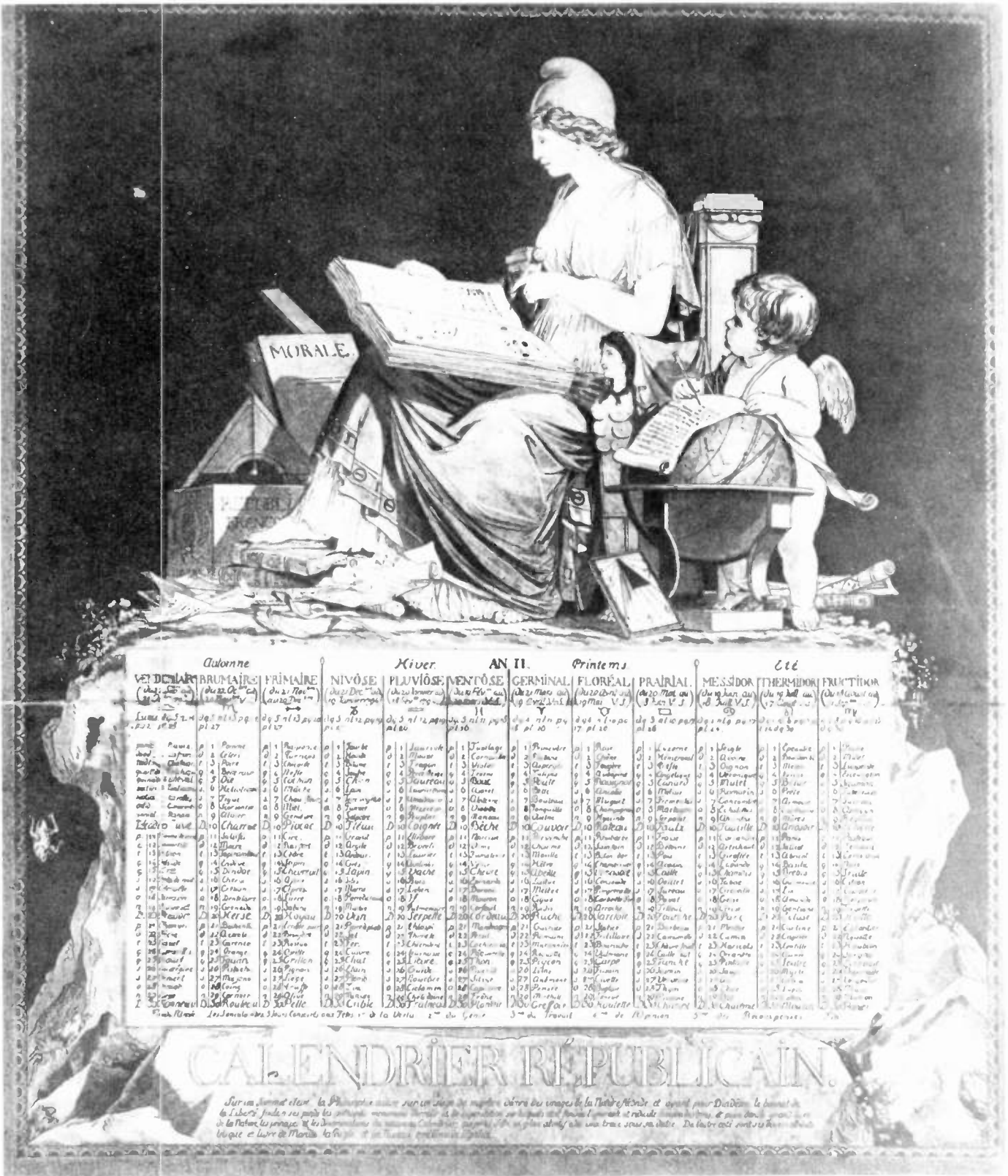


Figure 5. (Calendar) French decimal calendar issued during the French Revolution. The Bettmann Archive, Inc.

hour day are also arbitrary creations. The seven-day week has origins both in the Jewish cycle based on observance of the Sabbath and in the planetary or astrological week introduced to the West by Rome. With the rise of Christianity these traditions were blended. The twenty-four-hour day was derived from the Egyptians, who divided the sunlight period into twelve parts and the sunset-to-sunrise period into twelve parts. These temporal "hours" varied in length with the seasons. They were in use in Europe until the development of the mechanical CLOCK, which could operate only with near-constant hours. In other cultures the day has conventionally started at different times such as sunrise, midday, sunset, or midnight, resulting in different ways of calculating the length of the day. The Babylonians, for instance, divided the day into twelve *berus*; the Indians, into sixtieths.

Revolutionary calendars. The basic role played by time measurement in the formation of group identity and the maintenance of social structure can be seen clearly in instances in which calendars have been radically altered as a result of REVOLUTION. In 1793 the French republican government established a revolutionary calendar based on the decimal system. It consisted of twelve thirty-day months, each divided into three ten-day weeks called *décades*, and five days outside the months. The days of the week were given Latin numerical names: Primidi, Duodi, Tridi, and so on up to Decadi. Each day was divided into ten hours, each hour into 100 minutes, and each minute into 100 seconds. This rational and scientific system was intended to counter the influence of Christianity on the weekly cycle governing religious and economic life in France. Accordingly, the new calendar replaced religious holidays with civil holidays and discouraged traditional Sunday observances. The attempt to alter the fundamental underpinnings of French society was ultimately unsuccessful, and in 1805 Napoléon Bonaparte formally restored the Gregorian calendar as part of a broader reconciliation with the Catholic church.

Another notable postrevolutionary calendar change—again to subvert the powerful role of religion—took place in the Soviet Union in 1929. The Soviet revolutionary calendar kept the twelve Gregorian months, but each month consisted of six five-day weeks. The days of the week were not named but numbered. The rationale for the new five-day week was to maximize industrial growth by instituting a continuous cycle of production, which was accomplished by staggering the weekly cycle so that no more than one-fifth of the population had the same day of rest. In effect the Soviet government replaced the seven-day week with five different five-day weeks—a move with devastating results for Soviet family and social life. The introduction of the

nepreryvka ("uninterrupted"), which required that workers rest every fifth day rather than every seventh, also made traditional religious worship impossible for members of the three main Soviet faiths: Christianity, Judaism, and Islam. After a series of piecemeal calendrical reforms, by 1940 the Gregorian calendar was reinstated in the Soviet Union.

See also RELIGION.

Bibliography. William M. O'Neil, *Time and the Calendars*, Sydney, Australia (2d printing, with corrections), 1978; Alan E. Samuel, *Greek and Roman Chronology*, Munich, 1972; Eviatar Zerubavel, *The Seven Day Circle*, New York and London, 1985.

WILLIAM M. O'NEIL

CANTOMETRICS

Term coined by Alan Lomax, meaning the measure of SONG, or song as a measure of CULTURE. Cantometrics views singing styles as NONVERBAL COMMUNICATION about culture and social relations and defines their salient characteristics so that they can be compared and interpreted cross-culturally. This standardized, multiscale rating system, which has a consensus level of more than 80 percent, has been applied to the analysis of over four thousand songs from more than four hundred cultures. It is one of several such methods (*see* CHOREOMETRICS) developed in the Columbia University Cross-Cultural Study of Expressive Style, initiated in 1961.

Computer operations using the numerical PERFORMANCE profiles of cantometrics have produced two principal fields of information: (1) a classification of song performance into stylistic regions and areas that match the main geographic distributions of human culture as seen by archaeology and ethnography, and (2) a body of cross-cultural correlations of cantometric scales with standard measures of social structure that account for these variations.

The cantometric method was invented in the 1960s by Alan Lomax and Victor Grauer when, for the first time, a corpus of authentic field recordings made the music of the whole world available for comparative analysis (*see* SOUND RECORDING). These data afforded a unique opportunity to examine one type of human communication on a global scale. Field recordings provide direct behavioral data that can be studied repeatedly. The holistic, systems approach of cantometrics was designed to identify audible patterns such as those that differentiate OPERA from country or black African from Amerindian performances. These stylistic patterns are composed of sets of highly redundant, systems-maintaining qualities that persist all the way through sets of performances.

Earlier, anthropologist Ray L. Birdwhistell had suggested that such qualities could be roughly quantified, and linguist Norman Markel had demonstrated that their relative prominence could be reliably scaled and rated by teams of judges.

The quantitative scales needed to define these salient characteristics were tested on a global sample of song. The most dependable and efficient measures were incorporated into a set of teaching tapes in which the steps along each scale were illustrated with examples from a variety of musical traditions.

Classroom testing of these style-defining tapes produces a high level of consensus among listeners. Moreover, the tapes quickly acquaint students with the full range of human song and with a reliable method for the cross-cultural analysis of the cultural meanings of song performance. One teacher reports that after a month of classroom work students were able to identify the world source of any new recording and to comment on its cultural content.

Figure 1 presents the cantometric rating system and exhibits the contrasting modal profiles of two regional styles—African gatherers (the main modes in ovals) and urban East Asia (the main modes in rectangles). The ensemble-oriented, multipart, unified, repetitious, unornamented, and clear-voiced gatherer style reinforces the egalitarian, complementary, sharing tradition of the communal band. The exclusive, solo, virtuosic, elaborate, orchestrated, vocally idiosyncratic, oriental style mirrors the highly stratified, male-dominated, urbanized societies of the irrigation empires. Visual inspection showed that every main cultural region has such distinctive profiles, consisting of a core of stable features on some scales and typical ambiguities on others.

These discoveries were confirmed and enriched when the cantometric data were computerized and subjected to factor analysis. A large and well-distributed set of cantometric profiles was clustered into ten regional groupings. The resulting regional style map (see Figure 2) presents a layered historical geography of song style and culture.

Regional styles 1 and 2 link the multipart singing of the African gatherers to isolated pockets of similar style in Austronesia and South America. Region 3 defines the Siberian homeland of the glottalized solo style of the prehistoric big-game hunters, which turns up again in Patagonia at the terminus of their American migration. Style region 4 comprises the Circumpacific, peopled in the last glacial age, when North America, Melanesia, and Australia were linked to Asia by land bridges. Regional style 5, Nuclear America, outlines the zone in which agricultural civilizations arose in Middle America and the Andes. In region 6, the tropical gardener style, characterized by cohesive, polyphonic choralizing, runs all the way from Oceania to black Africa. The text-heavy choral

styles of region 7, the Malayo-Polynesian cluster, appear to trace the spread of Malay culture from Southeast Asia into the Pacific and its merger there with style 6. Regional style 8 was *Old High Culture* because its solo, ornamented, heavily orchestrated style links together all the zones shaped by ancient urban civilization, from East Asia to the Mediterranean. Region 9, Central Asia, is the heartland of a simpler but related solo style. Region 10, Europe, though closely allied to regions 8 and 9, still shows its ancient affiliation with Siberia in the north and with the polyphonic gardener zone of the south.

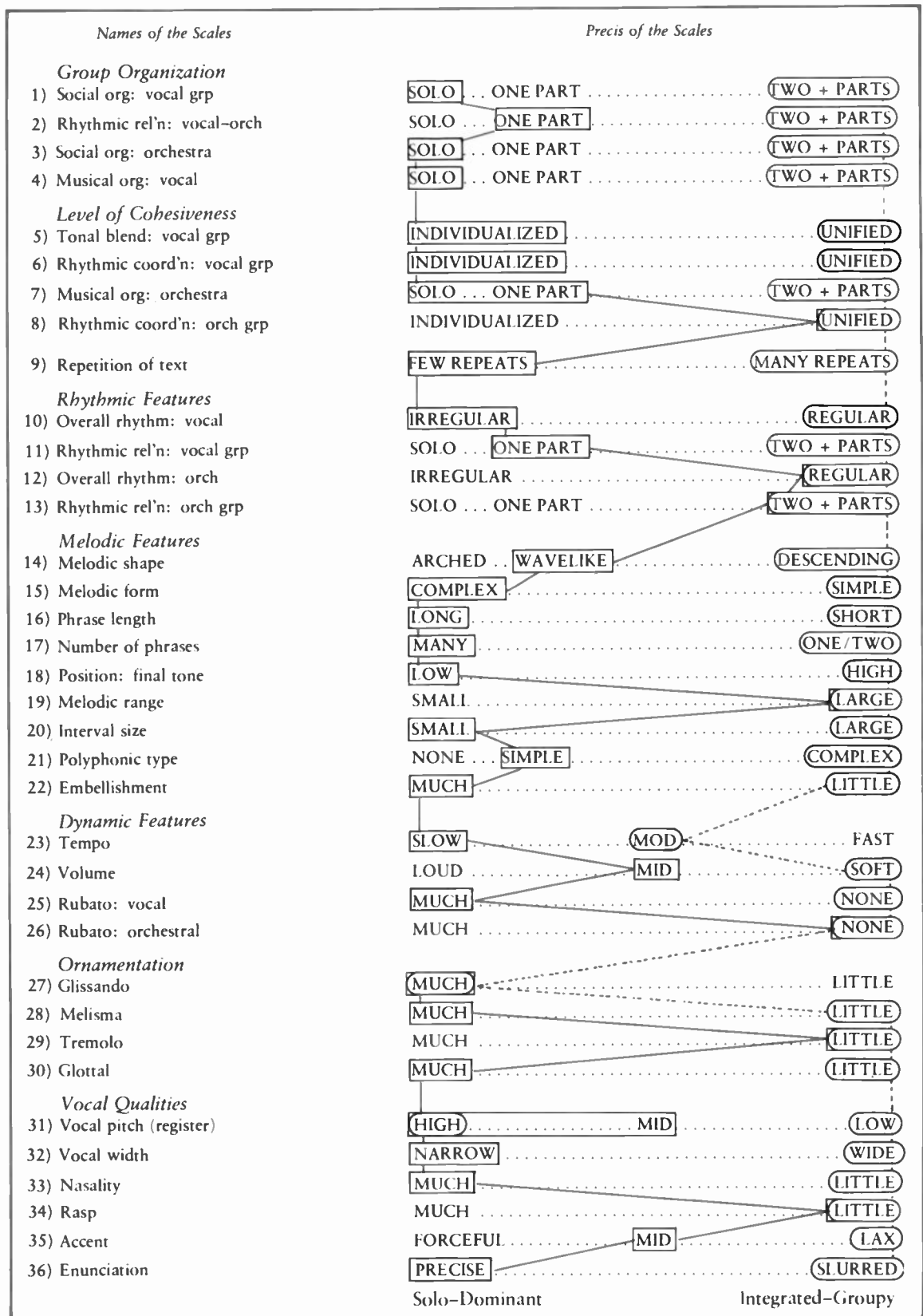
A framework of explanatory hypotheses for these and other song-style variations has emerged from the study of the powerful correlations among cantometric scales and standard measures for social structure, derived from ethnographic compendiums. The many relationships can only be summarized here.

Style. Song style tends to grow more articulated, ornamented, heavily orchestrated, and exclusive as societies grow bigger, more productive, more urbanized, and more stratified. Specifically, (1) the level of text repetition decreases directly as productivity increases, (2) the level of precision of enunciation increases as states grow in size, (3) the prominence of small intervals and embellishments indicates the level of stratification, (4) orchestral complexity symbolizes state power, and (5) melodic size and complexity reflect the size and subsistence base of a community.

Organization. The organization of the performing group varies with community organization: (1) the cohesiveness of singing groups reflects and reinforces the level of social solidarity in other aspects of social organizations, (2) solo or individualized choruses are characteristic of network-oriented and individualized social webs, and (3) polyphonic choral performance, in which two or more independent melodic parts coincide, is characteristic of sexually complementary cultures in which women have a productive role equal to or greater than that of men.

Vocal quality. Vocal noise and tension vary with GENDER roles: (1) harsh-voiced singing is typical of cultures in which boys are trained for aggression, and (2) vocal tension, as measured by nasality and vocal narrowness, tends to be high where sexual sanctions are severe, whereas relaxed, open voices are common where relatively permissive sexual standards prevail.

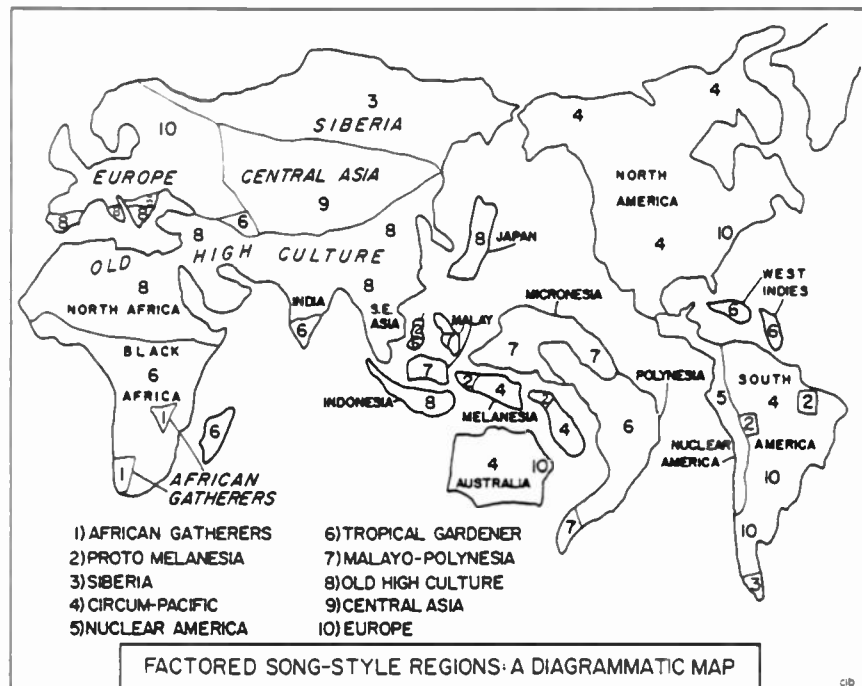
Rhythm. It appears likely, though a smaller sample was tested, that rhythmic and phrasal preferences may be shaped in childhood: (1) regular rhythms and phrases of moderate length are characteristic of cultures in which discipline imposes regular habits early in life; (2) on the other hand, irregular meters and long phrases are more frequent in cultures in which weaning is long deferred and children are reared indulgently.



Key: = URBAN EAST ASIA
 = AFRICAN GATHERER

Figure 1. (*Cantometrics*) Outline of the cantometric scales and their use in contrasting two regional styles: African gatherers and urban East Asia. Courtesy of Alan Lomax.

Figure 2. (*Cantometrics*) Factored song-style regions: a diagrammatic map. From Alan Lomax, *Cantometrics: An Approach to the Anthropology of Music*, Berkeley, Calif.: The University of California Extension Media Center, 1976, p. 32. Copyright © 1976 Alan Lomax.



Dynamic level. Finally, the dynamic levels of song, DANCE, and orchestra are highly intercorrelated. Emphasis on loudness is characteristic of the music of large polities that put a high value on military glory.

These propositions, based in correlations of a high order of probability, have been extensively tested since they were first reported in the 1960s. Parallel concepts have been found in the analysis of other expressive systems. Altogether they portray some ways in which expressive systems reflect and change with culture patterns, as wholes. Thus the rhythmic arts seem to have important roles to play in the reinforcement of the basic structures of society. The comparative success of the cantometric experiment suggests that prime universals of communication, usually sought at the linguistic level, are to be found at the nonverbal level through cross-cultural analysis.

See also ETHNOMUSICOLOGY; MUSIC, FOLK AND TRADITIONAL; MUSIC PERFORMANCE; MUSIC THEORIES.

Bibliography. Herbert Barry, Irvin L. Child, and Margaret Bacon, "A Cross-Cultural Survey of Some Sex Differences in Socialization," *Journal of Abnormal and Social Psychology* 55 (1957): 327-332; Ray L. Birdwhistell, *Kinesics and Context: Essays on Body Motion Communication*, Philadelphia, 1970; Alan Lomax, *Cantometrics: A Method in Musical Anthropology*, Berkeley, Calif., 1977; idem, "The Evolutionary Taxonomy of Culture," *Science* 177 (1972): 228-239; Alan Lomax et al., *Folk Song Style and Culture*, Princeton, N.J., 1968; Norman Markel, "The Reliability of Coding Paralanguage: Pitch, Loudness, and Tempo," *Journal of Verbal Learning and Verbal Behavior*

4 (1965): 360-368; George Peter Murdock, *Ethnographic Atlas*, Pittsburgh, Pa., 1967; George Peter Murdock and Douglas R. White, "Standard Cross-Cultural Sample," *Ethnology* 8 (1969): 329-368.

ALAN LOMAX

CANTRIL, HADLEY (1906-1969)

U.S. social psychologist. The research of Albert Hadley Cantril ranged over many aspects of human nature and society, but most of it was directly or indirectly related to communication and PUBLIC OPINION.

After graduating from Dartmouth College in 1928 and receiving a Ph.D. from Harvard University in 1931, Cantril taught briefly at Dartmouth, Harvard, and Columbia University. In 1936 he started a twenty-year career at Princeton University, where he organized the Office of Public Opinion Research and served as chairman of the psychology department. He was enormously popular as a lecturer, earning the enthusiastic loyalty of his students. In 1955 he became the full-time chairman of the board of the Institute for International Social Research, which was established with an endowment from the Rockefeller Brothers Fund.

During World War II Cantril was a consultant to the secretary of war and the Office of War Information. From 1940 to 1945 he conducted polls on the war effort for Franklin D. Roosevelt. He subsequently served as director of the UNESCO Tensions Project in Paris and, in 1955-1956, as a consultant

to the White House. His work in applying the social sciences to political problems is engagingly set forth in *The Human Dimension: Experiences in Policy Research* (1967).

Cantril made noteworthy contributions to several areas, including PERCEPTION, PERSUASION, and audience research. He was a founder of a transactional psychology that emphasized the interplay between an individual's assumptions and intentions and the external environment in shaping each person's unique "reality world."

The Psychology of Radio (1935), written with Gordon Allport, anticipated the flood of audience studies that were to follow during the next decades. Program preferences of different population groups, ratings given male and female voices, and uses of RADIO in the classroom were among the topics it examined. Further contributions to audience research, incidental to investigations of other subjects, were made in *The Invasion from Mars* (1940) and *The Psychology of Social Movements* (1941).

The study of audiences, as well as of PROPAGANDA and public opinion, was likewise advanced by Cantril's basic work on ATTITUDES and perception, which began with his monograph *General and Specific Attitudes* (1932). This work was carried forward by *The Psychology of Ego-Involvements, Social Attitudes and Identifications* (1947), written with Muzafer Sherif, and by extensive research on perception. In one experiment (with Albert Hastorf) he exposed Princeton and Dartmouth students to a film of a foul-plagued football game between the two institutions. As expected, the students tended to see mainly the violations committed by the other side's team.

During World War II and after, Cantril focused some of his work directly on propaganda and public morale. One of his papers on the U.S. information program, "What Should Our Message Be?" (1951), was reprinted in the *Congressional Record*. In *Soviet Leaders and Mastery over Man* (1960) he analyzed Soviet assumptions about human nature and techniques of persuasion resulting from them.

Public opinion research interested Cantril throughout his career. His *Gauging Public Opinion* (1944), which may have been the first book-length treatment of survey methods, remains one of the best. With F. P. Kilpatrick he developed an ingenious technique for measuring attitudes, which he called the "self-anchoring striving scale." This technique was used by his Institute for International Social Research in surveys throughout the world.

Two major volumes reporting on Cantril's polling activities (see POLL) are *The Pattern of Human Concerns* (1965) and *The Political Beliefs of Americans* (1967), the latter written with his research partner at the institute, Lloyd A. Free. The former volume summarized people's aspirations, and progress in

achieving them, in thirteen countries on five continents.

Underlying Cantril's thinking was a basically optimistic view of prospects for the human condition. "Whatever the circumstances," he wrote, "the human design will in the long run force any institutional framework to accommodate it."

See also COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT.

Bibliography. F. P. Kilpatrick, "Hadley Cantril (1906–1969): The Transactional Point of View," *Journal of Individual Psychology* 25 (1969): 219–225.

W. PHILLIPS DAVISON

CARICATURE

The creation of satirical images in visual form, often with a political theme. By emphasizing certain outstanding features of the subject, whether a person or an event, caricature communicates in a way that is at once humorous and critical. The caricaturist does not perform, but instead locates the performance for an audience.

Beginnings

The development of caricature was facilitated by the existence of a language of relatively fixed iconographic types in ART (see ICONOGRAPHY). The growth of a language of types in art took place during the RENAISSANCE and Reformation periods and involved artists in Italy, Germany, France, the Netherlands, and other parts of Europe. Social and political conflicts along with geographic factors all offered fertile conditions for the emergence of caricature.

During this widespread revolution the political print as the bearer of caricature came into its greatest use. There are earlier examples of caricature, many dating from the invention of the woodblock and printing (see PRINTING). But it was MARTIN LUTHER, the great German theologian, who first used the political print in pictorial PROPAGANDA on a large scale, for the purposes of his revolutionary movement. Luther employed wood engravers and was an excellent pamphleteer; his fly sheets circulated in Germany throughout the sixteenth century, inspiring satires of Luther himself (see Figure 1).

Caricature, in the sense of a critical and exaggerated portrait of an individual, is frequently associated with the work of the Carracci family in Bologna in the late 1500s. To the Carraccis, caricature meant to penetrate reality or get to the truth about a person by using as little detail as possible to construct a recognizable picture. They linked certain distortions to qualities of character and personality so that a



Figure 1. (Caricature) Erhard Schoen, *The Devil's Bagpipe*, 1525. Courtesy of Lawrence H. Streicher.

smirk might mean a deceitful person, or a crouch of the body a cunning outlook. The *ritratto carico*, or portrait caricature, had emerged.

The focus of activity next moved to the Netherlands, which claimed many of the skilled engravers and artists in Europe at that time, including Anthony Van Dyck and Peter Paul Rubens. The considerable degree of freedom from persecution in the Netherlands of the seventeenth century made it a general place of refuge for political malcontents and religious dissenters. This was especially true for French citizens who fled from the tyranny of Louis XIV. The Netherlands became the launching station for satirical prints directed largely against Louis and his policies. The inscriptions on some of these Dutch prints appear in both French and English, suggesting that they were to serve and to ally at least two groups of readers.

Emergence as an Art

Professional caricaturists had not yet made an appearance in eighteenth-century Europe. Although oc-

casional practitioners produced identifiable personal satire in Italy and the Netherlands, there was not yet a systematic statement or a professional stance that helped to distinguish the caricaturist from the comic artist. In part, this stance was supplied by William Hogarth, the great British dramatic artist. Hogarth did not wish his works to be confused with the crude excesses of caricature, yet he is often called the father of caricature for his role in setting and defending standards of engraving, thus raising the prestige of prints. He considered *caricatura* per se to be crude, exaggerated, and contradictory to his expressive realism.

Hogarth saw himself as a moralist rather than a political partisan. Even his well-known print *Gin Lane* (1751) is a moral stricture, although it was intended to support a ministerial act against the unlimited sale of gin (see Figure 2). Hogarth satirized, but in a comic manner that provoked good-humored laughter. His work brought together the burlesque and exaggerated depictions of Italian caricature and the allegorical satire practiced by Dutch artists such as Romeyn de Hooghe, thereby helping to define the art of caricature itself.

The upheavals of the French Revolution and the Napoleonic Wars gave political caricature in Britain the opportunity to come into its own. The classic



Figure 2. (Caricature) William Hogarth, *Gin Lane*, 1751. Courtesy of Lawrence H. Streicher.

age of British caricature began with the work of Thomas Rowlandson, a watercolor artist who became known primarily for his social satire. Rowlandson's contemporaries included Isaac Cruikshank, who designed and etched some of the earliest caricatures of Napoléon Bonaparte, and Isaac's son, George Cruikshank, who became more famous as a caricaturist, especially after the death of James Gillray.

Gillray was the outstanding British political caricaturist of the early nineteenth century, and his work exemplifies the development of caricature into a powerful political weapon. In the old emblematic prints, people had been depicted by the use of signs, inscriptions, and analogies. The Carraccis had made people recognizable as personalities. Gillray's satires of George III and Napoléon also were easily recognizable as personal or portrait caricatures without the use of excessive symbolism (see Figure 3). Gillray sometimes identified the personalities of his subjects with particular animal attributes, resulting in unmistakable definitions of character. The label "Little Boney," referring to Napoléon, was Gillray's invention.

For the most part, caricatures were printed on separate sheets and exhibited to the public in shops that served as outlets for an artist's work. Print shops achieved the status of institutions during the late eighteenth and early nineteenth centuries, and publishers and exhibitors of caricature played an influential role in the formation of PUBLIC OPINION. The development of lithography in 1798 made possible the mass production of images and set the stage for the widespread use of caricatures as illustrations in the press (see GRAPHIC REPRODUCTION; NEWSPAPER: HISTORY).

Caricature and the Mass Press

The union of caricature and journalism, which increasingly helped to organize public response to political acts, occurred in the context of repression and social unrest in Europe. In Spain, corrupt leadership had reduced the country to a state of economic and political collapse. In 1799 the painter Francisco Goya y Lucientes published a collection of eighty etchings, *Los caprichos*, depicting the great changes taking place in the structure of Spanish society. In each plate actors perform, as on a stage, some scene graphically illustrating the manners and moral abuses of the time. Goya often used such grotesque imageries as owls, bats, giant cats, and nightmarish monsters in his dramatic caricatures (see Figure 4).

Political caricature was all but suppressed in France during the early part of the nineteenth century. In 1830, however, Charles Philipon, a journalist and lithographer, founded *La caricature*, a journal dedicated to satire. Philipon created one of the best-known caricatures of the nineteenth century, a sequence in which King Louis-Philippe's heavy face is transformed into a pear. *La caricature* was banned in 1835 after a series of legal battles but was replaced in the same year by another famous Philipon publication, *Le charivari*. In 1838 Philipon founded *La caricature provisoire*, another addition to his group of innovative illustrated publications. Their success inspired similar ventures in Europe and the United States, including, in 1841, the establishment of the British periodical *Punch*.

One of the most famous contributors to Philipon's publications was Honoré Daumier, a painter, lithographer, and caricaturist. Daumier's caricature of Louis-



Figure 3. (Caricature) James Gillray. Original caption: "The Plumb-pudding in danger;—or—State Epicures taking un Petit Souper. 'The great Globe itself, and all which it inherit' is too small to satisfy such insatiable appetites.—Vide Mr. Windham's eccentricities in the *Political Register*." Published by H. Humphrey, February 26, 1805. Courtesy of Lawrence H. Streicher.



Figure 4. (Caricature) Francisco Goya, *El sueño de la razón produce monstruos* (The Dream of Reason Produces Monsters). "Imagination deserted by reason creates impossible, useless thoughts. United with reason, imagination is the mother of all art and the source of all its beauty." *Los caprichos*, 1799. Courtesy of Lawrence H. Streicher.

Philippe as "Gargantua" (see Figure 5) was violently disliked by the monarchy and landed the artist in prison for six months in 1832. The drawing shows the king's ministers collecting taxes from the people in panniers and feeding them into Gargantua's open maw, while from under the chair of the figure come privileges and monopolies for the bourgeois business class in whose interests the government was conducted.

Like Hogarth, Daumier did not wish to be known as a caricaturist. He preferred painting in simplified form and using subjects who were easily recognizable types. Unfortunately for his ideals, this genre became easily adapted to caricature. Daumier's *portraits-chargés* (portrait caricatures) of identifiable individuals helped systematize the use of political caricature in the mass press.

Modern political caricature in Germany dates from the revolution of 1848–1849 and the founding of a number of publications devoted to satire, including *Kladderatsch* in Berlin and the Munich-based *Fliegende Blätter* and *Punsch*. Wilhelm Busch, a prominent draftsman who got his start on the *Fliegende Blätter*, was known for his satirical drawings accompanied by short rhymes criticizing human weaknesses. Adolph Oberlander, who became the chief artist for the *Fliegende Blätter*, relied on pure caricature without the use of captions. Thomas Theodor Heine was associated with the famous periodical *Simplicissimus*, established in 1896. Heine and his colleague Eduard Thöny were noted for their satires of Prussian Junkers, the kaiser, and "political loudmouths."

The U.S. Civil War and its turbulent aftermath provided unique opportunities for the growth of



Figure 5. (Caricature) Honoré Daumier, *Gargantua. La caricature*, 1831. Courtesy of Lawrence H. Streicher.

caricature in the United States. Thomas Nast emerged as the outstanding graphic satirist of this period (see Figure 6). Drawing for *Harper's Weekly*, Nast left an enduring legacy of political symbols, including the Republican elephant and the Democratic donkey. His successful fight against the corrupt Tweed Ring in New York made him a national figure.

Caricatural expression in Japan was influenced by the artist Besaku Taguchi, who drew for the great humor magazine *Marumaru chinbun*. As its editor, Taguchi also had the opportunity to meet important political figures of the 1890s and was thus in a unique position to further the development of Japanese caricature.

World War I afforded many examples of the power of caricature to propagandize. One of the most notable was the work of the Dutch artist Louis Raemaekers, whose depictions of the kaiser and the German forces had a profound effect on wartime sentiment in Britain and later in the United States.



Figure 6. (Caricature) Thomas Nast. Original caption: "A Group of Vultures Waiting for the Storm to 'Blow Over.'—'Let Us Prey.'" *Harper's Weekly*, September 23, 1871. Courtesy of Lawrence H. Streicher.

In the first half of the twentieth century, caricature expanded to encompass new genres and forms, including COMICS and film ANIMATION. At the same time, political caricature thrived, in part because of the growing tension in international relations. One outstanding political caricaturist of this period was Sir David Low, who achieved international prominence on Lord Beaverbrook's London *Evening Standard* from 1927 to 1949 (see BEAVERBROOK, 1ST BARON). Low injected the news of the day into his work and combined a global outlook with impish humor. One of his most famous inventions was Colonel Blimp, a stereotypical figure summing in a synecdochic form some characteristics of the fool as a social type. Despite his title, Colonel Blimp was a political rather than a military figure, representing muddled thinking on the part of all parties and concerns. Low's clever drawings were especially effective in rallying public opinion against Adolf Hitler and Benito Mussolini before and during World War II (see Figure 7).

Japan produced a number of noteworthy political satirists, including Keiichi Suyama and Masamu Yanase. Suyama drew leftist caricatures for the *Musansha shimbun* (Proletarian News) and regularly contributed to the magazines *Tokyo Puck* and *Nap*. His later work appeared almost entirely in book form and elaborated the history of Japanese cartooning. Yanase drew for the *Yomiuri* newspaper in Tokyo; his sympathies were with working people, and much of his satire was directed at corrupt bosses as well as Prime Minister Tanaka and Japanese militarists. Yanase became a member of the Japanese Communist party in 1931 and was blacklisted in 1932 along with other members of the proletarian movement. He was prohibited from drawing cartoons and turned to oil paintings.

Political caricature in the Soviet Union is associated with several important names. Mikhail Chermnykh, one of the founders of *Krokodil*, the famous Soviet satirical weekly, created anti-Nazi propaganda posters during World War II, as did many caricaturists of that period. Viktor Denisov ("Deni") was the permanent editorial cartoonist of *Pravda*. Boris Yefimov, one of the Soviet Union's most popular artists, became internationally known for his wartime cartoons of Hitler and Mussolini in comic situations adapted from Russian folktales. Kukryniksy, probably one of the most famous signatures in Soviet caricatures, is the pen name of three artists—Mikhail Kupriyanov, Porfiry Krylov, and Nikolai Sokolov—whose collaborative career began with anti-Franco cartoons during the Spanish civil war. Although they are best known for their vicious drawings of Hitler and JOSEPH GOEBBELS, the Kukryniksy team continued to satirize international events well into the cold war period (see Figure 8).



Figure 7. (Caricature) Sir David Low, *The Girls He Left Behind Him*. London *Evening Standard*, May 10, 1935. Courtesy of Lawrence H. Streicher.

Social Caricature

Caricature is not limited to political themes; it also focuses on social and cultural issues. Its wide range of subject matter is matched by the different countries and local backgrounds from which artists take their ideas. Twentieth-century caricaturists known for their portrayals of representative social types and situations include Juan Carlos Alonso of Argentina, Norman Alfred Lindsay of Australia, James Ensor of Belgium, Alvaro Cotrim of Brazil, and Fritz Jürgensen of Denmark. England's extensive history of social caricature yields such figures as Max Beerbohm, famous for his insightful drawings of personalities, and Sidney Strube, whose "Little Man" represented Britain against all odds.

Mexican artist Miguel Covarrubias produced geometric and sculptured caricatures of notables such as the Prince of Wales, CHARLES CHAPLIN, and Franklin D. Roosevelt. Covarrubias's unique style influenced, among others, Albert Hirschfeld, whose caricatures of film and stage celebrities appeared regularly in the *New York Times* during the 1930s and 1940s.

Since the early 1960s, some of the best-known social caricature in the United States has been produced by David Levine. Levine's contributions to the *New York Review of Books* are characterized by their accuracy and incisiveness and by a virtuoso pen-and-ink technique that has been likened to that of Thomas Nast. Many of his drawings illustrate topical book reviews, although he caricatures political personalities with equal and deadly joy (see Figure 9). Levine's work shows that, while the art of caricature may be used to expose and subvert, it can also be sympathetic and supportive.

See also HUMOR; MAGAZINE; POLITICAL COMMUNICATION—HISTORY; POLITICAL SYMBOLS.



Figure 8. (Caricature) Kukryniksy, *They Croaked*. "The foreign press does not conceal that Kennedy's conversations with Eisenhower, Nixon, and Truman discussed plans for preparation of a new aggression against Cuba. A flock of former presidents and vice-presidents flew to Washington and croaked like ravens." *Pravda*, April 30, 1961. From Michael Milenkovitch, *The View from Red Square*, New York: Hobbes-Dorman, 1966, p. 88. Courtesy of Lawrence H. Streicher.



Figure 9. (Caricature) Eisenhower, Kennedy, Johnson, Nixon, Thieu. Drawing by David Levine. Reprinted with permission from *The New York Review of Books*. Copyright © 1969 Nyrev, Inc.

Bibliography. Hans Dollinger, *Lachen streng verboten! Die Geschichte der Deutschen im Spiegel der Karikatur*, Munich, 1972; William Feaver, *Masters of Caricature*, New York, 1981; Richard Fitzgerald, *Art and Politics: Cartoonists of the "Masses" and "Liberator,"* Westport, Conn., 1973; Jules Fleury [Champfleury], *Histoire de la caricature antique*, 5 vols., Paris, 1865–1880; Eduard Fuchs, *Die Karikatur der europäischen Völker*, 2 vols., Munich, 1902, 1921; Mary Dorothy Gordon George, *English Political Caricature: A Study of Opinion and Propaganda, —to 1792 (Vol. 1), and 1793–1832 (Vol. 2)*, Oxford, 1959; Edward Lucie-Smith, *The Art of Caricature*, Ithaca, N.Y., 1981.

LAWRENCE H. STREICHER

CARTOGRAPHY

Efficient communication about the relative geographical location of things, the nature of places and regions, and the variations of phenomena from place to place requires maps. All these reduced surrogates of geographical space portray reality to some extent, some diagrammatically, others by artful use of line,

shading, and color to evoke the essence of a distribution or the subjective character of a landscape. Each map is a mix of scale, projection, data selection, generalization, symbolization, graphic elements, and names. Four overlapping classes of maps have evolved with distinct communication objectives: topographical, travel, figurative, and thematic. There are great differences between the large-scale and small-scale varieties in each class.

Topographical maps. These maps show an assortment of features in an area. The earliest Western map dates from about 3800 B.C.E.; a more sophisticated Eastern relic is from the second century B.C.E. Principles for their preparation were proposed by Claudius Ptolemy (ca. 90–160 C.E.) in Alexandria and Pei Hsiu (224–271 C.E.) in China. Mapmaking advanced in China while it lagged in the Western world until the fifteenth century, when the Ptolemaic writings were introduced to Europe. The development of PRINTING and the expansion of geographical EXPLORATION led to greatly increased production of maps as separates, in cosmographies, and in atlases. Map publishing became big business in the sixteenth and seventeenth centuries.

The era of national topographical mapping, which involved careful measurement and portrayal of detail on large-scale maps, began in the eighteenth century. The symbolism has remained relatively standard since then. One vexing problem has been the portrayal of the three-dimensional land-surface form on two dimensions. It was highly diagrammatic until the nineteenth century when hill-shading, hachuring, and contouring were developed.

Travel maps. Charts for mariners to determine location, course, and safety have ancient origins, but the earliest extant are of the early 1400s in both Europe and China.

The portolan charts of the Mediterranean region, with no known prototypes, were characteristically

crisscrossed with numerous lines of wind or compass directions. They included amazingly accurate coastlines with many coastal names. They soon became decorative and colorful. Early Chinese charts were much simpler and did not develop further.

Independent chartmakers in the West practiced until the nineteenth century, but in the sixteenth century competition in exploration and trade caused governments and quasi-private companies to organize bureaus to collate information and maintain quality. Marine charts showed not only coastlines, depths, and hazards as clearly as possible, but also numerous identifying sketches of the shore features. Since the nineteenth century almost all marine charts have been officially produced. Aeronautical charts

Figure 1. (Cartography) The "Psalter" *mappa mundi*, twelfth century, an example of figurative maps. (East is at the top.) By permission of the British Library.



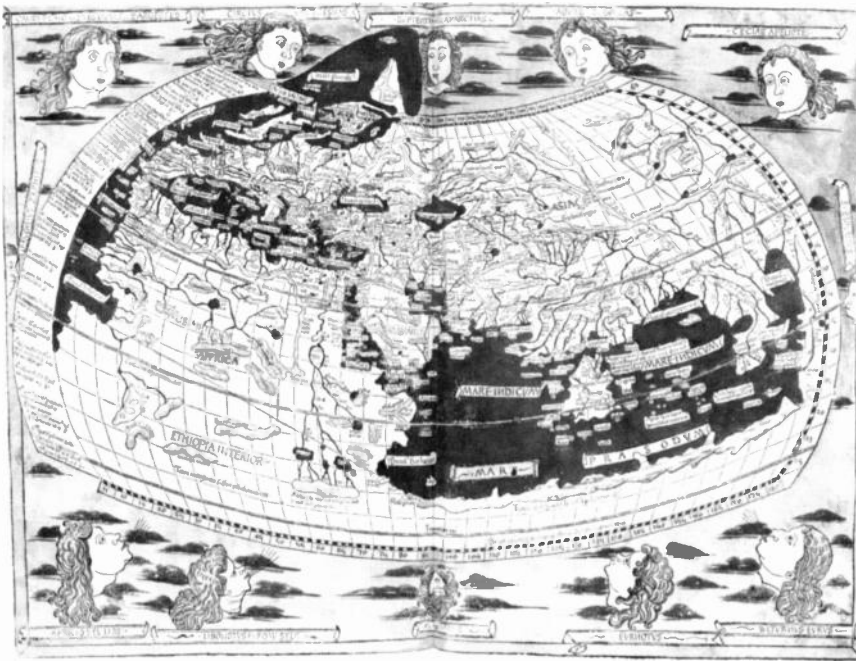


Figure 2. (Cartography) Ptolemaic map of the world. From the Ulm (Germany) edition of Ptolemy's *Geography*, 1482. Courtesy of the Library of Congress, Geography and Map Division.

for visual flying were produced in the late nineteenth century, but as aircraft and electronics advanced, so did the variety of charts.

Road maps date back at least to Roman times. One dating from about 500 C.E. shows roads throughout the empire schematically with distances written on the map (see ROMAN EMPIRE). Medieval road maps for pilgrims and merchants based on itineraries were often diagrammatic *strip maps* with the routes shown relatively straight. By the seventeenth century road maps drawn to scale became common.

In the nineteenth century the advent of rail travel added railroad maps to the class. The development of automobile travel demanded maps of all usable roads, categorized by quality and identified first by name and symbol and later by numbers and letters. Millions of such maps are produced annually.

Figurative maps. In this genre geographical space is used as the vehicle to communicate matters of faith, to promote economic or nationalistic ends, or to provide a striking display of selected information. In many cases, geographical reality is intentionally distorted or selectively portrayed.

The earliest examples are the medieval *mappae mundi*, didactic metaphorical representations of ecclesiastic cosmology. Examples in illuminated manuscripts include small and large displays, but all give substance to abstract concepts.

In the age of exploration and COLONIZATION, optimistic maps supported such ideas as the theory of a navigable northern passage from Europe to the Far East or encouraged settlement and the development

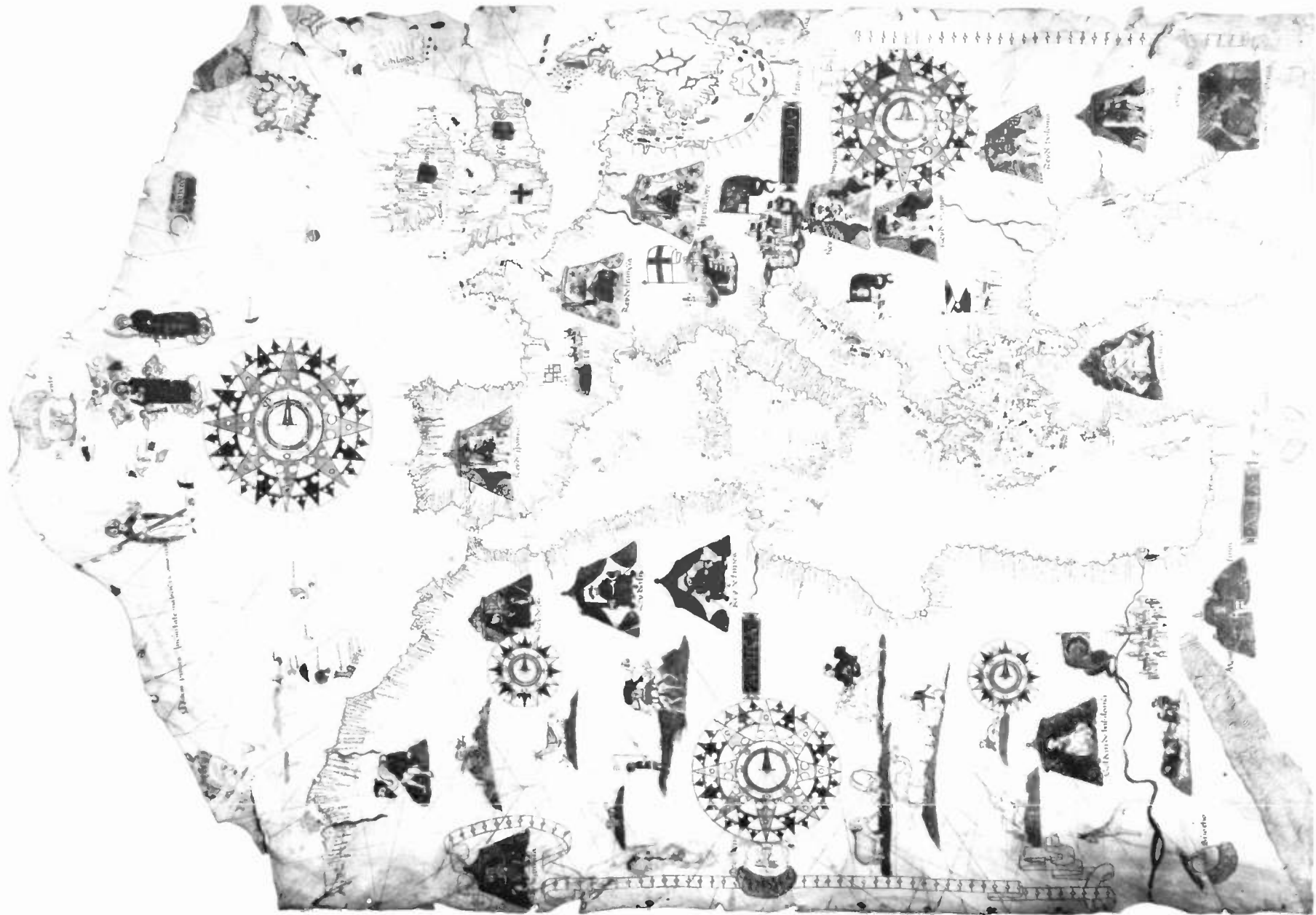
of plantations. The rise of nationalism brought propaganda maps to support claims of wrongs that needed righting; on some, potentially aggressive areas were made to resemble ominous animal shapes. After railways evolved, many diagrammatic maps were produced to portray favorably a line or the proposal for one.

Schematic maps or cartograms systematically distort the geographical base by substituting some other quantity, such as population, for geographical area.

Thematic maps. In the late seventeenth century, maps appeared that concentrated on the distribution of particular elements such as ocean currents, winds, or magnetic variation. They required new symbolism to communicate geographical variations in quantities and qualities.

Before 1800 most thematic maps dealt with natural phenomena. As censuses were taken and attention focused on such diverse topics as political economy, industrialization, trade, and epidemic disease, the need for effective methods of portrayal became critical. The first half of the nineteenth century, a period of unusual ingenuity in graphic symbolism, saw the innovation of such devices as the choropleth, isotherm, isopleth, and other isolines, as well as proportional shading, circles, and lines. Problems of comparability of data were severe. For example, the

Figure 3. (Cartography) Mateo Prunes, a portolan chart of the Mediterranean Sea, 1559. (West is at the top.) Courtesy of the Library of Congress, Geography and Map Division. ▷



WACHSENDE KARTE DER MAGNETISCHEN MERIDIANE UND PARALLELEN;

(Gezeichnet auf der Beobachtungen der Expedition, welche jümmlich auf das Jahr 1825 reducirt worden sind)

Von dem Schiffs-Kapitain L. I. Duperry.

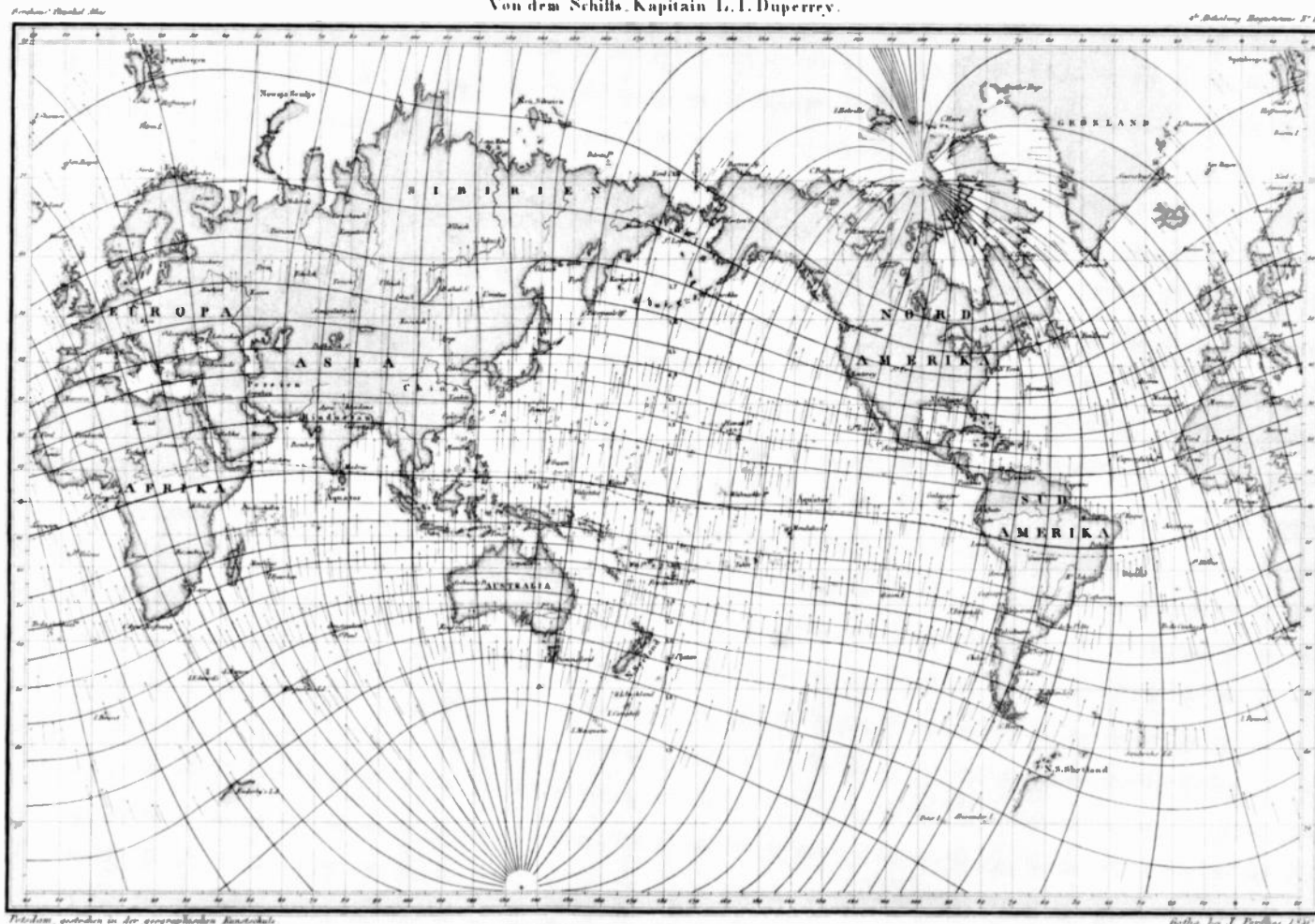


Figure 4. (Cartography) Map of the magnetic meridians and parallels. From Heinrich Berghaus, *Physialischer Atlas*, 1845. Courtesy of the Library of Congress, Geography and Map Division.

synoptic weather map required simultaneous information from places far apart. This was solved by the advent of TELEGRAPHY; a century later SATELLITE technology made possible real-time displays of sensed data such as cloud coverage, precipitation patterns, vegetation character, and floods.

Technology. The attractiveness and efficiency of communication by maps were greatly constrained by technology until the mid-1900s. Before duplication by woodcut and copper engraving was introduced in the late 1400s, all maps were handmade originals. Woodcut for relief printing tended to be coarse, while the finer copper intaglio engraving allowed more detail. When color was used, it was applied by hand. In the nineteenth century lithography added versatility at lower cost, and color printing became common after about 1860. A variety of other techniques, some incorporating PHOTOGRAPHY, were developed. Cerography, engraving in wax to produce a relief printing plate, was widely used well into the twentieth

century. The production of line, shade, and color by lithography and video displays is no longer subject to significant technical restriction.

See also GRAPHICS; MAP PROJECTION.

Bibliography. Leo Bagrow, *History of Cartography*, rev. and enl. by R. A. Skelton, London, 1964; Arthur H. Robinson and Barbara Bartz Petchenik, *The Nature of Maps*, Chicago, 1976; Arthur H. Robinson, Randall D. Sale, Joel L. Morrison, and Phillip C. Muehrcke, *Elements of Cartography*, 5th ed., New York, 1984; David Woodward, ed., *Five Centuries of Map Printing*, Chicago, 1975.

ARTHUR H. ROBINSON

CARTOON. See ANIMATION; CARICATURE; COMICS.

CAXTON, WILLIAM (ca. 1422–1491)

English merchant, diplomat, courtier, translator, publisher, and the first printer in England. A member

of the Mercers' Company (cloth merchants), William Caxton spent some thirty years on the Continent, mainly at Bruges, where he was governor of the English residents and thus a member of the court of Margaret of Burgundy, the sister of Edward IV. With her encouragement Caxton began to translate *The Recuyell of the Historyes of Troye*, a popular romance. During a brief political exile in Cologne, in 1471–1472, he first saw printers in action and decided to learn the new art. On his return to Bruges he established a press; his first BOOK was his own translation of the *Recuyell*, published in 1475. In 1476, having printed six books, Caxton returned to England, where he set up his press in Westminster.

Caxton printed some one hundred books and other works. They included editions of Chaucer, Malory, Lydgate, and Gower; books of hours, missals, and indulgences; Aesop, CICERO, and Boethius; school-books such as Aelius Donatus's popular Latin grammar; reference works such as Ranulf Higden's *Polychronicon* (a history of the world from the Creation to 1360) and the *Chronicles of England*; and popular literature such as *Reynard the Fox*, *The Golden Legend*, and *Godfrey of Boloigne*. Many were translations from Latin or French, generally his own; during a period of twenty-three years he translated twenty-three books, totaling some fifty-six hundred pages. He also wrote lengthy prologues and epilogues to some of his books, often containing valuable biographical, bibliographical, and historical information. Many of the translations and their printed editions were supported by wealthy patrons, to whom Caxton dedicated them (*see* TRANSLATION, LITERARY).

During the late 1480s, when he fell from court favor and had to publish at his own risk, he turned mainly to standard school and liturgical books and to long devotional works, which had a secure market. When he gained the support of Henry VII he was commissioned to translate and print the *Faytes of Arms*, a fifteenth-century rendering of Vegetius's fourth-century *De re militari* and various later works on military tactics. He also printed the statutes of Henry's first three parliaments, in 1485, 1487, and 1489–1490. His last book for a named patron was an edition of a prayer book, *The Fifteen O's, and Other Prayers*, commissioned by the queen and issued in 1491.

Caxton remained vigorous and active until the end of his life. At the time of his death he was working on a translation of the *Vitas patrum*, a collection of the lives of the Desert Fathers, an enormous work of about 350,000 words.

Few printers have been as prolific or as influential as William Caxton. His importance lies less in his having been the first English printer than in what he chose to print and the language he employed for it. Many fifteenth-century printers—JOHANNES GUTEN-



ranns in to the forste / And whanne the wyldy bestes sawe hym come/they were so ferdfull that they alle beganne to flee/ For they wend/ that it had the Lyon/ And the mayster of the asse strechyd and soughte his asse in every place ab aboute And as he had soughte longe/he thought that he wold go to the forste for to see pf his asse wex there/ And as soone as

Figure 1. (Caxton, William) Detail of a page from *The Fables of Aesop*, printed by William Caxton. Woodcut. From David Bland, *The Illustrations of Books*, London: Faber and Faber, 1951, p. 45.

BERG and Nicolas Jenson, for instance—were better at their craft than Caxton. But as a publisher and scholar he is almost unequalled. He ranks with Geoffrey Chaucer as one of the great influences in establishing written English as a legitimate—even literary—language, through his choice of vernacular texts to print and through his translations.

See also PRINTING; PUBLISHING—HISTORY OF PUBLISHING.

Bibliography. George D. Painter, *William Caxton*, London and New York, 1976.

JAMES M. WELLS

CB RADIO. *See* CITIZENS BAND RADIO.

CENSORSHIP

This entry is composed of three sections:

1. Survey of Entries
2. Government Censorship
3. Nongovernment Censorship

1. SURVEY OF ENTRIES

In addition to the major articles below, there are many entries in this encyclopedia touching on forms and effects of censorship—often under rubrics other than *censorship*. The article on GOVERNMENT REGU-

LATION, for example, examines a large range of regulatory devices, variously named, affecting the flow and content of ideas but having purposes or proclaimed purposes other than censorship: protecting national security (by measures shielding government secrets); protecting children (by film distribution controls); protecting individuals and groups from defamation (by laws against libelous expression); preventing private monopolies (by antitrust legislation). These forms of regulation, or censorship, are discussed in the articles on *SECURITY*, *HOLLYWOOD*, *LIBEL*, and *MONOPOLY*, respectively.

The subject of monopoly has further ramifications. Many modern media have inherently monopolistic features in that they involve allocation of limited resources (orbital slots, broadcast frequencies) or limited privileges (the right to dig up city streets for cable laying, or a place at major government press conferences). The censorship implications of these monopolistic features are discussed in such articles as *CABLE TELEVISION*, *CITIZEN ACCESS*, *GOVERNMENT-MEDIA RELATIONS*, *NEW INTERNATIONAL INFORMATION ORDER*, *NEWS AGENCIES*, *RADIO*, *SATELLITE*, and *SPECTRUM*.

Aspects of the historical evolution of censorship practices are discussed in *COLONIZATION*; *COPYRIGHT—THE EVOLUTION OF AUTHORSHIP RIGHTS*; *ISLAM*, *CLASSICAL AND MEDIEVAL ERAS*; *MARXIST THEORIES OF COMMUNICATION*; *MIDDLE AGES*; *PRINTING*; *RELIGION*; *REVOLUTION*; *ROMAN EMPIRE*; and *TOKUGAWA ERA: SECLUSION POLICY*.

Themes around which censorship disputes often revolve are discussed in *CHILDREN—MEDIA EFFECTS*, *PORNOGRAPHY*, *SEXISM*, and *VIOLENCE*. Modern censorship patterns in various parts of the world are touched on in the multipart entries *COMPUTER: IMPACT* and *NEWSPAPER: TRENDS* as well as in such regional surveys as *AFRICA, TWENTIETH CENTURY*; *ASIA, TWENTIETH CENTURY*; *AUSTRALASIA, TWENTIETH CENTURY*; *ISLAMIC WORLD, TWENTIETH CENTURY*; and *LATIN AMERICA, TWENTIETH CENTURY*.

As the technology and organization of the media become more complex, more individuals find their freedom of expression curtailed or negated. Sometimes the roles of the censor and the censored become confused. The television *SPONSOR*, though often thought of as a censor, may be seen by the business community as a victim of *PRESSURE GROUP* censorship. Censors exist at all media levels, but all avoid the word, adding semantic confusion to an inherently intricate and controversial topic.

2. GOVERNMENT CENSORSHIP

A tool in the hands of authorities to shape and perpetuate an official version of "the truth." It can extend to any medium and any expression—artistic,

scientific, or political—that is perceived as potentially subversive.

Official suppression of expression has a long history; it was practiced in many ancient civilizations. But censorship in the modern sense developed with the rise of the modern state and the invention of the *PRINTING* press. This narrower definition of censorship focuses on decisions made prior to publication about which works will be licensed to appear in public and under what conditions.

History

The potential of printing to challenge authority became apparent during the Reformation. The Catholic church identified the tracts that poured forth from the Wittenberg presses as one of the critical means by which *MARTIN LUTHER*'s revolt developed into a *REVOLUTION*. Consequently the governments of Europe and the church each established elaborate systems designed to control and regulate the impact of the printing press on society.

Threatened, the church gradually accelerated its condemnation of heresies and heretics until, in 1571, Pope Pius V established the Congregation of the Index, a body specifically assigned to make decisions about censorship. The Index itself, which had been published in 1559, was the first in a series of more than fifty lists of censored manuscripts issued by the church from the sixteenth through the twentieth centuries, when the practice was discontinued.

Secular authorities employed similar means. England published its first list of prohibited books in 1529. In 1557 the Stationers' Company was established, composed of printers and sellers of manuscripts. Thus British censorship took a quasi-voluntary or semiprivate form. The crown granted the stationers *MONOPOLY* over the production and distribution of printed matter, and they, in turn, "were readily persuaded" to take upon themselves not only the protection of their own advantages but also the suppression of all printing that was in that day considered "dangerous to authority." This particular form of censorship, calling for cooperation among the crown, the church, and private printers, resulted in a highly effective mechanism of suppression. In the second half of the seventeenth century suppression through censorship became more and more difficult, and in 1694 Parliament decided to let the Censorship Act expire. However, it was not repealed out of commitment to free speech. The act merely expired because of "difficulties of administration" and because of the restraints it had placed on the trade of books. During the eighteenth and nineteenth centuries the press in England was not controlled through licensing procedures, but suppression of expression was continued by other means. The same

goals were pursued through taxation of the press and prosecution for seditious LIBEL.

French censorship similarly started in cooperation with the church. An early sixteenth-century royal decree assigned the prerogatives of censorship to the Faculty of Theology of the University of Paris. This prerogative was partially withdrawn in the seventeenth century as the king asserted more secular power over publications. Later, as the general level of suppression rose, the police were assigned the task of censorship. Toward the end of the *ancien régime*, as the king felt more vulnerable, he sought still higher levels of repression. Nevertheless, compliance was low, and the clandestine market for books flourished. Censorship lacked a uniform policy and was weakened by internal politics and corruption. With the French Revolution and the Declaration of the Rights of Man, censorship was prohibited. Thus, in contrast to the British, who abandoned censorship for pragmatic reasons, the French terminated censorship as a matter of principle, in keeping with the libertarian values of the Revolution. After the demise of the First Republic, however, censorship through licensing was restored. It was abandoned by the Third Republic with the enactment of the 1881 press law.

The history of censorship in western Europe parallels the shift from the absolute to the liberal, or constitutional, state. It reflects the passage from the authoritarianism of the MIDDLE AGES, dominated by king and church, to the Age of Enlightenment, inspired by science, reason, and the belief in progress.

The philosophers of the Enlightenment viewed censorship as a hindrance to freedom and progress. They developed justifications for free expression: the importance of free speech in the search for truth, the function of free expression in developing the potential of individuals (self-fulfillment), and the role of free speech in democratizing the state (self-rule). The negative impact of censorship on the development of human creativity and its role in helping to hide the abuse of power by government officials were used to illustrate the evil of suppression and the link between censorship and reactionary worldviews.

In the nineteenth century John Stuart Mill eloquently summarized the importance of free speech for the good of society and the damage censorship inflicts upon it. Censorship, Mill argued, assumes the infallibility of the censor's view, an infallibility that is highly improbable. Censorship stifles intellectual processes and prevents the expansion of knowledge. It also prevents the exposure of the abuse of power. Further, Mill argued, even if the censor's view does reflect the good and the true, this truth may stagnate; unchallenged, it will ripen into prejudice. Formalized official truth, even if inherently good, will inevitably lose its vitality and keep humanity in the fetters of mental slavery.

The principle of free expression has long been and

continues to be an important justification against censorship, particularly political censorship. But there is another cause for the decline of censorship in the West: the idea of rule of law. In the absolute state public law was conceived as a set of tools to be used at the discretion of the rulers to satisfy their interests. In the liberal-constitutional state the legitimacy of the government action depended on consistent, legal principles. These principles opposed the practice of censorship, which was discretionary, often arbitrary, and administrative, rather than adjudicatory. The idea of the rule of law was applied to the censorship issue in the doctrine against prior restraint articulated by the noted jurist Sir William Blackstone in the eighteenth century. Blackstone's doctrine delegitimized such censorship systems and called for the regulation of expression through the criminal law, thereby providing for the uniformity of laws in the liberal legal system.

Censorship in the Twentieth Century

In the twentieth century the functional equivalents of censorship existed everywhere—often using other terminology. Three models of censorship, characteristic of three styles of government, can be identified: liberal-constitutional, authoritarian, and bureaucratic-ideological.

Liberal-constitutional regimes. The liberal-constitutional model is typified by the presence of a constitutional principle against censorship. It prevails in modern liberal democracies such as the United States, Sweden, and Australia. Official censorship is proscribed. However, some functional equivalents of censorship do exist. For example, in the United States information is withheld through an extensive system of classification and by administrative restrictions on the right of public employees to talk to journalists. In addition, there is a measure of cooperation between the government and the press. The press will self-censor newsworthy items if the editors are persuaded that publication might damage national security. On the eve of the 1961 U.S. invasion of Cuba, the *New York Times* voluntarily censored a story that an invasion organized and led by the CIA was imminent. Still, at least in the United States, when such voluntary measures fail the legal system generally will not assist the government in its quest to suppress information. In the only episode in which the government asked the Supreme Court to enjoin a newspaper from publishing top secret materials (the Pentagon Papers case), the Court declined, invoking the doctrine against prior restraint.

Variations on the theme of voluntary censorship appear in other countries where the legal system is more sympathetic to limitations on free speech. In the United Kingdom a D-Notice system is in operation. The D-Notices are letters sent by the Services,

Press, and Broadcasting Committee to editors requesting that material related to certain defense matters not be published. Failure to comply with a D-Notice may result in prosecution for breach of Britain's tough Official Secrets Act.

In Israel the draconian censorship regulations introduced by Britain during the colonial period are replaced in practice by a voluntary agreement between the censor and the editors. The agreement limits censorship to matters of security and includes a supervisory mechanism and disciplinary proceedings for violations. However, Arab newspapers published in Israel and other newspapers whose editors are not part of this agreement are still subject to the stricter censorship regulations.

While the liberal state allows a large measure of freedom in the area of political speech, it is sensitive to conventional morality. Film censorship is legal in many liberal democracies, although it is generally applied only to very violent or pornographic content. PORNOGRAPHY and obscenity, in both the print and electronic media, are areas still widely regulated, either through censorship or through criminal measures designed to deter publication, particularly when the sexual depiction of children is involved.

All liberal-constitutional regimes have employed censorship during periods of war, partly to prevent information from reaching the enemy and partly to pursue intelligence activities. Censored information includes ship, plane, and troop movements; information related to pending military operations; the location and description of fortifications and defenses; certain war production elements; the weather; and movements of the chief executive. Usually a code detailing these items is distributed to the press, which refrains from publishing such information or, in case of doubt, submits information for the censor's approval. Although violation of the censorship code usually constitutes a criminal offense, it is safe to expect a high level of cooperation during such periods of crisis, particularly if there is consensus about the necessity to fight the war. During World War II the Allied countries enjoyed a high level of compliance with their (by and large voluntary) system of censorship. The dates of the Allies' invasions of North Africa and Normandy, as well as the invention of radar and the atom bomb, were effectively kept secrets. Wartime censorship for intelligence purposes applies to telegrams, the TELEPHONE, and the mail in order to discover enemy agents and intercept economic or military information.

It is important to note that, while the core purpose of wartime censorship is to shelter military information, it does not always stay within such limits. Thus a military censorship board may become politicized and be used to stifle criticism of the government or to suppress information about the blunders

and delinquencies of the government. For example, during the Algerian war the French government consistently attempted to smother the critical leftist press. During World War II news of the U.S. naval defeat off Savo Island was not released until nine weeks after the battle.

Authoritarian regimes. The authoritarian model is exemplified by Third World regimes that exercise considerable control over their communications media. For example, most African governments own their newspapers and thereby control the information disseminated to the public. Usually this system is not fortified by the addition of a censorship board. See AFRICA, TWENTIETH CENTURY.

The authoritarian regimes of Latin America do not generally use a formal system of censorship. But they have regularly sought to control public discourse by terrorizing and intimidating journalists and editors into suppressing news unfavorable to the regime (such as information about conflicts within the military, the activities of the security apparatus, and resistance to the regime). See LATIN AMERICA, TWENTIETH CENTURY.

South Africa provides an excellent example of how censorship intensifies as anxiety deepens. For years South Africa has maintained a formal censorship board for books, periodicals, films, plays, and records. Interference with the press was kept to a minimum in an effort to maintain the image of a democracy that respects the rule of law. In 1986, as domestic unrest increased and international PUBLIC OPINION turned more hostile, the government launched a war against the press, desperately hoping that "killing the messenger will also kill the message." Powers of censorship were invested in the commissioner of police, prohibiting "the announcement, dissemination, distribution, taking or sending within or from the Republic of any comment on or news in connection with any conduct of a force or any member of a force regarding the maintenance of the safety of the public or the public order or the termination of the state of emergency." Further, the regulations prohibited "the presence of journalists for the purpose of reporting in any black residential area or any other area in which unrest is occurring except with the prior consent of the . . . commissioner." As a result, journalists could not publish a wide range of statements from any government opponent, were prohibited from photographing protests or reporting government efforts to suppress them, and were not even allowed to enter the black townships.

Bureaucratic-ideological regimes. One example of the bureaucratic-ideological model is the Soviet Union immediately after the 1917 Revolution. V. I. Lenin advised the Communist press to "learn, organize, propagandize." He viewed the press as "a powerful instrument . . . no less dangerous than bombs and

machine guns." The Soviet press, accordingly, was to be controlled by the Communist party, and the theoretical groundwork was laid for the operation of the press in the Soviet Union and Soviet-inspired regimes. This type of control over the press goes beyond authoritarianism, in the sense that it both suppresses information inimical to the power elite and indoctrinates the population to internalize a specific worldview. In the Soviet Union the Central Committee Propaganda Department and the censorship board (Glavlit) work in tandem. Glavlit alone employs an estimated seventy thousand censors. The actual operation of Glavlit is highly bureaucratized, subjecting the content of every article to a successive number of reviews before it finally receives the stamp of approval. This aspect of censorship is crucial in guaranteeing effective control over information and encouraging conformity. It not only exhausts writers, who have to obtain the approval of numerous functionaries, but also circumscribes their creativity. It remains to be seen whether the policy of openness introduced by Soviet leader Mikhail Gorbachev will have long-term effects on the Soviet press.

Insight into the operation of censorship as a tool to promote IDEOLOGY is provided by the Black Book of Polish Censorship, the 1976 censorship code of Poland. The book instructs the censor: "Information on the licenses that Poland has bought from capitalist countries [e.g., Leyland engines, Fiat automobiles] should be eliminated from the mass media." Another censorial device eliminates specific types of information from the popular press (such as information about epidemic cattle diseases) but permits popular articles that discuss the existence of the diseases though not their occurrence in Poland. The code's section on CULTURE reveals the subtle indoctrination achieved through censorship. A person of literary or scientific reputation who becomes persona non grata is never to be mentioned in a positive manner. However, the existence of such persons, the subject of their work, and criticism of that work are permitted. Censorship codes are kept secret, and newspapers may not indicate that the contents were subjected to censorship. The purpose of the system—to shape public opinion rather than merely to prevent criticism—is evident from the fact that a special unit in the censorship apparatus is in charge of transmitting to the government those items that were censored. Thus the authorities have access to information unavailable to the public—a sophisticated device to maintain control over the society. The system creates a privileged class of persons who are better informed and who frequently enjoy higher social status.

It is the close link between PROPAGANDA and repression that clearly distinguishes the authoritarian model from the bureaucratic-ideological model. In the former censorship is used mainly to prevent

expression of dissent. In the latter it is a sophisticated mechanism to shape ideology. However, such attempts cannot be entirely successful. Censorship itself becomes a haven for those in society who wish to know. In addition, the existence of the samizdats (underground publications) and a black market in forbidden literature attest to the fact that even under optimal conditions censorship cannot be entirely effective.

Government censorship implies political, military, or moral insecurity. When feeling vulnerable, those in power will censor the information they consider subversive. But, to succeed, such censorship depends on an efficient bureaucratic structure. Once such a structure is erected it becomes resistant to peaceful change. According to the noted press scholar Fred S. Siebert, it took eighty years to build up the system of censorship in England but more than two hundred years to tear it down.

Both the purposes and the achievements of government censorship have for centuries been attacked by writers and politicians, often in memorable terms (see MILTON, JOHN). But the desire to control and suppress has been equally persistent, and systems of government censorship of one sort or another continue to exist worldwide.

Bibliography. Albert Bachman, *Censorship in France from 1715 to 1750: Voltaire's Opposition*, New York, 1934, reprint 1971; Jane Leftwich Curry and Joan R. Dassin, eds., *Press Control around the World*, New York, 1982; Edward De Grazia, *Banned Films: Movies, Censors, and the First Amendment*, New York, 1982; Thomas I. Emerson, *The System of Freedom of Expression*, New York, 1970; Dina Goren, *Secrecy and the Right to Know*, Ramat Gan, Israel, 1979; Pnina Lahav, ed., *Press Law in Modern Democracies: A Comparative Study*, New York, 1985; John Stuart Mill, *On Liberty*, London, 1849, reprint (annot. and ed. by David Spitz) New York, 1975; Saul K. Padover, trans. and ed., *Karl Marx on Freedom of the Press and Censorship*, New York, 1974; George Haven Putnam, *The Censorship of the Church of Rome and Its Influence upon the Production and Distribution of Literature*, New York, 1906–1907, reprint 1967; George Schöpfung, ed., *Censorship and Political Communication in Eastern Europe*, New York, 1983; Fredrick S. Siebert, *Freedom of the Press in England, 1476–1776: The Rise and Fall of Government Controls*, Urbana, Ill., 1952.

PNINA LAHAV

3. NONGOVERNMENT CENSORSHIP

Official or government censorship makes up only a small part of the actual censoring activity in any society. All established systems of knowledge and social order are secured by social controls that pro-

vide methods for identifying and censoring deviance. In some societies these methods are sanctioned by legal codes and enforced by formal administrative bodies, police, censorship boards, judiciaries, and so on. However, all social structures back up and supplement their formal systems of control with social pressures, rites, conventions, and institutional practices that deter deviance. Censorship is therefore always pervasive, intractable, and sociologically significant.

Liberal and sociological approaches to censorship. Since the Enlightenment Western liberals have conceived of censorship as a regressive or unenlightened practice that inhibits the development of democracy and hampers the advancement of knowledge. Liberals acknowledge that censorship has existed in all previous societies and that censorship continues to operate in nonliberal and liberal societies alike, but they maintain that reforms can bring an end to the cycle of repression. Western liberal conceptions of censorship and free speech continue to exercise significant influence over the ways issues of freedom and control are conceived and debated throughout the world.

Sociological models of science, knowledge, and social order, on the other hand, support the view that knowledge, order, and deviance are social constructions—processes and products of human communications and communities. Proponents of social constructivist models such as ERVING GOFFMAN and David Rothman in sociology, Mary Douglas in anthropology, Michael Polanyi and Thomas S. Kuhn in the philosophy of science, and MICHEL FOUCAULT in epistemology have reasoned that if communication and community are integral, then examination of the ways a particular social structure defines and polices deviance can explain how its members create and sustain both social and cognitive order. Social constructivist perspectives therefore treat censorship as a crucial category for analysis.

Social constructivist conceptions of censorship are supported by studies in cognitive psychology (*see* COGNITION) and LINGUISTICS that suggest that the mind's capacity to process information is limited by its vulnerability to overload as well as by the range of the linguistic categories, GRAMMAR, and semantic resources available to it (*see* SEMANTICS). These studies indicate that in order to process information at all humans must simplify it. Moreover, they suggest that these simplifications are culturally patterned or programmed and that, as a result, PERCEPTION itself is "language" (*see* LANGUAGE). In sum, these linguistically informed studies in cognitive psychology provide empirical support for LUDWIG WITTGENSTEIN'S dictum, "The limits of my language are the limits of my world."

The social constructivist rethinking of censorship

conceives of censoring and sense making as two loops in the dialectical knot that binds power and knowledge. This conception appears to be consistent with both the etymology of the term and the social history of the practice. The word *censor* derives from the Latin root *cense*, from the Latin *censure*, "to estimate, rate, assess, judge, reckon." Historically censorship has played an important part in all attempts to assemble and codify learning. Censorship has drawn the lines that establish and mark the boundaries between good and evil, truth and falsity, the rational and the irrational. It has defined the limits of knowledge and provided mechanisms for policing epistemological outlaws.

Encyclicals have been issued and encyclopedias have been written to secure correct views and discredit ignorance or misinformation. Heretics have been persecuted to encourage virtue and discourage departures from dogma. Sense is made by censoring nonsense. The Enlightenment did not eliminate this paradox. Negation continues to secure affirmation even in a scientific age. Thus, for example, textbooks on scientific methods are written to identify the principles and procedures of good science and to censure the breaches of bad science. The constructivist perspective revises and inverts the liberal equation by acknowledging that while censorship is frequently an obstacle to knowledge, it is also a constituent of knowledge.

Censorship and criticism. Censorship is an exercise of the critical faculty and carries the sanction of some form of authority. Censorial authority may be secured by social customs; by the practices of political, economic, religious, educational, or cultural institutions; by established semantic conventions; or by prevailing rules of reason. The temptation to proscribe fallacious or dangerous views is the underside of the desire to proclaim and propagate factual or felicitous views. Consequently those who care most fervently about ideas are frequently tempted to suppress opposing ideas. In ancient Greece, for example, the primary advocates of censorship were philosophers, not kings. PLATO advocated banishing poets from the ideal republic because he believed that fictive symbols misrepresent reality and inhibit the development of civic virtues. He also believed that rhetoricians and natural scientists should be outlawed because their views are deceptive and erroneous.

No modern society outlaws POETRY, RHETORIC, or science, although some treat these disciplines as especially worthy of surveillance. However, in modern republics poets, rhetoricians, and scientists play an active role in the surveillance process. They help draw the boundaries, articulate the canons, set the agendas, and craft the paradigms that codify correct views and censor incorrect views (*see* AGENDA-

SETTING). They define and enforce the prescriptions and proscriptions that regulate their disciplines. Because communication, community, and CULTURE cohere, disciplinary self-censorship is not free of contamination by external powers, nor is its influence contained within the disciplines.

When churches, colleges, corporations, and cultural institutions can effectively propagate right thinking and police the erroneous, governments do not need to maintain censorship offices. Editors will do the censors' work. Furthermore, poets, rhetoricians, and scientists who want to publish will try not to transgress the boundaries established by the canons, conventions, paradigms, and professional standards of their disciplines. Until the collective voice of the discipline or communication community is ready to redraw the boundaries, the inner voices of most members of that community will not permit them to realize the motto of the Enlightenment: "Dare to know." Some questions will not be asked for fear of censure; others will not be asked because the cognitive categories and semantic resources available to the community render them inconceivable.

Organizational self-censorship. These pragmatic economic, psychological, sociological, and linguistic pressures create what Elisabeth Noelle-Neumann has termed a "spiral of silence." They conserve established opinion and discourage dissent. However, in heterogeneous societies informal controls are usually too ambiguous fully or effectively to contain potentially dangerous ideas. Moreover, modern scientific, cultural, and industrial organizations need to provide means for encouraging the development of new ideas, technologies, and commodities without undermining their own power bases. They also need to develop mechanisms for protecting themselves from as well as responding to government and pressure groups that find their messages objectionable (*see* PRESSURE GROUP). As a result of these conflicting demands, media organizations frequently find it necessary to identify and formally articulate the rules of proscription and prescription under which their members operate. Editorial policies, broadcast standards and practices manuals, and film industry production codes are responses to these demands (*see* HOLLYWOOD).

Such articulations of organizational rules sometimes consist of general statements of principles that can be enforced or ignored at the discretion of management. In other cases they may entail detailed "do" and "don't" checklists that guide the production process. In liberal societies newspaper editorial policies typically embrace tenets of press freedom, but they also articulate those tenets in ways that usually attract like-minded editors and reporters (e.g., a reporter with socialist sympathies is not likely to seek or find a career opportunity on a newspaper that caters to a business market). In all societies film and

broadcast media have been much more subject to rigid external controls and self-censorship than print media because of the heterogeneity of their audiences and because of the amount of capital involved in production. Thus, for example, the production code of the Motion Picture Producers and Distributors Association of America, which operated as an effective agent of self-censorship in the U.S. film industry for three decades, proscribed material dealing with first-night scenes, miscegenation, branding, surgical operations, white slavery, sexual hygiene, and much more. In addition, it offered detailed instructions for presentation of the flag, the marital bed, national feelings, sin, and other sensitive topics.

Media self-censorships are enforced by organizational reward systems, hiring, firing, promotions, professional prizes and awards, and so on; by work routines that socialize practitioners to pursue some subjects and ignore others; and by marketing decisions that emphasize some material and some markets and ignore others. In addition, the discipline that operates within individual media organizations may be supplemented by industrywide sanctions enforced by trade associations. In the Soviet Union membership in a writers' union is required in order to publish; expulsion is equivalent to excommunication. In liberal societies maverick media organizations might be fined or denied access to media distribution systems, and offending individuals might be subject to industrywide blacklisting. In the United States during the 1950s thousands of writers, journalists, printers, linotype operators, actors, producers, and other communications workers were denied further employment in media industries by media organizations because of government and internal questioning of their political loyalties.

Overt interventions in media operations depart from the normal routines of media self-censorship in liberal societies. Such interventions are usually responses to political, economic, or social crises in the larger society. When self-regulatory mechanisms are operating normally, control systems are almost invisible. Liberals would say this is because the controls are secured in consensus. Marxists would say it is because the controls are secured by a hegemonic system that operates automatically.

The concept of self-regulation is an ideological extension of the democratic ideal of self-government. The difference is that governance is transferred from public to private control. By definition, self-regulation is intended to operate in the interests of the regulators. Media industries are capital-intensive industries. When self-regulation is undertaken by a capital-intensive industry, profit considerations usually act as effective muzzles. As Joseph Breen, chief officer of the Production Code Administration of the Motion Picture Association of America, pointed out to a

representative of Universal Studios in 1946, "20,000,000 people have to see every picture Universal makes before you get five cents of your salary. We can't afford to offend anybody!" In media supported by ADVERTISING rather than by box-office or newsstand receipts, audiences become commodities to be sold to advertisers. Media marketing is rationalized, but media organizations become more directly responsive to advertisers than to audiences. Members of audiences, offended by media messages, may discover that the power of the box office must now be exercised in the supermarket or department store. Organized consumer resistance may express itself through boycotts of advertisers' products rather than theaters, newsstands, or programs. Some advertisers view consumer boycotts as abridgments of their freedom of expression.

The conservative bias of capital seeks safe investments. Audience segmentation of some media permits some diversity in cultural production. Minority voices are not strongly represented in mass media, but they may comprise a targeted market served by individual RADIO stations, ethnic magazines, or specialized newspapers. Local television stations may allocate some time to community groups representing minority interests (*see* CITIZEN ACCESS; MINORITIES IN THE MEDIA). However, media addressed to national audiences frequently avoid risks by avoiding the concerns of minorities. Formulaic plots and stereotypical characters usually provide low-risk investments. In the United States and other heterogeneous societies they also tend to reproduce the racial, ethnic, gender, religious, and ageist biases that circulate in the larger society. Those who are offended by these messages may seek to propagate more positive images of minorities in the media. They may propose media guidelines for portrayal of minorities, launch campaigns to purge language of racist or sexist usages (*see* SEXISM), or seek revisions of textbooks (*see* TEXTBOOK). These efforts may, in turn, be experienced as threats to free expression by those who support mainstream values, conventions, and prejudices. The logic of capital seeks the largest market possible. It supports the majority view and exerts strong pressures toward homogeneity. Some suggest that this logic supports a kind of market censorship.

The paradoxes of self-censorship underscore the hazards of ignoring either loop in the knot that binds power and knowledge. Power relations provide the auspices for dissent as well as consent. For this reason security measures are written into the birthrights of all compelling ideas.

See also GOVERNMENT REGULATION; MINORITY MEDIA; POLITICAL SOCIALIZATION.

Bibliography. Mary Douglas, *Purity and Danger: An Analysis of Concepts of Pollution and Taboo*, New York

and London, 1966, reprint 1978; Michel Foucault, *Discipline and Punish: The Birth of the Prison* (*Surveiller et punir*), trans. by Alan Sheridan, New York, 1977; Erving Goffman, *Asylums: Essays on the Social Situation of Mental Patients and Other Inmates*, Garden City, N.Y., 1961; Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 2d ed., enl. (International Encyclopedia of Unified Science, Foundations of the Unity of Science, Vol. 2, no. 2), Chicago, 1970; Jonathan Miller, *Censorship: The Limits of Permission*, London, 1962; Elisabeth Noelle-Neumann, *The Spiral of Silence*, Chicago, 1984; David J. Rothman, *The Discovery of the Asylum: Social Order and Disorder in the New Republic*, Boston, 1971; Dallas Smythe, *Dependency Road: Communications, Capitalism, Consciousness and Canada*, Norwood, N.J., 1981; Ludwig Wittgenstein, *Tractatus Logico-Philosophicus* (1921), trans. by D. F. Pears and B. F. McGuinness, with an intro. by Bertrand Russell, London and New York, 1961, reprint 1971.

SUE CURRY JANSEN

CETI

Communication with extraterrestrial intelligence. Human interest in communicating with other forms of life has been recorded throughout history. Legends abound with tales of talking creatures, angels, and demons. Speculations about other intelligent forms of life that might reside in planetary systems around the distant stars are a popular topic of SCIENCE FICTION.

Recent discoveries in astronomy and biology indicate that the processes that produced life on Earth may have occurred in hundreds of millions of other solar systems throughout our galaxy. Advances in RADIO astronomy and communications technology have stimulated scientists and engineers to conduct experiments designed to search for evidence of extraterrestrial intelligent life. The search for extraterrestrial intelligence (SETI) has become a serious endeavor.

If we assume that extraterrestrial intelligent (ETI) civilizations are "out there," we might then wonder how they would choose to contact others across the vast distances that separate stars. EXPLORATION and ultimate contact via space travel is one option, but that choice is extremely costly. The energy and time required to transport mass across interstellar distances are enormous. In contrast, the transmission of information using massless photons (e.g., light or radio waves) requires much less energy, and the signals travel at the speed of light. The kinetic energy of an electron traveling at half light speed is 10 billion times the energy of a microwave photon. To some SETI proponents, interstellar communication is far more likely to occur than interstellar travel.

A comprehensive SETI must examine a number of basic dimensions of search space that include the

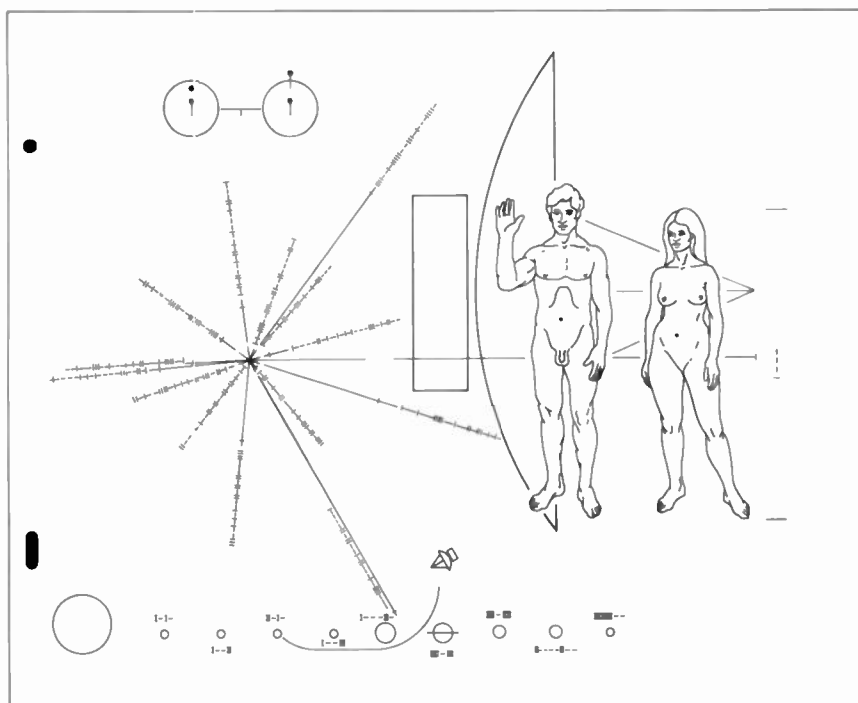


Figure 1. (CETI) *Pioneer 10* plaque, 1971. The plaque includes (top left) a drawing of the hydrogen atom showing the length of the radio wave emitted by its transition from one state to another (used as a base length in depicting the height of the *Pioneer* and the man and woman); (middle left) a pulsar map indicating the location of the solar system; (middle right) human figures incorporating characteristics of all races, shown in front of a drawing of the spacecraft to provide scale (the man's hand is raised in greeting); and (bottom) a diagram of the solar system showing the *Pioneer* trajectory and the relative distances of the planets from the sun. Courtesy of the National Aeronautics and Space Administration.

direction and distance to the source as well as the power, frequency, modulation, and polarization of the signal. The observational limits within which ETI signals might exist remain largely unexplored. It is virtually impossible to search for all plausible signals at all frequencies from all directions with maximum sensitivity. Tradeoffs must be made between the sensitivity and signal character on the one hand and the spatial and frequency ranges covered by the search on the other. The challenge is to select the most effective strategy within the constraints imposed by time and resources: SETI must be manageable and affordable.

Microwave frequencies in the range 1 to 100 gigahertz (1 GHz = 1 billion cycles per second) are thought to be most advantageous for interstellar communication. Stars do not shine brightly at these wavelengths. Interstellar gas and dust do not absorb microwaves as they do visible and infrared photons. Microwaves are easy to transmit because the energy of each photon is low. Finally, the galaxy is quiet at microwave frequencies, the only noise being the cosmic background, the relict radiation from the big bang. The most detectable signals are those in which the energy is packed into a narrow bandwidth and transmitted as pulses or as a continuously present tone; either method produces an attention-getting signal that contrasts with the natural emissions from the cosmos.

Other civilizations need not intentionally direct their transmissions at Earth to be detectable. Earth has been advertising itself to the universe for decades.

A cacophony of radio, television, and radar signals has escaped the planet since the 1930s. Those signals now fill an enormous bubble that expands at the speed of light and extends more than fifty light-years from Earth. (A light-year is the distance light travels in one year, about 6 trillion miles.) One may question the wisdom of these "shouts in the jungle." We may very well discover that we are among the technological infants in our galaxy. It is perhaps fortunate that such signals as AM, FM, and television broadcasts are extremely difficult to detect at stellar distances. In contrast, extant radio astronomical technology is quite capable of detecting intentional microwave beacons. An instrument such as the radar facility at Arecibo, Puerto Rico, is capable of transmitting to a twin of itself over distances of thousands of light-years if we only knew where and when to point it.

Search space can be explored with existing radio telescopes outfitted with receivers and microelectronic signal-processing systems (see MICROELECTRONICS). Two complementary search strategies have been proposed by the National Aeronautics and Space Administration (NASA). One is a targeted search that by concentrating on approximately eight hundred nearby stars is able to cover a wide frequency range with high sensitivity at the sacrifice of complete sky coverage. The second is a survey that achieves still wider frequency coverage and complete sky coverage by sacrificing sensitivity.

The search volume of these two strategies is approximately two hundred thousand times as great as the sum of all prior searches. It is so great that

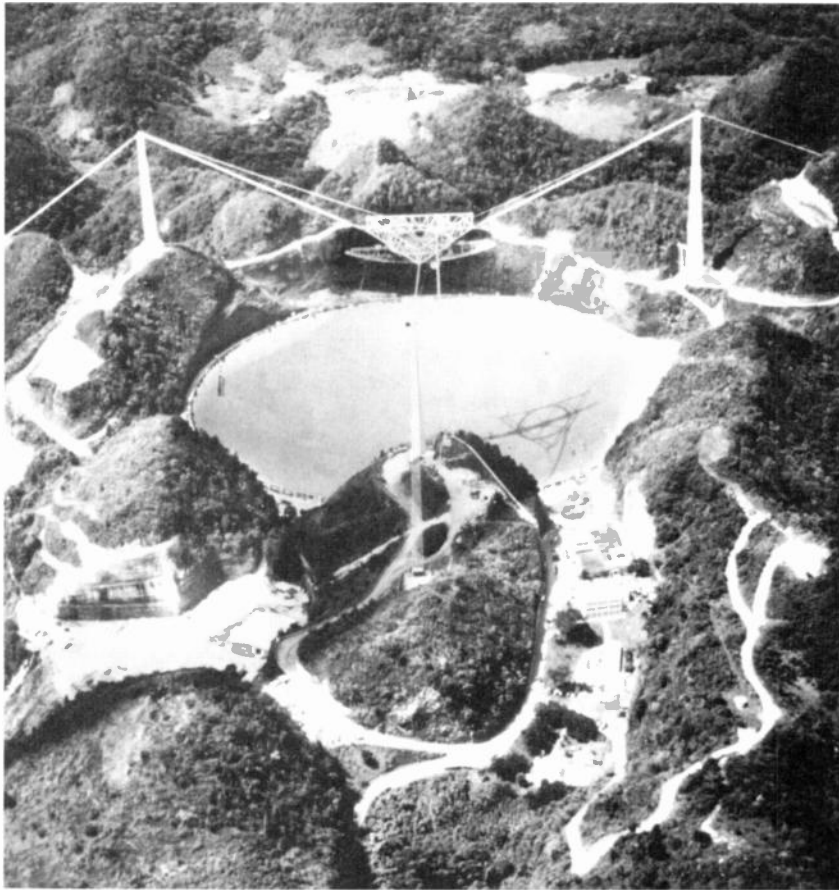


Figure 2. (CETI) Aerial view of the Arecibo Observatory, Puerto Rico, showing the 305-meter-diameter radio/radar telescope. The observatory is part of the National Astronomy and Ionosphere Center, which is operated by Cornell University under contract with the National Science Foundation. Courtesy of the National Astronomy and Ionosphere Center.

searching with a single-channel receiver would take millions of years to complete. NASA plans to solve this difficulty by constructing specialized digital processing systems that will divide large segments of the spectrum into tens of millions of channels of data. Each of the channels will be simultaneously analyzed and searched for signals as the observations are under way. The data flowing through the system are so numerous that only a tiny fraction can be saved. Data that pass a stringent series of candidate-signal verification tests will be saved for further analysis; most will be discarded.

When and if the first detection of an interstellar signal is made, it will rank among the most profound discoveries in human history. It will inform us that we are not alone in the universe. It will mark the transition from SETI to CETI, and we will be faced with the task of deciphering its content. Some scientists speculate that the message might consist of simple repetition of a prime number, for example, which would catch the recipient's attention. Others reason that more information could be communicated by sending groups of binary digits, which form patterns or mosaic pictures when the groups of digits

are arranged in rows and columns. And still others speculate that artificial languages might be encoded and taught to the recipient via progressive lessons embedded in the text.

Time will also play an important role. Traveling at light speed, signals could take tens, hundreds, or thousands of years to propagate from one site to another. Our concept of a dialogue may expand to include communication from generation to generation. The communication might be one-way if the distance is great enough; the senders might not even exist when we finally receive their transmitted legacy.

Recent debates have gone beyond questions of search strategies and message decoding to the fundamental question of whether there can be anyone out there to talk to at all. Do enough long-lived stars have planets on which life might have begun? What are the odds of life—let alone technological civilizations—developing elsewhere? Would other species feel the same desire to make contact as we do? The discussions have grown more intense in recent years as theorists have proposed ways by which humans might someday travel to the distant stars. If star travel is possible, these scientists ask, then why has

Earth apparently never been visited? On serious inspection the evidence for so-called close encounters, past or present, is poor indeed.

Some prominent scientists have suggested that we will someday build robot space probes that will be able to build copies of themselves when they arrive at distant star systems and then send those duplicates onward to other star systems. The release of one such probe could, in principle, eventually lead to copies in every star system in the galaxy within 10 million years, just .1 percent of the age of the galaxy. Why then have we not discovered such probes sent by older civilizations in our solar system? This quandary has been called "the great silence" of the Fermi paradox, after the twentieth-century U.S. physicist Enrico Fermi, who asked, "Where is everybody?"

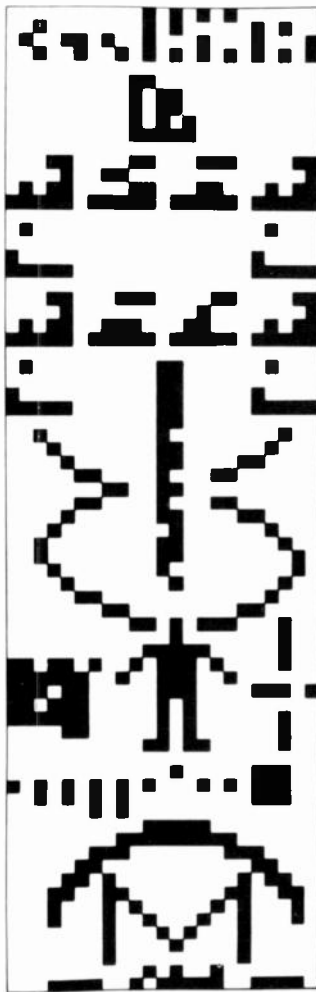


Figure 3. (CETI) The decryption of the Arecibo message of November 1974. The message is written as seventy-three groups of twenty-three characters. From Carl Sagan et al., *Murmurs of Earth: The Voyager Interstellar Record*, New York: Random House, 1978, p. 61. Copyright © 1978 by Carl Sagan. All rights reserved. Reprinted by permission of the author.

Bibliography. John Billingham, ed., *Life in the Universe*, Cambridge, Mass., 1982; Glen David Brin, "The 'Great Silence': The Controversy concerning Extraterrestrial Intelligent Life," *Quarterly Journal of the Royal Astronomical Society* 24 (1983): 283–309; International Astronomical Union 112th Symposium, *The Search for Extraterrestrial Life: Recent Developments*, ed. by Michael D. Papagiannis, Boston, 1985; Thomas R. McDonough, *The Search for Extraterrestrial Intelligence: Listening for Life in the Cosmos*, New York, 1987; Margaret Poynter and Michael J. Klein, *Cosmic Quest: Searching for Intelligent Life among the Stars*, New York, 1984; Carl Sagan et al., *Murmurs of Earth: The Voyager Interstellar Record*, New York, 1978.

MICHAEL J. KLEIN AND GLEN DAVID BRIN

CHANNEL. See MODELS OF COMMUNICATION.

CHAPLIN, CHARLES (1889–1977)

British actor and filmmaker. Sir Charles Spencer ("Charlie") Chaplin gained extraordinary popular and critical acclaim during the silent-film era (see MOTION PICTURES—SILENT ERA). As an actor and a director he created moments of comic genius that have rarely been equaled. He became one of the most universally known artists in the world.

Born to struggling music-hall entertainers, Chaplin first performed onstage at the age of five. Following his father's death and his mother's breakdown he and his half brother, Sydney, lived in orphanages, boarding schools, and sometimes the streets. At seventeen Chaplin joined the Fred Karno troupe, a music-hall company, and began to hone his comic talents. While on tour in the United States with Karno, Chaplin was spotted by Mack Sennett, who hired him in 1913 to act in the Keystone Company's slapstick comedies. By his second film, *Kid Auto Races at Venice* (1914), Chaplin was already beginning to develop the character of the tramp, the little fellow whose baggy trousers, battered shoes, and cane belied his debonair and gallant demeanor, and who, at the end of a film, was likely to be seen walking down the road away from the camera, with an air of optimism. It was a character he retained and refined for the next quarter-century.

The success of his early films enabled Chaplin to direct, and often write, his own pictures. He signed with a series of film companies, each time at a large increase in salary, until in 1919 he joined Douglas Fairbanks, Mary Pickford, and D. W. GRIFFITH in forming United Artists, a company organized to distribute the work of independent producers. From 1923 to 1952 Chaplin released eight feature films through this organization.

Chaplin's first generally acknowledged masterpiece, *The Tramp* (1915), mixed broad physical com-



Figure 1. (*Chaplin, Charles*) Charlie Chaplin in *The Rink*, 1916. National Film Archive, London/Black Ink Films.



Figure 2. (*Chaplin, Charles*) Charlie Chaplin in *Limelight*, 1952. National Film Archive, London/United Artists.

edy with a note of pathos. He continued that style in his first feature-length film, *The Kid* (1921), which had a sentimentality unusual in a comedy of the period. *The Kid* was hugely popular, bringing in greater profits at the box office than any other film up to that time except Griffith's *Birth of a Nation*. In 1925 he produced *The Gold Rush*, the brilliant tale of the tramp in the Far North. The film, which contains some unforgettable moments—including Chaplin consuming a boiled shoe as if it were a gourmet dinner—frequently appears on critics' lists of all-time great motion pictures. His next film earned him a special Oscar from the first Academy Awards (1927–1928), presented for “versatility and genius in writing, acting, directing and producing *The Circus*.”

In spite of the advent of sound in film (see MOTION PICTURES—SOUND FILM), Chaplin used only SOUND EFFECTS and a musical score, which he composed and conducted, in making *City Lights* (1931). It was a great success commercially and artistically, as was his next (primarily) silent film, *Modern Times* (1936), a lampoon of the machine age.

The little tramp last appeared in *The Great Dictator* (1940), a satire on fascism in which Chaplin appeared as both a Jewish barber and a caricature of Adolf Hitler. *Monsieur Verdoux* (1947), a pacifistic black comedy that drew parallels between a mass murderer and international warfare, and *Limelight* (1952), the portrait of a pathetic clown, did not win popular success.

Chaplin's personal life and political views frequently came under attack from conservative voices. Some were offended by his stormy marriages to much younger women, and his identification with liberal ideology and supposed subversive causes led to his being denied reentry to the United States in 1952. Chaplin settled in Switzerland with his wife, Oona (the daughter of playwright Eugene O'Neill), and their children. His bitterness toward the United States is evident in *A King in New York* (1957). He made only one other film, *A Countess from Hong Kong* (1967), a disappointing romantic comedy.

Chaplin returned to the United States in 1972 to receive a special Oscar for his contribution to the cinema. In 1975 he was knighted by Queen Elizabeth II. He died in Corsier-sur-Vevey, Switzerland, in 1977.

See also HOLLYWOOD.

Bibliography. Maurice Bessy, *Charlie Chaplin*, New York, 1985; Charles Chaplin, *My Life in Pictures*, New York, 1975; Wes D. Gehring, *Charlie Chaplin: A Bio-Bibliography*, Westport, Conn., 1983; Gloria Kamen, *Charlie Chaplin*, New York, 1982; David Robinson, *Chaplin: His Life and Art*, London, 1985.

RICHARD PILCHER

CHERRY, COLIN (1914–1979)

British telecommunications engineer and a leader in the development of the English school of INFORMATION THEORY. The work of Edward Colin Cherry, notably his book *On Human Communication* (1957), was instrumental in introducing scholars in a variety of fields to the emerging discipline of communication.

During the depression, while serving as a laboratory assistant with the General Electric Company of England, Cherry began studies in electrical engineering at Northampton Polytechnic Institute in London, receiving his B.Sc. in 1936. During World War II he was engaged in flight testing of microwave radar systems. He joined Imperial College, University of London, in 1947 as a reader and was appointed Henry Mark Pease Professor of Telecommunication in 1957.

Following his early research in electronics and circuit theory, Cherry directed his attention to mathematical theories of information based on a general statistical principle stating that the information conveyed by a SIGN, message, or symbol in a set of events decreases as its frequency of occurrence increases in the set. In an influential history of the subject published in 1952, Cherry traced the origins of LANGUAGE statistics to fourteenth-century Europe, where military strategists used letter-frequency tables in deciphering secret codes (see CRYPTOLOGY). However, not until the 1920s and the development of telegraphic channel analysis could information “quantities” be formulated precisely, giving rise to the modern mathematical theory of communication. From the early 1950s on, Cherry, along with his colleagues Donald McKay and Dennis Gabor, contributed extensively to this emerging field; he was also an organizer of four of the first International Symposia on Information Theory.

Cherry also made significant contributions in the psychology of aural PERCEPTION and the acoustics of SPEECH. Prompted by the realization that communications engineers knew vastly more about communication equipment than about the abilities of its human users, Cherry began studies of the human being as a component in the aural communication channel. He identified characteristics of binaural hearing, with special attention to the human ability to detect an information-carrying signal whose intensity is below that of the background noise (“the cocktail party effect”).

On Human Communication, first published in 1957 and revised in 1966 and 1977, was one of the first attempts to introduce elementary concepts in the field of communication and to show the convergences in a range of problems from fields as diverse as LINGUISTICS, MATHEMATICS, SEMIOTICS, and psychology. Although Cherry devoted much of the book to

the explication of the mathematical theory of communication, he emphasized the difficulties that beset attempts at quantitative description or study of human communication. He maintained that theories of information based on the statistical rarity of signals, as conceptualized in the Shannon-Weaver measure of information and in NORBERT WIENER'S model of information processing in biological systems, were inappropriate in dealing with questions of semantic information or MEANING (see SHANNON, CLAUDE; WEAVER, WARREN). Examinations of meaning in human communication situations must take account of signs and their uses, in context.

Cherry's definitions of communication, information, message, and context, as well as his emphasis on pragmatic aspects of meaning, have been of considerable value to ethologists (see ETHOLOGY) studying the functions of ANIMAL SIGNALS. They have found particularly useful his suggestion that meaning can be operationally defined as the response selected by the recipient of a message from all the responses open to it.

The later phase of Cherry's work was devoted to the sociology of telecommunication and to the relevance of new communications technologies to international development and education. In *World Communication: Threat or Promise?* (1971) Cherry expressed concerns about the consequences of complex TELECOMMUNICATIONS NETWORKS for the stability of existing social orders. He cautioned that increased human communication per se does not guarantee increased agreement and that the centralization of power resulting from telecommunications networks may contribute to the decreased importance of the individual (see also TELECOMMUNICATIONS POLICY). In 1978, a year before his death, Cherry was awarded the fourth Marconi International Fellowship for his achievements in the field of telecommunications.

Bibliography. Claude E. Shannon and Warren Weaver, *The Mathematical Theory of Communication*, Urbana, Ill., 1949, reprint 1964.

JANE JORGENSON

CHILD ART

Before the twentieth century the traditional concept of ART was based so much on refined technique and circumscribed subject matter that it would have been inconceivable to apply the honorific term *art* to the rough sketches and clumsy daubs of children. However, the middle of the nineteenth century saw the rise in Europe of an attitude challenging the prevailing view of art as an exercise in craft and execution. The academies of art, which up to then had been

highly influential in the training of artists and in the administration and regulation of the art world, came under attack by painters such as Edouard Manet, Claude Monet, Paul Cézanne, and Vincent van Gogh.

The first impressionist shows were attacked by conservative critics who made derogatory comparisons between the crude work of the AVANT-GARDE and the equally crude work of children. However, at about the same time, the French poet Charles-Pierre Baudelaire and the painter Eugène Delacroix praised the aesthetic attitude of the child as a sort of prototype for the artist. Thus, with the demise of the values and criteria associated with European academic art, and as the concept of art became broader, the way was left open for considering all sorts of people as artists, including non-Western tribal peoples ("primitive art") and children.

A second important factor facilitated the conception of the child as artist: the romantic notion of the child as a creature of nature uncorrupted by adult society. This view, which had its origins in the work of philosopher Jean-Jacques Rousseau, remains a powerful force in shaping attitudes toward children's visual work. See ROMANTICISM.

Characteristics of Child Art

The constraints that help to create the look of child art—its crudeness, boldness, and unconventionality—are imposed by development and lack of experience with a medium. The constraints that help to shape the formal and thematic aspects of adult art, on the other hand, have been consciously chosen by the artist. The element of self-conscious choice is the most telling difference between the work of adults and that of children. Many important twentieth-century artists such as Joan Miró, Paul Klee, and Jean Dubuffet have complicated matters considerably by imitating the forms, organization, and subject matter of children's art (Figure 1).

Two important components contribute to the look of child art: developmental factors, which are universal and arise through the interaction of the child's mental capacities and the unalterable constraints inherent in working on a two-dimensional surface; and cultural factors, which have an increasingly profound influence on the child's choice of images and subject matter. Children's drawings change systematically and predictably over time, making it easier to identify the culture of the child making the drawings.

Drawing development starts with the child's discovery of mark making. Out of the growing capacity to repeat, vary, and organize simple marks on a surface emerges the next stage in graphic development: the use of closed forms, generally irregularly shaped circles or ovals. By about age four, children can produce combinations of simple and complex

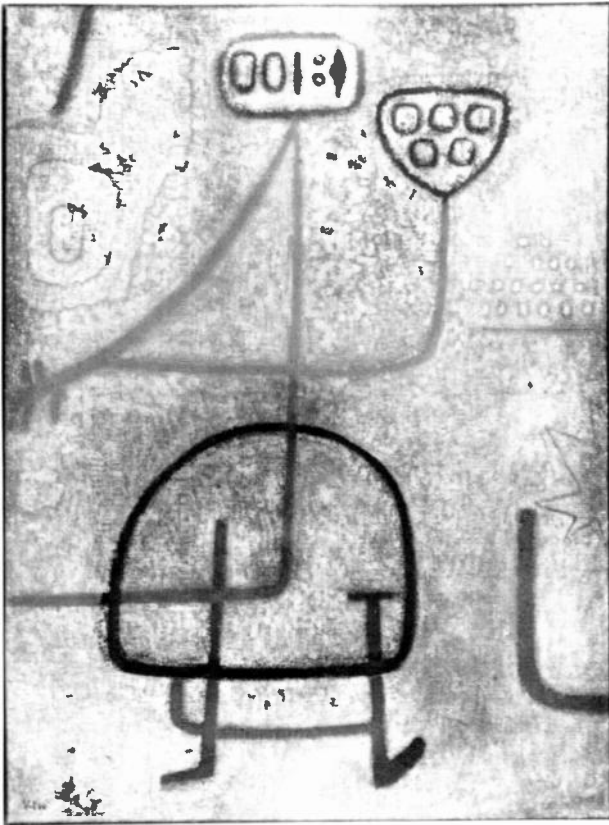


Figure 1. (*Child Art*) Paul Klee, *La belle jardinière*, 1939. Giraudon/Art Resource, New York.

closed forms. In some cultures pure forms (circles, squares) are used interchangeably with symbols derived directly from the **ICONOGRAPHY** of the culture. Brent Wilson and Marjorie Wilson found, for example, that four- and five-year-old Egyptian children draw the human figure using a crescent moon shape taken from the coat of arms on the Egyptian flag.

At the point where the child can produce and organize closed forms, cultural influences begin to make themselves strongly felt. The most powerful influence in Western culture is adult concern about what the child is trying to represent. That is, it is taken for granted among adults that the child is trying to make a picture. Children quickly oblige by turning most of their energies to visual representation. They begin to use culturally given formulas for various subjects: rainbows, smiling faces, cartoon and television characters. Children also start to copy formulas from one another. In the 1920s and 1930s there was a vogue among youngsters in the United States for drawing a person in a profile view with two full-face **EYES**. This stereotype of a human figure was found to have virtually disappeared from the drawing repertoires of U.S. children by the 1980s, which suggests that the two-eyed profile was a cul-

tural rather than a developmental phenomenon. See **REPRESENTATION, PICTORIAL AND PHOTOGRAPHIC**.

Theorist Viktor Lowenfeld has identified four stages in drawing development. In the "pre-schematic period," from about four to seven years of age, the child begins to develop the visual formulas that will be used for representation and struggles with establishing schemata for people, animals, and objects. During the "schematic period" (ages seven to nine) the child has a vocabulary of fixed visual forms and has established certain basic patterns of representation that can be produced as required. The "gang age" (nine to twelve years) marks the predominance of concerns with **REALISM** and spatially accurate rendering. This is the point at which many Western children become increasingly dissatisfied with their drawing ability. They expect to be able to draw realistically—that is, in proportion and according to the canons of classical perspective. Drawings from this period and from the "pseudo-naturalistic" stage (twelve to fourteen) are characterized by their generally stunted appearance. Figures and objects are labored over, space is used with great concern for realistic canons—but not as dramatically or as freely as with the younger child.

The constraints that affect the development of graphic skills can be characterized as a series of changing rules governing all aspects of constructing representational pictures. As children meet and master problems in representation, their initial solutions tend to be simple, additive, and local, while their later approaches to the same problems tend to be differentiated, integrated, and coordinated.

The shift from addition to integration. Figure 2 illustrates this developmental shift in the construction of individual objects. The child artist started out drawing the head, ears, and neck of the horse as separate entities and then later began to subsume all elements within the same outline. Similarly, a child may start out drawing a person as an agglomeration of simple shapes and then, with practice, shift from this composite image to a drawing enclosed by a single continuous outline.

The shift from separate objects to interaction. A rule that children observe when they first start to draw or paint is that each object should have its own place, uninterrupted by other objects. In Figure 3 the child starts out isolating horse and rider; an older child integrates the two but loses the sense of them as two distinct entities.

The construction of pictorial space. Much like shopping lists, children's early drawings itemize important objects but do not contain information about how the objects relate to each other in space. The first spatial ordering principle is the concept of objects inside and outside a space or container. Thus children will often indicate pregnancy by showing

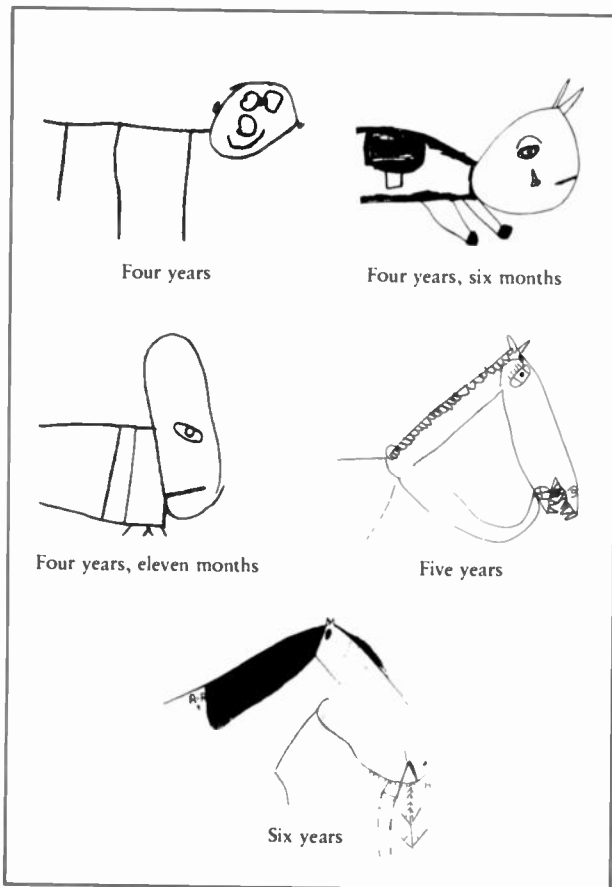


Figure 2. (*Child Art*) Drawings of horses' heads. From Sylvia Fein, *Heidi's Horse*, 2d ed., Pleasant Hill, Calif.: Exelrod Press, 1984, p. 138.

the baby inside the mother (Figure 4). These drawings are not intended as cutaway or X-ray views; they result from the child's use of line as a boundary separating things outside an area from things within. A later, more articulated organizational principle is the deployment of individual images along horizontal, vertical, or even diagonal axes.

The construction of a coordinated system of representation. The shift from local relationships between objects to more comprehensive and coordinated pictorial relationships can be seen in the way young children typically draw a house so that the axis of the chimney is at a right angle to the slope of the roof (Figure 5). It is only after children have learned to coordinate all the elements of the picture that they can see that the perpendicularity of the chimney is determined not just by its immediate relationship to the roof but also by its relation to the entire picture.

In the West expectations of representational competence are very high; photographic realism is the commonplace criterion for being a good artist. The ubiquity with which this standard is upheld and the relatively low priority given to drawing instruction



Figure 3. (*Child Art*) Equestrians and elephant rider. From Rudolf Arnheim, *Visual Thinking*, Berkeley and Los Angeles: The University of California Press, 1969, p. 264. © 1969 The Regents of the University of California.

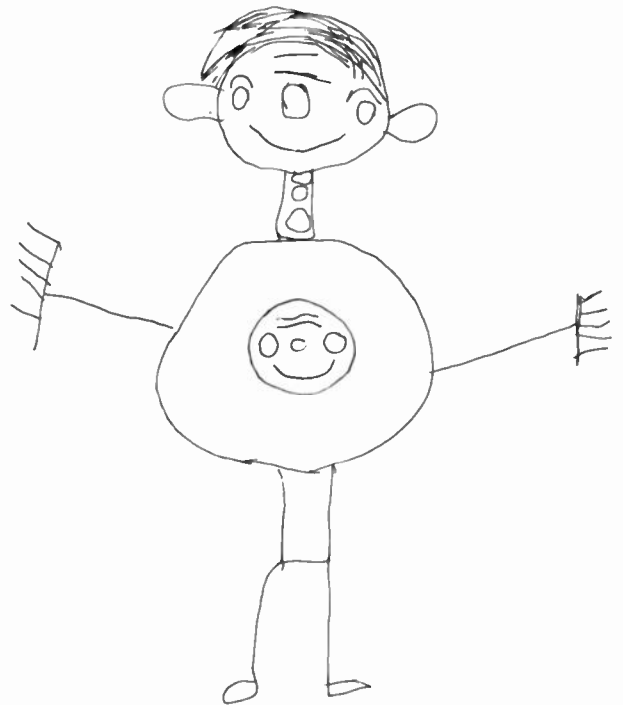


Figure 4. (*Child Art*) Pregnant woman. Drawing by a five-year-old boy.

result in most children giving up on artistic expression in despair and disgust. Yet not all cultures require adult artists to pass the test of realistic or photographic accuracy. An Australian anthropologist reported the case of a native Australian boy raised by a farming couple in the outback, who by puberty was drawing farmhouses and country scenes in modified perspective just like his schoolmates. However, as soon as the Aboriginal youth was initiated into his own tribe as an adult, he ceased drawing in the European style and used the more abstract forms of his clan for representing mythic events.

Child Art and the Symbolic Process

The point at which the child assigns meaning to a mark signals the realization that marks, like sounds,

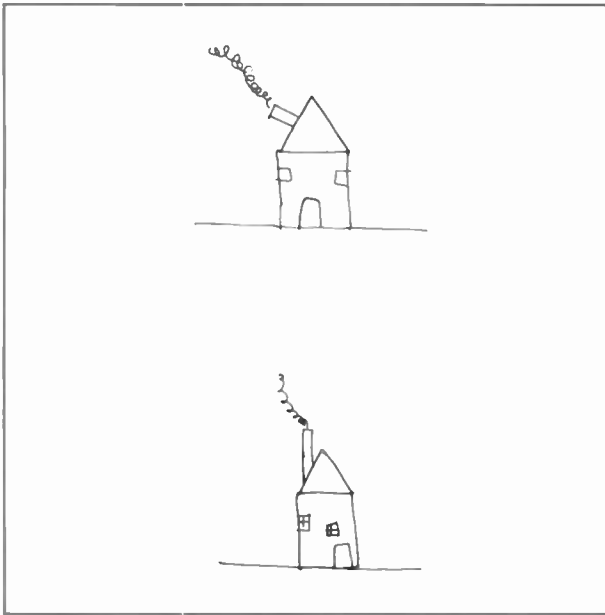


Figure 5. (*Child Art*) Typical houses with chimneys.

can serve to refer to things. Young children who have just begun to assign meaning to their marks are capable of quite sophisticated visual symbolization. A child may make a "picture" of a person by indicating the facial features, limbs, and stomach using only lines placed appropriately on the page. Children may also show a striking disregard for the cultural convention that a picture exists on only one side of the picture surface. A belt may be indicated by a line that goes across the front of the page and across the back, because this piece of clothing goes *around* the person. At this stage of graphic development, the salient aspects of an object, for purposes of representation, are the location and relative position of features rather than any more visual information, such as the distinctive shapes of eyes, nose, or hands.

Georges H. Luquet, who studied child art in the 1920s, identified two systems by which children assign meaning to their drawings. Young children may identify a likeness between their drawings and other graphic images, which Luquet referred to as a *homologie graphique*. A scribble that happened to resemble a comic-strip character would be a good example of this. Meaning can also be assigned on the basis of likeness between the drawing and some real-world object—what Luquet called *analogie morphologique*. These two systems of assigning meaning appear to be operative in even very young children. A good illustration of this shift in interpreting forms can be seen in Figure 6. The first drawing is a careful outline of a toy airplane, a "realistic" likeness; the second is a transformation of the first. By rotating the picture ninety degrees to the right and adding

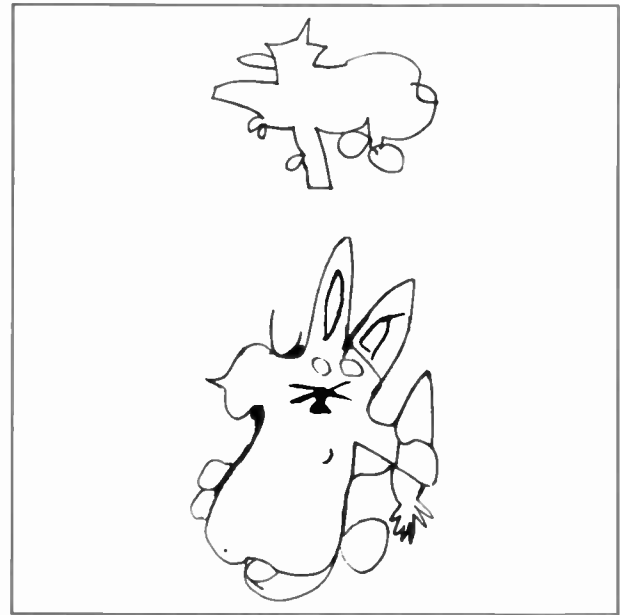


Figure 6. (*Child Art*) Toy airplane, which is transformed into a rabbit. Drawing by a ten-year-old girl.

details such as ears, whiskers, eyes, and a carrot, the ten-year-old artist turned the three-quarters view of an airplane into a full-face view of a comic-book rabbit. This child has demonstrated intuitive understanding that symbols do not exist independently of the systems that give them meaning. By applying different rules of interpretation to the sketch, she succeeds in radically altering its meaning.

In the course of a century of interest in child art there have been significant shifts in what is considered authentic child art. In the 1930s and 1940s some art educators argued that true child art looked naive and was always a spontaneous expression of the child's personal concerns. In the 1960s and 1970s others maintained that much of what a child painted or drew was derivative of adult work. The fact that the concept of child art has changed radically within a few decades is further evidence that it is a social construct reflecting conventional assumptions about art itself.

See also AESTHETICS; ARTIST AND SOCIETY; CHILDREN—DEVELOPMENT OF COMMUNICATION; CHILDREN—DEVELOPMENT OF SYMBOLIZATION; VISUAL IMAGE.

Bibliography. Alexander Alland, *Playing with Form: Children Draw in Six Cultures*, New York, 1983; Rudolf Arnheim, *Visual Thinking*, Berkeley, Calif., 1969; Howard Gardner, *Artful Scribbles: The Significance of Children's Drawings*, New York, 1980; Jacqueline Goodnow, *Children Drawing*, Cambridge, Mass., 1977; Rhoda Kellogg, *Analyzing Children's Art*, Palo Alto, Calif., 1969; Viktor Lowenfeld and W. Lambert Brittain, *Creative Mental*

Growth, 5th ed., New York, 1970; Georges H. Luquet, *Le dessin enfantin*, Paris, 1927; C. P. Mountford, "Contrast in Drawings Made by an Australian Aborigine Before and After Initiation," *Records of the South Australian Museum* 6 (1938): 111–114; Nancy R. Smith, *Experience and Art: Teaching Children to Paint*, New York and London, 1983; Ellen Winner, *Invented Worlds: The Psychology of the Arts*, Cambridge, Mass., 1982.

DAVID A. PARISER

CHILDREN

This entry consists of four articles:

1. Development of Communication
2. Development of Symbolization
3. Use of Media
4. Media Effects

1. DEVELOPMENT OF COMMUNICATION

Communication may be the most important domain of development during childhood, the prerequisite to much of children's other learning. The ability to communicate, using both the linguistic and the non-linguistic communicative systems of society, is the accomplishment that enables children to take their places as members of society and as full participants in their CULTURE.

Normal Development

The newborn infant's survival depends on his or her capacity to solicit appropriate caretaking from adults. The newborn is equipped with powerful, though rather minimally differentiated, communicative tools: some that signal hunger, pain, and other forms of distress, and "positive" signals such as smiles, quiet vocalizations, and neutral facial expressions that signal positive affective states (*see* FACE; FACIAL EXPRESSION).

Within a few weeks after birth the infant's social repertoire expands enormously, although considerable controversy exists about whether these newly developed behaviors are communicative or simply social. Three-month-olds show considerable attention to human faces. They respond to faces and voices with smiles, laughs, vocalizations, and characteristic gestures (*see* GESTURE), as well as with change of state (altering) and of affect (often from fussy negative to positive, though the infant can shift from positive to negative if the adult stimulation becomes intense and/or intrusive).

The infant's vocal communicative capacities may show the most extreme development during this first year of life—from minor vegetative noises just after birth, to coo- or goo-like sounds at about three months of age, then to a wide variety of nonsyllabic

or monosyllabic vocalizations, often alternated with exploitation of a variety of prosodic patterns (e.g., highly variable screaming sorts of noise). Finally, at some time around six to eight months of age seemingly intentional babbling emerges, its onset marked by the production of duplicated syllables (*ba-ba*, *ma-ma*, and *ya-ya* are among the frequent early ones). The duplication of syllables is evidence for the infant's intentional production of the sound sequence, and his or her exploitation of increasing motor control in the service of vocal articulation. At the same time, it provides good evidence to the attentive parent that the child is converging on the adult LANGUAGE system by starting to make wordlike noises. In fact, almost every culture described so far supports parents in this belief by providing "baby talk" words that match the patterns produced in early babbling (e.g., *mama*, *dada*, *boo-boo*, and *yum-yum* in English). *See also* LANGUAGE ACQUISITION.

Use of gestures. Sometime between eight and twelve months of age most infants start down a new path in their development of communication: the use of gesture. Babbling may start to become highly elaborated (e.g., "jargon babblers," who produce long babbled strings with the prosody of complete sentences) and may eventually be incorporated into conversationlike interactions with adults. But at the same time, infants start to engage in a new set of related behaviors that very strikingly change the babies' interactive status by making them much more interpretable. These behaviors are typically gestural, some object-mediated (showing objects, reaching for objects, pointing to objects) and some clearly the product of social modeling and training (waving bye-bye, indicating body parts on request). *See* SOCIAL COGNITIVE THEORY.

Parental training of and reaction to these gestures raises an interesting question. Most people would agree that language is primarily a vocal phenomenon, and indeed, until the complex and clearly linguistic rule systems that characterize American Sign Language (ASL) were explicated, use of the vocal channel was identified as a language universal (*see* SIGN LANGUAGE). Nonetheless, the earliest efforts of parents to promote language and their earliest effective communicative interchanges with their children are gestural, not vocal. This fact would seem to reflect an unconscious accommodation to infants' greater skills and ease in using gesture for communication. Children raised in bilingual homes in which one of the two languages is gestural (e.g., ASL) are generally reported to be quite precocious in ASL as compared to the spoken language. First signs have been noted as early as six months, whereas first words in the same children do not appear until some months later. These reports suggest that infants are predisposed to use gesture as a way of communicating. Discovering

the possibility of exploiting the vocal channel for communicative purposes, despite its long availability for playful babbling, seems to be more difficult (see SPEECH).

First words. At some point, though, typically around twelve months of age, infants produce their first word, an event that has considerable impact on the infant's status as a communicator. There are interesting cultural influences on the nature of the first word, since this word is not a product of the child's cognition alone but of a consensual process by which caretaker and child negotiate both form and meaning of the early words. In North America *mama* is often expected as a first word, though research tells us that *daddy* is much more frequent. Among the Kaluli of Papua New Guinea, the first words are described by U.S. anthropologist Bambi Schieffelin as culturally prescribed; *bc* (breast) and *no* (mother) must be produced before anything else the child might say is credited with being a word. Among the Samoans the first word is identified as *fae*, a curse word expressing the infant's inherently antisocial nature.

Although the naive assumption about children's early words is that they name things (mommy, daddy, baby, juice, cookie, nose, hair, etc.) and although in fact many of the earliest words acquired are typically names for salient objects or people in the child's experience, it is not at all clear that those words function for the child as *referential*, that is, the way nouns function for adults. When a child says "cookie," his or her primary intent may not be to *name* the cookie but to request it. Similarly when a child says "nose," this may constitute a purely social act—taking a turn in a well-practiced game of naming body parts—rather than a referential act.

With their earliest words, and even earlier when they have acquired the behaviors of reaching and pointing, children are engaging in expressing a variety of communicative intentions or speech acts: requesting objects, requesting help, requesting social interaction, greeting social interactants, marking completion, marking change, marking appearance or disappearance, and requesting repetition are a few commonly noted ones. All these communicative acts can be expressed with gestures or single words, though between the ages of twelve and forty-eight months almost all children will learn more conventional forms for expressing and for differentiating among these speech acts, utilizing their growing control of syntax, the lexicon, and the pragmatic rules governing the use of markers of politeness, respect, and indirection.

A major task of researchers studying the development of communication and of language is to explain why children, who at a relatively early age and with a relatively primitive control of the language system can accomplish a wide variety of communicative acts, bother to acquire the complexities of the linguistic

system at all. The great bulk of research on language development has looked at the period after eighteen months, at which point children's communicative skills are already quite elaborate even though their language system might be limited to the use of a fifty-word lexicon in single-word utterances. Furthermore, this research has focused more on children's growing control of the linguistic system—production and comprehension of word order, morphological markers for plurality, tense, possession, pronominal reference, conjunctions, and similar issues—than on children's elaboration and growing control of communicative skills. However, new communicative skills emerge during this period and continue to develop (some differentially across individuals) into adolescence and adulthood: persuading, teasing, complimenting, conveying sympathy, arguing, preaching, teaching, joking, insulting, and many more. Differences in the accomplishment of these skills can have a major impact on adults' lives—their perceived talents, their capacity for success in a variety of social situations, even their personalities. Unfortunately, we know very little about how such skills develop, what factors facilitate their development, or how they relate to each other or to other capabilities individuals possess.

Disruption of the Normal Process

The picture sketched above—of development from protocommunicative skills such as babbling, smiling, laughing, or preintentional gesturing, through primitive but intentional communicative gestures, to words, exploitation of the linguistic system for communicative needs, and finally a differentiated control of a wide variety of communicative skills—fits the majority of children despite enormous differences among them and the environments in which they grow up. Communicative development, of which language development is a major subcategory, is a highly buffered system that rarely fails. Nevertheless, some children have a harder time discovering and developing the skills of communication, and it can be instructive to consider what factors or situations impede this process.

First, some organic problems interfere with full or normal communicative development. For example, serious mental retardation and autism may block the development of any normal communicative functions; in fact, one theory of autism identifies it as a complex of emotional and intellectual consequences of a basic, severe language disorder. Less severe language disorders in children may result in delayed language acquisition or in persistent difficulties with certain kinds of language tasks. It remains unclear, however, whether these developmental language disorders involve communicative deficiencies or deficits

specific to the linguistic system, not to the system of communicative *intents* that normally serves as a substrate for language development.

Other organic problems can impede the development of language—and of communication somewhat less directly—by interrupting the normal channels through which communicative skills are acquired and elaborated. Children born with hearing impairments need suffer no communicative deficits at all, unless their parents are unable to adopt and help the child to learn a gestural communicative system. Blind children often have problems in understanding that language is a means of communicating MEANING, since the terms and events they hear adults talking about are mysterious to them because they are invisible. Furthermore, the interpersonal component of communicative development—the games, protoconversations, and sharing of affect that are typical of interaction with infants—relies on eye contact as a major channel (*see EYES*). Blind infants (or others, such as those with Down's syndrome, who tend to avoid eye contact) not only miss this experience with their caretakers but often are reported to “turn off” caretakers, who expect and are rewarded by the experience of recognitory eye contact that such children cannot provide.

Mechanisms of Development

The major unanswered question about communicative development is, of course, how does it occur? Is communication primarily a social accomplishment, a cognitive achievement, or a biological inevitability? To what extent is it possible to dissociate communicative skills from strictly linguistic skills? What features of the child's environment are prerequisite to the development of communication?

Answering any of these questions requires taking a stand on a highly vexed issue: the definition of *communication* itself. The six-week-old infant's biologically programmed production of certain gestures in combination with certain facial expressions, or differentiation of behavior to people and to objects, is interpreted as communication by researchers such as Colwyn Trevarthen who identify communication with social interaction and emphasize the biological contribution to communicative development. The role of the caretaker in interpreting and presenting to the child conventionalized expressions of the child's own intentions and emotions is stressed by researchers such as John Dore and Daniel Stern, who see communication as a basically interpersonal achievement. The role of the caretaker in setting up contexts for interaction within which the infant's preintentional acts can be treated as intentional is identified as crucial by Jerome Bruner, John Newson, and Catherine Snow. The co-occurrence of certain

milestones of communicative and cognitive development is taken as evidence by researchers such as Elizabeth Bates and Susan Sugarman that communication derives from cognitive accomplishments such as understanding causality, being able to combine two schemata for action, and decentering.

In later stages of development slightly more evidence is available concerning the factors that facilitate communicative development (*see FAMILY*), though here as well too little is known about the mechanisms of development through which environmental factors have their effect.

Cultures differ from one another in their selection of which of the more advanced communicative skills everyone is expected to develop or which garner their possessors respect or other rewards. Certain sorts of communicative skills, specifically skills in presenting information so that it is comprehensible by a generalized audience with no access to interaction with the communicator (this mode had been commonly called “decontextualized,” “literate,” and “dis-embedded”), are clearly valued by Western schools (*see READING*). Children are expected to read, to write, and even to speak in this way at school—for example, during sharing time, when writing research reports, or when writing short answers “using complete sentences.” The skills that go into producing decontextualized prose may be very different from the skills that make one an effective face-to-face conversationalist, and the two sets of skills may be learned in very different ways.

See also LITERACY; WRITING.

Bibliography. Margaret Bullowa, ed., *Before Speech: The Beginning of Interpersonal Communication*, New York, 1979; Roberta M. Golinkoff, ed., *The Transition from Prelinguistic to Linguistic Communication*, Hillsdale, N.J., 1983; M. A. K. Halliday, *Learning How to Mean*, New York and London, 1975; H. R. Schaffer, ed., *Studies in Mother Infant Interaction*, London and New York, 1977; Ronald Scollon and Suzanne B. K. Scollon, *Narrative, Literacy, and Face in Interethnic Communication*, Norwood, N.J., 1981; Rachel E. Stark, *Language Behavior in Infancy and Early Childhood*, New York, 1981; Daniel Stern, *The First Relationship: Mother and Infant*, Cambridge, Mass., 1977.

CATHERINE E. SNOW

2. DEVELOPMENT OF SYMBOLIZATION

The study of symbolic development entails an effort to trace the steps whereby normal individuals gain fluency in handling the various symbol systems of their CULTURE. An additional goal is the specification of factors that cause this developmental sequence to unfold in the ways in which it does.

Symbol Systems

Once philosophers became aware of the ubiquity of symbols, they devised various typologies of symbol systems. Among the best known is the distinction drawn by CHARLES S. PEIRCE between *indices* (which signal the occurrence of an event), *icons* (which bear a physical resemblance to a referent), and *symbols* (which have only an arbitrary, or conventional, connection to a referent). Susanne K. Langer contrasted discursive symbols like LANGUAGE—in which individual elements are combined to produce more complex MEANING—with presentational symbols like pictures, which must be apprehended as a single indivisible unit. Workers in fields such as LINGUISTICS and psychology have debated whether these varieties of symbols operate in essentially the same fashion or whether each type of symbol exhibits its own characteristic features. From the perspective of linguistics, ROMAN JAKOBSON considered language the most prototypical and central of all symbol systems, whereas Noam Chomsky stressed the differences between language (with its rule-governed syntax) and other symbol systems.

In an effort to clarify such discussions, philosopher Nelson Goodman has proposed a novel and powerful description of symbol systems. First, Goodman suggests that symbol systems either approach or deviate from a set of criteria, which he terms *notationality*. Systems presenting discrete characters that can be unambiguously mapped onto a frame of reference—for example, musical notation—are fully notational (see MUSIC THEORIES—NOTATIONS AND LITERACY). In contrast, systems like paintings, which have neither separate characters nor unambiguous reference to discrete entities, violate both the syntactic and semantic properties of notationality (see REPRESENTATION, PICTORIAL AND PHOTOGRAPHIC). While pictorial and verbal symbols do exhibit certain differences, Goodman stresses other symbolic functions that they share, such as their capacity to *denote* or refer to entities (e.g., the word *dog* and a certain line configuration both denote the concept *dog*) and to *express* certain properties (e.g., a painting, a poem, or a musical passage can be described as sad or triumphant, depending on the mood it is said to evoke or exemplify metaphorically).

Theories of Symbolic Development

The major theorists of developmental psychology have offered contrasting formulations about the course of symbolic development. A *unitary* point of view was advanced by JEAN PIAGET, who claimed that all children pass through a symbolic, or semiotic, stage between the ages of two and five (see SEMIOTICS). According to Piaget's account, the ability to imitate a display or an action internally (without having to

carry it out explicitly) lies at the heart of all symbolic representation. Piaget considers language, PLAY, dreams, and mental imagery all manifestations of the same underlying "semiotic function."

Psychologists Heinz Werner and Bernard Kaplan consider symbolic development a process of increasing differentiation and hierarchical integration among four separate components: the *addressor* (or communicator), the *addressee* (or recipient of the message), the *vehicle* (the symbolic form that carries information), and the *referent* (the object or topic about which communication is occurring). In Werner and Kaplan's framework, only in mature symbolization are these entities fully uncoupled from one another. Jerome Bruner outlined a three-stage sequence of acquisition, beginning with enactive (motoric) representation during infancy, passing through an iconic mode in the third and fourth years, and culminating in an arbitrary, purely symbolic form of representation at about six or seven years of age.

Finally, LEV VYGOTSKY, ALEKSANDR LURIA, and other members of the Soviet school of psychology speak about a *second* signal system that builds upon but eventually supersedes the initial stimulus-response links: secondary signaling systems like language come to exert a controlling influence on a child's behavior. In one respect the Soviet point of view is reminiscent of behaviorist or learning theory accounts, in which symbols are seen merely as stimulus-response links with an intervening or "mediating" response. In contrast to this conservative view, however, the Soviet school considers behavior to be ultimately dominated by various symbol systems, and all thought to be an internalized reflection of the symbol systems of the surrounding culture.

Harvard Project Zero

One of the most comprehensive studies of symbolic development was carried out in the late 1970s and early 1980s at Harvard Project Zero, a research group initially convened by Nelson Goodman. The Project Zero group, under the direction of Howard Gardner and Dennie Wolf, distinguishes among the following stages in symbolic development.

Presymbolic stage (ages 0–1). During the first year of life the child is already an effective "knower" of the world. However, this knowledge is completely "practical" (i.e., tied to specific sensory and motor schemas), and it has no independent symbolic status. The child is able to appreciate that certain events cause or signal other events but can manifest this appreciation only when the eliciting circumstances are present.

Mundane symbolization (ages 1–2). By the end of the first year of life the child can appreciate relationships between a single symbol and a single referent.

Children at this age appreciate that a word can stand for an object or concept and that a set of lines can depict an object or entity in the world.

Early symbolization (ages 2–5). During this crucial period the child proceeds from a phase in which he or she has only the most rudimentary understanding of individual symbols to one in which he or she can produce organized works or integrated symbolic products. Thus, while the two-year-old is restricted to two-word phrases and simple scribbles, the five-year-old can relate a coherent story or draw an organized scene.

During this period of early symbolization children exhibit two fundamentally different classes of processes, some of which are specifically restricted to particular symbolic domains and have been termed *streams of symbolizations*. Examples of streams include the working out of elementary pitch relations in the domain of music, the mastery of two-dimensional spatial relations in the area of drawing, and the construction of the “plus one” operation in the realm of numbers. Characteristic of a streamlike process is its tendency to remain within a particular symbolic domain.

Other processes, called *waves of symbolization*, may originate in one particular symbol system but characteristically invade other domains of development. At least three specific waves of development have been isolated during this period. At about the age of two, children exhibit the wave of *event- or role-structuring*: the knowledge that agents carry out actions upon objects and that these actions have certain consequences. Having originally exhibited this knowledge in the area of language and symbol play, children may transfer the same processes even to areas in which they are not conventionally appropriate. For example, a child asked to draw a truck will instead convert the marker into a motor vehicle and drag it along imitating the truck’s roar. Here the marker has been transformed into the object *truck*, with the child acting as its controlling agent.

A second wave of symbolization occurs around the age of three. Called *topological mapping*, this wave entails the capacity to encode various topological relations such as relative size, dominance, proximity, and numerosity. The original arena for topological mapping is two- and three-dimensional representation in which, for the first time, the child becomes able to draw or mold representational forms. Once again, however, children manifest these basic operations in other domains, even when they would be deemed inappropriate (e.g., a number of characters in a story are collapsed into two—a good guy and a bad guy—or a complex tune is converted into a set of relatively high or low notes).

A third wave of symbolization, occurring around the age of four, is called *digital mapping*. At this

time the child can count small quantities accurately and can effect precise one-to-one correspondence between objects and number words. This readily noted ability to assess quantity can be observed in other symbolic domains, ranging from rendering the correct number of fingers in a drawing to producing appropriate symbolic rhythms in a newly learned song. While digital mapping basically represents a cognitive advance, an excessively rigid adherence to quantity may result in the child’s neglecting or minimizing the expressive aspects of a symbol (e.g., in an effort to include the correct number of toes the young artist may forget to depict the happy mood or playful stance of a birthday child).

Notational symbolization (ages 5–10). At about the age of five the child has attained a rudimentary knowledge of the various symbol systems in the environment. At this point two new sets of processes begin to manifest themselves within most cultures. The first is the proclivity to acquire or to create new “second-order” symbol systems, which Project Zero termed *notational systems* (a symbol system that itself refers to other symbol systems that may not be fully notational in Goodman’s sense). The most familiar examples in Western culture are the systems for written language and for written numerals, but musical scores, tally systems (see NUMBER), and many other formal codes also qualify as second-order symbol systems. In devising such systems the child uses “first-order” symbolic knowledge and then proceeds to reduce it, systematize it, and make it accessible to other individuals.

The second process, which begins to take effect around the age of five, involves the demarcation of different functions within a particular symbol system. Exploring the “channels of symbolization,” the child now discovers or learns various telltale divisions within a particular symbol system. Thus, rather than telling all narratives in the same manner, the child learns to distinguish between a fictional account, a fantasy, a straightforward account, a newspaper report, and other genres of narration (see NARRATIVE). Within the area of graphic symbolization, the child comes to distinguish among such channels as a realistic drawing, an impressionistic painting, a diagram, a chart, a map, and other variants. More generally, children at this stage employ techniques that are appropriate to a particular symbolic system or code and honor the boundaries between various symbol systems.

The details of notational symbolization, and the extent to which all adults within a culture actually achieve mastery of these systems, have not yet been ascertained. Definitions of LITERACY are ever changing both within and across cultures. Even in an advanced culture or subculture, most individuals may fail to achieve a high degree of literacy with any but

the most familiar symbol systems. Finally, two main hypotheses have been proposed to deal with the extent to which spontaneous efforts at creating notations appear in cultures that themselves are preliterate or prenotational: (1) insofar as individuals in such cultures produce incipient notational systems, we can infer that these systems reflect *mental models* already constructed by the subject; and (2) the absence of notational efforts in cultures without literacy indicates that *internal representation* may depend on the internalization of culturally provided notational systems (see READING).

Acquisition of Symbol Systems

Given this overview of symbolic development, the question arises about why humans acquire the variety of symbol systems in the manner that they do. It is now widely accepted by behavioral scientists that human beings as a species have a strong proclivity to use various kinds of symbols for communicative, expressive, and conceptual purposes. At least one symbol system—that of natural language—is universal, and others, such as graphic depiction or music making, seem nearly universal. It is probably necessary for the survival of human cultures that individuals attain skill in apprehending various symbolic products (e.g., the stories, songs, and rituals of their culture) and eventually become able to transmit these forms of knowledge to their progeny. Moreover, the processes whereby language and other symbol systems are acquired in early childhood seem sufficiently similar across cultures (despite some clear variations) to be considered part of the human genetic program. At the same time it must be stressed that many other symbol systems (e.g., higher mathematical codes) are far from universal and must be explicitly taught. The very symbol systems relied on in one culture prove quite different from those featured in another. While symbol making, symbol use, and the processes of acquiring certain symbol systems appear pervasive among humans, there are clearly individuating patterns of use and training.

It is important to indicate certain limitations in the present treatment of symbolic development. To some investigators—for example, those in the psychodynamic tradition, such as SIGMUND FREUD, CARL JUNG, René Spitz, and Donald W. Winnicott—symbolic development is a phenomenon that is highly affect-laden and linked to motivation. On this account all symbol use reflects basic desires, and symbolic development reflects the operation of unconscious factors. Other investigators favor a view of symbolic development different from the one detailed here; for example, Dan Sperber questions the wisdom of grouping together a system like natural language, whose processing is rule governed and strictly limited

in scope, with symbol systems that allow or encourage endless mental association, such as dreams or rituals. Indeed, a possible weakness in the Project Zero formulation is that after infancy cognitive development becomes virtually synonymous with symbolic development. In response to this criticism it can be pointed out that human beings are so prone to invest objects with expressive and/or referential significance, and to systematize their knowledge into some kind of symbolic or notational form, that it is difficult to conceive of mature cognition apart from a symbolic activity. Moreover, investigators have little choice but to investigate the child's knowledge through the window of his or her symbol use.

While some critics embrace different definitions of symbolization, others question the naturalistic or developmental approach in which one stage is inevitably followed by another stage, with the latter exhibiting a higher degree of organization. Those of an empiricist (behaviorist) persuasion highlight the role of the environment in shaping all forms of knowledge; they question whether *any* development can occur apart from specific shaping of responses. By contrast, those of a nativist persuasion claim either that all knowledge is essentially present at birth or that milestones result from purely endogenous factors (e.g., the maturation of a new brain region). In both cases the interactive or epigenetic model of biological development is questioned.

Although these lines of analysis may be tenable for certain forms of behavior, they seem inadequate to account for the full range and complexity of human symbolic activities like music, drawing, or DANCE. The area of symbolic development is so complex that its full dimensions are unlikely to be understood until our knowledge of both culture and the nervous system has been greatly enhanced. Separate analysis of specific symbol systems, as well as studies of the ways in which symbolic competence develops, will continue to be needed.

Bibliography. Jerome S. Bruner, Rose R. Olver, and Patricia M. Greenfield, eds., *Studies in Cognitive Growth*, New York, 1966; Noam Chomsky, *Reflections on Language*, New York, 1975; Jerry A. Fodor, *Representations*, Cambridge, Mass., 1981; Norman Freeman, *Strategies of Representation in Young Children*, New York, 1982; Roman Jakobson, *Essais de linguistique générale*, Paris, 1963; Philip N. Johnson-Laird, *Mental Models: Towards a Cognitive Science of Language, Inference, and Consciousness*, Cambridge, Mass., 1983; Aleksandr R. Luria, *The Making of Mind*, ed. by Michael Cole and Sheila Cole, Cambridge, Mass., 1979; Jean Piaget, *Play, Dreams, and Imitation in Childhood*, trans. by C. Gattegno and F. M. Hodgson, New York and London, 1962; Don Rogers and John A. Sloboda, eds., *The Acquisition of Symbolic Skills*, New York and London, 1983; Gavriel Salomon, *Interaction of Media, Cognition, and Learning*, San Francisco, 1979; Dan

Sperber, *Rethinking Symbolism*, trans. by Alice Morton, Cambridge, 1974; René Spitz, *No and Yes: On the Genesis of Human Communication*, New York, 1957; Lev Semenovich Vygotsky, *Mind in Society*, ed. by Michael Cole, Cambridge, Mass., 1978; Heinz Werner and Bernard Kaplan, *Symbol Formation*, New York, 1963; Donald W. Winnicott, *Playing and Reality*, London, 1971.

HOWARD E. GARDNER

3. USE OF MEDIA

In MASS COMMUNICATIONS RESEARCH, the “powerful effects” notion of MASS MEDIA EFFECTS—according to which children and adults alike are passively affected by the media—has given way to alternative conceptions of audiences as active processors and interpreters of media messages (see section 4, below). The view that media users, and children especially, cannot and do not influence the way the media affect them has been replaced by one that argues that children are active “consumers” of media in at least five distinctive ways: (1) in their choice of what to expose themselves to, (2) in the amount of their exposure, (3) in the selection of information they attend to, (4) in the ways in which they cognitively process that selection, and (5) in the way they ultimately comprehend it. Thus the study of how children become active media consumers assumes a reciprocal, interactive process involving the child and the media. Factors such as age, social context, and cognitive development on the one hand and the diverse qualities of media on the other operate to affect children’s media consumption.

Media Selection

Children are able, from a relatively young age, to select the media they become exposed to on the basis of a number of factors. Two of the first studies investigating the impact of television on children—by Hilde Himmelweit and her associates in Great Britain (1958) and WILBUR SCHRAMM and his colleagues in the United States (1961)—found that medium choice greatly depends on the balance between expected rewards and effort required, that is, on the utility function of accessible alternatives. When a medium is easily available and is perceived to offer satisfaction of certain needs (e.g., escape, information, reality testing, material for imagination) with little effort expenditure relative to the alternatives, it is likely to be preferred. Television is often selected over other media because it easily meets such criteria, given its accessibility, the attractiveness of its pictorial symbolic forms, and its relatively stereotypic (and therefore easier-to-process) structure and story grammar. However, with age, children’s needs, interests, and inclinations become more differentiated and spe-

cialized, and their choice of media moves from those that serve equivalent functions (i.e., serve similar social or psychological functions) to those that fulfill alternative functions. The criterion of effortless accessibility, although still present, is gradually replaced by that of differential need and interest satisfaction.

Other factors are more socially anchored. A child’s choice of a medium is closely related to the home environment (see FAMILY) and the kinds of media use explicitly or implicitly encouraged there. In general children watch less television in homes in which books and other print materials dominate and watch more in homes in which television is a constant background presence in family life (see LEISURE).

Amount of Exposure

As children get older they become more selective in their exposure to media like television and cinema, as well as in their use of print materials, computer games, and so on. In general, amount of exposure is a reflection of factors such as educational level, need for achievement, and educational aspirations. In pre-television days children who were low on these characteristics were among the highest in cinema attendance, and in the television era poorly educated children tend to be the heaviest viewers and less selective in their choice of content. For many of them READING is a demanding and unsatisfying activity, especially when compared to television viewing. Very heavy exposure to television, as well as excessive reading or total immersion in computer activities, may be the result of tensions, loneliness, difficulties in coping with the daily demands of home and peers, and possibly also failure in SCHOOL.

When television viewing patterns are observed over a span of several years, it becomes clear that the kinds of content one chooses for exposure at an early age remain relatively stable at an older age. Consistency tends to be related to three major types of choices: (1) strong stimulation (e.g., action-adventure, VIOLENCE), (2) intellectual, “highbrow” material (e.g., documentaries, news, biographies), and (3) SPORTS. One also chooses more exposure to media material within one’s preferred area of interest. A number of studies in a variety of countries have shown that children of higher ability and with a wider range of interests and needs tend to select more exposure to a variety of media: they watch more television, read more, and listen more to the radio.

Attention

Most media materials are sufficiently rich in quality and detail that no person—child or adult—can attend to everything available to the senses. Attention is

thus necessarily selective (*see* SELECTIVE RECEPTION), and numerous factors determine what materials are attended to or ignored.

One such factor is called attentional inertia: the longer one attends to a medium (e.g., television), the longer one is likely to continue to do so. Children's comprehension of the material is another factor, because sustained attention is a function of comprehension rather than the other way around. Material that signals to the child through particular sounds (e.g., children's voices) and sights (e.g., ANIMATION) that it might be comprehended is attended to. Auditory stimuli in television, including spoken language, has been shown to be quite important in capturing children's attention, even that of the very young. Younger children, who are generally more stimulus-bound than older children, appear to be more attracted to salient features like colors, movement, certain sounds, and SPECIAL EFFECTS. Younger children can be said to "explore" the material from the bottom up, guided by its salient features, whereas older children can be described as being actively engaged in a top-down, self-controlled "search" for MEANING thanks to their richer cognitive schemata (*see* COGNITION). Thus older children are able to distinguish well between the central and peripheral elements in a story.

Ways of Processing

The child's cognitive processing of media material is determined jointly by the nature of the material and by his or her cognitive structure. A question of special interest is how deep, mindful, or effortful is the processing, that is, the degree to which mental activities such as elaborations, inference generation, and active, organized (rather than episodic) commitment of the material to memory are involved.

Media clearly differ in terms of cognitive demands. Although television relies on what appear to be relatively familiar and nonabstract codes and formal features, it typically provides "crowded," fast-moving material that may not allow enough time for reflection, inference generation, and deeper processing. By contrast, print and even orally presented stories (*see* SPEECH) may allow for or even demand more mindful processing because of their linear, abstract nature, which requires serial integration, the generation of integrated images, and logical sequential thinking. Younger children's processing of television material, and of stories in general, tends to be fragmented and relatively unorganized until about eight or nine years of age, when more complex and abstract mental operations become involved in the processing of media messages.

The child's active choice of how much mental effort should be spent in actual processing is another

factor. When older children are expecting easy entertainment or have learned to recognize that television stories share similar structures, they often choose to rely on "automatic" processing requiring little mental effort. In this processing mode comprehension tends to be shallow and stereotypic, influencing what the child will take away from that program or material.

Comprehension

Comprehension is based on children's general knowledge schemata ("world knowledge"); knowledge of a medium's codes, formal features, and conventions; and knowledge of the structure of stories and other classes of materials. As one result of the parallel development of knowledge structures and attention and processing capabilities, comprehension becomes less dependent on the specific features of a medium or a particular program or story, and the child's knowledge, capabilities, and inclinations come to play a larger role.

Up to middle childhood there is low comprehension of media materials. The difficulties are evident in children's deficient temporal and logical integration of stories (e.g., those read to them or viewed on television), lack of inferences concerning motives, absence of connections between events in a story and their consequences, and so on. These shortcomings reflect a general difficulty in shifting attention from one dimension to another and connecting between them (a problem called centration) and in being able to go beyond the specific information given. A similar difficulty has been identified in the comprehension of the commercial intent underlying advertisements (*see* COMMERCIALS), although the use of salient production features, repetition, and familiar (i.e., easy-to-process) contents increases comprehension and recall. Making children aware of the internal structure of stories has a similar facilitating effect. It is interesting to note that children, even young ones, tend to spontaneously generate more inferences and make more connections to their world knowledge when read a story than when viewing it on television. Whether this results from greater effort expenditure in a medium perceived to be more serious, the imagery-demanding nature of language, or other factors is an open question.

The potential for becoming sophisticated media consumers increases as children mature but still depends considerably on their choice of mindful over mindless exposure. Children who choose to invest more mental effort in processing media messages become increasingly aware of hidden meanings, implied connections between events, the differences between FACT AND FICTION, and the various intentions underlying different types of messages.

Educating for media consumption. A variety of activities designed to be implemented in the home, the community, and the school have been developed with the explicit intention of educating children to become mindful and critical media consumers, especially of television. Instruction on the nature of the media, their typical materials, and alternatives for their intelligent consumption are included in the curriculum. Although these programs are relatively successful in their intended goals, questions remain about the degree to which children actually apply these skills and information when exposed to the media in unsupervised situations.

Bibliography. Jennings Bryant and Daniel R. Anderson, eds., *Children's Understanding of Television: Research on Attention and Comprehension*, New York, 1983; Takeo Furu, *The Function of Television for Children and Adolescents*, Tokyo, 1971; Patricia Marks Greenfield, *Mind and Media: The Effects of Television, Video Games, and Computers*, Cambridge, Mass., 1984; Hilde T. Himmelweit, A. N. Oppenheim, and Pamela Vince, *Television and the Child*, London, 1958; Daniel Lerner and Lyle M. Nelson, eds., *Communication Research: A Half Century Appraisal*, Honolulu, Hawaii, 1977; Gavriel Salomon, *Communication and Education*, Beverly Hills, Calif., 1981; Wilbur L. Schramm, Jack Lyle, and Edwin B. Parker, *Television in the Lives of Our Children*, Stanford, Calif., 1961; Dorothy G. Singer, Jerome Singer, and Diana M. Zuckerman, *Getting the Most Out of Television*, New York, 1981.

GAVRIEL SALOMON

4. MEDIA EFFECTS

Historically it has been assumed that lack of adultlike cognitive skills and life experiences renders children particularly vulnerable to symbolic messages. Such assumptions earned children status as a "special" audience at least as early as PLATO's *Republic*, which urged careful control over the stories and ideas presented to children. Their special status has been renewed periodically, often when new communications media emerge to make "new" stories and ideas available.

As the historical trend toward widespread EDUCATION created a growing audience of young readers, concern with the possible impact of print emerged (see PRINTING; READING). Many twentieth-century publishers of the Grimm fairy tales took care to eliminate themes they feared might harm children—for example, themes of abandonment and VIOLENCE. In the mid-1950s, the U.S. Senate voiced objections to crime and horror comic books (see COMICS), and reports of public disputes about which books and magazines should be available to children in SCHOOL, public libraries, and even bookstores remain common.

Similar concerns appear in calls for controls over popular music heard on the RADIO by adolescents, whether the problem is with rock and roll as a sociopolitical threat, as in the Soviet Union in the 1950s and 1960s, or with sexually explicit and violent song lyrics, as in the United States in the 1980s (see CENSORSHIP; MUSIC, POPULAR). The new communications media—with their blend of the storage and programming capabilities of the computer and the print and audiovisual display capacities of more traditional mass media—have aroused almost identical fears (see COMPUTER: IMPACT).

Audiovisual Media

The most intense and enduring scrutiny, however, has been reserved for the audiovisual media. Because the combination of sound and moving pictures provides children with symbolic messages they can "understand" at a much earlier age than is the case with other media (see sections 1 and 2, above), and because the nature of the production and distribution systems of both film and television tends to ensure that a significant proportion of their messages portray a world that children might not normally encounter (at least until they reach adulthood), these media seem particularly threatening.

The first systematic research on MASS MEDIA EFFECTS on children was undertaken in response to the rapid growth in popularity of MOTION PICTURES in the United States in the 1920s. The Payne Fund Studies, published in 1933, addressed questions about the impact of motion picture content on children's moral beliefs and ATTITUDES. The studies are remarkable both for their methodological sophistication and for their articulation of research questions that remain at the core of scientific studies of children and the mass media. The Payne Fund Studies used seventeen different motion pictures to test (in both naturalistic and experimental settings) various emotional, cognitive, and attitudinal responses of several thousand children ranging in age from eight years through the mid-teens. The studies reported some of the earliest empirical evidence that changes in physiological measures of emotional response (e.g., heart and breathing rate, galvanic skin response) varied with the action portrayed on-screen. They documented enormous amounts of children's learning from motion pictures and demonstrated that specific films (e.g., *Birth of a Nation*; *All Quiet on the Western Front*) could change children's beliefs about war, crime and punishment, and various racial, ethnic, and national groups. Moreover, these changes in attitudes were shown to persist over several months, and the effect was found to be cumulative, with exposure to several films dealing with the same issue increasing the amount of belief and attitude change obtained. Thus the Payne Fund Studies foreshadowed

subsequent research in their consistent findings that the influence of films—whether measured as emotional response, amount of learning, or attitude change—varied dramatically with characteristics of the audience: boys reacted differently from girls, urban children differently from rural children, younger children differently from older children, and so on. See COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT.

Television. Television research dominates the literature on children and the mass media. More than any other medium, television threatens parents' control over their children's received view of the world. In addition to the cognitive accessibility of the message inherent in its audiovisual symbol system, the rapid DIFFUSION of television sets into most U.S. households created widespread physical accessibility to the medium (see TELEVISION HISTORY). This combination of an accessible message system in a ubiquitous medium almost guarantees children's exposure to ideas, information, and attitudes different from those manifested within the immediate environment, if only because multiple information sources increase the probability of divergent messages (see CULTURAL INDICATORS). This, in turn, undermines the gate-keeping role that parents (then neighbors, then local institutions) have traditionally exercised over the information reaching young children. Public questioning of the role television plays in the lives of children has continued uninterrupted from the medium's inception.

Three large field studies greeted television's emergence as the dominant mass medium in the industrialized nations at the end of the 1950s. Hilde Himmelweit and her colleagues in Great Britain, Wilbur Schramm and his associates in North America, and Takeo Furu in Japan all compared the behavior of children with and without and/or before and after acquiring access to television. Studies of this type, in which the "treatment" is access to television, are well suited to addressing questions about the impact of the medium as opposed to the impact of particular kinds of television content. Thus, for example, all three studies found that television dramatically altered how children spent their time, particularly time previously devoted to functionally similar activities. Television use greatly reduced both comic book reading and cinema attendance, had a lesser effect on the use of print FICTION, and had very little impact on nonfiction reading. The smaller effect on dissimilar media, as well as evidence that once the novelty of television wears off adolescents tend to return to the movie theater (whose function for them is probably quite different from the function of television viewing), supports a displacement hypothesis based on functional equivalence. So, too, does Himmelweit's finding that television most affected children's unstructured, marginal activities. The medium

delayed bedtimes in all three countries (from ten to twenty-five minutes) but reduced homework time only in Japan. It is interesting to note that subsequent examinations of the introduction of television into various communities in Canada, Australia, and South Africa report substantially the same kinds of findings as this early work. See LEISURE.

These first studies also found little negative impact of the medium on school performance in either the United States or Great Britain. Rather, in the two Western countries television seemed to promote significant, albeit short-lived, increases in general knowledge and vocabulary among young, less bright children. A positive academic impact was also reported in Japan, but only on the girls' science achievement scores. Among Japanese boys, particularly those in grades five through seven, television brought significant declines in reading ability (see EDUCATIONAL TELEVISION).

Subsequent work on the relationship between television viewing and academic achievement has altered these early findings only slightly. Typically there is a negative relationship between amount of television viewing and various measures of academic achievement. But when such third variables as parental socioeconomic status, personal and social problems, and intelligence are taken into account, most of the overall relationship disappears. There is a small but persistent negative correlation between television viewing and reading achievement, but this is highly dependent on characteristics of the children. For example, a review of twenty-three studies by Patricia A. Williams and colleagues (published in 1982) found that the negative effect begins only after children reach ten hours of viewing per week and reaches a ceiling around forty hours per week. The effect appears to be greater on more intelligent children and on females and tends to depend on age. There is also evidence that when socioeconomic status is controlled, conditions within the home that foster educational achievement (e.g., when there is a great deal of print material available and when reading is encouraged) tend to eliminate any relationship between viewing and reading achievement. Finally, a few findings point to the possibility that some children from highly impoverished environments may gain from television viewing—the medium providing something educationally valuable that otherwise would be missing from their experience.

Contrary to popular expectations, none of the early field studies produced compelling evidence that television generated major changes in children's emotions, attitudes, or social behavior (e.g., the medium did not appear to make children more passive). The British study reported that adolescent girls who watched a great deal expressed slightly more anxiety about the future and that some children raised their career aspirations and reduced their willingness to

make value judgments about foreigners as a function of having television. But none of the studies was able to demonstrate an increase in children's aggressive behavior as a result of television, nor were any other major forms of social behavior shown to be directly affected by the medium. See SOCIAL COGNITIVE THEORY.

It is important to note, however, that these early studies were ill suited to examining such "content-related" outcomes. As indicated earlier, most concern about the effects on children of any symbolic medium usually derives from assumptions about exposure to content transmitted via the medium. It was not storytellers but particular kinds of stories that Plato feared. So it is with television. Most questions about how television influences children assume that influence derives from specific kinds of content: news and public affairs (see TELEVISION NEWS); violence; prosocial actions; portrayals of racial, ethnic, or sex-role stereotypes; and so forth. In other words, most research on television's impact on children tends to be problem-centered, and types of content tend to define the problems.

Testing of hypotheses based on such assumptions requires an assessment of exposure to specific content that can be related to subsequent behavior or beliefs that might logically follow from such exposure. This was not the case with most field studies, whose overriding criterion of presence or absence of a television set in the home was, at best, only a gross indicator of exposure to a given kind of content. Thus, for example, their failure to find a relationship between viewing television and aggressive behavior does not address the question of whether there might be a relationship between viewing television *violence* and aggressive behavior. A more content-specific approach is required, and it is well exemplified in subsequent studies of television's effect on antisocial and prosocial behavior.

The issue of television's influence on children's aggressive behavior dominated research in the 1960s and early 1970s. The violence research aptly illustrates the importance of a carefully delineated linkage between content, exposure, and outcome. For example, laboratory experiments, which ensure that all children in a treatment group pay relatively close attention to a violent stimulus and which remove normally operating sanctions against aggressive behavior, are therefore almost unanimous in finding a causal link between viewing violence and subsequent aggressive behavior. Field experiments, in which exposure is more problematic to measure and in which various sanctions against aggressive behavior usually operate, report less clear-cut results, their numbers almost equally divided between those finding no relationship between viewing violence and aggressive behavior and those finding that viewing does lead to aggression.

Finally, results of various correlational studies seem even more equivocal. They report relationships between viewing and aggressive attitudes or behavior that range from zero to moderately positive. However, when arranged in order of sensitivity to their respective measures of viewing violence (e.g., from owning a TV set, to hours of TV viewing, to preference for violent shows, to amount of actual violence viewing), a pattern of reliable, positive relationships emerges. Even though discussions of the policy implications of the violence studies are marked by controversy, primarily because of disputes over the generalizability of their results, there is ample evidence that when viewing of violence per se is guaranteed and sanctions against aggressive behavior are removed, viewing violence does lead to aggression. Moreover, the same kind of generalization can be drawn from studies of the effects of many other types of television content. Viewing portrayals of prosocial behavior, commercial appeals, displays of ethnic and racial stereotypes, and so on, has been shown to influence similar classes of attitudes and actions.

Prosocial behavior. Both laboratory and naturalistic experiments demonstrate that television programs can encourage a variety of positive behaviors. Children ranging from preschool through high school age understand and learn from prosocial television content. They learn more when the messages are explicitly designed to promote positive behavior and values, particularly when the portrayals are interesting enough to attract attention and concrete enough to be comprehensible. The introduction into preschool curricula of programs designed to teach prosocial behavior (e.g., "Mister Rogers' Neighborhood," "Sesame Street") increased at least some viewers' displays of cooperation, friendly interaction, helpfulness, willingness to share, and self-control. The CLASSROOM setting tends to facilitate such positive outcomes, especially when viewing is combined with supplementary activities endemic to the classroom, such as role playing and verbal labeling. Evidence that children respond to prosocial themes in programming produced primarily to entertain also mounts. Commercial programs selected for prosocial content and not supplemented by other activities have also led to increases in cooperation and helping behavior among children as old as ten or eleven.

Commercials. Numerous empirical studies show that children attend to, learn from, and change their behavior as a result of television COMMERCIALS. Commercials are particularly apt to influence children because they are brief, entertaining, and concrete; they focus on a single act; they promise big rewards; and they establish clear connections between the television image and real situations. Exposure to commercials has been shown to lead preschoolers to prefer an advertised toy to playing

with friends in a subsequent choice situation, and the annual barrage of Christmas commercials that occurs in many countries has been found to overcome the defenses of even the most initially resistant children. In short, commercials aimed at children do what they are designed to do: they create an awareness of and a desire for the advertised products.

Television content has been shown to affect children's beliefs, attitudes, and knowledge on a variety of other issues and topics, including occupational knowledge and expectations; sex-role stereotypes; knowledge of and attitudes toward science; information about health, safety, and nutrition; political information and beliefs; and so on. For example, a growing body of literature indicates that viewing news and public affairs programs increases adolescents' levels of political information—although, consistent with findings for adults, the relationship between exposure and political information is even higher when the stimulus is newspapers or newsmagazines (see POLITICAL SOCIALIZATION). Correlational studies have found that children who watch more television tend to be more accepting of traditional sex-role stereotypes. Such results are consistent with the majority of television portrayals of females and also with evidence that frequent television viewers are likely to hold more traditional sex-role attitudes. However, results from experimental procedures also indicate that counterstereotypical portrayals of women excerpted from commercials and ENTERTAINMENT programming (e.g., women engaged in male-dominated occupations) can influence sex-role attitudes and expectations in less traditional directions; viewers become more accepting of women in male-dominated occupations and in leadership roles. For example, a long-term evaluation of "Freestyle," a U.S. television series specifically designed to reduce sex-role stereotyping, found viewers more accepting of such things as girls performing mechanical tasks, men helping with housework, and girls in leadership roles. Some of the findings held only for girls, others only for boys, and some of the targeted attitudes and expectations remained unchanged. Nevertheless, it is clear from this study, as well as from work concerned with programs as diverse as "Sesame Street," "3-2-1 Contact," or the "National Citizenship Quiz," that when programming is designed to teach, it may be quite successful regardless of whether concern is with preschoolers learning the alphabet, grade-schoolers learning science, or high schoolers learning to discount traditional sex-role stereotypes. See AUDIO-VISUAL EDUCATION; GENDER; SEXISM.

Qualifications. This is not to say that all television teaches all children the same things all the time. On the contrary, several important qualifications are necessary for most of the preceding generalizations. Indeed, perhaps the most important changes in research on media and children since the early 1980s have

been a reduction in the number of studies examining the effects of specific kinds of content and a dramatic increase in work concerned with *how* children process mass-mediated messages. Contemporary research focuses on such general processing outcomes as exposure, attention, comprehension or sense-making, and memory, and the factors that mediate differences in such outcomes. These studies make clear that what is learned, by which children, and whether such learning is translated into action vary with characteristics of the television content, the child, and the environment (see section 3, above).

A second set of conditions mediating effects pertains to the viewers. There is tremendous variation among children, and to the extent that they have different needs, interests, and past experiences, they learn different things from the medium. Boys and girls focus on different program elements; children from urban and rural environments or from differing social or ethnic backgrounds interpret a given portrayal in very different ways; children with personal problems use television quite differently from their less troubled peers.

Differences in cognitive abilities, generally indexed by age, locate particularly significant variations in responses to television content (see COGNITION). Although some studies illustrate that young children understand a good deal more than was previously thought, differences in how preschool, grade school, and high school children process symbolic information remain dramatic. Before seven or eight years of age, children's attention spans and memory capacities are limited. They tend to focus on the perceptual attributes of programs (e.g., action sequences, scene changes, SOUND EFFECTS), respond to concrete portrayals, interpret discrete scenes, and often fail to notice implicit content or to interpret noncontiguous events. Younger children often confuse realism and reality, and they "make sense" of television content in their own terms, not those of their older counterparts. By contrast, older children are able to respond to more conceptual program elements such as motives underlying actions, abstract issues such as responsibility and justice, and implicit relationships. They tend to integrate scenes into larger wholes and begin to understand that even the most realistic drama is fiction. Hence, portrayal of the police subduing and jailing a criminal at the end of a program may teach an adolescent that crime does not pay, but a ten-year-old may learn that good guys have the right to punish bad guys, and a five-year-old may simply fail to relate the punishment in Act 3 to the crime in Act 1.

It is also important to distinguish between learning and performance. Although almost all social behavior is learned, not everything learned is translated into overt behavior. Children's behavior depends on the situation in which they find themselves and on

their learned expectations about what is right or wrong, good or bad, wise or foolish, possible or impossible. In other words, television cannot create situations, but it can influence the expectations and norms children bring to situations. Thus a fact, attitude, or behavior that a child learns from television may not be displayed until he or she encounters an appropriate set of conditions in a different context—perhaps weeks, months, or even years after viewing. Similarly, then, the likelihood of a child performing behaviors learned from television increases as the portrayed setting or conditions become more similar to the actual world of the child. And finally, the likelihood that a given child will be affected by television content increases as opportunity for direct experience or availability of competing messages dealing with the same topic decreases. That is, the more “distant” the material television presents—regardless of whether that distance is spatial, temporal, social, or psychological—the more likely a child is to be influenced by the portrayal.

The mass media in general and television in particular have become an integral part of contemporary culture, shaping our children in much the same way that schools, churches, and families do. Insofar as socialization refers to children’s learning about the world in which they must operate, all of those institutions, including the media, are socialization agents. It is important to keep in mind that mass media effects on children do not occur in a vacuum. Media are only one of many contributors to children’s beliefs about and behavior in the world. However, the evidence is clear that they are extremely important contributors.

Bibliography. Jennings Bryant and Daniel R. Anderson, eds., *Children’s Understanding of Television*, New York, 1983; George Comstock, Steven Chaffee, Nathan Katzman, Maxwell McCombs, and Donald F. Roberts, *Television and Human Behavior*, New York, 1978; Hilde T. Himmelweit, A. N. Oppenheim, and Pamela Vince, *Television and the Child*, London, 1958; Michael J. A. Howe, ed., *Learning from Television: Psychological and Educational Research*, London and New York, 1983; Robert M. Liebert, Joyce N. Sprafkin, and Emily S. Davidson, *The Early Window: Effects on Children and Youth*, 2d ed., New York, 1982; Edward L. Palmer and Aimee Dorr, *Children and the Faces of Television: Teaching, Violence, Selling*, New York, 1980; David Pearl, Lorraine Bouthilet, and Joyce B. Lazar, eds., *Television and Behavior: Ten Years of Scientific Progress and Implications for the Eighties*, 2 vols., Washington, D.C., 1982; Ruth C. Peterson and L. L. Thurstone, *Motion Pictures and the Social Attitudes of Children*, New York, 1933; Donald F. Roberts and Nathan Maccoby, “Effects of Mass Communication,” in *The Handbook of Social Psychology*, Vol. 2, 3d ed., ed. by Gardner Lindzey and Elliott Aronson, New York, 1985; Wilbur L. Schramm, Jack Lyle, and Edwin B. Parker, *Television in the Lives of Our Children*, Stanford, Calif.,

1961; Tannis M. Williams, ed., *The Impact of Television: A Natural Experiment in Three Communities*, New York, 1986.

DONALD F. ROBERTS

CHOREOMETRICS

A method for describing what is most typical in the varied DANCE traditions of the world. Unlike dance notation systems, choreometrics does not record sequences of dance steps or gestures so that they may be reproduced from scores. Instead it describes distinctive patterns of BODY MOVEMENT and interaction so that dance styles may be compared and classified cross-culturally. Choreometrics was the coinvention of Irmgard Bartenieff, Forrestine Paulay, and Alan Lomax, working with concepts from the Laban Effort Shape System, the kinesic studies of Ray Birdwhistell, and the cultural methodologies of anthropologists George Peter Murdock, MARGARET MEAD, Conrad Arensberg, and others. *See also* KINESICS.

The choreometrics system consists of more than one hundred standardized scales for recording body part use, body attitude, trace forms, dynamics, the composition and organization of the dance group and orchestra, the audience, the degree and kind of synchrony employed, step and GESTURE style, GENDER differentials, and patterns of dance form and rhythm. These scales of measurement and the traits they comprise were chosen and tested for their reliability and effectiveness in the study of a set of films representing the main cultural areas. Careful verbal definitions of these measures were set down in a coding book. The measures were also defined visually in teaching films that illustrate each scale point with examples from a variety of cultures. These films incorporate a world perspective on important qualities of movement style and have produced a high level of agreement among raters (over 80 percent).

Operating from this platform of agreement, movement analysts then applied the choreometric system to a global sample of several hundred DOCUMENTARY and ethnographic films, creating numerical profiles that were entered into computer files for comparison (*see* ETHNOGRAPHIC FILM). These dance profiles came from four hundred cultures representing 80 percent of the cultural provinces in the standard ethnographic world sample for which codified information is also available on work, climate, social organization, and musical style. The computer programs devised to handle this socioaesthetic data bank produced a geographic taxonomy of movement style regions and a set of correlations to social structure like those found in the song style study (*see* CANTOMETRICS). The many discovered structural relations between dancing and music making suggest that an underlying

set of factors fundamental to cultural structure is at work in both of these rhythmic expressive systems.

The correspondence between the regions of expressive style and those found by historians of culture indicate that these patterns of movement, dynamics, timing, phrasing, posture, and interaction are learned early in life and passed on generationally. This may explain why the known historical movements of culture—Europe to America, Africa to America, North Africa to Andalusia, South Asia to Southeast Asia—are reflected on the choreometric grid.

Of interest here are the many parallels between choreometric distributions and those established by archaeology. For example, choreometrics analysis finds that clear differential patterns run through all the dance styles of aboriginal America and link this pan-American tradition to Siberia (as per the film *The Longest Trail*). Both choreometric and cantometric data confirm the evidence of modern archaeology concerning the spread of Paleo-Indian culture across the land bridge that once linked the Siberian Arctic to Alaska and the subsequent isolation and specialization of traditions in the New World. In the same way, the stylistic evidence matches the findings of culture historians about the peopling of the Pacific from Asia and the southward spread of black culture from the Sudan into sub-Saharan Africa. It begins to appear that the spread and differentiation of culture traditions may be traced not only by potsherds but by PERFORMANCE profiles as well.

See also BODY MOVEMENT NOTATION.

Bibliography. William Laughlin and Albert B. Harper, eds., *The First Americans: Origins, Affinities, and Adaptations*, New York, 1979; Alan Lomax et al., *Dancing*, Lincoln, Neb., forthcoming; idem, *Folk Song Style and Culture*, Princeton, N.J., 1968. **Filmography.** Alan Lomax and Forrestine Paulay, *Dance and Human History*, Berkeley, Calif., 1976; idem, *The Longest Trail*, Berkeley, Calif., 1986; idem, *Palm Play*, Berkeley, Calif., 1979; idem, *Step Style*, Berkeley, Calif., 1979.

ALAN LOMAX

CICERO (106–43 B.C.E.)

Roman lawyer, politician, and philosopher. Living in the last decades of the Roman Republic, including its breakup in civil war (49–45 B.C.E.), Marcus Tullius Cicero developed ORATORY into a high art. With his imposing presence, his appeals to emotion, his dramatic delivery, and his long periodic sentences that featured parallelism, balance, and complex interweaving clauses, Cicero manipulated his audience's attention and devastated his opponents in the courtroom and the political arena. According to Cicero a free society is one in which political power is

exercised through the persuasive techniques of RHETORIC, not through violence (see PERSUASION). Throughout subsequent history Cicero has served as a model for public speakers.

Cicero left several instructional works on oratory that, together with his example, have influenced not only PUBLIC SPEAKING but also PROSE style—especially during the RENAISSANCE—and even the art of ACTING during its more declamatory periods. As a philosopher Cicero was influential not so much for the originality of his thought—which, like his oratory, owed much to Greek influence—but because he was a vital link in transmitting Greek philosophy to the Latin MIDDLE AGES and the Renaissance.

Born at Arpinum into the equestrian class—not the highest nobility but, in his family's case, wealthy—Cicero received one of the best possible educations. He studied law, oratory, literature, and philosophy in Rome, Athens, and Rhodes with some of the leading teachers of his time. Politically ambitious, Cicero rose through several lesser offices to the rank of consul. But he identified with the conservative aristocracy, which proved incapable of stemming the anarchy that overwhelmed the republic.

During periods when Cicero was out of office he retired to one of his spacious villas and sought the consolation of philosophy. He studied the Greek philosophers, favoring the Academics and Stoics, and wrote numerous eclectic volumes reflecting their thought. Many of his philosophical works are dialogues in which the speakers are leaders of Rome and the listeners students. Conflicting views are presented, and the exchanges are sometimes heated and emotional but never rise to violence. Cicero's works on oratory include *De oratore* (55 B.C.E.), *Brutus* (46 B.C.E.), and *Orator* (46 B.C.E.). More than eight hundred extant letters written by Cicero—approximately half to his close friend Titus Pomponius Atticus (109–32 B.C.E.)—reveal more about Roman life and politics than any other source now available. See also LETTER.

During the civil war Cicero opposed Julius Caesar, but the victorious Caesar granted him amnesty. Although Cicero did not participate in the plot to assassinate Caesar, he certainly approved of the event. Afterward, in fourteen speeches known as the *Philippics* (44–43 B.C.E.), Cicero attacked Caesar's friend Mark Antony in the senate. When Antony joined forces with young Octavian, the future emperor, they put Cicero on their proscribed list. Antony's men seized Cicero as he fled his Tusculum villa. The great orator's severed head and hands were later displayed on the speaker's stand in the Roman Forum.

Bibliography. D. R. Shackleton Bailey, *Cicero*, New York, 1971; Gaston Boissier, *Cicero and His Friends: A Study of Roman Society in the Time of Caesar*, trans. by Adnah D. Jones, New York, 1897, reprint 1970.

CINÉMA VÉRITÉ

Film technique in which lightweight hand-held cameras and portable synchronized sound recorders are used. It was made possible by the technological breakthroughs in camera design in France in the late 1950s and in the United States in the early 1960s. The term also embraces innovative approaches to DOCUMENTARY filming in the same period, best represented by the work of Jean Rouch in France and Drew Associates in the United States.

Cinéma vérité represents an attempt to get closer than other film genres to the untempered reality of life. It avoids using professional actors to play roles and depicts instead the lives of real people in real situations. It disavows the artifice and reconstructions of the documentaries of the 1940s and 1950s and tends to reject both commentary and music. The *cinéma vérité* film has no preplanned script, but rather relies on spontaneity. *Cinéma vérité* is, in a sense, “found” on the editing table, where the material must be organized in sequence.

History. The ideological roots of *cinéma vérité* can be traced to the writings of the Soviet filmmaker DZIGA VERTOV—whose newsreel *Kinopravda* (Film Truth; see Figure 1) inspired the French term—and to the influence of the U.S. documentary pioneer ROBERT FLAHERTY. In his essays Vertov denounced the fiction film and asserted that the proper material for film was to be found in the ongoing events of life. Flaherty’s contribution lay in his emphasis on nonpreconception and on the necessity for filmmakers to be open to all the nuances of a situation. He emphasized detailed observation—the key to *cinéma vérité*—and the role of the editing process for “finding” the film.

The practice and theory of what is termed *cinéma vérité* actually varies enormously from filmmaker to



Figure 1. (*Cinéma Vérité*) Dziga Vertov, *Kinopravda* (Film Truth), 1922. Lenin in his casket. National Film Archive, London/Sovexport.

filmmaker and from country to country. The term was first used in reference to *Chronique d'un été* (Chronicle of a Summer, 1961), made by anthropologist filmmaker Jean Rouch together with sociologist Edgar Morin. The film follows the lives and concerns of a group of Parisians in the summer of 1960 (see ETHNOGRAPHIC FILM).

Rouch’s work in *cinéma vérité* reflected a belief in the camera as a catalyst that could encourage people to reveal their true selves. It involved considerable intervention and probing by the director. Although *Chronique* was edited to its final version from twenty-one hours of filming, Rouch also declared that editing was wrong and that material should not be lost in the cutting room, since that falsified reality.

The pioneers of *cinéma vérité* in the United States—reporter Robert Drew and photographer Richard Leacock—used it in a somewhat different way, which is often termed *direct cinema*. Unlike the Rouch method, direct cinema avoids all directorial influence on the filmed events. Theoretically the filmmakers are like flies on the wall, totally uninvolved in the scene being filmed.

Leacock, who had been cameraman for *Louisiana Story* (1948) and had been deeply influenced by its director, Flaherty, began his collaboration with Drew in 1957. With the support of the Time-Life broadcasting organization, they modified their equipment to allow a freer style of shooting. Later they were joined by Albert and David Maysles, Donn A. Pennebaker, and Gregory Shuker, and under the banner of Drew Associates made a group of films using *cinéma vérité* methods that defined the dominant path for *cinéma vérité* in the United States for the next decade.

The most important of their films was *Primary* (1960), which covers the struggle between Hubert H. Humphrey and John F. Kennedy during the Wisconsin primary election in the 1960 U.S. presidential campaign. What was new was the intimacy of the filming, the sense of place and character, and the humanization of the electoral process. Drew Associates then made four one-hour documentaries for ABC Television’s “Close Up” series and another ten films between 1961 and 1963 for Time, Inc., under the title “The Living Camera.” These films include *Jane* (1962), which follows Jane Fonda rehearsing in a Broadway play, and *The Chair* (1962), about the possible reprieve of a man sentenced to death. Most of the films show what critic Stephen Mamber calls a synthesis of *cinéma vérité* techniques and fictional concepts of character, action, and structure. This can be observed in the films’ dependency on a crisis structure in which people are seen living through pressure situations that are resolved in the last minutes of the action.

A third pioneering example of *cinéma vérité* is represented by the work of a National Film Board

of Canada unit under Roman Kroitor and Wolf Koenig, who proposed a series of experiments for television under the title "The Candid Eye." Intimacy and spontaneity were to be emphasized, and no formal scripts were to be submitted—merely a list of titles and sequences. The films were to be shot as freely as possible and structured in the editing room. The first film released in the series was *The Days before Christmas* (1958), about people's activities just prior to the holiday. At least six filmmakers directed sequences for it. While Kroitor, Koenig, and producer Tom Daly set the tone, undoubtedly one of the most interesting filmmakers to emerge was Terence Macartney-Filgate. His two films—*Blood and Fire* (1958), about the Salvation Army, and *The Back Breaking Leaf* (1959)—are often regarded as the highlights of the series.

A number of the unit's filmmakers had an influence on foreign *cinéma vérité* work. Macartney-Filgate, for example, was also on the Drew team that shot *Primary*. Another occasional member of the group, French Canadian Michel Brault, was the principal camera operator on Rouch's *Chronique d'un été*.

While the Drew films used the crisis element to provide a certain structure, form was generally the one problem that the "Candid Eye" films failed to solve, even with the help of occasional narration. A film that did work well in this regard was one of the last films in the series, *Lonely Boy* (1962; see Figure 2). Directed by Koenig and Kroitor, this portrait of pop singer Paul Anka foreshadowed later pop portraits such as Pennebaker's *Don't Look Back* (1964), about Bob Dylan, and *Gimme Shelter* (1970), by the Maysles brothers and Charlotte Zwerin, about the Rolling Stones.

Apart from various show business portraits such as *Meet Marlon Brando* (1966), the Maysles brothers also produced an extraordinary portrait of four Bible salesmen in *Salesman* (1969; see Figure 3) and a humorous, complex description of a mother-daughter relationship in *Grey Gardens* (1975). The Maysles's work was characterized by an attempt to break away from the Robert Drew crisis formula and use *cinéma vérité* in a more open and nondramatic fashion.

One criticism of the Drew-Leacock-Maysles films was that they failed to use *cinéma vérité* to address social issues in any depth. This was remedied in the United States by the work of Frederick Wiseman, a lawyer turned filmmaker. Wiseman's first film, *Titicut Follies* (1967), gives a searing picture of an institution for the criminally insane. This was followed by fourteen films over the next decade and a half, including *High School* (1968) and *Law and Order* (1969; see Figure 4). Wiseman's films deal with the main tax-supported institutions of U.S. society and tend to examine the ways in which bureaucratic power is manipulated within these institutions. As

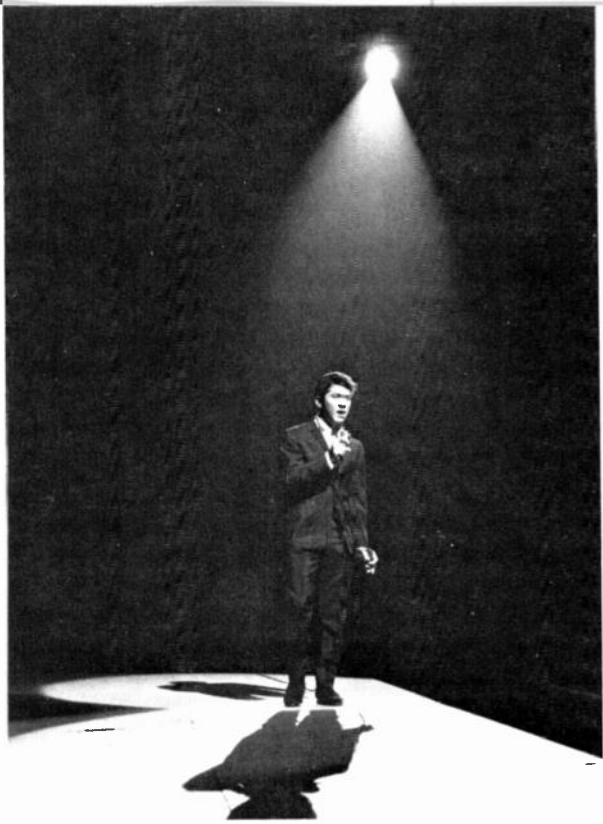


Figure 2. (*Cinéma Vérité*) Wolf Koenig and Roman Kroitor, *Lonely Boy*, 1962. National Film Board of Canada.



Figure 3. (*Cinéma Vérité*) Albert and David Maysles, *Salesman*, 1969. Maysles Films.



Figure 4. (*Cinéma Vérité*) Frederick Wiseman, *Law and Order*, 1969. National Film Archive, London. © Zipporah Films, Inc.

one critic put it, Wiseman's films offer an unparalleled social history and critique of daily life in the United States in the 1960s and 1970s.

In Great Britain a similar sociological thrust could be seen in the films of Roger Graef, an expatriate American known especially for two television series. "The Space between Words" (1972) dealt with communication problems in both family and work situations. "Decisions" (1976), made for Granada Television, focused on decision-making processes in huge corporations and served to demystify the way in which big businesses were run and governed.

An early influence on Graef was the Canadian filmmaker Allan King, who in 1966 made *Warrendale*, a landmark *cinéma vérité* film about a Toronto center for emotionally disturbed children. Two years later King made *A Married Couple*, which was shot in Toronto over the course of ten weeks. The film, which explores the marital difficulties of Billy and Antoinette Edwards, was edited out of chronological order and creates what King has called "an emotional fiction" rather than a true portrait of a marriage. King's exploration of the intimacies of marriage was copied in many other *cinéma vérité* films.

Criticism. During the 1970s the theoretical basis for *cinéma vérité* received increasingly sharp criticism. The four most serious objections concerned its structure, meaning, truth, and ethics. Regarding structure, although many of the original *cinéma vé-*

rité pioneers claimed that the form had broken the shackles of the standard fiction film, *cinéma vérité* seemed to succeed best when it simply copied fictional structures (e.g., "The Living Camera" series). Concerning meaning, it has been claimed that while these films offer interesting social and political observations, as in the films of Wiseman, they lack the context or meaningful perspective that would normally be supplied by commentary. On the issue of truth, many critics claim that *cinéma vérité's* vaunted search after truth and transparency is futile inasmuch



Figure 5. (*Cinéma Vérité*) Claude Lanzmann, *Shoah* (Holocaust), 1975. Henrik Gawkowski, Polish locomotive engineer. The Museum of Modern Art/Film Stills Archive.

as all documentaries are fictions. They argue that there is no clear window onto reality and that all filmmakers fabricate meanings and present subjective selections of images. The last objection to *cinéma vérité* is that the intimacy of its technique and its tendency to invade the private family world inevitably have an impact on, and in some cases have disrupted and even destroyed, the lives of the films' subjects. In the mid-1970s this moral and ethical critique became a subject of fierce debate among writers and filmmakers.

Later developments. The essence of pure *cinéma vérité* is indirect address, with an audience coming to a conclusion about a subject unaided by implicit or explicit commentary. This style was largely superseded in the 1970s—particularly in a number of political and feminist documentaries—by the use of direct address. This mainly took the form of witness-participants telling their stories directly to the camera, prompted by an interviewer who might be seen or unseen, heard or unheard. Among the most notable of these films were *Le chagrin et la pitié* (The Sorrow and the Pity, 1970) by Marcel Ophüls, about French collaboration with Nazi Germany, and *Shoah* (Holocaust, 1975; see Figure 5), by Claude Lanzmann, about the operation of Nazi death camps. In both cases the directors elicited testimony from numerous individuals who had long had reason to keep their roles secret. The films represented a further stylistic development of the 1970s and 1980s, in the increase of self-reflexivity in the documentary, with the filmmakers' presence becoming much more visible and explicit.

In the 1970s and 1980s the rapid rise of VIDEO, with its increasingly compact and portable equipment, gave *cinéma vérité* unprecedented new opportunities and led to increased use of the form. Videotaped *cinéma vérité* sequences or "minidocumentaries" became a normal ingredient in television newscasts. The genre had become just one among many techniques available to filmmakers.

Bibliography. M. Ali Issari and Doris A. Paul, *What Is Cinéma Vérité?* Metuchen, N.J., 1979; Stephen Mamber, *Cinéma Vérité in America*, Cambridge, Mass., 1974; Louis Marcorelles, *Living Cinema*, New York and London, 1973; Alan Rosenthal, *The Documentary Conscience*, Berkeley, Calif., 1980.

ALAN ROSENTHAL

CINEMATOGRAPHY

The process of recording and creating images on motion picture film. Cinematography plays an essential role in a film's overall meaning and effect. In manipulating the image the cinematographer em-

plloys three broad types of techniques involving three kinds of choices: photographic, framing, and shot duration.

Photographic Techniques

Cinematography shares with PHOTOGRAPHY the photochemical process of recording light rays reflecting from an object. Consequently, cinematography manipulates a number of photographic resources.

Tonalities. Different black-and-white and color motion picture film stocks vary in their degree of sensitivity to light, amount of grain, and so on. By selecting a specific film stock, the cinematographer controls the range of contrast, color rendition, textural detail, and other aspects of the image. The image can be manipulated during laboratory processing as well. Filters, latensification, solarization, and other photographic techniques can also affect tonal qualities and create expressive effects. During the 1920s, for example, HOLLYWOOD cinematographer John F. Seitz pioneered the use of gauze filters and low-contrast developing to create a soft, sensuous image.

Spatial relations. Every motion picture lens has a particular focal length, which affects the depth of field of the resultant image. By using a lens of a specific depth of field and adjusting the focusing component of the lens, the cinematographer can control the degree of focus in the image. An image can utilize shallow focus, in which one plane is sharp and the others fall into a blur, or the image can present a series of planes all in sharp focus. U.S. cinematography of the studio period favored shallow focus for close shots of STARS, but Gregg Toland, cinematographer for ORSON WELLES's *Citizen Kane* (1941), popularized the use of deep focus, even on closer views (Figure 1).

The focal length of the lens also affects the image's perspectival qualities. A short-focal-length lens takes in a wide angle of view and exaggerates distances between planes. Such lenses were pioneered by German and Soviet cinematographers of the late 1920s and became common in Hollywood after Toland's extensive use of them. A long-focal-length lens takes in a narrow angle of view and minimizes distances between planes, producing a flatter image; the telescopic magnification of such lenses can be seen throughout the history of NEWSREEL photography.

Finally, SPECIAL EFFECTS can also affect the image's spatial relations. Some effects are quite simple and can be done in the camera, such as the superimposition (a double exposure) or the glass shot (a painted pane of glass depicting portions of a set, placed between the camera and the filmed object). More complex is projection-process work, whereby the actor is filmed against a screen upon which



Figure 1. (*Cinematography*) Orson Welles, *Citizen Kane*, 1941. The Museum of Modern Art/Film Stills Archive.

another film is projected. In the studio era this procedure was usually featured in shots showing characters in moving vehicles. Most sophisticated of all are the various matte processes. Here several strips of film, each holding a portion of the final image, are jigsawed together in the printing process. Matte work is common in SCIENCE FICTION films. Through special effects the cinematographer can create a wholly artificial image, one that records no single existing spatial whole.

Speed of motion. Unlike the photographer, the cinematographer records continuous movement. This parameter can be manipulated through adjustment of the camera's drive mechanism. Normally, 16-mm and 35-mm sound films are projected at 24 frames per second (fps), so if the cinematographer wants a natural impression of movement, that is the rate at which the film should be exposed in the camera. Exposing fewer than 24 fps will yield fast motion, an effect used by some silent cinematographers when they "under-cranked" for comic or kinetic effect. Exposing more than 24 fps will yield slow motion, an effect pioneered by SPORTS and nature cinematographers of the silent era and used to artistic ends in DZIGA VERTOV's *Chelovek s kinoapparatom* (The Man with the Movie Camera, 1928; cinematographer Mikhail Kaufman), Leni Riefenstahl's *Olympia* (1938), and Kon Ichikawa's *Tokyo Olympiad* (1965).

Lighting. Although not strictly part of camera technique, in studio filmmaking the cinematographer usually has charge of the lighting. U.S. studio practice standardized a three-point lighting pattern in which actors were lit by a key light (the light of greatest intensity, coming from an oblique frontal angle), a

fill light (a less intense light filling in the shadows created by the key), and a backlight (a light coming from behind and above that outlined the player's body). Throughout the studio period this scheme was supplemented by atmospheric "low-key" lighting, which reduced the ratio of fill lighting to create sharper shadows and greater chiaroscuro. Examples can be seen in the work of George Barnes on *Bulldog Drummond* (1929), Stanley Cortez on *The Magnificent Ambersons* (1942; Figure 2), and John Alton on several low-budget crime thrillers of the 1940s. Other outstanding experimenters in lighting include Charles Rosher, for his diffusing gauzes and scrims in *Sparrows* (1926); Toland, for his use of arc lights to increase depth of field in *Citizen Kane*; and Raoul Coutard, who employed ordinary daylight without diffusion to obtain brilliant saturated color in several films for Jean-Luc Godard.

Framing

As in still photography, cinematography demands decisions about how the image will be composed within its frame. Again, several variables can be manipulated.

Frame shape and proportions. Very early in the history of the cinema, the image was standardized as a rectangle of 1:1.33 proportions. The development of wide-screen cinema in the 1950s created new, narrower formats, the most common being CinemaScope, 1:2.55 in its magnetic-sound version. Since the 1970s the generally accepted standard has been 1:1.85, although other formats are still used. Independent of these official standards, cinematog-

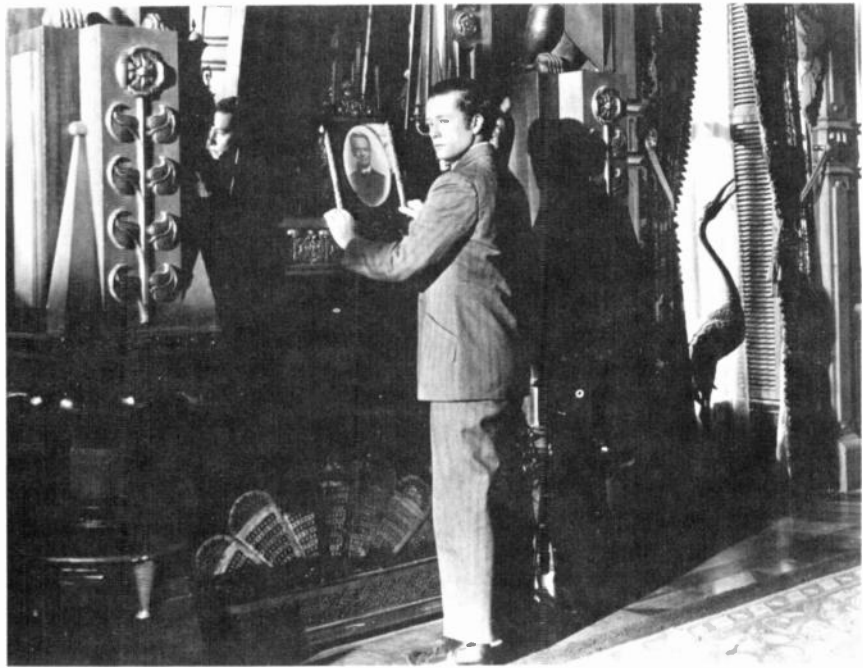


Figure 2. (Cinematography) Orson Welles, *The Magnificent Ambersons*, 1942. The Museum of Modern Art/ Film Stills Archive.

ographers have long experimented with the shape of the image. Silent filmmakers used masks—circles, triangles, keyhole shapes, and others—to alter the frame's shape. For D. W. GRIFFITH's *Intolerance* (1916), G. W. "Billy" Bitzer emphasized a soldier's fall from a parapet by masking the image to create a narrow shaft of space in the center. More ambitiously, Abel Gance's *Napoléon* (1927) introduced Polyvision, a

wide-screen format that joined three images horizontally (Figure 3), anticipating the multiple-frame imagery of later films like *Twilight's Last Gleaming* (1977).

Camera position. The framing of the image necessitates decisions about where the camera will be placed in relation to the filmed object. The camera may be placed on a level axis or a tilted one; if the

Figure 3. (Cinematography) Abel Gance, *Napoléon*, 1927. National Film Archive, London.



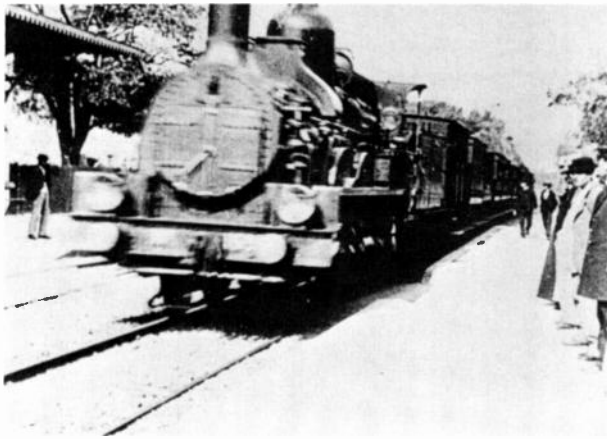


Figure 4. (Cinematography) Louis Lumière, *Arrivée d'un train à La Ciotat* (Arrival of a Train at La Ciotat Station), 1895. National Film Archive, London.

latter, a canted framing will result. The camera may be set at a low, high, or straight-on angle. It may also be placed at any distance from the filmed object, ranging from an extreme long shot to an extreme close-up. From the very beginning of cinema, filmmakers have recognized that camera position is a powerful means of guiding the spectator's attention, clarifying or emphasizing certain aspects of the object, and evoking attitudes to the filmed material. In Louis Lumière's *Arrivée d'un train à La Ciotat* (Arrival of a Train at La Ciotat Station, 1895), the oblique angle and medium-long-shot framing bring out the depth of the tracks and the bustle of passengers (Figure 4) (see LUMIÈRE, LOUIS AND AUGUSTE). By contrast, the early films of Georges Méliès are quite theatrical in placing the camera perpendicular to the playing space, and the long-shot distance simulates the view of an audience member. Some filmmakers have made particular choices about camera position an integral part of their style. Welles habitually used canted low angles, while Howard Hawks relied on straight-on, normal framings. Carl Theodor Dreyer's *La passion de Jeanne d'Arc* (1928) was composed almost completely of detailed close-ups (Figure 5), but Chantal Akerman's *Les rendezvous d'Anna* (1978) was filmed almost entirely in long shot.

Camera movement. The motion picture camera can change its framing during filming, providing a continuously unfolding space and time. A pan consists of swiveling the camera horizontally; a tilt is swiveling it vertically. A tracking shot (also called a trucking, dollying, or traveling shot) consists of moving the camera forward, backward, laterally, or diagonally. A crane shot, usually made from a mobile crane arm, consists of raising or lowering the camera on the vertical axis. In the silent era some camera movements, such as those in Giovanni Pastrone's

Cabiria (1913) and Griffith's *Intolerance*, conveyed the volume of a vast set. German cinematographer Karl Freund executed many virtuosic following shots in F. W. Murnau's *Der letzte Mann* (The Last Laugh, 1925), and his efforts were arguably surpassed by Rosher and Karl Struss in Murnau's *Sunrise* (1927). Complex camera movements, especially crane shots, became important in German and Hollywood musicals of the 1930s (see MUSICAL, FILM), with the crane coming into use in dramatic productions in the United States and Japan at the end of the decade. By the late 1950s, most cinematographers around the world were mounting the camera on a mobile dolly, usually a "crab dolly" that could execute tight turns and move in virtually any direction. The development of portable cameras like the Arriflex in the postwar era made hand-held camera movements feasible, and these found their way not only into DOCUMENTARY work but also into fiction filmmaking (e.g., the opening of *Seven Days in May*, 1964).

Shot Duration

As the record of an unfolding event, cinematography can control the duration of the shot. Many filmmakers, including Soviet and U.S. directors of the 1920s, filmed brief shots that would be assembled in the editing phase. Other directors have insisted on prolonging the shot beyond its normal length, using the resultant "long take" to develop an action or scene. When the shot constitutes a complete scene in itself, it is usually called a *plan séquence* (shot sequence). The long take may allow the actors to build up a continuous performance, or it may be used to generate tension and suspense. Both Welles and ALFRED HITCHCOCK used the long-take technique on occasion; Hitchcock's *Rope* (1948) was shot entirely in long takes. Other filmmakers identified with the tech-

Figure 5. (Cinematography) Carl Theodor Dreyer, *La passion de Jeanne d'Arc* (The Passion of Joan of Arc), 1928. National Film Archive, London.



nique include Dreyer, Kenji Mizoguchi in Japan, and Miklós Jancsó in Hungary. Long-take directors usually make extensive use of camera movement, which may function as an equivalent for editing in directing the viewer's attention to various parts of the action.

See also AVANT-GARDE FILM; FILM EDITING; MOTION PICTURES; PERCEPTION—STILL AND MOVING PICTURES.

Bibliography. Brian Coe, *The History of Movie Photography*, London, 1981; Linwood G. Dunn and George E. Turner, *The ASC Treasury of Visual Effects*, Hollywood, Calif., 1983; Leonard Maltin, ed., *The Art of the Cinematographer*, enl. ed., New York, 1978; H. Mario Raimondo Suoto, *The Technique of the Motion Picture Camera*, 3d ed., New York, 1977; Leslie J. Wheeler, *Principles of Cinematography*, 4th ed., New York, 1969.

DAVID BORDWELL

CITIZEN ACCESS

The word *access* has many communications uses but in general implies a privileged position in relation to a restricted resource. In reference to *citizen access* (or *public access*) it has become a banner word for groups and individuals demanding a meaningful, active role in the broadcast media, not as a privilege but as a democratic right. They focus on these media because of the monopolistic nature inherent in any medium based on licensing authority.

The citizen access movement points to the early history of the PRINTING press, when European rulers sought to control its output and block heretical and other unwelcome ideas by instituting licensing systems. Anyone wishing to communicate with the public through the new medium needed a royal license (and often ecclesiastical approval) or the cooperation of a printer already possessing such a license. These licensees became gatekeepers of the established order.

This form of CENSORSHIP was difficult to enforce and was philosophically protested, as by JOHN MILTON in his *Areopagitica* (1644), printed defiantly without the seal of approval. Over several centuries press licensing was abandoned in most leading nations, while the philosophical objections to it became enshrined in such documents as the First Amendment to the U.S. Constitution, with its guarantee of freedom of the press. To its authors this meant freedom from licensing. They were determined that in the new nation no one would need government permission to communicate ideas to a wide public.

It is ironic that the RADIO broadcasting boom of the 1920s, raising the same issues, led to different results. The new medium needed licensing arrangements to prevent SPECTRUM chaos. Governments everywhere took charge and assigned channels. But

the implications were the same: licensees became a new kind of gatekeeper. To protect their status they were inclined to be cautious.

The necessity of the arrangement was soon taken for granted, but as radio and television (see TELEVISION HISTORY) became for many people the main sources of ideas about the world and its problems—and about proposed solutions—the gatekeeper control fueled increasing dissatisfaction and stimulated citizen access movements. A number of governments and licensing commissions sought ways to accommodate the pressures and protests.

Access devices. Various access mechanisms have been proposed and tried. An especially unusual plan was developed in the Netherlands and has governed its radio and television policies. The government decided to operate the transmission facilities itself but divided the programming role among major citizen groups representing diverse interests such as politics, religion, and organized labor. New groups can win a share of the time by achieving a required scale of membership. Each group has produced programs designed to reach the widest possible audience while keeping them in harmony with its own ideals and beliefs, which are only occasionally articulated. The system provides access on a group basis; the individual, to gain access, must look to his or her group.

A number of countries—Great Britain and the Federal Republic of Germany, among others—have provided arrangements for individual access by setting aside time periods under such titles as “Open Door” and “Free Time” to accommodate statements from individuals on a large range of topics. Some commercial stations in the United States have likewise established arrangements for “speak out” or “free speech” messages, sometimes between programs. The selection of such messages has generally been determined by a panel chosen for this purpose.

Another approach, which has gained momentum in a number of countries in the decades since World War II, has been the authorization of noncommercial stations with very limited power and range, so that many can be accommodated. The most extreme example has been the Japanese “mini FM stations,” which do not even require a license if radiation is confined to a half-mile radius. They tend to become neighborhood projects and are felt to develop a community ethos. The United States has developed analogous “community stations,” mostly volunteer operated. An important transition is felt to be made when citizens become shapers (not merely consumers) of messages. A critical media awareness is generated. The stations tend toward programming that challenges commercial norms in content and form.

A limitation in all such devices is that while giving scope to dissent they also segregate it. They have been compared to Britain's traditional Hyde Park

corner, where dissenters were permitted to let off steam with little peril to established institutions. At the same time, such access devices have provided media experience and created a determination to widen it. Far from diffusing the access movement, they have intensified it.

Right to reply. An important phase of access movements has revolved around the right to reply to one-sided uses of media by licensed broadcasters. A number of countries have enacted laws establishing such a right, especially when defamation is involved, but sometimes permitting wider application, as illustrated by the Fairness Doctrine in the United States. Initiated as a policy statement by the Federal Communications Commission (FCC), it was enacted as law in 1959. It required licensees to deal with "issues of public importance" and to air "conflicting views." Commercial broadcasters protested that this formula would actually inhibit vigorous journalism or pad it with "fairness filler." The doctrine may have done so, but it was also credited with unusual achievements. In 1967 Washington lawyer John Banzhaf III argued before the FCC that broadcasters accepting cigarette advertising, which persistently linked cigarettes with romance and vigor, should be obliged to give comparable time—free, as a matter of the public interest—to data about the relation of cigarettes to lung cancer and other diseases. In the context of the fairness law the FCC upheld this view, and a wave of messages from health agencies began to assault the cigarette so effectively that Congress decided to ban cigarette advertising from the air after 1970.

Another Fairness Doctrine achievement involved a major television station in the South, the NBC outlet WLBT-TV in Jackson, Mississippi. The population of its area was 45 percent black. But a fairness complaint pointed out, on the basis of a months-long monitoring study under the Reverend Everett C. Parker of the New York headquarters of the United Church of Christ, that the station totally ignored the black segment of its audience. It carried no news of events, local or national, about blacks. Network bulletins on the Martin Luther King campaigns for racial justice were interrupted with the notice "Sorry, Cable Trouble." No blacks, on or off the air, were involved in station programming. A number of white ministers, but no black ministers, received airtime. The station was accused of presenting "a distorted picture of vital issues," a disservice to whites and blacks alike. The FCC, reprimanding the station, still decided to renew its license, but the United Church pursued the matter through litigation, and the station license was voided through court action—a rare occurrence that brought sweeping changes in hiring and program policies at many stations.

Broadcasters continued to denounce the law as an unwarranted government intrusion and a violation of freedom of the press. The FCC itself, taken aback

by what it had set in motion, pressed for repeal of the law. In the 1980s, a time of deregulation, the law was seldom implemented.

Cable access. Meanwhile access groups focused on an arena of rising importance: CABLE TELEVISION. Early cable systems had carried only about a dozen channels. In the 1970s cable operators in the United States, seeking licenses in major cities, were proposing systems of a hundred channels or more, made feasible by evolving technologies. Access proponents argued that in any such system at least one channel should be devoted to public access—on a first-come, first-served basis. A number of cities adopted the idea as a license requirement, and public access channels became a feature of more than a thousand cable systems. In many the system was required to maintain a studio for the purpose.

Results were mixed. In some cases there were hours of talking heads. Yet by the middle of the 1970s vigorous groups in every state were making their own television and gaining momentum. In 1976 they formed the National Federation of Local Cable Programmers, which served as a valuable coordinating organization, furthering the access philosophy and establishing liaisons with access groups elsewhere, especially in Europe and Latin America. Program exchanges were arranged. The impact achieved by some of the groups enabled them to raise funds, engage paid staff, organize rigorous training sessions, acquire more sophisticated equipment, and keep it in good order. Because of the importance of the equipment factor, some groups tended to become dominated by technologically skilled individuals inclined to favor technical quality over content. A quest for large audiences also became noticeable in some groups. It became the role of the federation to counter such tendencies and, in national conferences and local workshops, to reemphasize the original purpose of the access movement: an alternative to dominant communication trends and systems. In fulfilling this mission, another new medium became an invaluable adjunct.

Access by video. The VIDEO medium, like cable, started as something different from what it would become. Beginning as a technology used by networks to make copies of live telecasts for rerun or archive storage (*see* ARCHIVES), it gradually blossomed into an independent means of communication. Its use for public service purposes was especially pioneered by the National Film Board of Canada (NFB). In 1967 the NFB formed a unit called Challenge for Change, instructed to "create a dialogue between the ordinary citizens of Canada and those public servants shaping social programs that influenced so many of their lives." Film, the medium first chosen for these "mediated dialogues," proved too expensive, slow, and cumbersome. Also, film meant that community members had to rely on professional operators to record

and edit their messages. By switching to video portapak, which arrived from Japan in the late 1960s, the Challenge for Change staff found that people could quickly become their own mediators. Submerged and isolated population groups began to communicate meaningfully with government and in the process acquired a new sense of their own identity. Cable systems, at this time proliferating in Canada, began to welcome some of their productions. As video technology improved and achieved broadcast quality, the programs also found niches on Canadian stations and networks.

In the United States independent filmmakers likewise turned to video. For a time they were content to show their works in closed sessions in their own lofts, campus and community centers, and small theaters. But they too began to find outlets in cable television and occasionally on-the-air television. They saw themselves as a new AVANT-GARDE movement. They were determined to "demystify the media." A self-styled guerrilla television movement developed, with its own publication, *Radical Software*.

But video meant more than access to cable systems, stations, and networks. It could also bypass these licensed media. With video players winning a place in millions of homes, schools, union halls, churches, and other centers, it meant that videocassettes and series could reach far-flung audiences without benefit of gatekeepers. Distribution systems would be needed, by subscription or otherwise, but official licenses were no longer an obstacle. The genie was out of the bottle. The linking of religious, labor, and other groups via video gained momentum in various parts of the world, as in the Islamic countries (see ISLAMIC WORLD, TWENTIETH CENTURY) and Latin America. In Brazil video groups of various kinds became linked in an organization called Video Popular.

That media under a licensing system inevitably reflect the values of dominant groups has long been taken for granted but never quite accepted. Access movements are fueled by the politics of dissent. In many areas of political turbulence, including the Middle East, Central America, and parts of Africa and South Asia, they produce the phenomenon of clandestine stations, beyond official control. Even in more settled regions unlicensed, illegal stations spring up from time to time and are sometimes ignored by authorities unless they are felt to go too far. In the 1980s Spain had a rash of such low-power ventures, largely tolerated, occasionally raided. Elsewhere dissident groups probe for openings in standard broadcasting but may also make use of such specialties as amateur radio and CITIZENS BAND RADIO to promote their ideas. The extraordinary worldwide dominance of the broadcast media seems a guarantee that concerns over access will continue to produce criticism and experimentation.

See also AGENDA-SETTING; ETHICS, MEDIA; GOV-

ERNMENT REGULATION; MINORITIES IN THE MEDIA; MINORITY MEDIA.

Bibliography. Kirsten Beck, *Cultivating the Wasteland*, New York, 1983; Mary Louise Hollowell, ed., *The Cable! Broadband Communications Book*, Vols. 1-4, Washington, D.C., 1977-1985; Lorenzo W. Milam, *Sex and Broadcasting: A Handbook on Starting a Radio Station for the Community*, 3d ed., Los Gatos, Calif., 1975; Jennifer Stearns, *A Short Course in Cable*, New York, 1981.

GEORGE C. STONEY

CITIZENS BAND RADIO (CB RADIO)

A two-way RADIO service used by private citizens in the United States for personal or business-related voice communication. Transmissions take place in the VHF band at 27 megahertz (MHz). The Citizens Radio Service was authorized by the Federal Communications Commission (FCC) in 1949 as a democratic experiment in short-range point-to-point radio. Although the public has always owned the airwaves in the United States, transmission privileges have been limited mostly to a small number of licensed broadcasters charged to transmit in the public interest as defined by the FCC and the courts as well as to some other groups concerned with protecting property and public safety. Over three decades Citizens Radio grew from a tiny service used mostly by small-business owners, truckers, farmers, and a few other individuals into the largest radio service administered by the FCC. As CB lore and practice became an arena of mass CULTURE in which millions of Americans participated, the FCC was forced to abandon its efforts to restrict Citizens Radio to a narrow range of uses and to implement a populist rather than paternalistic ethos of personal radio use. See TELECOMMUNICATIONS POLICY.

Radar research during World War II dramatically expanded the portion of the electromagnetic SPECTRUM available for radio transmission, inspiring the FCC to imagine many new peacetime radio services. Among them was a cheap, widely available service requiring minimal technical proficiency and intended to assist citizens in their pursuit of work and LEISURE activities. Authorized originally in the 460-470 MHz band (UHF), the Citizens Radio Service had two classes. Class A was used by industrial and public service operators able to afford the expensive equipment required for reliable operation at this frequency. Class B users were small businesses and individual operators. A third class, C, was assigned to 27.255 MHz for remote-control operation of garage-door openers and model boats and airplanes. In Class B the FCC expected small entrepreneurial establishments like bakeries and dry cleaners to communicate with local delivery truck fleets, and individ-

uals to conduct radio communication to facilitate work and recreation. The FCC considered idle chit-chat an improper use of the service from the beginning. Nevertheless, some operators used it for this purpose, and over the years this became its most popular use.

Although Class A prospered in the 1950s, citizen adoption in Class B was minimal. Few manufacturers found a profitable market for Class B gear since affordable equipment was technically unreliable. The FCC began to phase out Class B in 1958 and reallocated most of the 460–470 MHz band to the industrial radio services. Twenty-three channels between 26.96 MHz and 27.23 MHz, a bandwidth roughly the size of a single television station, were reallocated from the Amateur Radio Service (ham radio) to a new Class D for individual personal use. Users were limited to a maximum output of four watts of power (giving them an operating range of fifteen to thirty miles) and a time limit of five minutes on each transmission followed by two minutes of silence.

Almost as soon as reliable, easily operated, inexpensive gear came on the market the FCC found itself in conflict with a large group of Class D users who ignored rules for both message content and calling procedures. According to long-standing FCC policy, hobby use was restricted to the Amateur Radio Service, where technically sophisticated and disciplined operators were licensed by examination. Class D users were often neither disciplined nor obedient to FCC rules. There is some evidence that despite its democratic rhetoric the FCC assumed Class D would attract mainly affluent users, such as physicians, for whom radio would be convenient in their work or in elite leisure pursuits such as flying, yachting, and mountain climbing. Many Class D hobbyists, in fact, were rural or blue-collar operators with little interest in an official radio etiquette that enforced upper-middle-class standards of propriety.

Radio etiquette was not the only source of conflict between the FCC and Class D users. Possession of a license was not a precondition for the purchase of radio equipment, and licenses were often delayed in the administrative backlog created by the band's growing popularity. Increasing numbers of users operated without licenses and without any knowledge of FCC rules and policies. The use of rural dialect forms, ham radio lingo, identifying nicknames called "handles" in lieu of call letters, and the police-10 CODE also created groups that operated by their own conventions, many of which violated FCC rules. Some groups engaged in informal self-policing to minimize disruption. By 1961 the Citizens band was the fastest growing of all radio services.

For a time the FCC attempted to control wayward users. It issued stricter regulations and adopted a

license application fee (*see* GOVERNMENT REGULATION). It imposed disciplinary actions for violations such as using obscene language and broadcasting above prescribed power limits. It dismissed repeated petitions for more permissive rules that it said were not in the public interest. The emergence of a few dominant manufacturers by the late 1960s created an atmosphere of greater accommodation on both sides. To protect its \$300 million market (estimated at \$2 billion at the peak of CB popularity in the late 1970s), the industry attempted to promote more responsible user operation. In turn, the FCC began to relax its more restrictive rules.

This development was interrupted by the Middle East oil embargo in 1973, which struck a decisive blow to FCC control of Citizens Radio. During the embargo CB radios were used by truckers to communicate about availability of scarce gasoline supplies and to coordinate widely publicized traffic blockades that protested the lower speed limits imposed during the oil crisis. Thousands of motorists began to buy and use CB radios to avoid speeding tickets. In the first year after the oil embargo nearly a million Class D licensees and several million more unlicensed operators were estimated to be active on the Citizens band. The FCC was overwhelmed by new license applications. It had scant enforcement staff to attend to widespread rule violations by licensees and no power to move against unlicensed operators. These last came within the jurisdiction of the Federal Bureau of Investigation, for whom CB abuse was a relatively unimportant priority. Serious channel congestion, reduced operating range, and television interference resulted.

Ironically, the mass invasion of CB airwaves caused by the oil crisis crowded off the air many small CB communities that had previously angered the FCC by engaging in idle chit-chat. These were small groups of mutually acquainted operators who communicated mostly among themselves. New operators put the band to imaginative and often illicit uses. Anti-busing demonstrators in Boston organized activities by CB radio. Coffee thieves in San Francisco used it to advertise their wares at discount prices. Evangelists used CB radio to coordinate Bible distribution, and prostitution rings used it to solicit clients. Private volunteer groups also monitored CB transmissions to assist in relaying aid to motorists in distress.

In 1975 the FCC dropped its rule against casual communication. Major revisions were enacted in 1976 when the Citizens Radio Service became the Personal Radio Service. Class A was renamed General Mobile Radio Service, and Class D became Citizens Band (CB). In 1979 the Safety and Special Services Bureau, which administered the original Citizens Radio Service, was reorganized as the Private Radio Bureau. Seventeen new frequencies were assigned to the con-

gested CB service, raising the total number of channels to forty.

From a base of 4 million authorized transmitters before 1973, a peak of 45 million authorized transmitters was operating by 1979. Until 1978 the FCC kept records of both authorized stations and transmitters. Licenses were issued to stations, which might operate multiple transmitters. From 1973 to 1977 the ratio of stations to transmitters was between one to three and one to four. After 1978 the FCC no longer kept figures for transmitters. Following a peak of almost 15 million stations in 1979, however, the number of authorized stations dropped sharply, leveling off to about 10 million by 1981. The extent of unlicensed operation has never been determined, but estimates during the period of peak CB popularity consistently added tens of millions of illegal transmitters to authorized-use figures. In 1983 the FCC delicensed CB radio altogether. Arguing that the paperwork burden required to administer licensing outweighed any public benefit to be derived from it, the FCC authorized individual Citizens band operation without individual licenses and shifted enforcement efforts to STANDARDS for technical equipment.

Although most widespread in the United States, CB radio also exists in the Federal Republic of Germany, Sweden, France, Italy, Holland, Canada, and Mexico. Except for certain restricted business practices, CB radio is generally illegal in these countries; it is entirely illegal in Mexico.

See also CITIZEN ACCESS; INTERACTIVE MEDIA; TELECOMMUNICATIONS NETWORKS.

Bibliography. Erwin G. Krasnow, Lawrence D. Longley, and Herbert A. Terry, *The Politics of Broadcast Regulation*, 3d ed., New York, 1982; Carolyn Marvin and Quentin J. Schultze, "The First Thirty Years: CB in Perspective," *Journal of Communication* 27 (1977): 104–117.

CAROLYN MARVIN

CLASSICISM

The terms *classic* and *classicism* are applied to works in virtually any medium of expression, ancient or modern. They can come into play in discussing or analyzing public buildings, fashion designs, films, ORATORY, music, furniture, or works of literature. Behind the terms is the view that artistic excellence can best be approximated by the imitation of approved models from a particular period. These are to be studied in terms of their forms, moods, attitudes, and the kinds of ideas or feelings they communicate. The architects who built the first Greek temples must have had a working theory (although no written record survives) governing the proportions of length, breadth, and height, and the most

satisfactory combination of the building's parts (*see* ARCHITECTURE). Architects who have imitated such buildings have kept within a limited set of mathematical relationships and have used the same structural ingredients, individual expression being confined to certain details of ornament.

Origins

The first clear formulation of classicism is found in Greek stylistic RHETORIC, the main treatises being *On Style*, attributed to one Demetrius (second century B.C.E.); *On the Ancient Orators* and *On Literary Composition*, by Dionysius of Halicarnassus (early first century B.C.E.); *On Sublimity*, by one Longinus (first century C.E.); and *On Types of Style*, by Hermogenes (second century C.E.). The procedure in all these treatises is the same; certain qualities of style are defined, such as the grand, the elegant, the plain, and the forceful (with their opposites, the frigid, the affected, the arid, the unpleasant). The writer then breaks up style into its linguistic components—vocabulary, arrangement of words, syntax, rhetorical figures—and shows how each of these is treated in each of the main styles. The treatises are illustrated



Figure 1. (*Classicism*) Donato Bramante, the Tempietto, 1508. San Pietro in Montorio, Rome. Alinari/Art Resource, New York.



Figure 2. (*Classicism*) Annibale Carracci, *Polyphemos*, 1596–1600. Detail of ceiling frescoes in the Farnese Gallery, Farnese Palace, Rome. Ali-nari/Art Resource, New York.

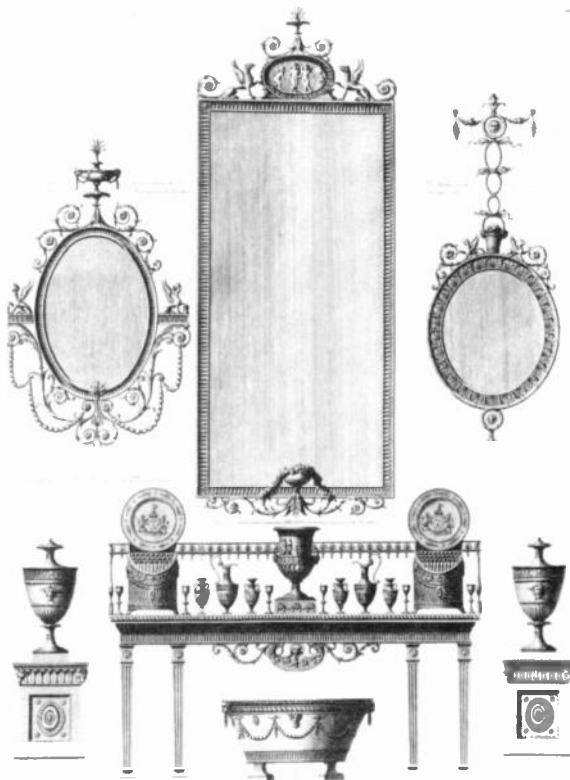


Figure 3. (*Classicism*) Robert Adam, furniture designs for the villa of Kenwood, mid-eighteenth century. Giraudon/Art Resource, New York.

with quotations from a wide range of literature, from Homer to the Greek version of the New Testament, and the budding writer is encouraged to imitate the best authors. In Dionysius the concentration on approved models results in the formulation of the canon of the “ten Attic orators,” who are analyzed in terms of the traditional rhetorical concept of the hierarchy of styles (high, middle, and low) and whose work as a whole constitutes a corpus of classical expression and defines the range of correct writing. See *STYLE, LITERARY*.

The Greek stylistic rhetoric books all date from the Hellenistic period (*see HELLENIC WORLD*). Rhetoric was then establishing itself in Rome, and an educational system based on it was evolving that was to spread throughout the *ROMAN EMPIRE* and, after the *RENAISSANCE*, throughout the West. Two crucial formative elements in this system were the analysis of the components of style, especially in the *CLASSIFICATION* of expressive devices known as the rhetorical tropes and figures (*see METAPHOR*), and the *TEACHING* of composition by the graded imitation of models. In the *progymnasmata* (preliminary exercises taught in the grammar schools) pupils started with simple forms such as the fable, the maxim, and mythological *NARRATIVE* and learned how to collect material, organize it according to the rules of each *GENRE*, and illustrate it with appropriate devices. This technique of *imitatio* took in more complex forms, such as encomium, denunciation, speeches in character or impersonation, and even works in the style of a given author.

When Renaissance educationalists revived the

Greco-Roman teaching methods, these composition exercises became a fundamental part of school curricula, and an "Allusion to Horace" or an "Imitation of Juvenal" was a recognized form of POETRY up to the time of the British writers Alexander Pope and SAMUEL JOHNSON in the early eighteenth century, and indeed later. The school exercises of the German dramatist Georg Büchner at the gymnasium in Darmstadt in the 1820s included speeches imagined to be spoken by Menenius Agrippa to the Roman people and by Cato in his own defense. The French novelist Gustave Flaubert, in the *lycée* in Rouen a few years later, wrote six "narrations" (stories set in some past period) that count among his earliest compositions. The imitation of classical models was a basic educational method up to the end of the nineteenth century, and its influence was often beneficial. As the French scholar Gérard Genette has noted, the writer setting out on a career could regard the early years of that career not as a rupture with years spent at school but as their fulfillment.

Expression in the Arts

The value of imitation has often been disputed, especially since ROMANTICISM gave rise to an alternative procedure, but it can be said in its defense that fostering artistic inspiration around extant models does not necessarily inhibit individual expression. The history of painting since the Renaissance shows that drawing from life or obeying the conventions of fixed-point perspective has not erased differences among artists. The rediscovery of antiquity in the Renaissance generated a massive phase of imitating classical models that produced distinctly individual ART works. The plays of Seneca were imitated throughout Europe, but the results range from the truly academic Latin DRAMA of the Jesuits to the static closet drama of the French and the bloodthirsty revenge tragedies of the English popular THEATER. In music the Florentine Camerata, at the end of the sixteenth century, were inspired by an attempt to imitate Greek music (see MUSIC HISTORY). Renaissance humanism, essentially a language-based movement, had already emphasized the importance of the meaning of the words being set to music, and the Camerata applied this principle polemically, attacking medieval polyphony on the ground that several voice parts singing at once and at different rates could only obscure the sense. Guided by what they thought Greek texts to mean, the Camerata introduced monody, the principle of one voice singing or declaiming over an accompaniment, the resulting new relation between words and music leading to the invention of OPERA.

The examples of Senecan drama and Florentine monody show that classicism can produce quite un-

expected artistic consequences, great variations within a form, and even the invention of new forms. They also illuminate two further aspects of this movement: first, that the "classic" is a relative concept with widely different meanings in different geographical or historical contexts; and second, that resort to classicism is an artistic choice that can imply a rejection of other choices. Renaissance humanists consciously rejected the AESTHETICS of the MIDDLE AGES (if not always to the extent they claimed), returning to classical models to find styles and genres that would better fulfill the requirements of unity, coherence, and expressiveness. The discovery of fixed-point perspective in early quattrocento Florence is one sign of a new demand that works of art should cohere, and it is no accident that the first theorist of this movement, Leon Battista Alberti, was deeply influenced by classical rhetoric and that his two treatises, *De Pictura* (1436) and *De re Aedificatoria* (1450–1472), passed on to the language and the thought of artists many of the formative principles of rhetoric.

Throughout these three centuries the ideas formulated by such classic writers as Longinus and Hermogenes, CICERO and Quintilian, Horace and Pliny, continued to form the way painters, sculptors, and architects thought about their art. The rhetorical theories were supplemented by specific ancient texts that provided practical models. The rediscovery of the Roman architect Vitruvius's *De architectura*, written in the first century B.C.E., and its diligent study by Renaissance architects and theater designers led to a second wave of classicism as the work of the Italian architect Andrea Palladio, for instance, influenced English architects from Inigo Jones in the seventeenth century to William Wilkins in the Greek Revival of the early nineteenth century.

Just as the notion of the classic shifts, so do the chosen models within the pantheon. If Roman architecture was the inspiring phase for the Renaissance, baroque classicism looked more toward Hellenism, with the treatises of Hermogenes and Longinus influencing poetry, painting, and music. In the movement known as neoclassicism, which dates from the mid-eighteenth century, a new impetus came from the excavations just begun at Pompeii and Herculaneum; ornamental motifs from the wall paintings discovered at these sites soon found their way into interior decorators' pattern books (see MURAL). The Italian artist Giambattista Piranesi's engravings of ancient Rome, both real and imaginary, were another element, as were the aesthetic treatises of the German painter Anton Raphael Mengs and the German art historian Johann Winckelmann, both steeped in Roman antiquities. Classicism now had more explicitly formulated ideals of simplicity, grace, and harmony, as can be seen in the paintings of



Figure 4. (*Classicism*) Giambattista Piranesi, *The Arch of Constantine and the Colosseum*, 1770s. From the *Views of Rome*. Alinari/Art Resource, New York.



Figure 5. (*Classicism*) Thomas Jefferson, Monticello, Charlottesville, Virginia, 1770–1806. The Bettmann Archive, Inc.



Figure 6. (*Classicism*) Antonio Canova, *The Three Graces*, ca. 1790. Alinari/Art Resource, New York.

Jacques-Louis David and the SCULPTURE of Antonio Canova. Yet during this period the attempt to evaluate the literature of the past according to neoclassical literary theory (see LITERARY CRITICISM), as evolved in France by Nicolas Boileau-Despréaux and André Dacier and in England by John Dryden and John Dennis, produced a critical dilemma. William Shakespeare was venerated as the greatest of dramatists, but once the theoretical expectations of neoclassicism (such as the separation of TRAGEDY and COMEDY, the maintaining of decorum, the avoidance of puns) were applied to Shakespeare, his work could only be found wanting. In romanticism, with its rebellion against rules and systems, Shakespeare came to be seen as a writer “without art,” a distortion of the true estimate of his work albeit in the opposite direction.

Legacies

If classicism emerged in the Renaissance as a reaction against medievalism, it has been reacted against in its turn by romanticism, REALISM, and modernism (see AVANT-GARDE). Concepts that had been of value in helping the writer to establish a style and to unify material now came to be seen as restrictive, a system



Figure 7. (*Classicism*) Pablo Picasso, *The Three Bathers*, 1922. Art Resource, New York.

from which the artist had to be liberated in order to be authentic or to express his or her own experiences directly. Yet when romanticism came to be seen as having overextended itself, as having exhausted the expressive possibilities of personal subjectivity, some artists in the 1920s returned to classical motifs, forms, and styles. The graphic work of Pablo Picasso and the music of Igor Stravinsky and Paul Hindemith are examples of this third wave of classicism. In the early literary theory of T. S. Eliot more personal motives, such as the wish to preserve a sense of his own privacy, led to an aesthetic of impersonality, of the absorbing of individual talent into the tradition. In this phase classicism shows more strongly than ever its inherent conservatism, its rejection of the contemporary for some previous and better existence. Classicism is not necessarily, but can become, reactionary.

Yet as an ideal expressed above all in architecture, classicism will always be with us. The public buildings of many great Western cities are modeled on the Greek temple, yet they were built at any time between 1800 and 1940. And “classic” is a concept that can be used to subsume other period labels, in the sense that classical music, as a category distinguished from jazz or popular music, includes works by both romantic and modern composers, just as the epithet

"classic" can be applied to filmmakers or fashion designers who are nothing if not contemporary.

See also POETICS.

Bibliography. K. Borinski, *Die Antike in Poetik und Kunsttheorie vom Ausgang des klassischen Altertums bis auf Goethe und Wilhelm von Humboldt*, Leipzig, 1914–1924; T. S. Eliot, "Tradition and the Individual Talent," in *Selected Essays, 1917–1932*, 3d enl. ed., London, 1972; idem, *What Is a Classic?* London, 1945; Michael Greenhalgh, *The Classical Tradition in Art*, London, 1978; Hugh Honour, *Neoclassicism*, Harmondsworth, Eng., 1968; Erwin Panofsky, *Renaissance and Renascences in Western Art*, Stockholm, 2d ed., 1965, reprint London, 1970; Dominique Secrétan, *Classicism*, London, 1973; C. C. Vermeule, *European Art and the Classical Past*, Cambridge, Mass., 1964; Brian Vickers, *In Defence of Rhetoric*, Oxford, 1987; Roberto Weiss, *The Renaissance Discovery of Classical Antiquity*, Oxford, 1969; René Wellek, "The Term and Concept of Classicism in Literary History," in *Aspects of the 18th Century*, ed. by Earl R. Wasserman, Baltimore, Md., and London, 1965.

BRIAN VICKERS

CLASSIFICATION

Classification is intrinsic to the use of LANGUAGE, hence to most if not all communication. Whenever we use nominative phrases we are classifying the designated subject as being importantly similar to other entities bearing the same designation; that is, we classify them together. Similarly the use of predicative phrases classifies actions or properties as being of a particular kind. We call this *conceptual* classification, since it refers to the classification involved in conceptualizing our experiences and surroundings. A second, narrower sense of classification is the *systematic* classification involved in the design and utilization of taxonomic schemes such as the biological classification of animals and plants by genus and species. Both senses of classification are important to the conceptualization and communication of knowledge, in ordinary social and cultural intercourse as well as in science. Closely related are the notion of conceptual frameworks and ideas about their role in cultural and linguistic relativity. Theories about conceptual and systematic classification have conditioned our understanding of the communication of fact and interpretation within science, as well as their dissemination to the public.

Theories about Classification

Beginning with the seminal works of PLATO (ca. 428–348/347 B.C.E.) and ARISTOTLE (384–322 B.C.E.), philosophers have developed theories about the nature of classification.

Conceptual classification. To say that two or more things are of the same kind—that they are chairs, for example—is to say that they share some common essence or *universal*. Theories about the nature of conceptual classification have centered traditionally on analyses of such universals. *Realism* maintains that such universals exist in their own right no matter how people conceptualize their experiences: if the essence of being a chicken is being a feathered biped, then two chickens belong in the same classification by virtue of possessing the properties of being feathered and bipedal regardless of whether anyone has so conceived chickens. By contrast, *conceptualism* maintains that such universals or essences are mind-dependent, and thus two things are correctly classified as chickens only if they conform to a general mental concept—for example, they both conform to the concept of a feathered biped. Such general concepts, according to this view, are inherent in our sensory experience of chickens. *Nominalism* denies that there is *any* common essence or universal the possession of which is the basis for classifying things as being of the same sort: all that is shared by chickens is that we use the same word, *chicken*, with reference to each of them. *Resemblance theories* also deny that there is any common essence, mental or physical, by virtue of which things are classified as the same kind; rather, things are classified together by virtue of a family or other shared resemblance. Thus some chickens may be plucked and others legless, and so they are not classified together by virtue of the shared feathered biped essence; resemblance theories argue that, plucked or not, legged or not, they resemble each other and so are classified together.

There is considerable unresolved controversy about which is the correct theory of universals. That controversy is reflected in conflicting views of what are the correct definitional forms to use in establishing systematic classifications in science.

Systematic classification. Biological classification is the paradigm. Individual classes known as taxa are organized into a scheme—typically a hierarchical classification scheme with such levels as species, genus, family, order, class, phylum, and kingdom; each individual organism belongs to exactly one taxon on each level of the hierarchy. Not all systematic classifications or *taxonomies* are hierarchical. For example, Mendeleev's periodic table of the chemical elements has eight groups, but these are just the taxa, and each element occurs in exactly one of them. Taxonomies typically provide fairly specific membership criteria or definitions for taxon membership.

Aristotle, who wrote the first treatise on systematic classification, *De partibus animalum*, and introduced the notions of genus and species, required that the definitions of species taxa specify the essences of the

species. After the RENAISSANCE this was expanded to the idea that definitions should give necessary and sufficient conditions for taxon membership. Depending on the conditions chosen, the taxonomies were viewed as natural or artificial—the latter typically not involving specifying essences. Different theories of universals favor different interpretations of what these essences consist in, hence of natural and artificial taxonomies. For example, Aristotle had a realist view of essences, whereas the Comte de Buffon (1707–1788), a French naturalist, held a nominalist position and denied any natural taxonomies. Michel Adanson (1727–1806) held a resemblance theory and distinguished natural from artificial taxonomies on the basis of the sorts of affinities shared by members of the same taxon.

The joining of evolutionary biology and genetics in the twentieth century raised serious challenges to the idea that taxa always can be defined in terms of necessary and sufficient conditions. As evolution works on a species, the diagnostic phenotypic characteristics used to characterize the species may undergo changes so radical that what once were definitive markers of the species fail to be possessed by members of later generations. Thus there may be no necessary features for species membership, just an open-ended variety of clusters of sufficient conditions. Other philosophers, such as LUDWIG WITTGENSTEIN (1889–1951), argued that there are many classes (e.g., games) whose members do not share one common or essential characteristic. Peter Achinstein (1935–) argued that concepts defining many natural taxa lack jointly sufficient conditions and suggested that at best such cluster concepts can be defined by listing a set of relevant concepts of which a good number must be possessed to qualify for taxon membership. Out of these observations emerges the idea that the choice of appropriate definitional form for taxon membership is not a matter of logic or a priori considerations but, rather, of the sorts of empirical regularities that obtain between diagnostic characteristics and species- or other taxon-making characteristics. Numerical taxonomists maintain that these relationships are no more than statistical correlations.

These diverse views about suitable definitional forms for taxa have been put to interesting empirical tests. Attempts by numerical taxonomists to use statistical “cluster analysis” to generate biological taxonomies have had rather uneven results. Although trial attempts to classify artificial organisms have been quite successful, when the techniques are used with real specimens, the taxonomies generated often cannot be replicated easily; similarly, attempts to use cluster analysis in medical diagnosis and disease classification have proved fairly unsatisfactory. On the other hand, in certain social science studies, such as the Kinsey Institute study of types of homosexuals, tax-

onomies generated by cluster analysis have proved highly replicable. ARTIFICIAL INTELLIGENCE attempts to develop computer programs for medical diagnosis and other forms of classification have experimented with a number of definitional forms. Attempts based on definitions of taxa in terms of essences have not proved very successful. The most promising approaches generate taxa on the basis of causal and other discovered empirical relationships. Collectively, these results strongly suggest that developing criteria for taxon membership is more a matter of developing scientific theories than of forming definitions.

Conceptual Frameworks, Classification, and Relativity

A language carries with it conceptual classification schemes often called *conceptual frameworks*. Different languages have different conceptual frameworks, and so it is easier to express certain ideas or view things in a particular way in one language than in another (see LANGUAGE IDEOLOGY; LANGUAGE VARIETIES). For example, one of the fascinations with pre-Socratic Greek philosophers comes from reading their struggle to express ideas for which the language provided no ready means of straightforward expression. Heraclitus (ca. 535–ca. 475 B.C.E.), for example, resorted to puns to get at ideas for which there was no abstract vocabulary. German is far better suited for expressing G. W. F. Hegel's ideas than is English. Some ideas may be virtually impossible to express in the conceptual framework of one language, whereas those of other languages may be quite congenial. For example, modern quark theory or quantum theory in physics is quite expressible in contemporary scientific English but would be impossible to render in the conceptual framework of classical Greek.

Thus there is a considerable degree of conceptual and classificatory relativity among languages. Some scholars have gone much further in the degree of cultural relativity they claim for different languages. U.S. linguist BENJAMIN LEE WHORF (1897–1941) claimed that a language's conceptual framework determined one's ontology—that users of different languages could live in different worlds. While users of standard European languages live in a world populated with things that undergo *activities*, the conceptual frameworks of languages such as Eskimo and Hopi create a world in which *processes* are the basic ontological furniture. Whereas Europeans and users of related language families live in a world with walrus activities, the Eskimo, for example, live in a world populated with various characteristic walrus activities or walrusings, such as walrus-sunnings, walrus-fishings, and walrus-eatings.

Whorf further claimed that it would be virtually impossible for "process languages" to develop science as we know it. The evidence for such extreme forms of cultural relativity is not compelling, but the more modest forms of linguistic relativity do obtain and have important implications for communication and the sorts of intellectual achievements a particular culture can easily accomplish. *See also* LINGUISTICS.

Classification in Scientific Method

One of the most characteristic features of science is that it concentrates its attention on only a few selected variables, ignoring most aspects of the studied phenomena. Thus Newton's laws ignore all aspects of bodily motions other than forces, positions, and momenta of the involved objects, treating them as frictionless point-masses acting in a vacuum. Similarly, in the nontheoretical, more descriptive parts of experimental science, a few variables are selected for study, and all other aspects of the phenomena are rendered irrelevant by means of experimental or statistical controls.

The choice of a set of variables for scientific study of a phenomenon tacitly involves the imposition of a classification scheme. The class of phenomena chosen for study constitutes a taxon in some implicit classificatory scheme—as, for example, Newton's decision to study the motions of systems with a finite number of interacting massive bodies. And the choice of a select set of variables to use in studying these phenomena typically involves the implicit claim that these variables, if not constituting the essence of the phenomena, at least are characteristic of any and all phenomena within the studied class or scope of the investigation.

In the twentieth century it has been commonplace to require that such implicit classificatory schemes be developed as systematic classifications or taxonomies as a precondition to scientific investigation or theorizing—in other words, that science must define its terms prior to commencing study. Operationalism and logical positivism in the philosophy of science, and behaviorism in the social sciences, are related intellectual movements that have made such definition essential to their conceptions of what it is to be scientific. All three share the following central ideas. Science must be grounded in observation, and any theoretical variables or terms that refer to phenomena that are not directly observable must be *operationally defined* in terms of what is observable. Initially operational definition was construed as the specification of necessary and sufficient conditions for the variables. This is tantamount to defining the theoretical variable as a taxon in which the definition specifies the essence of taxon membership. Later the notion of operational definition was loosened to in-

clude partial definitions that merely specify jointly sufficient conditions or even just clusters of potentially relevant observable diagnostic markers. (The latter correspond to the sorts of definitions of taxa discussed above that have emerged in modern biological taxonomy.) Thus, in these related views scientific theorizing has at its heart the establishment of a systematic taxonomy with theoretical taxa. In nontheoretical contexts, such as statistical descriptive studies, it similarly was required that theoretical constructs be operationally defined in ways that amount to the specification of a systematic taxonomy. Intelligence (IQ) tests operationally define intelligence in ways that establish a taxonomy of intelligences, and studies of mental health using the Minnesota Multiphasic Personality Inventory (MMPI) operationally define mental disorders in ways that establish a systematic classification scheme.

The demand that science proceed by establishing a systematic taxonomy through operational definition of terms as a precursor of empirical or theoretical study can be seriously challenged on a number of fronts. First, the most successful portions of physical science often do not proceed in this way. Operational definition of theoretical variables in physical science often does not occur until the later stages of a scientific investigation, well after the theory is in a stage of mature development. At the same time it must be noted that the development of a systematic taxonomy may be the essence of scientific theorizing, as in the periodic table of elements, which is itself a scientific theory. Second, scholars such as Thomas Kuhn (1922–) have argued that it generally is impossible to define operationally the basic variables of global scientific theories such as Newtonian physics or quantum mechanics. To the extent that these arguments are persuasive, it is impossible to require explicit development of taxonomies as a precursor to scientific theorizing. Third, if indeed the criteria for taxon membership are disguised patterns of empirical regularity best uncovered by empirical investigation, the proposal reduces to vicious circularity: it amounts to demanding definition of the variables as a precursor to doing the empirical investigations needed to uncover the patterns of regularity constituting the definitions in question.

The fact that the development of systematic taxonomies is not a necessary preliminary to doing good science does not imply that classification is not at the heart of doing science. For science to operate and for scientists to communicate with one another, it is essential that practitioners share a common way of looking at phenomena and a vocabulary for talking about them. Systematic taxonomies provide only one way of meeting this necessity. A number of contemporary philosophers of science, such as Kuhn, have argued that science proceeds from within a concep-

tual framework that performs this function and that, unlike systematic taxonomies, these frameworks, or *weltanschauungs*, cannot be explicitly formulated or articulated. Rather, they are more like what Wittgenstein calls a "form of life" that must be learned. Kuhn describes the process of training a scientist as a method of indoctrinating a fledgling scientist into coming to see the world and using vocabulary to describe it in the same way as do full-fledged members of the scientific community. Kuhn sees this process as being not unlike TEACHING a child to learn to use, think in terms of, and experience the world through the framework provided by a particular natural language (see CHILDREN—DEVELOPMENT OF COMMUNICATION; LANGUAGE ACQUISITION). That is, it is a process of coming to possess a conceptual classification scheme and associated language without the definitional development of a systematic classification scheme. While many of the specifics of Kuhn's view of science are controversial, he does make a convincing case that conceptual classification schemes are necessary for, and part and parcel of doing, science but need not always be obtained through the development of systematic taxonomies.

Classification and the Dissemination of Scientific Knowledge

Although the conceptual frameworks and classification schemes found in science are descended from those found in natural languages, they are different in content. Even when science borrows terminology from ordinary language, its expropriation involves its undergoing what Stephen Toulmin (1922–) calls a "language shift." Thus the Newtonian sense of "force" descends from the common pugilistic sense but has a different meaning, and quark "color" is quite unlike the colors of a sunset. Language shifts are involved in both the conceptual and the systematic classifications science employs. This poses a problem for the dissemination of scientific knowledge to nonscientists who have not undergone the acculturation through the training that Kuhn describes. To avoid communicative entropy in presenting science to the public, the public must be educated about the classifications science uses. Sometimes this is done by METAPHOR, analogy, or other heuristic means. Sometimes informal definitions "give the idea" of how science uses key vocabulary; these are rarely operational definitions but instead are glosses. Most important, things themselves—the objects of scientific study—are not that dissimilar for students, so teachers build on the students' experiences and experiments. Rather than burying students under masses of definitions, teachers give them exercises and problems to solve and thereby teach them to think and to experience the world through the classification

scheme of science. The questions asked and the background information utilized as presuppositions of science also invoke classifications and ways of viewing and approaching phenomena. In teaching students what questions to ask, scientists teach them how to classify and organize their experiences as fellow scientists do.

Classification and the Emergence of Modern Science

Conceptual classification has been seen to permeate the development of modern science just as it permeates all cognitive and communicative activity. Science characteristically refines and sophisticates its conceptual classifications as it matures. Thus there is an important sense in which *conceptual* classification is an essential component of the emergence of science, just as it is in the emergence of all knowledge. On the other hand, the role of *systematic* classification in the emergence of modern science is more variable. In some instances it has been the vehicle for major scientific advances: the periodic table, Carolus Linnaeus's (1707–1778) binomial system of taxonomy, soil classification schemes, and qualitative analysis in chemistry are examples. Other major scientific developments seem to eschew the explicit development of taxonomic schemes; this is characteristic of much of physics. In still other areas premature preoccupation with taxon definition and the development of taxonomic schemes seems to have hindered the development of modern science; phrenology and medical nosologies not based on common etiology are good examples. On the other hand, the selection of key variables to investigate and research questions to pursue is crucial to the success of a scientific investigation. To the extent that these choices implicitly invoke conceptual or systematic classificatory schemes, classification is at the very heart of the emergence of modern science.

See also CONTENT ANALYSIS; MODE.

Bibliography. Peter Achinstein, *Concepts of Science*, Baltimore, Md., 1968; D. M. Armstrong, *Universals and Scientific Realism*, 2 vols., Cambridge and New York, 1978; Carl G. Hempel, *Fundamentals of Concept Formation in Empirical Science*, Chicago, 1952; Paul Henle, ed., *Language, Thought, and Culture*, Ann Arbor, Mich., 1958; David L. Hull, *The Philosophy of Biological Science*, Englewood Cliffs, N.J., 1974; Linnean Society of London, *Lectures on the Development of Taxonomy 1948–1949*, London, 1950; Kenneth Schaffner, ed., *Logic of Discovery and Diagnosis in Medicine*, Berkeley, Calif., 1985; R. R. Sokal and P. H. A. Sneath, *Principles of Numerical Taxonomy*, San Francisco, 1963; Frederick Suppe, ed., *The Structure of Scientific Theories*, 2d ed., Urbana, Ill., 1977; Jerzy A. Wojciechowski, *Conceptual Basis of the Classifi-*

cation of Knowledge (Ottawa Conference on the Conceptual Basis of the Classification of Knowledge, 1971), Munich, 1974.

FREDERICK SUPPE

CLASSIFIED ADVERTISING

A special form of ADVERTISING, most common in print media, consisting of small notices classified according to theme (e.g., sale items), target audience (e.g., people looking for employment), or other criteria. Classified advertising, or something quite like it, has been traced back to "want ads" inscribed on papyrus in Egypt more than three thousand years ago (see EGYPTIAN HIEROGLYPHS), as well as to inscriptions on the walls of the Roman city of Pompeii (see ROMAN EMPIRE). In postmedieval Europe, handwritten notices known as *siquis* (from the Latin, "if anybody") appeared in England during the fifteenth century; they were used primarily by professionals of various trades. In the seventeenth century the term *advices* became increasingly common. The King James Bible, published in 1611, used *advertisement* to mean notification or warning. Book publishers and printers started to use the same term as a heading for commercial messages.

In the British North American colonies, classified advertising first appeared in the *Boston News-Letter* in 1704, when an ad offering a reward for the return of two anvils was printed (see NEWSPAPER: HISTORY). The New York *Sun* has been credited with the first grouping of small advertisements into a "want ad" section in 1830, starting what is known as the classified advertising section of modern newspapers. The emergence of the penny press (see DAY, BENJAMIN H.) helped develop the use of classified advertising by the reading public and also gave rise to the policy of charging for the messages (usually by the word, by the line, or by the column-inch).

Classified advertising can be characterized as "person-to-person" communication, in contrast to retail and national advertising, which are considered "business-to-person." Its advantages include low cost (because each ad uses only a few lines of copy), flexibility (because it can be used in many ways), and selectivity (because the reader may go directly to items of interest or need). It is subject to the same restrictions and regulations that pertain to other types of advertising in a print medium. Most of the restrictions are based on the principle that the publisher has the right to accept or reject ads that do not conform to house policies. Newspapers and magazines have been criticized for ads in their "personals" section because of the explicit or implicit content (e.g., ads for "escort services" or "massage parlors" as fronts for prostitution).

Classified advertising can be divided into two broad categories: professional and personal. The former is

usually sold on a volume or contract basis and accounts for approximately 75 percent of the income from classifieds. The latter is generally sold on a single-message basis to individual customers. A further division arises from the manner in which the business is obtained. In some cases people call or bring in their own ads, while other ads are gathered by solicitors, who make their contacts by personal visits or telephone calls.

Most newspapers have a classification system that helps the reader find specifically what is needed. Typically the format includes some broad categories such as "Help Wanted," "Housework," and "Office Work," as well as other more specific labels (e.g., under "Help Wanted" a section for "Carpenters," under "Office Work" a section for "Secretaries"). In major cities it is extremely important to have a workable system of classification, whereas in smaller cities the system can be less complex. In general, the easier it is for readers to find what they need, the more readers the columns will attract.

On average more than 80 percent of classified revenue comes from automotive, real estate, and employment ads. It is estimated that more than 50 percent of people who are shopping for a car, nearly three-fourths of those looking for a house, and four out of five people seeking a job use the classified columns.

In most of the larger newspapers around the world the computer is already being used for composition, billing, credit checks, page makeup, updating and correction of ads, and improvement of the classification system. Some newspapers have started accepting ads directly from personal computers to the newspaper's mainframe computer (see COMPUTER: IMPACT).

On the international scene, a survey of sixteen newspapers in eight countries revealed no basic differences in the patterns of classified advertising from those of U.S. newspapers in terms of pricing, display of ads, typefaces, or marketing methods. One pronounced difference was that some papers mixed editorial and classified ad pages, instead of confining the classifieds to just one section.

Some newspapers have established ties with CABLE TELEVISION companies to reach larger audiences for classified advertising, as a way of facing increased competition from other print media such as telephone directories, "shoppers," and other specialized publications. In a number of countries experiments have been made with "electronic classified" advertising through teletext and VIDEOTEX. Although these systems have not yet had substantial success, they may hold long-range importance.

Bibliography. Association of Newspaper Classified Advertising Managers, *Principles and Practices of Classified Advertising*, Danville, Ill., 1985; Morton J. A. McDonald,

How to Use Classified Advertising to Sell More Real Estate, Englewood Cliffs, N.J., 1957; Morton J. A. McDonald and Bert Reh, eds., *Principles and Practices of Classified Advertising*, 2d ed., Culver City, Calif., 1952.

BILLY I. ROSS

CLASSROOM

For many children in the world the classroom is a critical site of transition and transformation between the intimate world of the FAMILY and the more impersonal, bureaucratized world of the larger society. Social scientists analyzing schools around the world (see SCHOOL) have identified certain characteristics that distinguish contemporary forms of interaction in the classroom from other forms of EDUCATION. In contemporary mass education—as opposed to education mainly for social, economic, political, or religious elites in older societies and civilizations—the human potential to be realized by individual students is the acquisition of knowledge and skills that will be related to later work and life status. Students compete for opportunities to perform as individuals, and there is no expectation that all will succeed. Teachers evaluate performance at immediate and long-term intervals by means of grades, promotion, and selection for higher levels of education (e.g., from high school to the UNIVERSITY level).

Patterns

The most common pattern of classroom communication is the recitation, in which the teacher interacts with a group of students, controlling the selection of topics and the allocation of turns (see INTERACTION, FACE-TO-FACE; INTERPERSONAL COMMUNICATION). Topics covered may have been predetermined by a school, district, state, or nationwide decision, and groups are typically homogeneous in terms of age and one or more measures of achievement as well.

Recitations usually consist of three parts: teacher initiation (often with a question), student response, and the teacher's evaluation. Teachers typically talk two-thirds of the time, and the remaining one-third is unevenly distributed among the students. In general, questions request factual answers retrievable from memory, student answers are short, and student comments or questions are ruled out of order unless they are perceived by the teacher as relevant and not an interruption.

Another common pattern of classroom social organization is more individualized. Children work alone on tasks assigned by the teacher, who monitors their progress either by circulating among them or by allowing them to approach the teacher's desk for help and evaluation. U.S. linguist Marilyn Merritt has called student-teacher conversations in these set-

tings "service-like encounters," to suggest similarities to exchanges between customers and clerks in large service or commercial institutions such as banks, supermarkets, and government offices. Communication between the students—at least that approved by the teacher—is much less frequent.

Limitations. Schooling grounded on these most common types of classroom interaction has been a constant in the Western world since the nineteenth century, spreading to former colonies and newly formed nations (see COLONIZATION). Its pervasive presence suggests a functional fit with processes of industrialization (e.g., by allowing potential factory workers to gain skills needed for employment, such as LITERACY). However, critics have pointed out certain limitations. First, the recitation format biases the curriculum toward a conception of knowledge as emanating from authority, rather than constructed and critically analyzed anew by each learner. When teachers are poorly trained and classrooms lack adequate resources (e.g., blackboards, pictures, maps), the rote learning of words at the expense of deeper comprehension is a likely result (see AUDIOVISUAL EDUCATION).

Second, both the typical school content and the typical patterns of communication seem to be more useful for children of educated parents, who come to school already equipped with the cultural capital that schools assume and require. In these terms, mass education has both a hidden curriculum and an invisible culture. Third, education via words—removed from practical action—may have cognitive effects separable from the effects of literacy, but the very separation from the contexts of everyday life may impede the transfer of what is learned in the classroom to the out-of-school world (see COGNITION).

Special Issues

Two other issues deserve special mention: language of instruction and computers. With regard to the former, in many countries more than one language may be heard in each classroom, and teachers, researchers, and policymakers are still trying to discover why certain combinations seem to work so well in some contexts but not in others. As for computers, they are becoming a regular addition to an increasing number of classrooms (see COMPUTER: IMPACT—IMPACT ON EDUCATION). Their most common use is as providers of additional drill and practice—in effect, an electronic workbook. Their more complex applications make possible a return to the master-apprentice model of learning at its best, with opportunities for student questions and expert computer responses owing to imaginatively designed software. In addition, access to data bases (see DATA BASE) provides a rich source of information for posing and solving problems, and the capacity to com-

municate electronically from one classroom to another—whether next door or anywhere in the world—makes for a substantially richer learning environment.

See also TEACHING; TEXTBOOK.

Bibliography. Douglas Barnes, *From Communication to Curriculum*, London, 1976; Courtney B. Cazden, *Classroom Discourse*, London and Portsmouth, N.H., in press; Courtney B. Cazden, Vera P. John, and Dell Hymes, eds., *Functions of Language in the Classroom*, New York, 1972, reprint Prospect Heights, Ill., 1984; Elizabeth G. Cohen, *Designing Groupwork: Strategies for the Heterogeneous Classroom*, New York, 1986; A. D. Edwards and V. J. Furlong, *The Language of Teaching: Meaning in Classroom Interaction*, London, 1978; Shirley Brice Heath, *Ways with Words: Language, Life, and Work in Communities and Classrooms*, Cambridge and New York, 1983; Hugh Mehan, *Learning Lessons*, Cambridge, Mass., 1979; Michael Stubbs, *Language, Schools, and Classrooms*, 2d ed. (Contemporary Sociology of the School), London and New York, 1983.

COURTNEY BORDEN CAZDEN

CLAY TOKENS

The Neolithic cultures of western Asia created a system of clay tokens to count and keep track of goods. These three-dimensional symbols, which stood for units of merchandise, were a means of supplementing language and represent an early step toward WRITING. They foreshadow Sumerian CUNEIFORM writing in their use of clay, in which markings were incised or impressed.

Description. Tokens were of fifteen types, which are classified by shape: spheres, disks, cones, tetrahedrons, biconoids, ovoids, cylinders, bent coils, triangles, paraboloids, rectangles, rhomboids, vessels, animals, and miscellaneous. The smallest tokens are about one or two centimeters across, the largest three to four centimeters.

The manufacture of the artifacts was simple. It consisted in pinching a small lump of clay between the fingers. Markings were added by incising one or several strokes or lines with a pointed tool such as a stylus while punctations were apparently made by impressing the blunt end of the stylus. Because they were handmade, each token reflects the style of its maker. Differences are mainly in craftsmanship, quality of clay, firing, and size. Some tokens were made with great care and show a crisp contour, while others are sloppy, exhibiting uneven edges. During the Neolithic and Chalcolithic periods, 8000–3500 B.C.E., the clay sometimes included gravel or even small pebbles. In the Bronze Age, about 3500–3100 B.C.E., the clay was usually fine, suggesting that it was subjected to a treatment process. Analysis of tokens

of various periods shows that they were fired at relatively low temperatures, never exceeding 600° C. Differences in firing apparently account for the various shades of color in the tokens, from buff to pink, red, gray, and black.

Symbols for communication. The meaning of some tokens can be deduced from early Sumerian pictographs, which followed the tokens in their use of symbols. It appears that the cone and the sphere represented two different measures of grain, that an ovoid stood for one jar of oil, and that a disk with a cross stood for one sheep. The token system marked an innovation in the use of symbols. It contrasts, for instance, with the symbolism exhibited by Paleolithic and Neolithic art. The paintings in the caves of Lascaux or in the Catal Hüyük shrines seem to express a complex and fabulous cosmology. The tokens, on the other hand, functioned as a precise code for the storage and communication of economic data.

The tokens can be considered word signs. Although they did not seek to duplicate speech and never acquired phonetic value, they shared some fundamental features of linguistic units. The tokens, like words, could refer to transactions in the present, the past, or the future. Tokens could be arranged in all possible combinations to accommodate any transaction. New tokens could be created at will to express additional economic concepts. Also, like words, the tokens were abstract, and their meaning had to be learned by cultural transmission.

The unique advantage of the token system over language was that it was durable. The three-dimensional tokens gave a solid and tangible expression to oral concepts. The system was, therefore, a revolution in communication technology. By functioning as a CODE that could be translated into speech at all times, the token system made it possible to collect large amounts of data without burdening the mind. Tokens made it possible to store information indefinitely since the data they yielded could be retrieved at any time by anyone who understood the system. The tokens were light and small and could be easily transported, facilitating transactions that occurred over great distances. Perhaps most important of all, the token system provided a method for sorting and organizing information. Because tokens were easy to manipulate, they could be ordered and reordered according to all possible criteria. This made it possible to scrutinize and analyze information for rational decision making.

Like writing, the system lent permanence to speech and served as an extension of the mind. Its major drawback was three-dimensionality. Since each concept needed its own form, there was a risk of overburdening the system. Although the tokens were small, the use of large numbers made the system

unwieldy. It was thus limited to concise recordkeeping, without possibility of even the simplest syntax.

Precursor of writing. It is not yet possible to identify the original homeland of the token system. The earliest assemblages of tokens, dated about 8000–7500 B.C.E., come from such sites as Tell Aswad and Tell Mureybet, in Syria, and Tepe Asiab and Ganj-Dareh Tepe, in Iran (see Figure 1). In other words, by the first half of the eighth millennium B.C.E., the token system was already in use at both ends of the Fertile Crescent. At the time it consisted of nine types, including spheres, disks, cones, tetrahedrons, ovoids, and cylinders, with an occasional triangle, rectangle, or animal head. Markings were rare. It is probably not a coincidence that the earliest tokens of Mureybet were excavated at a level associated with the first evidence of the domestication of plants. This suggests that the need for recordkeeping was related to the rise of agriculture.

Tokens from the seventh millennium B.C.E. are found in practically every excavated site from Turkey to Israel and from Syria to Iran. Throughout this area the token system is remarkably uniform (see Figure 2). A few regional variations can be observed, such as a type of carinated cones typical of the Jeitun culture in Russian central Asia. During the seventh to fifth millennia the system shows no major transformation, suggesting little modification in its use.

In the middle of the fourth millennium B.C.E., which is characterized by the rise of cities, the token assemblages of urban centers such as Susa and Chogha Mish in Iran, Habuba Kabira and Tell Kannas in Syria, and Tello and Uruk in Iraq exhibit major changes. New shapes occur—biconoids, bent coils, paraboloids, rhomboids, vessels, and miscellaneous naturalistic renderings of tools. Triangles, rectangles, and animal heads are common. Perhaps the most characteristic feature of this period is the proliferation of markings on all types of tokens (see Figure 3). These form various patterns of incised lines (single or grouped), punctations, pitted surfaces, nicks, and, less frequently, pinched edges or appliqué pellets and coils. These fourth-millennium tokens, characterized by a greater diversity of shapes and markings, are referred to as *complex tokens*, as opposed to the *plain tokens* of the former periods.

The site of Uruk in Iraq provides a chronology for the evolution of the token system in the fourth millennium B.C.E. and the steps that led to Sumerian writing. At Uruk complex tokens were found at a level that also marks the beginning of monumental architecture. It seems, therefore, that the appearance of complex tokens corresponded to the rise of a new political system and an increase in bureaucracy. A number of tokens became perforated, seemingly in order to string together tokens belonging to the same account.

Still later, about 3250 B.C.E., tokens relating to the same transaction were grouped together in clay envelopes in the shape of hollow balls (see Figure 4). These envelopes provided a convenient clay surface upon which to impress the seals used by the Sumerian bureaucracy or private individuals. The seals were small stones carved with a motif that left a recognizable design when impressed on clay. Some envelopes bear as many as four different seals, probably identifying levels of the Sumerian bureaucracy or the parties involved in the transaction.

The envelopes had the disadvantage of being opaque, which concealed their contents. As a result, accountants started impressing each token on the surface of the envelopes in the same way that seals were impressed. The impressions on the surface of the envelopes gave information about the tokens inside. It soon became clear that the tokens inside were really superfluous and that markings on a surface might suffice. The shift in emphasis from the three-dimensional tokens to two-dimensional surface markings may be thought of as the beginning of writing.

Precursor of numerals. A counting device inevitably reflects the mode of counting of the culture using it. The token system may illustrate, in particular, a stage in the evolution of counting known as *concrete counting*.

A comparison of the token system with the abacus may give some insight into counting in protoliterate western Asia. Both the token system and the abacus are simple computing devices using movable counters. In the case of the abacus, the beads are uniform and can be used to compute any possible item because the system is based on abstract numbers, which are universally applicable. In contrast the token system, as seen in Figure 2, is characterized by counters of different shapes to count different items. Cones were used to count small measures of grain and spheres to count large measures of grain; ovoids represented jars of oil. In other words, each token fused together the concept of “one” and the concept of a unit of a good. Because these concepts could not be separated, two jars of oil had to be expressed by two jar-of-oil tokens—two ovoids—three jars of oil with three ovoids, and so on. The token system thus illustrates concrete counting, which relied not on abstract numbers but on different symbols to count different classes of merchandise.

Numerals—symbols for abstract numbers—first occur on the Sumerian pictographic tablets of 3100–3000 B.C.E., when plurality is no longer expressed by repeating units of goods in a one-to-one correspondence (see Figures 5 and 6). One jar of oil, for instance, is expressed by two different signs: “1” and “jar of oil.” Similarly, six jars of oil is expressed by two different signs—“6” and “jar of oil”—thus

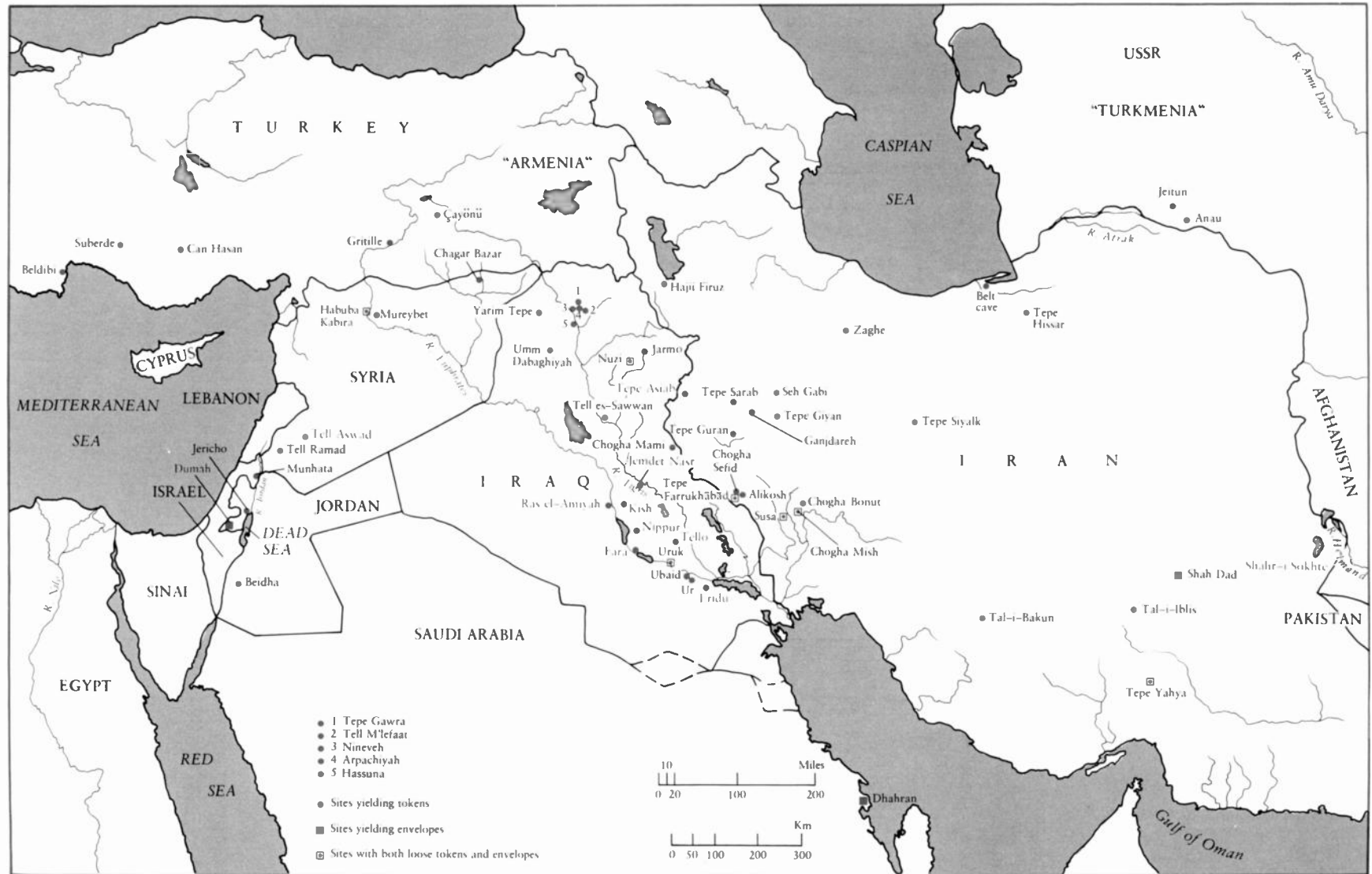


Figure 1. (Clay Tokens) Excavation sites of clay tokens and envelopes.



Figure 2. (*Clay Tokens*) Tokens from Seh Gabi, Iran, fifth millennium B.C.E. Courtesy of the Royal Ontario Museum, Toronto, Canada.



Figure 3. (*Clay Tokens*) Complex tokens from Susa, Iran, ca. 3300 B.C.E. Courtesy of Musée du Louvre, Département des Antiquités Orientales.

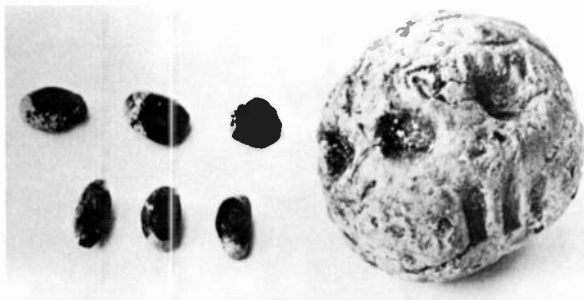


Figure 4. (*Clay Tokens*) Envelope with its content of tokens from Susa, Iran, ca. 3200 B.C.E. Courtesy of Musée du Louvre, Département des Antiquités Orientales.

creating an economy of notations. It is remarkable that the Sumerian numerals for one and six are shown by a wedge and a circular marking that derived from the tokens in the form of cones and spheres used for counting measures of grain. This suggests that instead of creating new symbols for numerals, the signs expressing measures of grain were assigned a secondary abstract numerical value. The cone and the sphere formerly used to count concrete measures of grain ultimately led to the expression of abstract numbers. Therefore, the to-



Figure 5. (*Clay Tokens*) Impressed tablet from Susa, Iran, ca. 3100 B.C.E. Courtesy of Musée du Louvre, Département des Antiquités Orientales.



Figure 6. (*Clay Tokens*) Pictographic tablet from Godin Tepe, Iran, ca. 3000 B.C.E. Courtesy Godin Project, Royal Ontario Museum, Toronto, Canada.

kens may be considered symbols that preceded and led to the invention of numerals.

The simple invention of clay counters to compute and keep track of goods in Neolithic villages of western Asia opened new avenues of tremendous importance to the human mind. The tokens were the first step in the process that ultimately led to the first writing system in Sumer; the Sumerians, in originating the symbols that expressed abstract numerals, brought about the beginnings of MATHEMATICS.

See also NUMBER.

Bibliography. Denise Schmandt-Besserat, "The Envelopes That Bear the First Writing," *Technology and Culture* 21, no. 3 (1980): 357-385; idem, "From Tokens to Tablets: A Re-Evaluation of the So-Called 'Numerical Tablets,'" *Visible Language* 15, no. 4 (1981): 321-344; idem, "The Emergence of Recording," *American Anthropologist* 84, no. 4 (1982): 871-878; idem, "Before Numerals," *Visible Language* 18, no. 1 (1984): 48-60.

DENISE SCHMANDT-BESSERAT

CLOCK

Clocks and watches measure what we loosely call time by dividing it into discrete portions such as hours, seconds, and nanoseconds. Timekeepers have as their primary function the communication of these discrete divisions of time for different purposes. Since its invention the clock has reflected the status of its owner and maker, reinforced notions of the divine order of society, measured periods of short duration (such as a footrace), and communicated specific points in time when collective action should be taken (such as the departure of a train). Indeed communication beyond simple conversation and handwritten notes is nearly impossible outside the context of measured time. Thus the technical history of clocks and watches—increasingly accurate timekeepers—reflects their contributions to communication in general.

Early history. The mechanical clock (and its portable form, the watch) was undoubtedly the greatest mechanical invention of the MIDDLE AGES and perhaps the single most important invention since the wheel. Before the clock, time had been measured in various parts of the globe by water, sand (or eggshells), fire, and the sun. But clepsydras (water clocks),

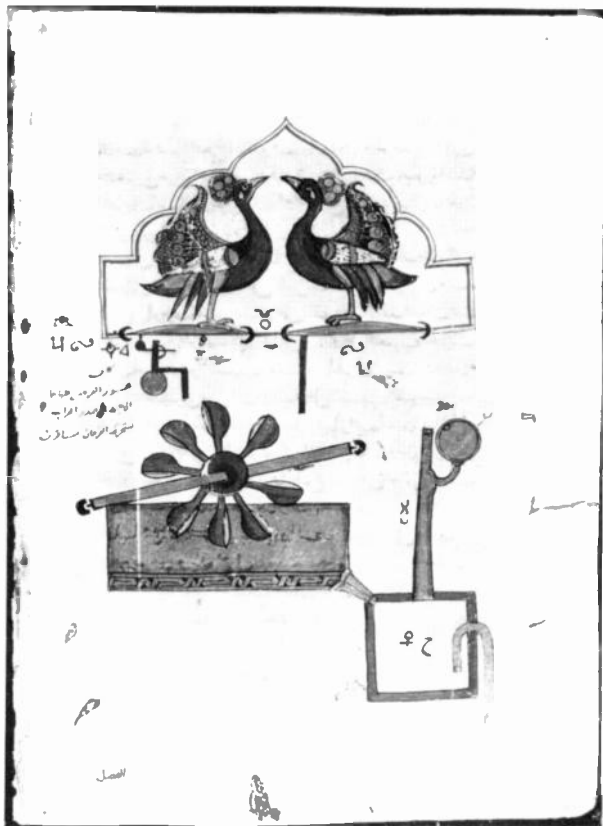


Figure 1. (Clock) Peacock waterclock. Miniature from the Automata of al-Gazari. Probably Syrian, 1314 C.E. The Metropolitan Museum of Art, New York, Rogers Fund, 1955. (55.121.15)

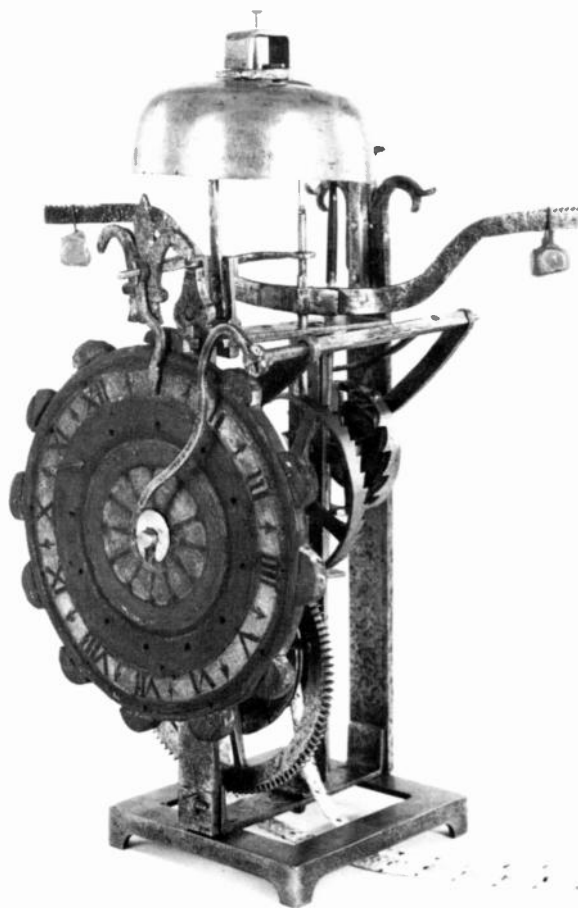


Figure 2. (Clock) Domestic alarm clock, sixteenth century. Weight driven and iron framed, this clock had a revolving dial with holes for fitting the alarm peg. Reproduced by courtesy of the Trustees of The British Museum.

sandglasses, incense and candle clocks, and sundials all had serious technical drawbacks that severely limited their accuracy.

When the mechanical clock appeared in the monasteries of northern Europe about 1275–1300, it was first used to communicate the appropriate time to pray. The clock quickly spread to towns and almost immediately became both a personal and a civic status symbol. It was soon a standard feature in cathedrals and public buildings.

These first public clocks were not designed primarily to tell time—they were too inaccurate to do so reliably—but rather to drive very complicated astronomical mechanisms. Richard of Wallingford spent thirty years building such a clock about 1330. These mechanical models of the universe were great technological and scientific marvels. Cities and churches that could afford them took pride in the status these mechanical wonders brought.

By the mid-sixteenth century the art of clockmak-

ing, especially in Germany, had developed on a broad scale along with the other arts of the RENAISSANCE. These clocks reflected the wealth and status of their owners, but, more important, they also communicated a sense of political, social, and religious order that had been challenged during the preceding centuries. The clock became a mechanical metaphor for the universe, the state, and the individual.

In addition to their intellectual impact, Renaissance clocks, inaccurate though they were, formed the basis for the most important science of the Renaissance: astronomy. Contemporary astronomers sought a more accurate timekeeper than the verge and folio escapement, which often beat only every two seconds. In 1657 the application of the pendulum as the regulator of the mechanical clock suddenly made it accurate enough for science, particularly astronomy. Christiaan Huygens's invention made the clock accurate within fifteen seconds per day and transformed it from a work of art to a machine of science.

As the political and military leadership shifted from central to western Europe, so too did economic and technological leadership. The English quickly took up the pendulum clock and by the early eighteenth century had dramatically improved its accuracy with the development of the anchor escapement and temperature-compensated pendulums. Within a century of its invention the pendulum-regulated mechanical clock was accurate to within a few seconds per day.

Much of the effort to improve timekeeping was made in the seafaring nations of western Europe in order to solve the problem of longitude (*see* CARTOGRAPHY). Finding latitude (one's position above or below the equator) at any place on the globe is relatively easy, but finding longitude required knowing the precise time at a place of known longitude and comparing that time with local time. The technical problem was to build a clock accurate enough to take to sea. It was not until about 1780 that the necessary technological innovations were perfected. By 1800 these chronometers, being produced on a large scale in Britain, provided the accuracy necessary to determine longitude at sea. Transoceanic communication became not only cheaper and easier but also routine.

Modern innovations. The development of increasingly accurate clocks continued throughout the nineteenth and twentieth centuries. Electric impulses replaced mechanical impulses, carefully controlled vacuum chambers eliminated atmospheric interference, and new pendulum materials removed temperature errors. The accuracy of this generation of precision clocks approached the thousandth part of a second per day.

The quartz crystal, which vibrates a hundred thou-

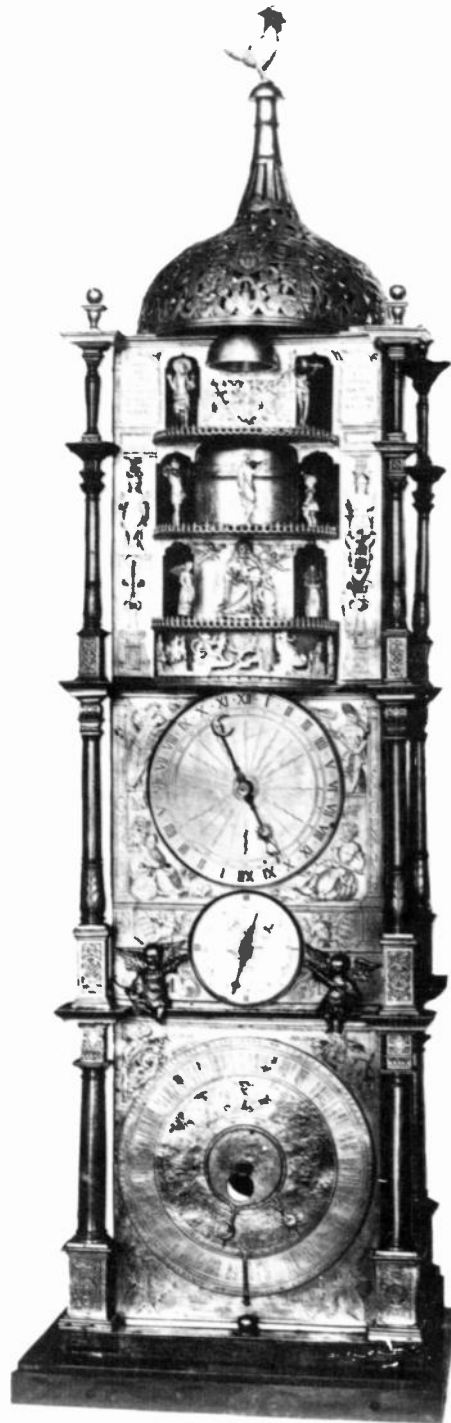


Figure 3. (Clock) Carillon clock by Isaac Harbrecht, 1589. Reproduced by courtesy of the Trustees of The British Museum.



Figure 4. (Clock) Christiaan Huygens presents his pendulum clock, 1657. The Bettmann Archive, Inc.

sand times per second, and the cesium-beam atomic clock have redefined the very basis of time measurement. The second is no longer the basic fraction of the solar day or year.

The quartz-crystal clock was a development from early RADIO broadcasting and was based on the oscillatory effect of alternating current on certain crystals. Quartz clocks were eventually used to regulate computers, through which all electronic communication takes place (see COMPUTER: HISTORY). Quartz watches, whose accuracy far surpasses that of the best mechanical timekeepers, became mass-produced items that were sold cheaply worldwide.

Whereas the technical history of watches and clocks is a history of increasing accuracy, the impact of

these developments changed the nature of society and its methods of communication. For example, until late in the nineteenth century every city and town had its own local time. Noon was defined locally as the time when the sun reached its zenith. As long as communication and transportation were slow, local time was satisfactory. British and continental railroads used the telegraph (see TELEGRAPHY) to transmit time signals along their routes, thus establishing a standard time to which each particular firm adhered.

With the transcontinental expansion of American railroads local time no longer sufficed. Train travel was scheduled, and scheduling was notoriously difficult between towns using different times. The con-

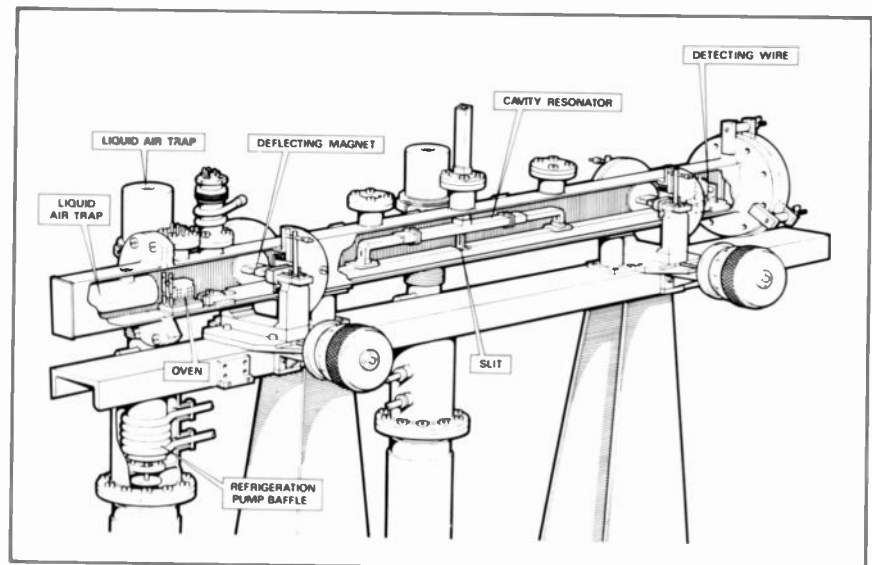


Figure 5. (Clock) Cesium clock. The atomic beam chamber for the cesium frequency standard. Trustees of the Science Museum, London.

fusion over various local times led to the development of standard time in 1883. This system divided the world into twenty-four distinct time zones beginning with Greenwich, England. Localities within each time zone used a common time based on the time in Greenwich.

In the seven centuries since the invention of the mechanical clock timekeepers have always communicated the status of their owners. The adoption of equal hours brought a new time consciousness to western Europe during the late Middle Ages and the Renaissance, and clocks became prized articles of trade throughout the world. In the seventeenth century Jesuit missionaries used them to gain a foothold in China. In the nineteenth century Americans pioneered the mass production of clocks and watches. Eventually everyone could own a clock or watch, and the Western world became obsessed with time and being on time. Modern communications would be impossible without our current notions and accurate methods of measuring time.

See also CALENDAR.

Bibliography. *Antiquarian Horology* (Journal of the Antiquarian Horological Society), Sussex, Eng., 1953–; *Bulletin of the National Association of Watch and Clock Collectors*, Columbia, Pa., 1943–; David S. Landes, *Revolution in Time: Clocks and the Making of the Modern World*, Cambridge, Mass., 1983; Klaus Maurice and Otto Mayr, *The Clockwork Universe: German Clocks and Automata, 1550–1650* (Die Welt als Uhr), trans. by H. Bartlett Wells, New York, 1980.

DONALD HOKE

CLOTHING

The set of all items worn on the human body. Such issues as how clothing items (and their combinations) function as signs, how the assemblage of clothing items of a given CULTURE forms a signaling system, and what kinds of MEANING can and cannot be conveyed through clothing are relevant for theories of communication. See also SIGN; SIGN SYSTEM.

Functions of clothing. Clothes are worn, first of all, for temperature regulation and protection from the environment. The distribution of types of clothing in relation to different climatic zones and the variation in clothes worn with changes in weather conditions show their practical, protective function. Sun helmets, sou'westers, down-filled anoraks, neoprene suits, and space suits are examples of clothing items that are primarily protective in function. However, even in identical environmental conditions, people wear different kinds of clothes. Furthermore, types of clothing vary with types of social occasions, which indicates that the wearing of clothes is also subject

to sociocultural norms. The gentleman's tuxedo and the lady's long gown, worn at a banquet, are not chosen in response to weather conditions but in response to social expectations. An even more extreme example is a king's majestic coronation robe with its long train. Such a garment is quite impractical; it is heavy and hot, and it impedes movement. In such cases the practical functions of clothes are subordinated to their signaling functions. In general the clothing of persons who must produce practical results—the furnace cleaner, the production worker—is designed and organized primarily to facilitate (or at least not hinder) the production of such results. The clothing of persons who are confirming or transforming their social relationships—as in processions, parades, marriage rituals, and graduations—is organized primarily in relation to impression management, and its sign function is thus predominant.

Both of the above types of clothing use and design have the quality of signs, because they are systematically associated with something else for which they stand (*aliquid stat pro aliquo*). The wearing of a bearskin, a poncho, or a down anorak in certain weather conditions can be interpreted as a symptom of the wearer's biological response to the environment, that is, the wearer feels cold. This interpretation does not presuppose any culture-specific knowledge, because the symptom is here causally related to circumstances. To the extent to which the responses to the biological needs of protection and temperature regulation are subject to additional culture-specific values, norms, or expectations, the responses attract further meanings. These can be decoded only by using culture-specific knowledge. Such responses assume the status of arbitrary, conventional symbols. The practical thing becomes a culturally meaningful thing. For example, to the outsider the blue or charcoal *Mutze* of the Amish male is just a jacket. To someone who knows the clothing norms of Amish culture, however, the *Mutze* signals that the wearer is Amish, that he is baptized (which usually takes place at the age of sixteen), and that he defines the situation as not an everyday event. If the *Mutze* is blue the wearer is between sixteen and thirty-five years of age; if it is charcoal the wearer is over thirty-five. To the outsider the Russian *kalbak* is just a brimless red hat; to the insider it signals that the wearer is a doctor. Examples of this sort make possible the following conclusion: if clothing can be seen as a signaling system, it must be seen as the signaling system of a social unit, not of an individual person or of humans in general.

Like LANGUAGE, the signal system *clothing* is part of the acquired knowledge shared by members of social units. In further analogy to verbal signaling systems (natural languages), the signaling system *clothing* can be said to be made up of varieties:



Figure 1. (*Clothing*) Teenagers in punk clothing, Dallas, Texas, 1984. UPI/Bettmann Newsphotos.

cultural varieties (Bedouin versus western European clothing), regional varieties (Scottish versus Bavarian folk costume), social varieties (bohemian versus bourgeois), sexual varieties (male versus female), functional varieties (ceremonial versus work clothing), and personal varieties (an individual's particular selection among socially sanctioned—and unsanctioned—options) used to project personal identity versus social identities of various kinds.

Clothing as a signaling system. First, consider the properties of the channel in which clothing signals are transmitted. This determines the kinds of meanings the system can and cannot convey. Clothing signals are transmitted by vision. For this reason they function only when people can see each other. In addition clothing signals remain present throughout an interaction. Unlike the sounds of speech, they do not fade rapidly and so make way for new signals. Clothing is thus unsuitable for the rapid coding of new messages but well suited to the coding of messages that remain constant through an interaction. Further, with speech a person's full linguistic repertoire is available in any interaction, but with clothing what is available is only that part of the clothing repertoire that is actually brought to an interaction. Thus new messages with clothing can be encoded in an interaction within these limits—for example, doffing a hat, putting on a coat, performing a striptease, or throwing down a glove when challenging someone to a duel.

Second, consider the properties that allow clothing to be defined as a signaling system. The basic units of clothing are clothing items such as top hat, waistcoat, Bermuda shorts, or swallowtails. Such items can be analyzed as particular combinations of features, including type of material, color, shape, and size. Such combinations are not random, however, but are governed by certain situational restrictions. For example, only a hat of cylindrical form covered with black or gray silk is a top hat appropriate for wearing at weddings, funerals, or the royal enclosure at Ascot. A hat of cylindrical form but made of uncovered cardboard or covered in red silk would be a different garment and would have a different significance. This suggests that a repertoire of clothing items could be analyzed as a set of features organized in certain combinations according to combination rules. On this level the relationships among features are simultaneous ones, much like the relationships among the distinctive features of a phoneme in a language.

Clothing items, in turn, can be classified into sets whose members can substitute for one another in

Figure 2. (*Clothing*) Isaac Oliver, *Richard Sackville, Earl of Dorset*, 1616. Miniature. Courtesy of the Board of Trustees of the Victoria and Albert, London. ▷





Figure 3. (Clothing) Bloomer girls, ca. 1845. The Bettmann Archive, Inc.

filling one of the several clothing slots that divide the body: head, neck, chest, abdomen, legs, and feet. These slots are contiguous on one level and also may be layered; undershirt, shirt, vest, jacket, and coat occupy layered slots in the clothing ensemble of a man, for example. Cultures vary in how clothing slots divide the body; the toga and caftan fill a single slot in some cultures that is divided into several slots in other cultures. Clothing items that can be substituted for one another in one slot (as sandals, shoes, boots, or slippers can substitute for one another in the slot "foot covering") can be said to have a paradigmatic relationship to one another, much like members of a word class (e.g., nouns) in spoken language. Cultures differ in the range of items that are members of a given paradigm. The bowler, boater, helmet, bearskin hat, and cap are acceptable English fillers for the slot "head covering" but not the fez, cowboy hat, or turban. These items belong to the head-covering paradigms of other cultures.

Just as clothing features cannot combine randomly, so clothing items are restricted in the ways in which they may combine. For example, an admiral's cocked hat is not normally worn with a tuxedo, Bermuda shorts, or cowboy boots. The unacceptability of such combinations in ordinary everyday life,



Figure 4. (Clothing) Child in Ghana, Africa. The Bettmann Archive, Inc.



Figure 5. (*Clothing*) William Hogarth, *The Graham Children*, 1742. Reproduced by courtesy of the Trustees, The National Gallery, London.

in contrast to the inverted worlds of carnival (*see* FESTIVAL; SPECTACLE), shows that social constraints affect the combinations that are theoretically possible. Thus clothing items stand in paradigmatic and also in syntagmatic relationships.

The above considerations show that clothing is not just a repertoire of elements (features and items) but that three types of relationship obtain among the elements. Like all phenomena that have a repertoire of elements plus a set of relationships, clothing has the status of a system. In order to show that a system is a signaling system, another type of constraint must be considered. Within the community the norms must be uncovered that determine which items and item combinations may, shall, or must be worn by whom on which occasion. If such norms are discovered, it means that the items and item combinations stand for something that they themselves are not (who, what occasion). Clothing is not only a system; it is also a signaling system, that is, a CODE.

Meaning conveyed through clothing. The specific properties of clothing codes make them suitable for signaling some types of meaning but unsuitable for other types. The limited number of slots limits the "length" of the "utterance" and makes clothing codes unsuitable for the coding of complex messages. In this respect they contrast with language, in which an indefinitely large number of sentences can be pro-



Figure 6. (*Clothing*) At the Chester races, 1926. Ullstein Bilderdienst, West Berlin.



Figure 7. (*Clothing*) A group of women in Kabul, Afghanistan, 1962. The older women are wearing the *chadari*. United Nations photo 79046/JL/MOJ.

duced and arranged in an indefinitely long text. Also in contrast to language, clothing codes are intrinsically unsuitable for making statements about, or for referring to, the outside world, be it part of the situation (“that man,” “that chair over there”) or outside the situation (“in nineteenth-century Britain”). Clothing codes thus cannot convey what in language has been called descriptive, referential, or cognitive meaning. Furthermore, and again unlike language, clothing codes cannot be used reflexively; that is, clothing cannot be used to refer to itself.

Basically clothing codes are limited to communicative functions connected to the regulation of interaction and the relationships among interactants. Combinations of clothing items produced in accordance with the norms for given types of occasions help to set the stage for an event. By wearing particular types of clothing combinations, people can indicate what sort of social occasion they are participating in. Clothing can also be used to convey information about the wearer. On the one hand, such signals can give cues about the sender’s social identity—sex, age, status, tribe, clan, gang, organization, PROFESSION, and the like—by illustrating adherence to the clothing norms that apply to such

categories. On the other hand, by exploiting the full range of options, by modifying or even transgressing the established norms, the sender may seek to express particular individual characteristics. Clothing signals can also indicate to the receiver what behavior in respect to the wearer should be. The sheriff’s uniform and the prostitute’s garb may be meant as a call to order and an invitation, respectively, and may be decoded accordingly.

Clothing codes can be used for creating false impressions. One may feign an identity by wearing the uniform of a profession not one’s own. Creating a false impression may be regarded positively in some circumstances, negatively in others. The professional disidentification of a floorwalker or a plainclothes detective as someone else is generally accepted or at least tolerated. In still other contexts deliberate mis- and disidentification are negatively seen and negatively sanctioned, such as the thief dressed as a meter reader or the private outfitted in a captain’s uniform. Creating false impressions with clothing is actually quite common, as illustrated by such acts as removing a wedding ring, wearing a borrowed fur coat, or trying to pass off imitation diamonds as the real thing. *See also* DECEPTION.

The number of terms commonly used to refer to different types of clothing indicates that clothing is not regarded as a homogeneous signaling system. Terms such as folk costume, uniform, robe, livery, and fashion label varieties and imply that they are used differently by different groups or not at all by some. Tribal societies and tradition-oriented subcultures of contemporary industrial society have been



Figure 8. (Clothing) Kaigetsudo Doshin, *Beauty Arranging Her Hair*. Japan, early eighteenth century. The Los Angeles County Museum of Art, The Shin'enkan Collection. L.83.50.33.



Figure 9. (Clothing) Design for a summer suit. From *Esquire*, June 1941. From O. E. Schoeffler and William Gale, *Esquire's Encyclopedia of 20th Century Men's Fashions*, New York: McGraw-Hill Book Company, 1973, p. 23. Copyright © 1941 by Esquire Associates.

slow to change their traditional garb. The members of primary groups such as gangs and clubs tend to project their sense of we-ness through collective acts of symbolic identification, such as wearing certain clothing items and insignia. Many organizations impose clothing regulations on their employees in order to distinguish visibly both agents of the organization from clients and also members of its hierarchy from nonmembers. They may even assign uniforms that stigmatize their wearers, such as those worn by inmates of prisons and concentration camps.

Bibliography. Roland Barthes, *Système de la mode* (The Fashion System, trans. by Matthew Ward and Richard Howard, New York, 1983), Paris, 1967; Petr Bogatyrev, *The Functions of Folk Costume in Moravian Slovakia*, The Hague, 1971; Justine M. Cordwell and Ronald A. Schwartz, eds., *The Fabrics of Culture*, The Hague and Paris, 1979; Erving Goffman, *The Presentation of Self in Everyday Life*, New York, 1959, reprint Woodstock, N.Y., 1973; idem,



Figure 10. (Clothing) Men on a park bench, Algiers, Algeria. The Bettmann Archive, Inc.

Stigma, Englewood Cliffs, N.J., 1963, reprint Harmondsworth, Eng., 1970; Mary Lou Rosencranz, *Clothing Concepts: A Social-Psychological Approach*, New York and London, 1972.

WERNER ENNINGER

CODE

A system for the generation and communication of meanings within a society. This means that every aspect of our social life is encoded—everything we say, see, hear, or do. Codes underlie all aspects of life in society: everything made or manufactured, from cars to cosmetics; all activity, from playing football to going to school; even the way nature is understood. In fact, social life consists of an intricate, omnipresent network of codes. It may be impossible to provide an exhaustive typology of codes, but we can detail the elements that constitute a code and offer a broad taxonomic structure with which to categorize and thus understand them. *See also* MODE.

The first distinction is between codes of behavior and signifying codes. The primary purpose of codes of behavior, such as the legal code or the codes that many professional bodies such as advertisers or doctors draw up to regulate the conduct of their members, is social control. These codes do, of course,

generate and communicate MEANING—for instance, what justice means in a particular society or what it means to be a doctor—but their primary function is regulatory rather than communicative.

Communicative codes exhibit the following features:

1. They consist of a paradigmatic dimension, that is, a set of units (or signs) from which a choice is made (*see* SIGN).
2. They are ordered by syntagmatic conventions, which determine how a chosen unit or sign can be combined with others in a meaningful way.
3. They construct and convey meaning: their units are signs that refer to something other than themselves.
4. They are socially produced and depend on a shared social background or agreement among their users.
5. They are transmittable by appropriate and available media of communication.

Analog and digital codes. An analogic code is structured along a continuum; a digital code consists of discrete units or signs. Nature, or reality, consists of continua; a culture's way of making sense of nature is to digitalize or categorize it. Thus a watch with hands is analogic: the movement of the hands around the dial is continuous and is analogous to the continual movement of natural time. A digital

watch, on the other hand, divides this continuum up and codifies it into hours, minutes, and seconds. The marks or numbers around the rim of an analog watch digitalize the movement of the hands, and so do the words or figures by which we communicate the time (e.g., 3:30 P.M.). Making sense of nature and making that sense communicable involves digitalizing, categorizing, and codifying it. Thus INTERPERSONAL DISTANCE is a natural continuum. We make sense of it by codifying it into the intimate (within about three feet), the personal (about three to eight feet), and the public. Growing old is a continuous process, but we codify age into categories and often construct elaborate boundary rituals to make the passage from one digital category to another. Turning nature into CULTURE and thus making it understandable and communicable involves codifying it digitally.

Presentational and representational codes. Presentational codes are used to produce texts, which are messages with a physical existence that is independent of the social context within which they were produced. Presentational codes convey meaning only within the context of their transmission and reception. Thus a BOOK is composed of the representational codes of written LANGUAGE, punctuation, typeface, and design. These codes work in any appropriate social context. The presentational codes of, for instance, oral language, tone of voice, FACIAL EXPRESSION, and dress (see CLOTHING) can work only in the immediate social context of their use. Presentational codes are typical of INTERPERSONAL COMMUNICATION, representational codes of mediated or mass communication.

The human body is the main transmitter of presentational codes, of which there are three main types:

1. Behavioral, learned codes (e.g., facial expression). These are acquired through social experience and often work below the threshold of awareness or of deliberate intention. Nonetheless, they can be brought within the control of the encoder, if only with difficulty.
2. Commodity codes (e.g., dress). Culturally produced commodities can elaborate the bodily presentational codes. These are entirely within the control of the encoder.
3. Genetically produced bodily codes (e.g., physical size). These depend on physical features and lie largely beyond the control of the user.

Each type of presentational code can be called upon to convey one or more of the following four types of meaning:

1. Meanings about relationships: the attitude of one person toward another and the relations of liking or of domination-dependence between them.
2. Meanings about social affiliation: the class or

social group membership that we signal in any particular situation.

3. Meanings about identity: the presentation of individual differences within group or class affiliation.
4. Expressive meanings: meanings about the emotional or internal states of the people involved.

British social psychologist Michael Argyle listed ten of the behavioral presentational codes that the human body transmits:

1. *Touch*. Whom, where, and when we TOUCH can codify meanings of affection or social closeness.
2. *Proxemics*. The distance between people encodes meanings about the intimacy of the relationship (see PROXEMICS).
3. *Orientation*. The angles at which people orient themselves to each other convey social meanings. For example, facing each other closely signifies intimacy or aggression; being at 90 degrees to another signifies cooperation.
4. *Appearance*. This is basically a genetic code but is listed here because we can control our appearance to a degree by diet, hairstyle, BODY DECORATION, and so on. Appearance conveys meanings about personality, social status, and social conformity.
5. *Head nods*. These work mainly to manage interaction, particularly turn taking in CONVERSATION.
6. *Facial expression*. This can be further divided into the codes of eyebrow position, eye shape, mouth shape, and facial size (see FACE), which can be combined in various ways to convey a wide range of personal, emotional, and social meanings.
7. *Gestures (KINESICS)*. Hands, arms, head, and feet can all be used to convey a wide range of meanings (see GESTURE).
8. *Posture*. Ways of sitting, standing, or lying can convey expressive meanings, interpersonal attitudes, or social status.
9. *Eye movement and eye contact*. The eyes convey particularly powerful meanings about relationships but also work to manage interaction or turn taking and to express inner feelings.
10. *Nonverbal aspects of speech*. Pitch, tone, volume, accent, and stress can all affect not only the meanings of the words but also the social meanings of the relationship within which they are spoken.

These codes use the physical abilities of the human body to generate and communicate meanings, and they can be culturally extended and elaborated. Hair, for instance, is the most easily changeable of our natural features, and thus hairstyles become highly charged with meaning. Cosmetics too are used to

extend the signifying potential of the body. But these are close to commodity codes. *See also* NONVERBAL COMMUNICATION.

The communicative function of a huge range of consumer goods is to act as metaphoric extensions of the human body. Clothes, houses, furniture, and cars all have a functional purpose—to keep us warm, dry, comfortable, and mobile—but this is a baseline function that is taken for granted. The significant consumer choices are those among a variety of goods that serve their functional purpose equally well but differ widely in their communicative purpose. The real choices are among encoded meanings of social relationships, social membership, and individual identity.

Then there are the other aspects of the human body that are genetically rather than culturally determined. These include such characteristics as race, skin color, physical size, and GENDER. In general these characteristics are not within the control of the individual, and therefore the paradigmatic choice is not made by the encoder but rather occurs on the social level only. Thus no individual can choose to be encoded as white, black, or yellow, or as male or female, but society can and does choose what meanings and values to give to these physical differences.

Sometimes, of course, people do try to exercise choice over genetic presentational codes. These attempts range from relatively superficial alterations, such as changing hair color or changing eye color by wearing contact lenses, to more fundamental ones, such as changing signs of race (eye shape or hair texture) or of gender.

Representational codes are technologically based transformations of the presentational codes that free them from the context of the here and now. The kind of meanings the codes can convey is extended to include the absent, the abstract, and the general. Verbal language is our most complex and highly developed representational code. In its spoken form it may perform some of the functions of a presentational code, but its distinctive feature is its ability to conceptualize, to theorize, and to produce general principles. It can achieve this in both its oral and written forms.

The formal characteristics of representational codes are determined both by the properties of the medium by which they are to be transmitted and by the conventional uses that society makes of them. The form of WRITING came to be determined by its need to be produced manually by a sharp instrument on a thin, light material for easy transportation and storage. Then the technical needs of movable print produced new letterforms, and the needs of computers have produced yet others. Originally this medium was expensive in time and was used only for messages deemed to be of social importance. Thus the conventions of written language differed from those

of oral language and became more formal, more constrained by rules. Written language also required the code of punctuation as a means of reproducing the presentational codes of inflection and pauses. So representational codes are influenced by both technical and social forces. *See also* COMPUTER: IMPACT; PRINTING; WRITING MATERIALS.

The contemporary medium of television can serve as an example of how the medium-specific representational codes (both technical and conventional) work and how they relate to the presentational. An event, such as a scene in a drama, is televised. This event consists of a complex web of presentational codes. The technological processes and conventional practices are then brought to bear upon the event in such a way as to make it electronically transmittable and recordable, electronically decodable by the television receiver, and then culturally decodable by the viewer (see Figure 1).

All the media of communication have their own medium-specific technical and conventional codes, and insofar as the media are similar, so too will their codes resemble one another. Thus the codes of film and television have many similarities, some of which they share with RADIO and others with PHOTOGRAPHY. The codes of radio are similar in some ways to those of audio recording and in other ways to those of newspapers. Thus the various media differ in their technical codes but resemble one another in their conventional codes, so that the cultural competencies required to decode them are relatively easily acquired by social experience. *See also* MOTION PICTURES; NEWSPAPER: HISTORY; SOUND RECORDING; TELEVISION HISTORY.

Denotational and connotational codes. Codes do not just transmit messages over time or distance; they also generate and circulate meanings in a society. Meanings are complex phenomena, and different sorts of meaning require different sorts of codes. At one end of the scale are denotational meanings, that is, meanings that are grounded in a sense of universal reality that is the same for everyone in every society. The code of MATHEMATICS (e.g., $2 + 3 = 5$) is perhaps the purest example. These codes are objective and impersonal, and their meanings work solely within the rational, logical area of our minds. But humans are social, moral, and emotional as well as rational beings, and there is a huge range of meanings (and the codes to convey them) of this type. These codes are called connotational. Connotation occurs when denoted meanings meet the value system of a culture or the emotional system of a person. Scientific codes try to give priority to denotational over connotational meanings. Aesthetic codes, on the other hand, prefer the connotational over the denotational. Connotative meanings are specific to a culture or subculture. Thus a painting may connote harmony and beauty in one culture but not in another. A word

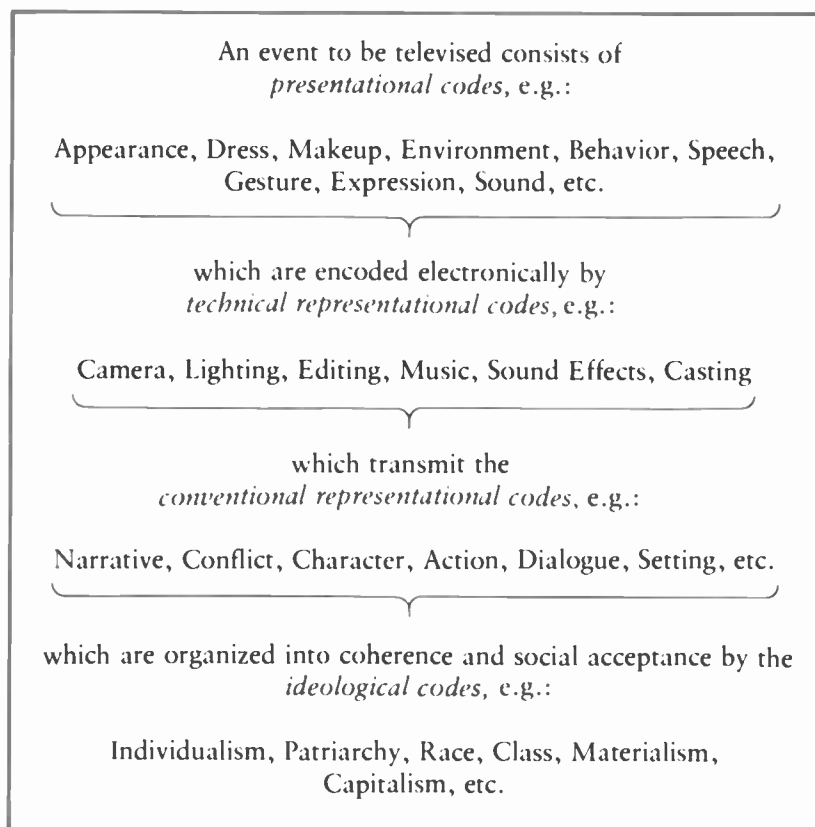


Figure 1. (Code) The process of codification in television.

like *colonial* will have negative connotations in a country like Britain, which is trying to escape its colonizing past, but will have positive values, particularly in ARCHITECTURE, in the United States or Australia with their quite different social histories. Most social codes convey denotational and connotational meanings in varying proportions. Therefore, although the British and U.S. connotations of *colonial* may differ, its denotational meaning will be shared much more closely between them.

A photograph is composed partly of the denotational codes (largely technological) by which the appearance of the object is transferred to the photograph and recognized (decoded) by the viewer. But it also employs connotative (conventional) codes, such as those of framing, focus, lighting, or graininess of the film, by which the denoted object is given social meanings, values, and expressiveness. Any choices made by the photographer are grounded in photographic conventions and result in the use of connotational codes. Denotational codes convey identical meanings for all their users and require understanding. The meanings of connotational codes vary according to the social conditions of their use and require interpretation.

Ideological codes. Connotational codes are not random. They are organized according to a deeply structured set of ideological codes that constitute the

most taken-for-granted, natural-seeming meanings of a society. All societies have deep, invisible sets of ideological codes that shape the social values that, in turn, determine their connotational and aesthetic codes. In Western industrial democracies some of these codes or shared systems of meanings and values given to central areas of social life can be given names, such as individualism, freedom, progressivism, materialism, patriarchy, and scientism. *See also* IDEOLOGY.

Broadcast and narrowcast codes. Despite these widely shared ideological codes, there are social differences in any society and between societies. Broadcast codes are ones that emphasize common social experience, and thus shared conventions, in order to circulate meanings around as many social groups as possible. Narrowcast codes are those with a narrower social use and a more restricted set of conventions. Within written language, journalese is a broadcast code, legalese a restricted code; pop music (*see* MUSIC, POPULAR) is a broadcast code, OPERA a narrowcast one. Broadcast codes tend to be simpler, in that they tend to have a smaller "paradigm" of signs and simpler syntagmatic rules for combining them. Broadcast codes are acquired through social experience; narrowcast codes frequently require formal instruction or training. Popular ART, of whatever form, tends to use broadcast codes; highbrow art uses narrowcast ones.

Codes and society. By their ability to generate and circulate shared meanings and values codes produce and maintain the sense of community and shared interests on which any society depends for its coherence and stability. They perform this function at every level of social organization, from the smallest—dyadic communication—up to the largest—national or international communication. They even operate within the individual to make a coherent and socially communicable sense of self. They form the interface among the personal, the social, and the technological and are thus the core of any social system.

See also SEMIOTICS; SIGN SYSTEM.

Bibliography. Michael Argyle, *The Psychology of Interpersonal Behaviour*, 4th ed., Harmondsworth, Eng., 1983; Basil Bernstein, *Class, Codes, and Control*, Vol. 1, 2d rev. ed., London, 1974; Colin Cherry, *On Human Communication* (1957), 3d ed., Cambridge, Mass., 1978; John Fiske, *Introduction to Communication Studies*, London and New York, 1982; Pierre Guiraud, *Semiology* (in French), trans. by George Gross, London, 1975; Edward T. Hall, *The Silent Language*, New York, 1959, reprint 1973; Robert A. Hinde, ed., *Non-Verbal Communication*, Cambridge, 1972.

JOHN FISKE

COGNITION

The activity of knowing; the acquisition, organization, and use of knowledge. Under this general heading many different topics are studied. For example, some scholars focus on how CHILDREN develop the abilities to perceive, remember, and think; others focus on the organization of knowledge systems that make it possible to store and recall information; and still others focus on the way in which knowledge is used to solve problems such as making a strategic move in a game of chess. The many different approaches to the study of cognition are united in the assumption that it is possible to study the complex processes that occur in a cognitive system as it obtains, stores, transforms, and uses information about the environment in which it functions. Terms such as *thinking*, *sensation*, *problem solving*, PERCEPTION, *recognition*, *imagery*, and *recall* are commonly used to refer to stages or aspects of this functioning.

History

The roots of the study of cognition are often traced to German philosopher Immanuel Kant's analyses of the schema and concept in the late eighteenth century, and many scholars would trace these origins back to ARISTOTLE. However, it was not until the twentieth century that the study of cognition emerged as a specific area of inquiry. From World War I until the 1960s various behavioristic and psychoanalytic theories so dominated psychology that cognitive pro-

cesses were largely ignored. To the extent that they were studied during this period, they were usually studied by Gestalt psychologists. However, like behaviorists, Gestalt psychologists devoted relatively little attention to specifying the complex activities and processes that are now seen to characterize cognitive systems. See also PSYCHOANALYSIS.

The appearance of computers changed this. Their importance in inspiring an interest in cognition did not stem primarily from their role in gathering and analyzing empirical data. Rather, it stemmed from the fact that computer operation came to be viewed as having important parallels to human cognitive processes. This suggested that complex cognitive processes were real and could be studied in terms of programs, routines, subroutines, storage, input, output, retrieval, and so forth. See also COMPUTER: HISTORY; COMPUTER: IMPACT.

It is largely because of this influence of computers, as well as associated developments in INFORMATION THEORY and CYBERNETICS, that cognitive and information-processing approaches came to be important subdisciplines of psychology in the 1960s and 1970s. The interest in computers was also instrumental in the emergence of new, related disciplines such as ARTIFICIAL INTELLIGENCE and cognitive science. Researchers in these disciplines are typically even more concerned with issues of computers and computer programming than are researchers from cognitive and information-processing psychology. In particular, they have been concerned with delineating general principles of intelligence and cognition that apply to computers as well as to humans.

Two general sets of claims have emerged about the relationship between human and machine (i.e., computer) intelligence. Some scholars have focused on the use of computers and computer programs to simulate human cognitive processes. Their claim is that by carrying out such simulations it is possible to gain insight into human psychological processes. Even though the philosophical validity of this claim has been questioned, it continues to underlie much of the research carried out in cognitive psychology, information-processing psychology, and cognitive science. In contrast, other scholars have focused their attention on programming machines that can perform tasks efficiently and intelligently, without considering the ways in which humans might carry out the same tasks. This latter approach tends to be more characteristic of studies in artificial intelligence. The various efforts devoted to the study of cognition in humans and machines are often referred to under the general heading of *cognitivism*.

Major Approaches to Cognitivist Analysis

During the short history of cognitivism, many different schools of thought have emerged. One of the

major criteria distinguishing one school from another is the choice of a unit of analysis. Virtually all cognitivist models are alike in assuming that a unit of analysis must reflect the fact that human and other cognitive systems deal with a potentially infinite range of contextually specific situations by using generalized categories. They differ, however, in what they consider to be the appropriate analytic unit for understanding these categories. Some of the major analytic units underlying accounts of cognitive processes are concepts, features, prototypes, propositions, schemata, and simple processing elements.

Concepts. The notion of a concept is probably the most widely used unit of analysis in studies of cognition. Various notions of a concept have been invoked in order to deal with a fundamental, defining property of human and computer cognitive systems, namely, the tendency to treat phenomena that differ in some way as similar or equivalent. For example, even though no two roses are identical, they are often treated as interchangeable members of the category of roses; even though a rose and a dandelion are still more dissimilar, they are treated as interchangeable members of the category of flowers; and even though a rose, a dandelion, and an oak tree are quite unlike one another, they are all treated as members of the category of plants. In some way or another this fundamental property of cognitive systems must be a part of any complete account of their functioning, and the notion of a concept is frequently and widely invoked in an attempt to meet this requirement.

Various accounts of concepts differ in the particular way they approach this tendency of cognitive systems to classify experience. Some approaches argue that LANGUAGE of some sort is essential for CLASSIFICATION. In these approaches the key to understanding the use and development of concepts can be found in the structure or function of language. Other approaches argue that concepts need not be linguistically based. For these the key to concepts may be in motor or perceptual activity. Still other approaches try to consider both nonlinguistic and linguistic factors in accounting for concepts. In such views different kinds of concepts may be tied to these two factors, or nonlinguistic concepts may lay the groundwork for complex cognitive functioning during development, and this groundwork may be transformed with the emergence of language.

Features. In most cognitivist accounts of concepts is an assumption that concepts are interrelated in a complex system. In trying to describe this system it became apparent to many researchers that some analysis of the internal structure of individual concepts was necessary. This in part led to the proposal that features could serve as basic units of analysis. Instead of viewing concepts as unstructured wholes, feature analysis decomposes them into a set of iso-

lable, abstract properties. Such an approach allows researchers to describe and predict ways in which cognitive processes are affected by features. For example, the fact that robins, canaries, and ostriches all share certain common features (e.g., being animate, having feathers, having wings, having a head) suggests a way to account for the tendency of subjects to group or cluster them together in memory tasks involving lists of words from a variety of general categories (e.g., birds, mammals, furniture, clothing, plants). Findings such as these on clustering suggest that memory is organized in terms of features.

Some approaches that take features as the basic unit of analysis assume that a concept is a logical, clearly defined entity whose membership is defined by an item's possession of a single set of criterial features. Such straightforward approaches have been called into question, however, on the grounds that they lack the power and flexibility to deal with many of the contextually situated items typically encountered by cognitive systems. Cognitivists have responded to this observation in several ways. Some have tried to retain the basic tenets of feature theory but have argued that more sophisticated and variegated lists of features are needed. For example, it has been argued that some features may be defining (i.e., essential for an item's being included under a conceptual heading), whereas others may be only characteristic (i.e., nonessential). Thus the features of being animate, having feathers, having wings, and having a head are defining for the concept of bird, but the features of being able to fly and being able to sing are only characteristic, because they are present in certain birds (e.g., canaries) but not in others (e.g., ostriches).

Prototypes. Another way researchers have tried to overcome the weaknesses in feature theory is tied to the third unit of analysis: the prototype. Instead of viewing a concept as a particular set of features, prototype analysis is organized around prototypical exemplars or "best representatives." In this view members of a conceptual category may vary in their distance from the prototypical exemplar, and category membership is a matter of degree rather than an absolute.

Even though prototype theory emerged for the same reason as certain refinements in feature theory, it is fundamentally different in its assumptions. The basic representational mechanism in feature theory is a set of abstract, isolable features, and the issue is whether concrete items have the criterial features specified by these representational types. In the case of prototype theory, the basic representational mechanism is an image of a concrete object or event, and the issue is the degree to which other concrete items are similar to it.

Propositions. The fourth basic type of analytic unit is the proposition, an abstract MEANING representa-

tion that relates two or more concepts. It is abstract in the sense that it is not tied to any particular linguistic form. Thus the same propositional representation (hit John Bill), which involves the relation of hitting and the arguments (concepts) of John and Bill, may be encoded in English, French, Russian, or any other language. Furthermore, within a language this propositional representation is not tied to any particular linguistic form; thus it may properly be encoded in English either as "John hit Bill" or "Bill was hit by John." One of the major motivations for accepting an abstract propositional representation as a unit of analysis is that empirical research has demonstrated that humans often store and recall the propositional content of a spoken or written passage but not its actual linguistic form. Because propositions are treated as abstract representational types by cognitivists, they are similar to features and unlike prototypes. However, propositions differ from features (and concepts) in that they involve relations among arguments, or concepts, as well as the arguments themselves.

Schemata. A fifth basic unit of analysis is the schema. A schema is a generalized pattern of action that guides humans or other cognitive systems as they obtain and process information about the environment and act on that environment. In more computer-oriented terms, a schema is a large-scale data structure that guides the INTERPRETATION of input data, the storage and transformation of information in memory, and the execution of action on the environment. Schemata are variously thought of as generalized plans, recipes, or formats that guide perception, thinking, memory, and motor action. For example, it has been claimed that there are generalized schemata for actions such as going to a restaurant, listening to a folktale, and remembering the spatial layout of an apartment (*see SPATIAL ORGANIZATION*). In addition to schema, the terms *frame* and *script* are often used in cognitivist literature to refer to such patterns of action.

Cognitivists introduced the notion of schema in an attempt to formalize the observation that humans often recognize and deal with situations in terms of a general, routinized pattern of action. In this view such a pattern of action cannot be broken down into smaller units such as simple concepts or stimulus-response links without losing sight of the crucial facts about its overall, holistic nature. Evidence for the role of schemata in cognitive processes comes from a variety of sources. For example, many studies have demonstrated that scripts or schemata influence the memory for written or spoken texts. This influence is manifested in subjects' tendency to "remember" information that in fact was not in a passage but could be expected to be there on the basis of a familiar script. Conversely, subjects often systemati-

cally forget or distort information that is not consistent with the scripts that usually guide their processing.

Each of the five units of analysis mentioned so far (concepts, features, prototypes, propositions, schemata) has been proposed in one or another model as the appropriate construct on which to build a general theory of cognition. However, as cognitivist research has expanded, the notion that any one of these analytic units can provide the underpinnings for a comprehensive theory has been called into question. In some cases, the idea that a single unit can underlie functioning in the variety of task settings encountered by a cognitive system has been criticized. Such criticisms often are associated with the claim that cognitive systems require the flexibility of having access to different units for different situational demands. In this connection, various combinations of the five units of analysis outlined above, as well as others (e.g., temporal strings, spatial images), have been proposed.

Simple processing elements. Other cognitivists have argued that a fundamentally different level of analytic unit is required to create an integrated theory of cognitive processes. Some researchers have proposed the notion of a simple processing element. Theoretical approaches that take the simple processing element as their basic unit of analysis differ from most others in certain crucial ways. The importance of these differences is indicated by the basic METAPHOR that they take to be guiding their work. Whereas cognitivist approaches concerned with the first five analytic units are generally motivated by some sort of computer metaphor, approaches grounded in the simple processing element are based on a brain metaphor. In many respects the simple processing element is modeled after the neuron. For this reason, such approaches are sometimes called "neurally inspired."

A basic operating principle of such approaches is that representations associated with analytic units such as concepts or schemata reflect an emergent property of large aggregates of simple processing elements (or simply "units") acting together. Instead of a one-unit, one-concept or one-unit, one-schema approach, the assumption is that the unit's job is simply to receive input from other neighboring units and, as a function of the inputs it receives, to compute an output value that it sends on to its neighbors. The system in which these units operate is viewed as functioning in an inherently parallel (as opposed to sequential) fashion in that many units can carry out their computations at the same time. Furthermore, processing is distributed throughout the system. For these reasons such approaches are sometimes grouped under the heading of parallel distributed processing (PDP) models.

PDP models were proposed because of various

dissatisfactions with existing cognitivist models based on other analytic units. For example, the observation that human cognitive functioning typically involves multiple, simultaneously activated concepts, schemata, and so forth implies that approaches that cannot provide a principled account of parallel processing are likely to be unable to provide an adequate simulation of human cognition. Also, it has been widely observed that although activity at the level of individual neurological events proceeds at a much slower speed in humans than in modern computers, humans solve many complex problems faster than computers do. With an eye toward simulation of human cognition, approaches that assume parallel and distributed processes may be able to resolve this seeming contradiction.

Much of the cognitivist research concerned with the six units of analysis outlined here has been grounded in computer simulations and in laboratory experiments with human adults. (In spite of the fact that research concerned with elementary processing units is grounded in a brain metaphor rather than a computer metaphor, the use of computer simulation applies to it as much as to research concerned with other analytic units.) In all cases, the methodology typically involves the computer simulation of a cognitive process as well as the experimental study of adult subjects' execution of that process. Each of the two sets of findings generates hypotheses and provides validation checks for the other.

Other Approaches to the Study of Cognition

In addition to these procedures, other major methodologies exist for the study of cognition. The most important are concerned with developmental (i.e., ontogenetic), cross-cultural, and clinical issues. For a variety of reasons having to do with the practicalities of dealing with certain kinds of subjects, these approaches tend to focus on more naturalistic settings for gathering data rather than on laboratory experiments and the computer simulations that go with them. Even though the same general set of analytic units mentioned above is studied in one or more of these more naturalistic approaches, the methodologies are often so different from laboratory experimentation and computer simulation that the subdisciplines of developmental psychology (especially cognitive development), cross-cultural psychology (also psychological anthropology), and clinical psychology (including studies of neuropsychology and developmental disabilities) have made unique contributions to the study of cognition.

Developmental. A fundamental tenet of most approaches to developmental psychology is that cognitive processes are best understood by analyzing their origins and development. The most influential

version of this claim can be found in JEAN PIAGET'S account of "genetic epistemology." In this approach the roots of human cognition may be traced to the elementary sensorimotor schemata of the infant. These schemata guide the individual's assimilation of new information and experience while simultaneously developing and accommodating to the demands of the reality that surrounds the child. The functional invariants of assimilation and accommodation of schemata (together called adaptation) characterize all stages of cognitive development, according to Piaget.

Theories such as Piaget's take an "interactionist" approach to cognitive development. Such approaches assume that cognition is shaped by the forms of interaction that occur between an active subject and its environment. In this view human cognitive processes are neither innately specified nor determined simply by a passive subject's accumulation of information about the environment. Such interactionist approaches avoid the classic pitfalls of both Cartesian rationalism and simple empiricism.

Major differences exist among interactionist approaches in what are considered relevant aspects of the environment and hence in what can be predicted about how human cognition will be shaped by subjects' interaction with it. Some focus primarily on the physical environment and arrive at an account of cognition that looks much like the logico-mathematical foundations of modern science. Since the aspects of the physical environment at issue in such approaches are the same everywhere, these approaches tend to focus on universal cognitive structures and processes. Others are more concerned with social and cultural aspects of the environment. Their account sees major differences among cultures and social groups in the cognitive processes that result. For example, some of these latter approaches concentrate on the way in which the structure and function of language may influence cognition. Since such linguistic factors differ widely among speech communities, these approaches tend to be more sensitive to social and cultural differences that may emerge in cognitive processes.

Cross-cultural. In cross-cultural methodologies for studying cognition, cultural and social groups are studied in an attempt to identify commonalities (and hence universal human tendencies) as well as differences in cognition. Because cross-cultural approaches typically deal with settings that differ from those studied in the West, they often begin with an account of the setting (called an ethnography) and then attempt to identify the cognitive correlates of it. Relevant aspects of this setting include factors such as the language used and the forms of institutional activity in which people engage. These two aspects of the environment are often examined in tandem. For example, several important studies have been

done on the cognitive consequences of using language in the ways associated with formal instructional activity. One of the advantages of studying this issue cross-culturally is that it allows the investigator to separate the influence of schooling from the effects of maturation. This separation can be made because, unlike in Western industrial societies, in which there is a high, positive correlation between child's age and exposure to formal instruction, children in many other sociocultural settings do not regularly have increasing experience with formal schooling as they grow up. *See also* SCHOOL.

Clinical. Like cross-cultural studies, many clinical approaches to the study of cognition assume that it is possible to learn a great deal about cognitive processes by making comparisons among groups of subjects. There are two additional issues. First, since the primary consideration in clinical practice is the diagnosis and remediation of patients' performance, research in this area generates different kinds of data from those generated in other approaches. Second, many clinical studies are motivated by the desire to learn more about the relationship between the brain and cognitive processes—for example, the studies of specifiable neurological impairments and related disturbances in cognitive performance. Indeed, during much of the twentieth century most information about what areas of the human brain are involved in various cognitive tasks came from studies of what cognitive impairments emerged with specific kinds of brain damage.

Social groups and cognitive processes. In general, cognitivist approaches have made some impressive contributions to knowledge. However, several issues have traditionally received little or no attention. One of these is how cognitive processes can be carried out by social groups. Most studies in cognitivism are grounded in the assumption that cognition is a property of individuals, not groups. This assumption is reinforced by the nature of the analytic units employed in these studies; concepts, features, prototypes, and so forth are almost always assumed to be notions that apply to individual, not social, activity. Several investigators have proposed alternative analytic units that would allow the study of group as well as individual cognition. Such challenges are often particularly important in developmental studies in which some approaches emphasize the social origins of individual cognitive activity.

Artifacts. Another sometimes neglected issue in cognitivism is the role of artifacts, or cultural devices used to mediate human activity (*see* ARTIFACT). The importance of artifacts for cognitivism derives from the claim that much of human cognitive activity can be accounted for only if we understand the cultural devices used to mediate it. In this connection the use of tools and sign systems (e.g., natural language), rather than internal, individual cognitive processes,

is viewed by an increasing number of scholars as holding the key to understanding human cognitive functioning (*see* SIGN SYSTEM). The role of social groups in cognitive processes and the role of artifacts are examples of issues whose investigation would require increased collaboration between cognitivists and scholars from disciplines such as anthropology, history, and SEMIOTICS. While cognitivists have often called for increased interdisciplinary collaboration, such collaboration remains largely a promise of the future rather than a present reality.

Bibliography. Frederic C. Bartlett, *Remembering: A Study in Experimental and Social Psychology*, New York and Cambridge, 1932; John D. Bransford, *Human Cognition: Learning, Understanding, and Remembering*, Belmont, Calif., 1979; Michael Cole and Sylvia Scribner, *Culture and Thought: A Psychological Introduction*, New York, 1974; John H. Flavell and Ellen M. Markman, eds., *Cognitive Development*, Vol. 3, *Handbook of Child Psychology*, 4th ed., Paul H. Mussen, general ed., New York, 1985; Aleksandr R. Lurĭa, *The Working Brain: An Introduction to Neuropsychology* (in Russian), trans. by Basil Haigh, New York, 1973; Ulric Neisser, *Cognition and Reality: Principles and Implications of Cognitive Psychology*, San Francisco, 1976; Jean Piaget, *The Psychology of Intelligence* (in French), trans. by Malcolm Piercy and D. E. Berlyne, London, 1950, reprint Totowa, N.J., 1969; Lev Semenovich Vygotsky, *Myshlenie i Rech': Psikhologicheskie Issledovaniya* (Thinking and Speech: Psychological Research), Moscow and Leningrad, 1934, reprint (ed. and trans. by Eugenia Hanfmann and Gertrude Vakar, Thought and Language) Cambridge, Mass., 1962.

JAMES V. WERTSCH

COGNITION, ANIMAL

The debate over the nature of COGNITION in animals and humans has a long and acrimonious history, and one of the more controversial topics in this debate has been the question of whether animals could learn to use and understand human LANGUAGE. The results of many of the early studies that sought to answer this question were difficult to interpret because, among other reasons, the experiments were not well designed and did not test what they purported to test. More recent research has tried to define and control more carefully what is being tested, what counts as language learning, and what effect the context and the experimenter's behavior might have on the behavior of the animal during the experiment.

Thus far, after fifteen years of experimentation, no nonhuman has acquired a language comparable to human language. This cannot be a surprise; even humans who are deficient in language cannot be taught normal human language. When children who fail to acquire language in the first place and adults who acquire but then lose language through neurological damage are trained with the same procedures



Figure 1. (*Cognition, Animal*) Dr. H. S. Terrace and Nim. Dr. Terrace: "Mine," Nim: "Me/hat" (simultaneous signs). *Animals Animals* © Dr. H. S. Terrace.

used with species of apes, both apes and humans learn a similar system, one in which there is no evidence of grammatical classes or recursion, properties that set human language apart. *See also* LANGUAGE ACQUISITION.

Although earlier failures to teach language to chimpanzees—for example, that of K. J. Hayes and C. Hayes—can be discounted on the grounds that chimpanzees cannot produce human SPEECH sounds, more recent failures cannot be so discounted. The languages Allen Gardner and Beatrix Gardner and David Premack attempted to teach chimpanzees were not based on speech. The Gardners used a simplified form of American Sign Language (ASL), and Premack used an artificial language in which metal-backed pieces of plastic serving as "words" were placed on a magnetized slate in sentencelike strings. The work of the Gardners and Premack was soon duplicated by others but with no essential change in either procedure or outcome. *See also* SIGN LANGUAGE.

The chimpanzee can learn to observe word order both in producing sequences of "words" and in comprehending the sequences given it. For instance, it can be taught to "describe" simple conditions. A red card placed on a green one will be "described" as "red on green" (not "green on red"). Similarly, the animal can be trained to request food by "writing," "Mary give Sarah apple"; it will react quite differently to "Sarah give Mary apple." In the latter case it may carry out one or two requests but will soon reject others, either knocking the words from the board or stamping its own name, "Sarah," vigorously on each piece of apple (as a child might lay claim to its property by shouting, "Mine! Mine!"). Because the chimpanzee can be trained to use word

order in this manner, why deny that it has language?

The basic reason concerns the use of grammatical categories such as subject and predicate. Does the chimpanzee use such categories in forming or understanding its "sentences" (as the human clearly does, for human sentences cannot be formulated without recourse to such categories)? We have no evidence that it does. The sentencelike sequences of the chimpanzee can be formed with the use of categories far less abstract than that of subject or predicate—categories of perhaps a semantic (e.g., agent, recipient) or, more likely, merely a perceptual nature (e.g., object, action, property). Of course, it is not inconceivable that evidence for grammatical categories in nonhumans will yet be demonstrated, but none has been so far.

At the level of the sentence, evidence for animal language is unrelievedly negative; the evidence is more positive and interesting at the level of the word. Animals (and not only humans) store mental representations of their perceptual experience. Moreover, when chimpanzees are taught names for the items whose mental representations they store, they can retrieve the representations with the "words." For instance, when given the word *apple* (a small blue triangular piece of plastic), the chimpanzee can think of or picture an apple and will identify properly all its properties—taste, seed, stem, shape, color, and so forth. This ability enables the chimpanzee to engage in what is sometimes considered the hallmark of language: "displacement," or talking about things that are not there. In addition, the chimpanzee shows what has been called the Markman effect, an interesting characteristic of word use in children. When a child is shown a picture of, for example, a dog and is asked to match it with either a picture of a different

dog or a picture of a bone, the child typically chooses the bone, a thematic rather than a categorical (taxonomic) associate. However, if the word *dog* or even a nonsense word is spoken when the child is shown the pictures of the dog and the bone, the child tends to choose the dog, the categorical associate. Chimpanzees show the same shift from thematic to categorical associate both when the sample is accompanied by its name and when it is accompanied by a nonsense word (a piece of plastic, wordlike in its features but never actually used as a word). Moreover, the chimpanzee that has not been taught words does not show the effect.

The major benefits of animal language research actually have less to do with language per se than with other facets of intelligence. For instance, tests indicate that chimpanzees "read" simple actions in a humanlike way. When shown videotapes of simple actions, such as Bill cutting an orange, they can learn to place distinctive markers on Bill (agent of the action), orange (object of the action), and knife (instrument of the action), thus identifying precursors of basic semantic concepts. In addition, the animal can complete incomplete representations of action. For example, when given the sequence apple-blank-cut-apple, it chooses knife (not pencil or water); when given sponge-blank-wet-sponge, it chooses water (not pencil or knife). Finally, the animal appears to be able to attribute states of mind—such as want and belief—to someone other than itself. When shown an actor confronting a problem, it consistently chooses photographs that constitute a solution to the problem. In order to choose a solution one must first see a problem. And a problem can be perceived as an individual who is seen as wanting something and believing that he or she can get it by acting in a certain way.

See also ANIMAL COMMUNICATION; HUMAN-ANIMAL COMMUNICATION.

Bibliography. Noam Chomsky, *Reflections on Language*, New York, 1975; Ellen M. Markman and Jean E. Hutchinon, "Children's Sensitivity to Constraints on Word Meaning: Taxonomic versus Thematic Relations," *Cognitive Psychology* 16 (1984): 1–27; Steven Pinker, "Formal Models of Language Learning," *Cognition* 7 (1979): 217–283; David Premack, *Gavagai! or the Future History of the Animal Language Controversy*, Cambridge, Mass., 1986.

DAVID PREMACK

COGNITIVE CONSISTENCY THEORIES

A variety of social psychological theories sharing the assumption that people have an inherent tendency to reduce inconsistency among the items of information they hold about the world and themselves. The items

of information, called cognitions, include beliefs, ATTITUDES, opinions, affective responses (liking and disliking), and behavior. These theories argue that when relationships among cognitions are perceived as inconsistent, people will initiate mental processes or behavioral changes designed to reduce or eliminate such inconsistencies. Specifically, cognitive consistency theories predict when people will be particularly receptive or resistant to persuasive communications and when they will try to persuade other people (see PERSUASION). What defines inconsistency of cognitions, what other dimensions of cognitions must be considered, and what are the psychological consequences of inconsistency distinguish the major theories of cognitive consistency.

Balance Theory

Fritz Heider's balance theory, derived from principles of Gestalt psychology, holds that our perception of people and things tends to be organized in terms of two dimensions, *unit* and *sentiment* relations. Unit relations may be either positive or negative. A positive unit relation occurs when a person is tied to another person or thing through any of a number of psychological, sociological, or physical variables, such as causation, ownership, membership, and proximity. Specific examples would include a house and its owner, a book and its author, and two people in a relationship. A negative unit relation exists when people and objects are not tied to one another, as when an adult and a child are unrelated or the person does not own the house. Similarly, sentiment relations are positive (e.g., liking) or negative (e.g., disliking) in character.

Cognitive balance is defined from a perceiver's point of view. If the perceiver's unit and sentiment relations toward an object are both positive or both negative, balance exists (e.g., if Joe likes the car he owns or if he dislikes the car he does not own). Imbalance exists if the unit and sentiment relations have opposite signs (e.g., if Joe hates his car or likes the car he does not own). When considering the relations between two people, the analysis becomes slightly more complicated because in addition to those unit and sentiment relations described above, the perceiver will also note whether the observed person likes or dislikes the perceiver. Considering sentiment relations alone, cognitive balance exists when two persons like each other or dislike each other, and imbalance exists when one likes the other and is disliked in return.

The definition of balance when there are three persons, or two persons and an object, is generally clear, especially when only sentiment relations are considered (see Figure 1). Among three relationships balance exists when all are positive or when two are negative. If Joe likes Jane and Sue, then Jane and Sue

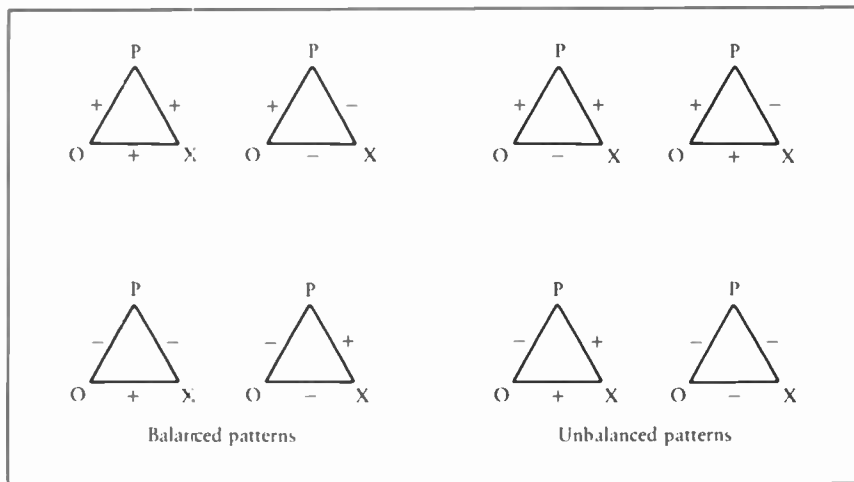


Figure 1. (*Cognitive Consistency Theories*) Balanced and unbalanced patterns in Fritz Heider's balance theory. P and O represent persons, X an attitude object. The lines between elements represent either *unit* or *sentiment* relations. Balanced or unbalanced states are defined here from P's point of view. From Stuart Oskamp, *Attitudes and Opinions*, p. 194. © 1977. Adapted by permission of Prentice-Hall, Englewood Cliffs, N.J.

must like each other for balance to exist. Similarly, if Joe likes Jane and dislikes Sue, then balance is produced by Jane disliking Sue. But note that if Jane and Sue are roommates balance will be difficult to achieve by one disliking the other because of the positive unit relationship. Note also that in these examples reciprocal sentiment relations have not been considered (although Theodore Newcomb's theory of symmetry in interpersonal relationships provides such an analysis). The analysis of cognitive balance even among three people can be quite complicated when all possible sentiment and unit relations are taken into account. The analysis of cognitive balance among more than three persons requires mathematical solutions such as that offered by Dorwin Cartwright and Frank Harary.

Heider assumes that a perceived state of balance is preferred to a perceived state of imbalance. Thus when imbalance occurs, there will be a tendency on the part of the perceiver to see or produce change toward cognitive balance. The individual who is disliked by someone he or she likes may come to dislike that person, and the individual who dislikes the house he or she owns may sell it or come to like it.

Perhaps the major implication of balance theory for the understanding of communication processes concerns agreements or disagreements that people have about any kind of attitude issue. Agreement with a disliked person or disagreement with a liked person produces imbalance and a consequent tendency to attain balance. Thus people may come to change their attitudes about issues in order to achieve balance, or they may change their liking for others.

Congruity Theory

Explicitly about communication processes and their effects on attitudes, congruity theory was generated by CHARLES OSGOOD and Percy Tannenbaum in the mid-1950s. It predicts changes in attitudes toward a

communicator and toward the idea or object about which the communicator made an evaluative statement. For example, if a respected clergyman asserted that prostitution was good, the incongruity would tend to produce changes in one's attitude toward both the clergyman and prostitution. As this example implies, congruity theory is quite similar to Heider's balance theory. Although it is more limited than balance theory in that it applies only to those situations in which a source makes an evaluative assertion about a concept (person, object, idea), it is more refined than balance theory in that it predicts amounts of attitude change as a function of the degree of incongruity.

The theory assumes that it is possible to measure the extent to which a person approves or disapproves of a communicator and of the concept about which the communicator makes an assertion. The assertion is conceived as being either for or against the concept without regard to its strength. As will be apparent a strongly positively regarded communicator making a supportive statement about a strongly approved concept constitutes a state of congruity. As long as the assertion favors the concept, incongruity occurs to the extent that (1) regard for the communicator is less than strongly positive or (2) the concept is less than strongly approved. If either the attitude toward the communicator or the attitude toward the concept was negative, strong incongruity would exist. Alternatively, if the assertion is against the concept, a strongly positively viewed communicator and concept would produce maximal incongruity. Incongruity would then be decreased to the extent that (1) regard for the communicator is less than strongly positive or (2) the concept is less than strongly approved.

The theory assumes that when incongruity exists there will be a psychological drive to reduce it. In general, incongruity can be reduced by changes in attitudes toward the communicator and/or the con-

cept in the direction of greater congruity. These changes will not necessarily be equal between the attitudes toward the communicator and the attitudes toward the concept. When a source makes an assertion about a concept, there will be a general tendency for the attitude toward the concept to be more affected than that toward the source. Finally, when the assertion made by a source is very surprising (e.g., a clergyman advocating prostitution), there will be a tendency to disbelieve the assertion or its apparent significance, thereby reducing incongruity.

Congruity theory has obvious utility in considering those situations in which the persuasive effect is due more to the (positive or negative) prestige, reputation, or attractiveness of the communicator than to the persuasiveness of the message. It therefore complements theories that bear on the persuasive effects of a communicator's trustworthiness and expertness as well as theories that concern the persuasive content and structure of a communication.

The Theory of Cognitive Dissonance

This theory was formulated by Leon Festinger in the mid-1950s and subsequently inspired hundreds of research projects and considerable debate and commentary. It was provocative because it turned the commonly accepted positive relationship between incentives and behavior on its head, asserting that under certain conditions behavioral tendencies would be strengthened in *inverse* proportion to the magnitude of rewards or punishments. The theory noted that not only do attitudes guide behavior—as was always assumed—but that behavior also guides attitudes. Thus cognitive dissonance theory essentially stipulates a set of conditions under which attitudes will become more consistent with behavior.

The theory is stated in terms of cognitions, defined as items of information that a person has about the self and the world. Examples of cognitions are one's awareness of a liking for ice cream, attitudes toward nuclear disarmament, perception that a friend is authoritarian, knowledge that the world is round, and recollection of how one voted in the last election. When one cognition (e.g., I am eating ice cream) "follows from" another (e.g., I like ice cream) the two cognitions are said to be *consonant*. When one cognition (I like ice cream) is inconsistent with another (I have just refused to eat some ice cream) the two cognitions are said to be *dissonant* with each other. This definition of a dissonant relationship approximates what has been used to test empirical derivations, whereas the original, more general and formal definition—that one cognition follows from the obverse of another—has been criticized for imprecision. Given any pair of cognitions, it is not always possible to say whether they are consonant, dissonant, or simply irrelevant to each other. There

are nevertheless many instances in which consonant and dissonant relationships can be specified, thus allowing tests of the theory and its application to the understanding of psychological processes.

Dissonance theory takes an important step beyond other theories of cognitive balance by specifying that cognitions are resistant to change. First, the theory assumes that perceptions are responsive to reality (e.g., it would be very difficult to "see" a circle as a square). At the same time, some realities are more ambiguous than others, and to the extent that a reality is ambiguous its corresponding cognition will be less resistant to change. An object perceived through a heavy mist might be seen as a tree, a building, or an elephant, and changing what it is that one "sees" would be quite easy. In addition to perceiving realities in different ways, one can change a cognition by changing its corresponding reality. In this case resistance to changing the cognition results partly from the difficulty of changing the reality. If one sees oneself as fat, that cognition may be changed by becoming thinner through exercise, intake control, and so on.

One more variable that must be specified in order to understand the implications of dissonance theory is the relative importance of cognitions. No formal definition is given, but the variable is accessible intuitively. For example, the cognition that I have just broken my pencil is less important than the cognition that my car has been stolen, and the cognition that the day is cloudy is less important than the cognition that a friend has just died. Cognitions must therefore be weighted according to their importance.

When a person holds two or more cognitions that are in a dissonant relationship to each other, the person is said to experience dissonance, a motivational state that, like hunger, urges behavior designed to reduce or eliminate it. The centerpiece of the theory, then, is the statement that relates the determinants of the magnitude of dissonance to the ways in which a person will try to reduce dissonance. The magnitude of dissonance associated with a given cognition is a direct function of the number of cognitions dissonant with it, each weighted for importance, and an inverse function of the number of cognitions consonant with it, each weighted for importance. In other words, the magnitude of dissonance associated with a given cognition is a direct function of the ratio of dissonant to consonant cognitions (see Figure 2). A person who experiences dissonance can reduce it by reducing the number of dissonant cognitions or their importance and by increasing the number of consonant cognitions or their importance. In general, what cognitions will be changed in order to reduce dissonance will be determined by their resistance to change, as described above.

In order for this formulation to be sensible the

$$\text{The magnitude of dissonance associated with any one counterattitudinal statement} = \frac{\text{Related dissonant cognitions} \times \text{the importance of the cognitions}}{\text{Related consonant cognitions} \times \text{the importance of the cognitions}}$$

Figure 2. (*Cognitive Consistency Theories*) From Leon Festinger's theory of cognitive dissonance, a framework for calculating the magnitude of dissonance generated by counterattitudinal statements. From Mary John Smith, *Persuasion and Human Action, A Review and Critique of Social Influence Theories*, Belmont, Calif., p. 122. © 1982 by Wadsworth. Reprinted by permission.

cognition in regard to which the magnitude of dissonance is calculated must have very high resistance to change. Hence it is in regard to irrevocable behaviors that the implications of the theory have been most clear. The selection of one of several alternatives when one cannot reverse the selection, or the decision to comply or not with pressure to behave in a certain way, provides a clear cognition with high resistance to change and thereby allows specification of the magnitude of dissonance and how dissonance will be reduced. For example, the choice to vote for political candidate A rather than B will create dissonance to the extent that candidate A has negative characteristics (e.g., he or she knows little about foreign policy) that candidate B does not have, and to the extent that candidate B has positive characteristics (e.g., he or she is an expert on crime and delinquency) that candidate A does not have. Note that irrationality is not assumed in the decision; on balance candidate A is perceived as better than candidate B. The reduction of dissonance resulting from the voting decision can proceed in any or all of the following ways. Positive characteristics of A can be seen as more important, and new positive characteristics can be found. Negative characteristics of A can be seen as less important. Conversely, positive characteristics of B can be made less important, negative characteristics can be made more important, and new negative characteristics can be found.

Implications regarding the communication process are many. After a dissonance-arousing vote, for example, the voter will welcome almost any kind of supportive information about the chosen candidate. The voter will be pleased if the candidate won, not only because the candidate was preferred but also because winning shows that other people agree with one's decision. At the same time, the voter will avoid or discount any negative information about the chosen candidate and welcome negative information about the rejected candidate.

The induction of behavior that a person would normally avoid, called "forced compliance" by Festinger, also has implications for the understanding of communication processes. However, the implication that has received major attention focuses on self-persuasion as opposed to persuasion of others. When by the promise of a reward or the threat of punish-

ment for noncompliance a person is induced to uphold an attitudinal position that is discrepant with what he or she privately believes, the magnitude of resulting dissonance will decrease as the magnitude of the reward or threat increases. That is, because the initial attitude and the behavior are dissonant with each other and are constant, as the number of reasons for engaging in the behavior increases, the ratio of dissonant to consonant (weighted) cognitions will decrease. Because it is difficult to deny that one has engaged in counterattitudinal behavior, dissonance will tend to be reduced by changing one's attitude so that it more nearly corresponds with one's behavior. Thus when people are induced to engage in counterattitudinal behavior, the *less* the magnitude of the inducement (e.g., money or threat), the greater will be the attitude change in the direction of the induced behavior. This is an interesting insight into self-persuasion processes and relates to phenomena such as brainwashing and religious conversion.

A more relevant implication of dissonance theory for the understanding of communication processes comes from an audience's "forced compliance." Whenever an individual exposes himself or herself to persuasions or points of view that would normally be avoided, some dissonance should be experienced that should result in a tendency to become more positively disposed toward the avoided communications. ADVERTISING is a good example. Watching television (especially in commercial mass media systems) involves an almost inevitable exposure to COMMERCIALS and occasional public service persuasive messages. Interestingly enough, the dissonance formulation holds that the magnitude of dissonance and consequent tendency for positive attitude change toward the advertised product will increase as the entertainment value of the program *decreases*—up to the point, of course, at which one does not watch at all. From the perspective of dissonance theory, having a very good reason for enduring ads (or any persuasive messages) makes them less persuasive as long as the reason is irrelevant to the content of the ad or message. More generally, whenever a person exposes himself or herself to a discrepant point of view, the less good the reasons for doing so, the greater the dissonance and consequent positive change toward the discrepant position. This is perhaps the

most important and general of the implications from dissonance theory for the understanding of communication processes.

One final derivation of dissonance theory deserves mention. No matter how dissonance has been created in a person, a method for reducing dissonance that is likely to be available is the procurement of social support. In some instances this will be most easily attained by selective association with people expected to have a point of view consonant with one's behavior. In other cases persuasion will be necessary. Those in whom dissonance has been aroused will attempt to persuade others of the validity of what they have done. Hence dissonance can produce persuasive communications as well as make people more or less prone to accept them.

Assessment

Although cognitive consistency theories have been criticized as mechanistic, simplistic, not applicable outside the laboratory, and as viewing people as passive rather than active processors of information, the theories must be judged as having made a major contribution to our understanding of human behavior. Dissonance theory, in particular, opened new frontiers for research and changed our fundamental understanding of how promises of reward and threats of punishment affect values and behavioral tendencies. While the major thrust of research that followed the theories of cognitive consistency centered primarily on *how* information is processed, the current trend is to return to the question of *why* information is processed. Theories of cognitive consistency integrated these two questions to a remarkable degree.

Bibliography. Robert Abelson, Elliot Aronson, William McGuire, Theodore Newcomb, Milton Rosenberg, and Percy Tannenbaum, eds., *Theories of Cognitive Consistency*, Chicago, 1968; Leonard Berkowitz, ed., *Advances in Experimental Social Psychology*, Vol. 9, New York, 1976; Leon Festinger, *A Theory of Cognitive Dissonance*, Stanford, Calif., 1957; Fritz Heider, *The Psychology of Interpersonal Relations*, New York, 1958; Gardner Lindzey and Elliot Aronson, eds., *Handbook of Social Psychology*, 2d ed., Reading, Pa., 1968, and 3d ed., New York, 1985; Charles E. Osgood, George J. Suci, and Percy H. Tannenbaum, *The Measurement of Meaning*, Urbana, Ill., 1957; Robert A. Wicklund and Jack Brehm, *Perspectives on Cognitive Dissonance*, Hillsdale, N.J., 1976.

JACK W. BREHM

COINS

Coins have existed since the seventh century B.C.E. in the eastern Mediterranean and were minted somewhat later elsewhere in the Middle East, India, and

China. As an alternative to coins, paper money was printed in China from about 1000 C.E. for four hundred to five hundred years but only appeared in the rest of the world much later. While coins and paper currency served important functions in trade and finance, they also furnished a means of communication by carrying pictorial and verbal messages. In most cases, the design of coins and notes included not only the monetary value, the name of the issuing authority, and the date, but also decorative elements with some sort of political or religious message.

Origins

Early coins featured a wide range of symbols and figures, including animals, humans, and gods and goddesses, but the first clear examples of the political use of coins appeared in Persia in the sixth century B.C.E. The figure of the monarch, arrayed for war as the defender of his people, adorned the obverse of gold darics and silver sigloi from the beginning of Persian coinage until the demise of the Persian Empire in the fourth century B.C.E. The Parthians, who eventually succeeded the Persians, presented their monarchs with the attributes of gods on the reverse of their drachmas and larger coins. The kings bore weapons, just as they did on Persian coins, and were intended to be viewed as defenders of the nation. Such concepts dominated Parthian coinage from approximately 250 B.C.E. to 250 C.E.

In Greece coins issued by individual cities celebrated civic identity and pride. For instance, the staters of Metapontum, which were decorated with an ear of wheat, probably referred to the agricultural wealth of the town. The frequent inclusion of protective deities sacred to a particular polis also served to identify and celebrate the town. *See* HELLENIC WORLD.

Ancient Rome

Ancient Rome furnishes many examples of the symbolic use of coin illustrations. At its zenith, the Roman Empire encompassed an area of nearly 1 million square miles, with a population approaching 100 million. The empire was composed of dozens of different peoples, each with its distinctive language, religion, and way of life. As part of a strategy to retain dominance, it was important for the Roman state to make its rulers and their power widely known. Some form of mass communication had to be found, and coinage was one of the few available possibilities. *See* ROMAN EMPIRE.

Another reason for the use of coins was the political insecurity of the emperor. By placing his portrait on coins, by referring to his personal virtues and

political accomplishments, the emperor hoped to enhance his prestige and political legitimacy.

Some of the Roman coins glorified both emperor and state. For example, a brass sestertius during the reign of Nero (54–68 C.E.) depicted a seated figure of the goddess Roma. The other side of the coin featured a portrait of the emperor. Other coins that celebrated the state were struck during the reign of Philip (244–249), which included a celebration of the one-thousandth anniversary of Rome's supposed founding. Since contests between wild animals were a prominent feature of the celebration, their depiction on coins was used to commemorate the festivities.

Nonetheless, the primary purpose of messages on Roman coins was to support and draw attention to the emperor. The head of the reigning monarch graced the obverse of most Roman imperial coins; the reverse frequently displayed a personal characteristic of which the ruler was particularly proud. The mild-mannered Antoninus Pius (r. 138–161) celebrated his piety, clemency, and sense of justice by using allegorical figures, labeled with the name of the virtue being celebrated. Since Nero fancied himself a great builder and beautifier of the empire, he commemorated his modernization of the port of Ostia on an issue of sestertii, which unsuccessfully attempted to combine an aerial view of the harbor with a perspective view of the ships within it. This ruler also paid homage to his supposed skills as a musician: on a copper struck late in the reign, he poses as Apollo, complete with lyre.

Trajan, whose reign (98–117) coincided with the greatest geographical extent achieved by the empire, commemorated his conquest of the nation of Dacia with an issue of silver denarii that featured a seated captive on the reverse along with the inscription *DACCAP* (for "Dacia Capta"). The seated figure resembles others modeled in stone, seen on Trajan's Column in Rome.

Because the question of succession constantly plagued the Roman state and its emperors, the intended line of succession was sometimes indicated on the coins. A gold aureus of Septimius Severus (r. 193–211) depicted the emperor on its obverse and his wife and sons on the reverse, perhaps to accustom the populace to his plan.

Other Roman coins rendered tribute to various organs of the Roman state, such as the senate or the army. Coins featuring two soldiers and a military standard, carrying the legend *Gloria Exercitus* ("To the glory of the army"), became very common in the troubled fourth century. The message may have been intended to shore up the morale of a Roman army that was increasingly falling prey to external invasions. The design became so popular that the invaders eventually adopted it on their own coins.

Still other coins extended recognition to various Roman provinces. They usually had a seated or reclining female figure with the name of the province around or beneath it. This type of coin was quite prominent during the reign of Hadrian (117–138).

Later, a different sort of message appeared on Roman coins, one that reflected the religious currents sweeping the late-classical world. By the 390s, Christianity had become the sole legal religion of the empire, and this was reflected on the messages carried by Roman coins. Crosses began to appear, and traditional figures representing Victory metamorphosed into Christian angels. On later coins, a hand from heaven appeared in the act of crowning the ruler with God's favor (see Figure 1). This closely paralleled an aureus of Trajan, on which a figure of Jupiter conferred his blessings on the emperor, represented by a much smaller figure (see Figure 2). The close identification of the ruler and the Christian faith on coins soon ended in the Christian West, but it endured for many centuries on the coins of the Byzantine East.

Middle East and Islam

Rome was not the only empire that employed coins for the communication of political and cultural change. Early in the third century C.E., the Parthian Empire was succeeded by a new, more authentically Persian state, the Sassanian Empire. The rulers of the new regime wished to emphasize that they were a native dynasty, with a legitimacy superior to that of the "alien" Parthians. The coins of the region, previously founded on Greek models with Greek inscriptions, were now inscribed in Pehlevi, the language spoken by the people. In addition, the ruler was depicted on the coins in native headdress. The reverse of the coins emphasized the king's piety and his attachment to Persian traditions by depicting him, usually with his son, at an altar taking part in a rite of the Zoroastrian faith, which was the prevailing religion of Persia.

Early in the seventh century a new force, Islam, arose in the East and in time led to the demise of both the Byzantine and Sassanian states (*see ISLAM, CLASSICAL AND MEDIEVAL ERAS*). Although the Arab peoples were acquainted with the concept of coinage at the time the conquests began, they had little experience in producing their own coins. As they spread out of the Arabian Peninsula in the 630s and 640s, they tended to use whatever coins came their way, usually Byzantine and Sassanian issues. By the 650s, having conquered vast regions, they found it necessary to produce their own coins on a large scale.

Two types of coins resulted, both strongly imitative of earlier types. Arab-Byzantine coins resembled the Byzantine coins before the conquest, but with



Figures 1–12. (Coins) (1) arcadius, Rome, 378–383 C.E.; (2) aureus, Rome, 112–117 C.E.; (3) dinar, Syria, A.H. 80 (699–700 C.E.); (4) noble, England, 1356–1361, *a*: obverse, *b*: reverse; (5) one and one-third dollar, Maryland, America, 1775; (6) sol, France, until 1791, *a*: obverse, *b*: reverse; (7) sol, France, 1791, *a*: obverse, *b*: reverse; (8) sol, France, 1793, *a*: obverse, *b*: reverse; (9) 100 rubles, Russia (RSFSR, or Soviet Russia), 1920; (10) 20 lire, Italy, 1928, *a*: obverse, *b*: reverse; (11) 10 pfennig, Germany, *a*: 1940, *b*: 1945; (12) 20 rupees, India (United Nations Food and Agricultural Organization), 1973, *a*: obverse, *b*: reverse. Courtesy of the American Numismatic Society, New York.

important alterations. Christian crosses were replaced by globes on poles. Brief Arabic legends supplemented those in Greek. *PORTRAITURE* remained a feature of the coins, even though it violated Islamic laws prohibiting the use of images. In the Arab-Sassanian coins, legends continued to be in Pehlevi, with the addition of brief inscriptions in Arabic.

While active conquest continued, violations of Islamic law in the form of portraits on coins were overlooked. By the 690s, however, the Islamic Caliphate was an established power, and the faithful demanded that it reform the coinage. In A.H. 77 (696–697 C.E.) the Umayyad caliph ‘Abd al-Malik introduced a completely new gold coin, the dinar (see Figure 3). It was soon joined by the silver dirhem and the copper fals. None of them bore images of any kind; they were decorated solely with religious inscriptions. These new coins had the greatest purely religious content of any coins in human history.

Coins of this type, struck in mints from Spain to the gates of China, dominated the Islamic world for the next several centuries. They accurately reflected the new faith and left a lasting imprint on later coins in Islamic areas.

Medieval and Early Modern Europe

In the early *MIDDLE AGES*, coins became less important because trade, especially between distant regions, declined. The collapse of the Roman Empire was as much economic as it was political. As a result, virtually no coins were being made in the Christian West by the middle of the sixth century. Byzantine gold *solidi* from Constantinople were used for exceptionally large purchases, but daily business was carried on by simple barter. By the seventh and eighth centuries, a few coins were once more being produced; their numbers increased after approximately 790, particularly in France and Britain. A new denomination, the *denier* or penny, had appeared in both countries by that time, and its use spread eastward in the following centuries.

Even though more coins were made as the Middle Ages continued, the coins were very small and thin and contained only modest amounts of precious metals. Silver and gold were in short supply at that time and continued to be scarce until the thirteenth century; almost no gold coins appeared in the West until about 1250. Understandably, the modest size of the early medieval coin limited its design possibilities, as did the penchant—which increased after 1000—for creating dies with a small number of tiny, simple punches.

The coin appears to have been considered only an economic tool, not an artistic communicative medium as it had been in the days of ancient Greece and Rome. The decoration on early medieval coins

was abbreviated or absent. There were crosses, of course, but they formed a simple design rather than an aggressive religious or political statement. The occasional Carolingian attempt at realistic portraiture of the king probably had a political purpose, but the quality of portraiture on most early medieval coins remained poor for many centuries to come.

By about 1200, trade between and within the states of the West accelerated, and new and larger coins were needed. The first of these was the *grosso*, a silver coin from Venice. By the middle of the thirteenth century, gold coins were being struck in western Europe, essentially for the first time since the fall of Rome. These new, more valuable coins did not characteristically have elaborate decorations, although there were exceptions. One was the English noble (see Figure 4), introduced in the 1340s by Edward III (r. 1327–1377). On the obverse of this coin, Edward was depicted on a ship, defending himself with sword and shield, upon which were blazoned the quartered arms of France and England. It is thought that the ship may have symbolized the English naval victory at Sluys in 1340, one of the earliest battles in the Hundred Years’ War between England and France, and that the use of the French and English arms together reflected Edward’s political aspirations on the Continent. The coin might be considered a numismatic declaration of war.

By the 1300s, the basic design elements on coins had settled into patterns that continued to modern times. The obverse generally contained a picture of the ruler, with a legend listing the ruler’s titles. The reverse of larger coins was usually a heraldic reference to the state; smaller coins were decorated with crosses or other simple devices.

In the Germanies coins had assumed a commemorative function by the latter half of the sixteenth century; the large, silver *thalers*, first struck around 1500, adapted themselves well to this purpose. A Danish version of the *thaler*, called a *kroner*, dating from 1659, depicted an arm from heaven cutting off a (Swedish) hand which is reaching for the Danish crown. And in England a series of coins with English rather than the traditional Latin legends commemorated the beheading of Charles I and the foundation of Cromwell’s Commonwealth in 1649. During the English Civil War the Parliamentary forces put the pious motto “God with Us” on their issues. When Charles II returned to the throne in 1660, his reemployment of Latin on coins was one symbol of the restoration of the old regime.

American and French Revolutions

The communicative function of coins found another numismatic medium in paper money. Paper notes were used in the English colonies of North America,

where the inclusion of both subtle and blatant messages on paper money served to propagate colonial aims. National issues (called Continental currency) used allegorical figures to make political statements. The issues released by the individual states were often even more obvious in their political statements. One issue from South Carolina had an engraving of an American Hercules strangling a British lion. A one and one-third dollar note from Maryland presented the following scene: on the left, George III sets fire to an American city while trampling on the Magna Carta; to the right, Britannia receives a petition from America, represented by a woman stepping on a scroll marked "Slavery"; to the extreme right, American troops march to the rescue of the burning city (see Figure 5). The reverse showed Britannia and America reconciled, with the hopeful motto *Pax Triumphis Potior* ("Peace is preferable to victory").

French coins also reflected that country's revolutionary struggles. Until 1791, however, the French copper coin known as the sol or sou retained the designs and legends it had carried since the beginning of Louis XVI's reign (see Figure 6). It had a portrait of the king on the obverse and the Bourbon fleur-de-lis on the reverse. Legends were given in Latin and referred solely to the king and his possessions, not to the French people. In 1791, when Louis XVI became a constitutional monarch, the sol was redesigned with an unflattering but realistic portrait of the king replacing the earlier idealized one (see Figure 7). On the reverse, a fasces topped by a liberty cap was substituted for the fleur-de-lis of the Bourbons. Changes were also made in the legends. For the first time, Louis was called king of the French, not of France, and the language was French, not Latin. The reverse legends referred to "Nation, Law, and King," in that order, and the date on the coin (1791) was termed—according to the new revolutionary calendar—the third year of liberty.

In the autumn of 1792, when France was at war with the monarchies of Europe, the sol was once again redesigned (see Figure 8). The obverse featured an Eye of Providence above a tablet with the inscription *les hommes sont égaux devant la loi* ("All men are equal before the law"); the date was expressed as the year II. The reverse had a scale of justice and the date expressed according to the traditional calendar. The date on the reverse was soon dropped, however, and for approximately the next decade all French coins bore dates expressed only in terms of the revolutionary calendar.

Other countries also marked their revolutions and anticolonial struggles with new coin designs. In Latin America, when insurgents ousted the Spanish and Portuguese in the early nineteenth century, they invented new, nationalist designs for their coins. Typically the name and arms of the new country adorned

the obverse, while the reverse often contained information about the coin's value, place of mintage, and metallic purity. Occasionally, as in Bolivia and Argentina, these reverse elements were replaced by portraits of national heroes.

Twentieth-Century Coins

The designs of coins bear witness to the political and social upheavals that occurred in Europe in the first half of the twentieth century. During the civil war that followed the establishment of the Soviet regime in 1917, neither Soviet nor anti-Soviet factions struck coins to any extent; they relied on paper currency. Communist slogans and allegories became a constant feature on the notes (and on postage STAMPS, which were frequently used as money during those turbulent years). One noteworthy example of the use of currency for political purposes is a series of notes issued in 1919–1920. Referred to as Babylonians by collectors, they include the slogan "Workers of the World Unite" in Russian, German, French, Arabic, English, Chinese, and Italian, along with the revolutionary symbol of hammer and sickle (see Figure 9). The multilingual text may have expressed the belief that many other countries were about to follow the Soviet example.

By the early 1920s, sufficient order had been achieved in the Soviet state so that coins could once again be produced and remain in circulation. On a 1924 ruble, the obverse featured the arms of the regime along with the slogan noted above, while the reverse depicted one worker leading another into a "Revolutionary Dawn." Soon after V. I. Lenin's death in 1924, his portrait appeared on many of the coins and virtually all the paper money.

New coins were also issued in Italy in the 1920s when Benito Mussolini came to power (see Figure 10). Because Italy was still a monarchy whose king was very much part of the political scene, Mussolini could not hope to place his own image on the coins. This problem was addressed in two ways. First, the fasces, the symbol of Mussolini's political organization, appeared on most Italian coins and notes through the end of the regime in 1943. Second, consistent with Mussolini's references to Italy's past greatness, coins were issued that were reminiscent of ancient Roman issues. These were some of the most beautiful and artistic coins of the twentieth century. They featured classical motifs and a new dating system (expressed in Roman numerals), which gave the year of the Fascist regime along with the date according to the Christian calendar.

Similar uses of coin symbols occurred in Adolf Hitler's Third Reich. The swastika appeared on most forms of official communication from 1933 until the demise of the National Socialist regime in 1945. At

first it occupied a subordinate position on coins, but by 1936, supporting the German eagle, it had become the dominant obverse symbol on silver coins and was soon extended to all other coins as well (see Figure 11).

Since 1945 new and developing countries have employed coins as part of their efforts to forge a sense of national identity. For example, when Ghana achieved independence in 1957, its name, which was representative of its precolonial history, replaced the old name, Gold Coast. The new name also appeared on its coins and currency, as did a portrait of the new leader, KWAME NKRUMAH, replacing the picture of Britain's Queen Elizabeth II. Other emerging nations displayed native flora and fauna on their coins and native scenes on their notes, to emphasize the country's uniqueness in the eyes of citizen and foreigner alike. Still other nations paid homage to heroes of the struggle against colonial regimes. Some states renamed their currency units, replacing denominations imported by a colonial power with new names that recalled indigenous traditions. Thus, in the 1960s, Ghana replaced the pound with the cedi, which derives from the Ghanaian word *sedie*, the cowrie shell used for money by the coastal tribes.

Another form of coinage that has emerged since World War II is the commemorative, usually issued in economically developed countries. Such issues are in part attempts by governments to gain extra income from collectors, but also to achieve the same communication goals mentioned above, to forge a sense of unity among disparate groups by illustrating a shared history and national identity.

Since the early 1970s there have been issues of coins and, to a lesser extent, notes by many countries, representing causes that transcend national boundaries. Thus far there have been issues on behalf of conservation of endangered wildlife species and in support of the United Nations Food and Agriculture Organization's campaign against world hunger (see Figure 12). Approximately one hundred countries issued coins on behalf of the latter campaign. In both cases, although the coins featured a marked emphasis on indigenous themes, there was at the same time an effort to circulate coins with an international message. The success of such worldwide numismatic campaigns ensures further issues of this sort.

See also ARTIFACT; HERALDRY; POLITICAL SYMBOLS.

Bibliography. R. A. G. Carson, *Coins: Ancient, Mediaeval & Modern*, 2d ed., rev., London, 1970; Richard G. Doty, *Money of the World*, New York, 1978; Anthony Dowle and André de Clermont, *Monnaies modernes, de 1789 à nos jours*, trans. by Robert Lapassade and Pierre-Yves Lathoumetie, Paris, 1972; J. Rufus Fears, *Princeps a Dis Electus: The Divine Election of the Emperor as a Political*

Concept at Rome, Rome, 1977; Michael Grant, *Roman Anniversary Issues: An Exploratory Study of the Numismatic and Medalllic Commemoration of Anniversary Years, 49 B.C.—A.D. 375*, Cambridge, 1950; idem, *Roman History from Coins*, Cambridge, 1968; Leslaw Morawiecki, *Political Propaganda in the Coinage of the Late Roman Republic (44–43 B.C.)*, Wrocław, Poland, 1983; Walter Trimmlich, *Familienpropaganda der Kaiser Caligula und Claudius: Agrippina Maior und Antonia Augusta auf Münzen*, Berlin, 1978.

R. G. DOTY

COLONIZATION

The establishment of political and economic control by one country over another, or over a relatively unsettled area, usually accompanied by the settlement abroad of a number of people who remain loyal to the colonizing country and represent its system of governance and its economic interests. Thus, colonization differs from ordinary MIGRATION in the official relationship of the countries involved, and the effectiveness of the colonial situation is directly dependent on the communication system that joins the colonizing country and the colony. All subsequent communication patterns are, in turn, affected by the colonization process.

Colonization followed roadways and sea paths and moved through underwater cable systems and on overland railroad networks. It has all but disappeared in the age of air travel and telecommunications, a time when the worldwide spread of technology, the universalization of the nation-state, and the substantial population of all inhabitable land have changed our concepts of space, distance, and the exercise of power. The very term *expansion*, so frequently used in the early twentieth century to describe the colonial process as movement outward from a central point, no longer has geographical meaning. Accompanying romantic terms like *frontier*, *open space*, and *empty land* are archaic as well.

Territorial colonization is therefore largely a historical fact, not a possible future condition of major significance. (Only space colonization assures the term continued contemporary usage.) *Imperialism*, a word frequently used in conjunction with colonization, implies any form of outside domination by foreign state or private institution, such as a corporation. It can be direct, as in the instance of military intervention, or it can be indirect, as in economic control or cultural assertion. What clearly distinguishes colonization from imperialism, however, is the former's special characteristic: the presence of individuals of different cultural or natural origin who directly assert their state's authority or whose legal and social position in the territory is guaranteed by that authority. Colonization may



-  (D) Danish possessions
-  (B) British possessions
-  (F) French possessions
-  (S) Spanish possessions
-  (P) Portuguese possessions
-  (DU) Dutch possessions
-  Ottoman Empire
-  Russian Empire

Dates thus: 1680-1705 Period of possession
 Dates thus: 1685/96 Date of first occupation/date of formal acquisition



Figure 1. (Colonization) The world ca. 1714. Redrawn after *Third World Atlas*, prepared by Ben Crow and Alan Thomas, Milton Keynes, Eng., and Philadelphia: Open University Press, 1983, p. 37.

therefore be considered an expression of imperialism, but not the only one.

Forms of colonization. Although the general motives for colonization are economic, beginnings have tended to take three different forms. One was the settlement colony, of which the British North American possessions of the seventeenth and eighteenth centuries are good examples. There, the colonist was principally a tiller of the soil or a manager of the land. Elsewhere the settlement colony was characterized by the plantation or the estate: the latifundia of Roman days, the *encomienda* of Spanish-American days, and the large farms of French Algeria and British Kenya. All these represent land masses mainly devoted to agriculture overseen by European colonists.

Second was the commercial or trade colony in which settlement was incidental. Residence was for the purpose of generating trade. The Phoenician Empire, with its trading cities scattered around the Mediterranean, is an example from the ancient world. Later, in the fifteenth and sixteenth centuries, the Portuguese extended a maritime empire across the waters of the Eastern Hemisphere. Its geographical characteristic was the coastal enclave, a place like Goa on the Indian coast or Macao on the Chinese coast. These small territories, municipal in political size, were warehouses for the merchandising and storage of goods both brought and carried away by the Portuguese mercantile fleet. Dutch and British ventures in Asia likewise began as trading companies, which grew into something more of the third type.

Third was the administrative colony, the most widespread and, later, the most criticized. In such a colony a small number of Europeans administered a large territory from which the colonizing power, usually through private companies, hoped to gain economic advantages, often in the form of raw materials. Included within this grouping were the African colonies of the late nineteenth century, large land masses with generally sparse populations. Colonies of this sort conferred on the individual colonial officer great authority, such that the terms *chief* and *feudal lord* were occasionally used to describe his position. In theory the administration was responsible for maintaining the colony at peace in order for economic activity to take place.

In the development of colonies in each of these categories Western civilization has been more active than any other. It first spread around the rim of the Mediterranean Sea, then along the Atlantic coast of western Europe, and thereafter rounded the African capes in what has been called the Vasco da Gama epoch in honor of that Portuguese explorer's trip around the Cape of Good Hope in 1497.

The outstanding era of colonization occurred between the fifteenth and nineteenth centuries, when

European maritime technology made seaborne communications the most extensive and effective and when the European urge to know the world—explore, map, and exploit its resources—was first intensely expressed. *Terra incognita*, a term prevalent on medieval maps (see CARTOGRAPHY), was used less and less frequently, until it disappeared altogether in Joseph Conrad's bitter commentary on nineteenth-century colonial Africa, *The Heart of Darkness* (1902):

It had got filled since my boyhood with rivers and lakes and names. It had ceased to be a blank spot of delightful mystery—a white patch for a boy to dream gloriously over. It had become a place of darkness.

One of the major characteristics—and problems—in the history of colonization was its tendency to be unidirectional. In simple metaphor, colonization was the grounding of power. The complaints of colonized peoples (the indigenous populations over whom colonial rule was also established) were later followed by the complaints of colonists over the colonial state's inclination to dominate, to impose willfully, and not to negotiate out of understanding or appreciation.

With its locus of political power hundreds or even thousands of miles away, with authority delegated usually in the person of a governor, and with metropolitan interests always heavily outweighing colonial ones, the settlement colony eventually became the scene of two opposing forces: in one direction the autocratic pull of the government toward the homeland, and in the other the effort of the colonists to situate authority and responsibility locally. Over time, as new generations were born in the colonies, the sense of place and purpose was even more strongly localized. A distinctive subculture emerged, the nuances of difference expressed in vocabulary and accent. This process of colonial maturation and its consequences were described aptly by the eighteenth-century French statesman Anne-Robert-Jacques Turgot: "Colonies are like fruit which remains on the tree until ripened, at which time it falls off."

Probably no one in the era of colonization ever assumed that the colonial relationship would be interminable. Most theorists and practitioners anticipated a future, however distant, in which the colony would be politically transformed, either integrated into the extended political system of the colonial power or granted autonomy, perhaps even independence. Colonization was thus accepted as a long-enduring but not permanent relationship, a condition expressed in such familiar terms as *mother country*, *tutelage*, and *trusteeship*. Only the ROMAN EMPIRE had a quality of permanence about it. Its four-hundred-year existence was largely a result of cultural assimilation, effective administration, excellent engineering, and a legal system that encouraged citizenship.

In addition to Rome, the exceptions to the general historical pattern of transient development include China, which, during the Han dynasty (beginning 206 B.C.E.), expanded in such a manner that it rivaled Rome administratively in the geographic reach of its authority and chronologically in the endurance of that authority. In the modern era the United States and the Soviet Union have been successful colonizing powers, emerging as both unitary states and continental monoliths whose political domains reach to the two major oceans. The geographical direction and particular motivation were different in each instance, but the general pattern was the same. Westward expansion in the United States and subsequent colonization were intensified by the quest for gold and the search for new land, places for settlement of a mobile population. The "prairie schooner," the famous covered wagon, was aptly named because many Americans saw their movement as a voyage similar to that undertaken by colonists who crossed seas. The advent of the transcontinental railroad in 1869 and the rapid spread of TELEGRAPHY, the TELEPHONE, and, later, roads assured this new continental empire of unity through ample networks of communication. For Russia the construction of the Trans-Siberian Railroad between 1891 and 1904 was not noticeably different in purpose and effect. Russian colonization had pushed eastward since the seventeenth century, with fur, not gold or land, as its objective. In the nineteenth century peasants in search of land, particularly after their emancipation from serfdom in 1861, moved as colonists into Siberia. The new railroad was a means of linking these newly colonized territories with European Russia. Telegraphy and the telephone eventually reinforced the process.

Railroads. Everywhere in the colonial world of the nineteenth century railroad building was designed to assume the function that the road system had performed in the Roman Empire: a swift and sure means of overland communication by which political authority could be asserted and products easily shipped. Cecil John Rhodes, the great English empire builder of the late nineteenth century, argued that "the rail is less costly than the cannon and it goes farther." Rhodes himself proposed a Cape-to-Cairo railroad to unite on a north-south axis the British possessions in the eastern sector of Africa. The French had a plan of similarly grand proportions: a Trans-Saharan railroad that would unite French North Africa with French West Africa. Neither scheme was realized, but extensive railroad networks were one of the major legacies of the modern colonial empire, even giving structural unity to a country as vast as India.

The technologies of communication and transportation were a constant factor in empire building. Before the advent of electronic communications, dis-

patches and letters were carried overland and over-seas. At the beginning of the nineteenth century communication between England and India took many months. By the middle of the century ocean steamers were plying between Liverpool and Halifax in two weeks, while the sea route from England to India, with overland passage of the Isthmus of Suez, could be completed in a month. On the occasion of her Diamond Jubilee in 1897, Queen Victoria was able to telegraph greetings around the British Empire so that her message was received in the course of the day in every major colonial city.

The intensification of communications suggested a world of new cultural and geographical proportions. By the late nineteenth century critics were arguing that "time distance" was the proper measure—not the number of miles to be covered, but the number of hours to negotiate a journey, to transmit a message. Jules Verne's famous novel *Around the World in Eighty Days* (1872) was representative of this new attitude. Henceforth, or so many colonial theorists thought, large territories, loosely held together, might be more tightly bound by the iron of railroads and the copper of telegraph wires.

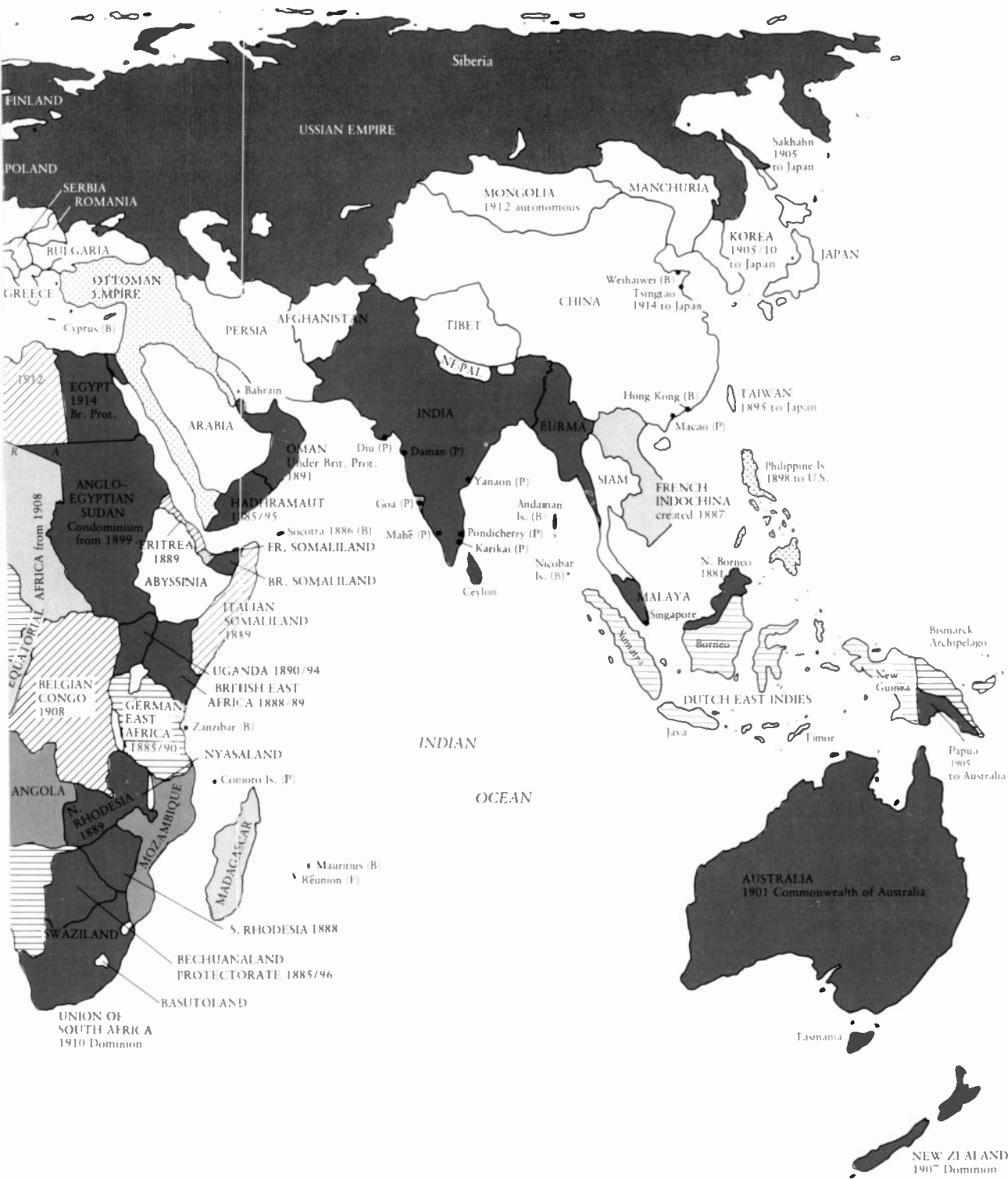
The advent of the air age in the twentieth century made colonial empires look upward for both communication and domination. The German government had dramatically sought to send relief to its embattled colony of East Africa during World War I by dispatching a huge zeppelin laden with fifteen tons of supplies. The first instance of aerial bombing occurred before that war when the Italians hand-dropped bombs from an airplane in Libya in 1911. By the 1930s all the colonial powers had air service throughout their empires; *time distance* had become a most useful term.

However, better communications (i.e., improvements in technologies) did not necessarily mean better communication. The social and psychological distance between colonizer and colonized in the modern European empires increased as the mechanical and electronic means of communication became more sophisticated.

Decolonization

The history of decolonization is in considerable measure the history of opposition organized along new lines of communication, whether through the press, the legal system, the political rally, or an underground network of militant activity generally described as TERRORISM or guerrilla warfare. Such communication networks encourage the creation of an IDEOLOGY and community of the oppressed. Famous examples include the Committees of Correspondence that were initially formed in 1772 in the British North American colonies under the leadership





The Pacific Islands are not included in this map.

Figure 2. (*Colonization*) The world ca. 1914. Redrawn after *Third World Atlas*, prepared by Ben Crow and Alan Thomas, Milton Keynes, Eng., and Philadelphia: Open University Press, 1983, p. 41.

of John Adams. Organized in each colony, the committees were "to state the rights of the colonists . . . as men, as Christians, and as subjects." This well-designed network helped arouse anticolonial sentiment that was further fired by the publication in 1776 of Thomas Paine's PAMPHLET titled *Common Sense*, which denounced King George III as the "Royal Brute of Great Britain." The pamphlet was widely read and highly influential, among the first in a long series of literary protests against colonialism. Ho Chi Minh, later to become president of North Vietnam, followed in that tradition when his 1923 pamphlet, *The Case against French Colonialism*, was published in French in Paris.

The nineteenth-century communications revolution made printed materials cheaply and widely available and LITERACY a popular objective. The first newspaper published in Hong Kong began in 1828; the first printing press in Black Africa was introduced in 1829. By the 1930s an opposition press was established in most of the major European colonies (see NEWSPAPER: TRENDS). Through this press and the new political movements it so often represented, a new social element appeared: a political elite versed in European language and thought. These people were lawyers, doctors, schoolteachers, journalists—all trained in the European educational system, all part of the European colonial structure. The nationalism they soon defined was essentially anticolonial, with its arguments derived from Western liberalism, communism, and the European sense of historical consciousness.

The political rally was one of the most effective means of direct communication with large segments of the indigenous population and of creating visible discomfort in the ruling power (see DEMONSTRATION). No one used this device more successfully than MOHANDAS GANDHI in the 1930s, when he protested against continued British rule in India. Gandhi's was a policy of nonviolent, passive resistance—*satyagraha*, a word Gandhi often defined as "soul force." The policy was effective in confronting the British with a situation not easily resolved by military intervention. It was particularly effective as a means of gaining widespread attention because of the press coverage given in many countries to Gandhi's activities. In 1930 alone, some forty-five articles appeared in English-language journals on Gandhi's political activities. With the wide distribution of the NEWSREEL at this time, Gandhi became the first anti-colonial figure to be widely recognized.

Contemporary development. In the early years of the twentieth century the international conference was used as an institution of solidarity and protest. Among the most famous was the series of Pan-African conferences, the first of which was held in Paris in 1919, organized by the American black

leader W. E. B. DuBois, who was concerned to make the African colonial question an important one at the peace conference following World War I. Another meeting of international significance, this time amplified by wider media coverage, was the Bandung Conference of 1955, held in the Indonesian city of that name, attended by the representatives of twenty-nine Asian and African nations, and the first such occasion for the new nationalist leaders in the African colonies to discuss their common interests.

The effect of PUBLIC OPINION, international as well as colonial, was a powerful force on decolonization. Certainly such opinion was a contributing factor after World War II, when the European colonial powers, having suffered the imperialism of Nazi Germany, were more sensitive to the aspiration of their colonial peoples. The United States and the Soviet Union, although subscribing to different ideologies, were both opposed to the continuation of colonial empires.

Strong RHETORIC was joined by weakening resolution. The colonial powers no longer could command the political authority they once had. None remained a "great power." This change in status was marked by the fact that at the war's end the second-largest Allied navy belonged to Canada, theoretically under the rule of the British crown. As colonial opposition increased and militant action in the form of guerrilla warfare occurred more frequently, the metropolitan states conceded independence to most of their colonies. In the thirty-year period following Great Britain's withdrawal from India in 1947, about sixty new nations stood where colonies had existed before.

The world's economic situation also suggested the outdated condition of colonial empires. The appearance of multinational corporations with their own highly advanced TELECOMMUNICATIONS NETWORKS made colonial rule seem an inefficient instrument to conduct business in other nations. In addition, technology transfer proved a major factor in the rearrangement of global power. Manufacturing and trade were no longer dominated by the European nations and the United States. Japan, militarily divested of its Pacific empire during the course of World War II, became the second-largest industrial power by 1980, building its economic might on applied research and new management and production techniques. Soon a leader in electronic communication technologies, it established new links with many nations.

Colonization belonged to another era, when the battleship commanded the seas and the ocean liner was the swiftest form of intercontinental travel. As the farthest territorial extension of sea power, the colony was at once part of and removed from the metropolitan state. This unusual condition of long-distance subservience was not only political but

economic. In seventeenth- and eighteenth-century theory, colonies were made by and for the colonizing power. The English Navigation Acts of 1650 and 1651 and the French *Exclusif*, a policy inaugurated around the same time, attempted to restrict colonial trade to the mother country. Defining the prescribed economic relationship, an author of the French *Encyclopédie*, published between 1751 and 1775, stated that colonies were "established for the sole benefit of the metropolitan state."

Racism. Later expressions of colonial authority were more dangerous and pernicious because of the racism that intruded into them. Supported by pseudoscientific theories of evolutionary development, aggravated by technological differences that allowed the Europeans to assume that they were "advanced" peoples, and furthered by careless observation of other cultures, racism in the late nineteenth century added to the ideology of imperialism and the justification of colonial empire. The assertion that Europeans had a "civilizing mission" or that they ought to take up "the white man's burden" gave to colonization, particularly in Africa, a false moral justification and allowed a strikingly unequal division of labor. In a frequently expressed organic metaphor, colonial theorists stated that the European would provide the brain and the "native" the muscle by which economic development would proceed.

The social encounter in the modern colonial empire was therefore characterized by no sense of respect or equality, but by mutual misunderstanding and frequent condescension and contempt on the side of the colonists. Daily communication was hindered by a language problem: few of the Europeans became conversant in local dialects, and only a small, well-educated indigenous elite spoke the European language proficiently. In colonial Africa one of the most valuable administrative services was provided by the local interpreter, the one who mediated between the two linguistically restricted parties to the colonial act.

A rich literature attempting to evaluate the psychological and cultural significance of this encounter emerged at the end of the colonial era. It has centered on the cultural deprivation that the Europeans were accused of having caused, the personality disorders that occurred among Africans, Asians, and Native Americans in the colonial situation as they sought to define themselves in the face of an alien culture. What stands out from all of this literature is the lack of authenticity in the roles colonizer and colonized were required by the peculiar circumstances to play.

The principle of equitable treatment almost never obtained in the history of colonization. An exception may be found in the Northwest Ordinance, passed on July 13, 1787, an act that set the conditions of subsequent U.S. continental colonization. The ordi-

nance defined the conditions under which newly settled regions could become states. Of greater importance, it sought to guarantee the same civil rights and liberties that prevailed in the original states, and it prohibited slavery (*see* SLAVE TRADE, AFRICAN).

Elsewhere, particularly in the colonies acquired in Africa and Asia, paternalism and segregation prevailed. The cultural vocabulary that contained terms like "backward races" and "primitive peoples" and the domestic vocabulary that made common use of the term "boy" reveal the reason for the concept of tutelage in administrative thought. The most modern of the colonial political devices, the protectorate, of which French domination of Tunisia (from 1881 to 1956) and Morocco (from 1912 to 1956) are examples, explains in its very name the colonial ideology of political dependency.

There was no effective bridging of interests in the modern colonial empires situated in Africa and Asia. The social levels of the participants were too sharply different. The "location theory" of modern urban geography has particular relevance for this social disparity. The Europeans sought the high land, established hill stations in India, of which the summer residence of the viceroy, Simla, was the most famous. The French in Dakar, Senegal, established themselves on the "plateau" of that city, thereby establishing it as an urban place. The British in Sierra Leone moved up the mountains from the bay defining Freetown. Although most of these moves were predicated on nineteenth-century medical theories—primarily the notion of airborne disease—they were also expressive of the thought that the two peoples should not live together. Geographic and social segregation were common characteristics of the twentieth-century colonial world.

The era of colonial empire effectively ended in the decade following World War II. Yet, as an activity that has worked its way through the course of world history, colonization must be measured as a crucial episode in the history of human communication, one that has profoundly affected many aspects of the modern world.

See also AFRICA, TWENTIETH CENTURY; ASIA, TWENTIETH CENTURY; DEVELOPMENT COMMUNICATION; DIFFUSION.

Bibliography. Raymond F. Betts, *Uncertain Dimensions: Western Overseas Empires in the Twentieth Century*, Minneapolis, Minn., 1985; Daniel R. Headrick, *The Tools of Empire: Technology and European Imperialism in the Nineteenth Century*, New York, 1981; Harold A. Innis, *Empire and Communications* (1950), rev. by Mary Q. Innis, foreword by Marshall McLuhan, Toronto, 1972; James Morris, *Farewell the Trumpets: An Imperial Retreat*, New York and London, 1978; Tzvetan Todorov, *The Conquest of America*, New York, 1985.

RAYMOND F. BETTS

COMEDY

Comedy is derived from the Greek *kōmōidia*, which comes from two words: *kōmos* (a banquet, revel, or FESTIVAL) and *ōidia* (from *aeidein*, “to sing”). The origin of the word indicates the status of comedy as celebration, especially in relation to a RITUAL, festival, banquet, or procession. Comedy is always social or societal, and the *Oxford English Dictionary* lists a possible derivation from *kōme* (“village”). The origin of the word suggests that the comic SONG or play was used to mark a special occasion and was part of general rejoicing.

Some of the ritual significance of comedy survives in the comedies of Aristophanes (ca. 450–ca. 388 B.C.E.), which are generally referred to as Old Comedy. These plays are more like skits or revues with very rudimentary plots. Two large ideas or values are generally set against each other—peace versus war, youth versus age, right reason versus wrong reason, Euripides versus Aeschylus. At the center of the play there is an *agon*, or debate, in which the idea favored by the playwright is made to prevail. Old Comedy is also highly political, and Aristophanes never tired of attacking the dictator Cleon. In *Lysistrata*, Aristophanes’ best-known play, the women’s sex strike is directed against the war with Sparta that is crippling Athens.

Middle Comedy is associated with Menander (ca. 342–ca. 292 B.C.E.), most of whose plays are lost, but its influence is felt through New Comedy, especially in the works of Terence (ca. 185–ca. 159 B.C.E.) and Titus Maccius Plautus (ca. 254–184 B.C.E.), who wrote in Latin and imitated Greek originals. Terence was popular in the MIDDLE AGES and RENAISSANCE, but Plautus did the most to establish the conventions of New Comedy. Unlike Old Comedy, New Comedy is heavily plotted, often with a romantic interest in the young hero’s trying to win a girl or at least buy her away from a curmudgeonly pimp. In this project he is aided by a clever and resourceful slave or parasite, who will do anything to win a favor and eat a copious dinner. He becomes the center of the action. Plautus’s plots tend toward farce, with a good deal of disguise, mistaken identity, and mix-ups of all kinds. The characters are types, mechanized by the energy of the comic action. Adaptations of Plautus have been popular in the modern THEATER (e.g., *The Boys from Syracuse* and *A Funny Thing Happened on the Way to the Forum*), and the influence of New Comedy formulas is powerful in television situation comedies and in the intricate plotting of soap operas (see SOAP OPERA).

Genres of comedy. Of the various genres and kinds of comedy, the most pervasive is satire (see GENRE). The Roman satirists Horace (65–8 B.C.E.) and Juvenal (ca. 55 or 60–in or after 127 C.E.) wrote



Figure 1. (*Comedy*) Actors in Old Comedy: two drunken slaves or revelers. Greek terra-cotta statuette, mid-fourth century B.C.E. Staatliche Museen zu Berlin (DDR).

poems that hold up the follies, vices, and hypocrisies of their times to scorn and ridicule. Horace was more genially ironic than the biting Juvenal, but both contrasted the deplorable conditions and manners of their times with some ideal standard. Satirists are generally defenders of right reason against the abuses of rationality, and they tend to display a reformer’s zeal to set things right and bring back the golden age. Comic dramatists use satire to ridicule the absurdities of their society, as in Jean-Baptiste Molière’s (1622–1673) portraits of the miser (*Harpagon*), the religious hypocrite (*Tartuffe*), the misanthrope (*Alceste*), and ignorant pretentious physicians. Ben Jonson (1572–1637), in his comedy of humors, used satire to bring eccentric and obsessive characters to their senses, in other words, to some awareness of social decorum and utility.

Most comedy has a satiric component, although separate genres may be distinguished from satire proper. The comedy of manners flourished in late-seventeenth-century (Restoration) England and thrived on the sharp split between the elegant court party and the middle-class Puritans. In the plays of George Etherege (ca. 1635–ca. 1692), William Wycherley

(ca. 1640–1716), and William Congreve (1670–1729) there is a strong opposition between wits and fools, and the manners of the court are taken as a standard of elegance and refinement. The wits are often young libertines who speak and act with studied insouciance and artificiality. Oscar Wilde (1854–1900) nostalgically evokes the Restoration comedy of manners in *The Importance of Being Earnest* (1895).

Romantic comedy is associated with William Shakespeare, who drew on romances for many of his plots. Typically the setting is remote, the characters are highly stylized, and the plot sets up obstacles to true love, which nevertheless triumphs in the end. In Shakespeare's pastoral romances, such as *The Winter's Tale* (ca. 1610), the characters are shepherds and shepherdesses (or shepherds and shepherdesses in disguise), and the action celebrates the simple life away from the corruption of courts and cities. The myth of the golden age is strongly linked with pastoral romance. The charm of romantic comedy lies in its distance from the concerns of ordinary life and its ability to generate fantasies of pure innocence and absolute beauty. It is a perfect setting in which young love can flourish. There is a cultivated artificiality in romantic comedy that encourages both a feeling for lyric POETRY and a sense that this is a self-conscious world of play that is set apart.

In contemporary DRAMA, black comedy and the comedy of the absurd have tended to dominate all

other genres. Black comedy borrows many assumptions and devices that traditionally have been associated with TRAGEDY. Irish playwright Samuel Beckett's *Waiting for Godot* (1952) and *Endgame* (1958) draw on the existentialist doctrine of absurdity, which is embodied in characters who have no specific purpose and speak as if the world were coming to an end. In English dramatist Harold Pinter's comedies of menace, such as *The Homecoming* (1965), all of reality outside one's own space or room is sinister and threatening. But both Beckett and Pinter use comic materials to define their tragic world. Swiss playwright Friedrich Dürrenmatt's *The Visit* (1956) is a farcical account of a small town's murder of a scapegoat victim, strongly reminiscent of the Nazi era. Black comedy presents a series of entertaining but disorienting fables that are close to tragedy in theme but wholly comic in treatment. Tom Stoppard uses parody, or a mocking rewriting and reechoing, of well-known works of literature to produce shocking and disturbing effects. Thus Shakespeare's *Hamlet* is seen from the point of view of Rosencrantz and Guildenstern in Stoppard's *Rosencrantz and Guildenstern Are Dead* (1966). The comic distortion defines contemporary absurdist values.

Theories of comedy. Among the many theories of comedy, a few of the more significant ones may be singled out. The older superiority theory is associated with German philosopher Immanuel Kant (1724–

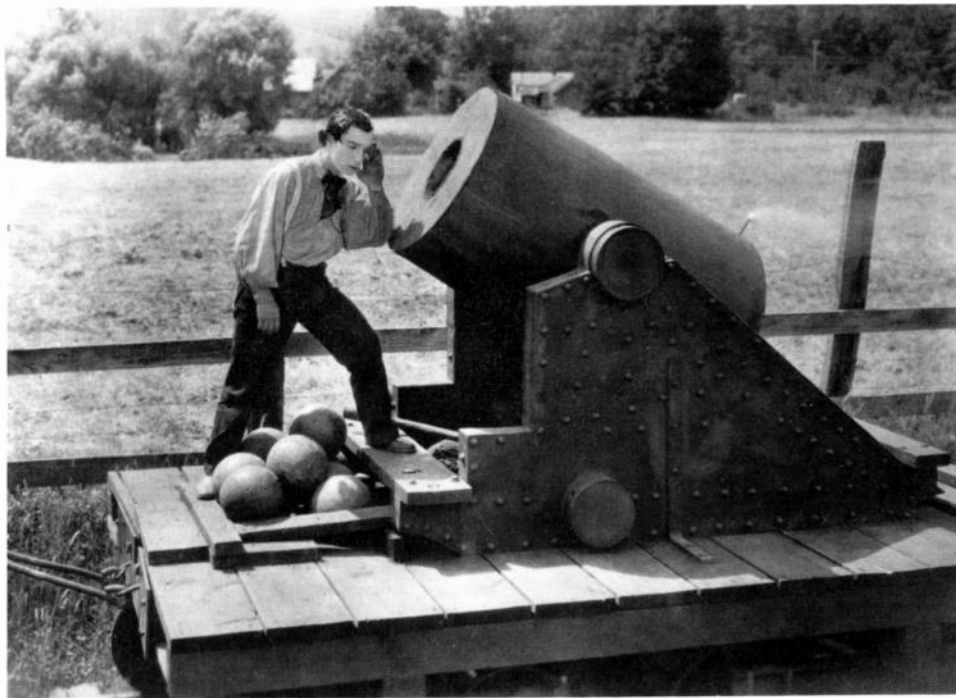


Figure 2. (Comedy) Buster Keaton in *The General*, 1926. The Museum of Modern Art/Film Stills Archive.

1804) and English political philosopher Thomas Hobbes (1588–1679). Hobbes said that “laughter is a sudden glory,” meaning that laughter marks that delicious moment when one triumphs over one’s adversary. There is much in the cynical maxims of François de La Rochefoucauld (1613–1680) to support this idea. If laughter is, physiologically, an involuntary muscle spasm, then the person who makes you laugh against your conscious will does in some literal sense triumph over your resistance. The recent theater of cruelty, associated with Antonin Artaud (1896–1948), Peter Weiss (1916–1982), and Jean Genet (1910–1985), uses grotesque comedy to enforce its meanings about the absurdity and capriciousness of the modern world. The superiority theory of comedy offers a plausible explanation for comic aggression and the large role that cruelty plays in black comedy.

SIGMUND FREUD’s views on comedy, especially in *Jokes and Their Relation to the Unconscious* (1905), depend heavily on dreams, fantasies, and the seemingly involuntary workings of the unconscious. Laughter releases suppressed and censored material, so that Freud would also find a sudden glory in being relieved of the burden of repression. Freud’s book on comedy is an offshoot of his major work on the interpretation of dreams, and jokes function very much like dreams, with a sharp contrast between the latent and the manifest content. For Freud laughter is a therapeutic mechanism that helps us release and therefore master anxiety. We laugh for reasons that lie deep in our psyche. See HUMOR.

Henri Bergson’s (1859–1941) treatise *Laughter* (1900) is perhaps the most influential single book on comedy. Using examples from daily life and from the

comedy of manners (especially Molière), Bergson tries to locate the cause of laughter in an incongruous relationship between the mechanical and the living. We laugh when something mechanical or mechanistic seems to be stuck onto something human or, in other words, when something human behaves as if it were a machine. There is a corresponding humor in machines behaving as if they were sentient human beings. Both sides of the equation are brilliantly exploited in CHARLES CHAPLIN’s movie *Modern Times* (1936). Bergson is concerned with the ways in which human beings lose their characteristically human qualities, as, for example, in professional deformation, in which one speaks and acts in the narrowly technical jargon of one’s occupation. Like Freud, Bergson also sees laughter as therapeutic—it reminds us not to abandon our precious humanity.

Recent theories of festive comedy have a strongly anthropological basis. Most important is MIKHAIL BAKHTIN’s work on François Rabelais (ca. 1483–1553). Everything in Rabelais is closely connected with the society of his time and all of its festivals, rituals, carnivals, and communal celebrations. Going back to root meanings of comedy, Bakhtin stresses the grossness and animality of comedy and its inseparable link with the lower material bodily stratum. In *Shakespeare’s Festive Comedy: A Study of Dramatic Form in Its Relation to Social Custom* (1959), C. L. Barber locates Shakespeare in relation to the life of his time. Barber makes important use of folk rituals, which figure prominently in such plays as *The Merry Wives of Windsor* (ca. 1598).

Comedy is closely related to PERFORMANCE not only onstage but also in the telling of stories and jokes. The ending, or punch line, is crucial, and it



Figure 3. (*Comedy*) William Shakespeare, *Much Ado about Nothing*. Diana Wynyard as Beatrice and John Gielgud as Benedick in a scene from Gielgud’s production at the Phoenix Theatre, London, 1952. The Bettmann Archive/BBC Hulton.

Figure 4. (*Comedy*) Samuel Beckett, *Waiting for Godot*, 1952. Scene from a performance at the Théâtre de Babylone, Paris, 1953, directed by Roger Blin. Courtesy of the French Embassy Cultural Services.



needs surprise to work its effect. In shaggy-dog stories there is a sudden deflation at the end that reverses our expectations for a snappy conclusion. Jokes very often depend on unexpected wordplay that brings together incongruous meanings. Tall stories draw on consistent hyperbole and exaggeration; we laugh at their extravagance and wildness. Sick jokes, too, and all forms of black humor encourage the listener's participation with the teller in an assault on moral norms and rational behavior. Comic invective goes even further to test the limits of permissible expression. Freud would explain all anarchic and uncensored humor as an attack on inhibitions, which releases energies otherwise engaged in suppression.

The line between comedy and tragedy has grown very thin in contemporary comedy, and there has been a general rehabilitation of the value of comedy. Although attempts have been made to reconstruct ARISTOTLE's theory of comedy as if it were a counterpart to the theory of tragedy in *The Poetics*, comedy is no longer subordinated to tragedy in the hierarchy of genres, nor do critics still think that comedy strives to perfect itself in becoming more like tragedy. We no longer tend to sentimentalize the clown in the "Pagliacci syndrome," laughing on the outside, crying on the inside. Perhaps it is more fruitful to see comedy and tragedy as separate and autonomous systems that do not need each other to

complete one single meaning. By a natural evolution comedy seems to be taking over the large territory formerly staked out for tragedy.

See also MUSIC THEATER; MUSICAL, FILM.

Bibliography. Mikhail Bakhtin, *Rabelais and His World* (Tvorchestvo Fransua Rable i narodnaia kul'tura srednevekov'ia i Renessansa), trans. by Hélène Iswolsky, Cambridge, Mass., 1968, reprint Bloomington, Ind., 1984; C. L. Barber, *Shakespeare's Festive Comedy*, Princeton, N.J., 1959; Maurice Charney, *Comedy High and Low*, New York, 1978; idem, ed., *Comedy: New Perspectives*, New York, 1978; George Duckworth, *The Nature of Roman Comedy*, Princeton, N.J., 1952; Leo Salingar, *Shakespeare and the Traditions of Comedy*, London and New York, 1974; Richard Keller Simon, *The Labyrinth of the Comic*, Tallahassee, Fla., 1985; Wylie Sypher, ed., *Comedy*, Garden City, N.Y., 1956.

MAURICE CHARNEY

COMICS

A distinct blending of VISUAL IMAGE and text that borrows elements from both ART and literature to produce a NARRATIVE told by means of a sequence of pictures, a continuing cast of characters (see SERIAL), and the inclusion of dialogue or text within

the picture. As in MOTION PICTURES, the flow of images and narration in comics is dynamic and aims at the creation of movement. The ties between the comics and film extend beyond similar artistic origins and commercial considerations to the merging of both forms in the animated cartoon (see ANIMATION). Since the birth of the comics as a popular GENRE in the beginning of the twentieth century, they have constituted a sociological phenomenon contributing to everyday LANGUAGE, cultural ICONOGRAPHY, contemporary FOLKLORE and mythology, and every area of communication from ADVERTISING to politics.

Development

The comics were heralded by a long succession of portents, from the cave paintings of Altamira and Lascaux through the Egyptian bas-reliefs and the Pompeii frescoes to the *Biblia pauperum* of the MIDDLE AGES (see MURAL). The roots of the comics are closer to us, however, in the work of eighteenth-century English cartoonists like William Hogarth, Thomas Rowlandson, and James Gillray (see CARI-CATURE). These artists told stories through sequences of drawings, or "cartoons" (from the French *carton*, meaning a sketch on pasteboard), and even made extensive use of the balloon, an enclosed space containing dialogue issuing from the mouths of characters. This technique is exemplified in the work of Rowlandson, especially in *The Tour of Dr. Syntax* (1809), in which the story is told in text and pictures, speech balloons are used throughout, and the char-

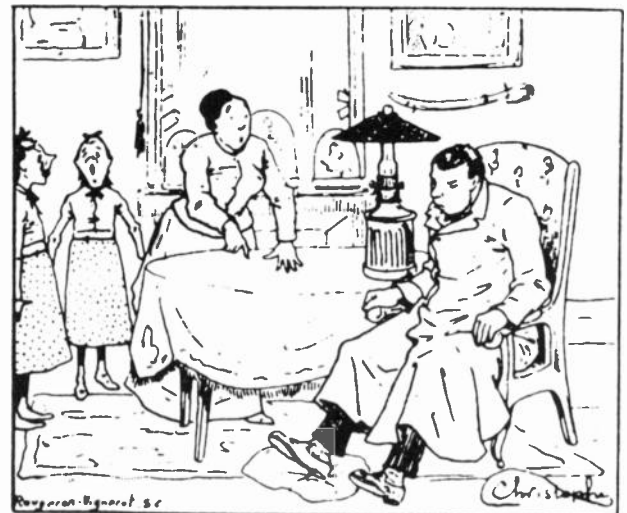
acters are well developed. All that is needed to make it a genuine comic strip is continuity.

This technique soon spread to the Continent, and in the course of the nineteenth century Europe witnessed a flood of pictorial narratives. These stories did not make use of the British cartoonists' innovations—none of them employed the balloon, for example—but they contributed in various ways to the development of the comics. Swiss artist Rodolphe Töpffer's *Histoires en estampes* (1846–1847) was a collection of brilliant graphic narratives woven around a redundant text; the illustrated poem "Max und Moritz" (1871) earned the German Wilhelm Busch lasting fame and inspired "The Katzenjammer Kids"; and in 1889 Frenchman Georges Colomb ("Christophe") created "La famille Fenouillard," regarded as the direct forerunner of the modern comic strip (Figure 1).

However, it was in the United States that the comics eventually were born. U.S. cartoonists did not rely on the written word as did European artists, and therein lay their strength. Throughout the nineteenth century U.S. newspapers and magazines evinced a robust vitality (see MAGAZINE; NEWSPAPER: TRENDS—TRENDS IN NORTH AMERICA), and U.S. cartooning was correspondingly more innovative and iconoclastic than its European counterparts. The enormous influx of immigrants from eastern and southern Europe speaking many different languages gave visual communication a steadily growing public. New talent came forward to answer the increasing demand for illustrators and cartoonists. Circulation wars



a



b

Figure 1. (Comics) Christophe, "La famille Fenouillard," 1889. (a) Being in need of a change of clothes, Mr. and Mrs. Fenouillard return home. Mrs. Fenouillard would like to break out in bitter complaints, but because her mouth is full of cheese she maintains a dignified calm. (b) In the evening, now that she has finished swallowing her cheese, Mrs. Fenouillard tells her husband that from now on she won't listen to him when he tries to tear her away from her home on the pretext of a trip. From Pierre Couperie and Maurice Horn, *A History of the Comic Strip*, New York: Crown Publishers, 1968, p. 14.

among newspapers, epitomized by the struggle between publishers JOSEPH PULITZER and WILLIAM RANDOLPH HEARST for control of the New York market, resulted in increasingly garish Sunday supplements to daily newspapers that aimed to attract wider audiences.

These hopes proved well founded: the new picture stories drew an enormous readership. In 1896, when Richard Outcault's "Yellow Kid" (which inspired the term *yellow journalism*) proved its worth as a circulation builder for Pulitzer's New York *World*, Hearst simply brought artist and character over to his new Sunday supplement, the *American Humorist*. It was in this periodical (self-described as "eight pages of polychromatic effulgence") that Rudolph Dirks's "The Katzenjammer Kids" first appeared in December 1897. "The Katzenjammer Kids" was the first feature to integrate all the elements of the contemporary comic strip and to make full and systematic use of the speech balloon.

The Language of Comics

What distinguished the comics from other cartoons appearing in turn-of-the-century Sunday supplements was a specific set of conventions. The most widely employed and instantly recognizable of these was the balloon, which at first played only a utilitarian role in conveying the utterances of various characters and thus endowing them with the faculty of speech. The balloon's dual nature—a dramatic device by function but a graphic form by design—created possibilities that innovative cartoonists were quick to explore. By using the graphic elements of the balloon (shape, lettering, symbols) in a literal way, they were able to translate the more complex aspects of language such as tone, intensity, rhythm, pitch, and accent. The balloon can also transcend speech, addressing itself to the naked thought or conveying interior monologue in thought balloons, usually configured by scalloped contours. The balloon can even free itself from all the restraints of organized expression, as when it changes form, slowly dissolving or suddenly exploding. It can be used variously as a ploy, a tool, a mask, a shield, or a weapon; the possibilities are endless.

The comics have at their disposal an impressive array of signs and symbols, often in the form of word pictures and visual puns. Thus a lighted bulb comes to represent a bright idea, a black cloud hovering over the head of a character is a feeling of grief or despair, a succession of z's means loud snoring. Onomatopoeias abound, colorfully mimicking the sounds of action and ordinary life. "Pow," "vroom," "ka-boom," and "splat" are easily recognized phonetic equivalents, just as "#@*%!!!" has become universal shorthand for a variety of expletives.

In addition to an extensive vocabulary, the comics have evolved a complex syntax and GRAMMAR of their own. The most original feature of the form is its blending of component elements—text and artwork—into one organic whole. The basic element in the language of the comics is the panel, a single drawing with or without accompanying text or dialogue, usually enclosed in a square or rectangular frame. It stands both apart from and in close relation to the other panels in the strip or page, like a word in a sentence. The contents of the individual panel are usually perceived by the eye as one unit. The panels themselves are grouped into strips (usually a horizontal succession of panels) or into pages presenting a vertical and horizontal combination of frames. These strips and pages are in turn organized into sequences and episodes.

The Genre Matures

The newspaper comics grew in number and quality in the first decade of the twentieth century. This was the time of James Swinnerton's "Little Jimmy" (1905), F. B. Opper's "Happy Hooligan" (1900) and "And Her Name Was Maud!" (1905), and Outcault's wildly popular "Buster Brown" (1902), whose name and likeness were used to advertise shoes, hats, buttons, and even cigars and whiskey. This was also the time during which the comics became an art form, with the short-lived creations of the German-American painter Lyonel Feininger, "The Kin-der-Kids" and "Wee Willie Winkie's World" (both 1906), and especially with "Little Nemo in Slumberland" (1905), artist Winsor McCay's most celebrated creation (Figure 2). The year 1907 marked a further milestone in the history of the medium: H. C. "Bud" Fisher's "Mutt and Jeff" definitively established the daily newspaper strip.

In the second decade of the century the comics consolidated their position as a mass medium. The syndicate system (*see* SYNDICATION) became generalized and helped ensure the phenomenal success of such strips as George McManus's archetypal "Bringing Up Father" (1913), which achieved universal fame, was translated into many languages, and was made into a number of films and stage plays. In 1911 George Herriman created "Krazy Kat" (Figure 3), a richly symbolic and highly artistic feature that earned its author the respect and admiration of intellectuals all over the world.

From about 1910 to the end of the 1920s the comics also developed a unique narrative MODE that combined the literary continuity of the novel with the visual pacing of the movies. Weekly and, later, daily continuity was not new to the comics; the earliest strips, such as "The Katzenjammer Kids," used it in the sense that occasionally one Sunday

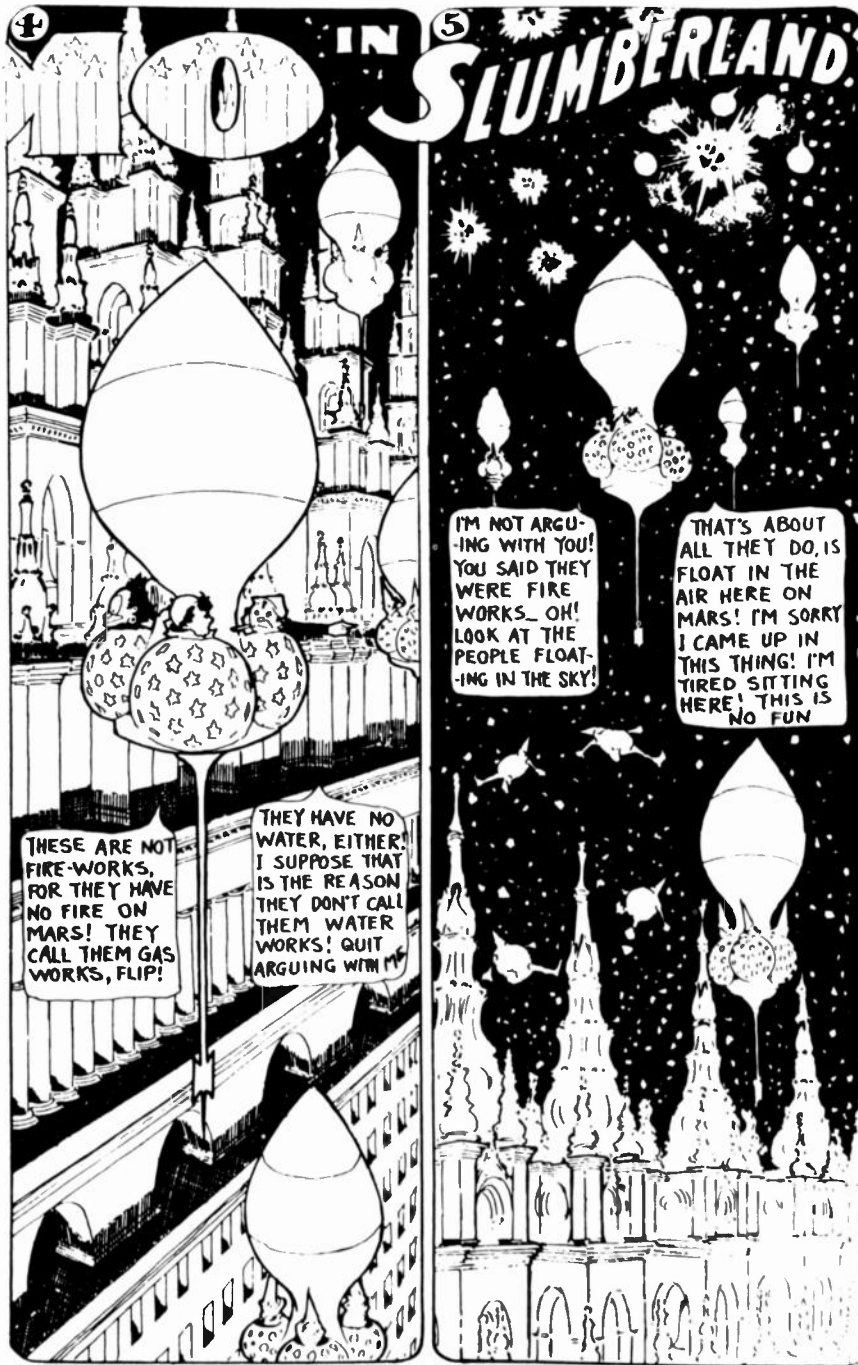


Figure 2. (Comics) Winsor McCay, "Little Nemo in Slumberland." From Pierre Couperie and Maurice Horn, *A History of the Comic Strip*, New York: Crown Publishers, 1968, p. 24. © McCay Company.

page would pick up where the preceding one had left off. The tempo picked up after 1910 with a smattering of strips using continuing stories, usually humorous adventures like those of Charles Kahles's "Hairbreadth Harry" (1906), or burlesques of silent films such as Harry Hershfield's "Desperate Desmond" (1910–1914). Continuity was used mainly as an added fillip, but Joseph Patterson, president of the Chicago Tribune Syndicate (and later publisher of the *New York Daily News*), saw in the device a novel way to gain and keep the loyalty of new

readers. He started with the feature that was to become the syndicate's flagship, "The Gumps," which Sidney Smith tailored to his boss's specifications in 1917. The success of the series, which earned its author the industry's first million-dollar contract, gave rise to more story strips from the syndicate. Frank King's "Gasoline Alley" (1919), Frank Willard's "Moon Mullins" (1923), and particularly Harold Gray's "Little Orphan Annie" (1924) proved Patterson's foresight.

Patterson was responsible for another trend in the



Figure 3. (Comics) George Herriman, "Krazy Kat," December 15, 1935 (single frame). From J. O'Sullivan, *The Art of the Comic Strip*, New York: A. Colish, 1971, p. 26. © King Features Syndicate.

1920s: the proliferation of so-called FAMILY strips focusing on domestic life and everyday events instead of slapstick and buffoonery. The family comics were tailored to attract a largely untapped female readership, and Patterson tied the new strips to story lines not unlike those of the popular radio SOAP OPERA of a later time. Indeed, "The Gumps" was made into one of the first daytime radio serials. The most successful family strip of all time, Chic Young's "Blondie," turned up in the following decade and for the rival King Features Syndicate (Figure 4).

"Blondie" was the exception, however. The 1930s became known as the comics' decade of adventure, ushered in on the same day in 1929 by Phil Nowlan and Dick Calkins's "Buck Rogers" and Harold Foster's "Tarzan." Their immediate success firmly established the genre. The Great Depression and heightening international tensions gave the U.S. public an unprecedented appetite for escape. Favorite avenues of escape included the exotic adventure strip (Milton Caniff's "Terry and the Pirates"), western adventure (Fred Harman's "Red Ryder"), aviation adventure (Noel Sickles's "Scorchy Smith"), space adventure (Alex Raymond's "Flash Gordon"; Figure 5), detective adventure (Chester Gould's "Dick Tracy";

Figure 6), and even medieval adventure (Foster's "Prince Valiant").

With the onset of World War II most of the heroes rushed to the defense of home and country. After the war, however, the comic strip adventurers faced changing public tastes and diminishing newspaper space. HUMOR was again in the ascendancy with new and successful strips such as Mort Walker's "Beetle Bailey" (1950) and Hank Ketcham's "Dennis the Menace" (1951). Al Capp's "Li'l Abner," which debuted in 1934, also enjoyed its greatest popularity in the 1940s and 1950s.

A new, more sophisticated brand of humor sprang onto the scene in this period, heralded by Walt Kelly's delightful series of fables, "Pogo" (1948), and Charles Schulz's "Peanuts" (1950), a phenomenal artistic and popular success (Figure 7). Other strips of the same intellectual bent include Mell Lazarus's "Miss Peach" (1957) and "Momma" (1970), Johnny Hart's "B.C." (1958), and Jeff MacNelly's "Shoe" (1978). More decidedly political were such strips as Jules Feiffer's "Feiffer" (1956) and "Doonesbury" (1970), by Garry Trudeau, the first comic strip artist to be awarded a Pulitzer Prize in cartooning; they were later followed by Berke Breathed's "Bloom County" (1980). Traditional humor was also well represented in U.S. newspapers of the 1970s and 1980s with series like Dik Browne's "Hagar the Horrible" (1973) and Jim Davis's "Garfield" (1977).


The Comic Book

For many years newspapers were almost the exclusive outlet for comics. It was not until the 1930s that comic books (comic strips in booklet or magazine form, usually sold separately on newsstands) came on the scene. At first they reprinted newspaper strips, but soon they branched out into original production. The phenomenal success enjoyed by *Superman*, created in 1938 by Jerry Siegel and Joe Shuster, established the new medium for decades to come. Hordes of superheroes, including *Batman*, *The Human Torch*, and *Captain America*, were among the hundreds of



Figure 4. (Comics) Chic Young, "Blondie." From R. Reiterberger and W. Fuchs, *Comics: Anatomy of a Mass Medium*, London and Harlow: Little, Brown and Company, 1971, p. 10. © 1933 King Features Syndicate.

FLASH GORDON



THE KING OF ARME

BY-
ALEX
RAYMOND



NEXT WEEK: "WAR IN THE CAVES"



Figure 6. (Comics) Chester Gould, "Dick Tracy." From Pierre Couperie and Maurice Horn, *A History of the Comic Strip*, New York: Crown Publishers, 1968, p. 62. Reprinted by permission: Tribune Media Services.

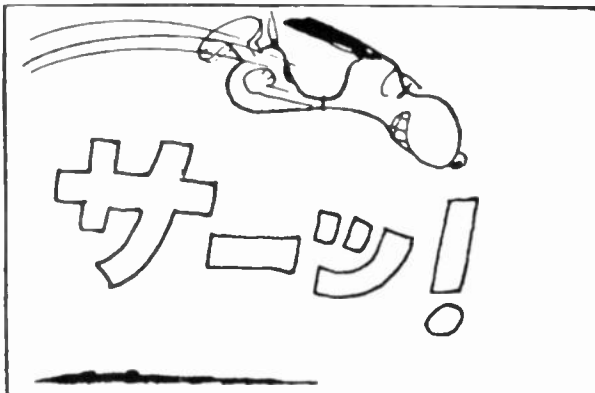


Figure 7. (Comics) Charles Schulz, "Peanuts." The Japanese translation of "Swoop!" under Snoopy is well presented visually. From R. Reitberger and W. Fuchs, *Comics: Anatomy of a Mass Medium*, London and Harlow: Little, Brown and Company, 1971, p. 27. Reprinted by permission of United Feature Syndicate.

Figure 5. (Comics) Alex Raymond, "Flash Gordon." From Judith Robinson, *The Comics: An Illustrated History of Comic Strip Art*, New York: A. Colish, 1974, p. 136. © 1935 King Features Syndicate.

comic book titles that appeared in the late 1930s and early 1940s. The comic books were immensely popular during World War II, when they were read by youngsters and adults (mainly enlisted men) alike. After the war, with an initial drop in readership, publishers turned to other themes like VIOLENCE and horror to increase sales. Some followed the lead of William Gaines, later publisher of *Mad* magazine, who released such titles as *Crypt of Terror*, *The Vault of Horror*, and *The Haunt of Fear*. This resulted in a public outcry that grew more strident during the 1950s. To fend off impending CENSORSHIP, publishers set up the Comics Code Authority, a self-regulating body with broad policy powers. If it saved the industry from probable ruin, the comic book code also resulted in a devitalization of the medium that lasted many years.

In the 1960s the comic books started experimenting again. This was the time of Marvel Comics' "superheroes with problems," such as the Fantastic Four, the Incredible Hulk, and especially Spider-Man (Figure 8), who became a symbol for a whole generation of college students. Yet the foremost innovators of the medium proved to be the so-called underground cartoonists, including Robert Crumb, Gilbert Shelton, S. Clay Wilson, and Art Spiegelman,



Figure 8. (Comics) Spider-Man. From S. Lee, *Origins of Marvel Comics*, New York: Simon and Schuster, 1974, p. 139. Copyright © 1974 by Marvel Comics Group.

who all combined great freedom of subject matter with a simple cartooning style reminiscent of the early years of the comics. Eventually they attracted public notice and came up from the underground, notably Crumb, whose creations Fritz the Cat and Mr. Natural earned him lasting fame. Working outside the established comic book channels, the undergrounders were able to develop themes—sex, drugs, social protest—that remained taboo to mainstream comic book writers, hedged in as they were by the strictures of the Comics Code. The underground comic books, most often printed in black and white, created a sensation and spawned a long line of epigones up to the new wave cartoonists of the 1980s, among whom Rick Geary, Futzie Nutzle [Bruce Kleinsmith], and Gary Panter are the most representative. Bridging the gap between the two generations is Spiegelman, author of the critically and popularly acclaimed comics novel *Maus* (1986).

By the 1980s falling comic book sales had led to the increasing reliance of major U.S. publishers (DC Comics and Marvel Comics) on comic book specialty

stores catering mainly to confirmed fans and collectors. This growing phenomenon also gave rise to a number of independent publishers whose frequently more adult productions competed directly with those of the established comic book companies.

The International Scene

There has been considerable production of comic features outside the United States, particularly since World War II. In Europe, Japan, and Latin America the main vehicle for the dissemination of comics has been the magazine (*see* FOTONOVELA). Often comics from these publications are collected in book or album form, allowing them to reach a wide international audience. “Tintin” (Figure 9), by Belgian artist Georges Rémi (“Hergé”), and “Astérix,” by Frenchmen René Goscinny and Albert Uderzo, have been particularly popular. Another influential French cartoonist is Moebius [Jean Giraud], who settled in the United States. Among the very prolific Italian comic strip artists of the postwar era are Guido



Figure 9. (Comics) Hergé, “The Adventures of Tintin.” “Quick, Captain, let’s jump out! Our car has got loose and is going to roll back down the slope!” “Jump, quick!” From Pierre Couperie and Maurice Horn, *A History of the Comic Strip*, New York: Crown Publishers, 1968, p. 202.



Figure 10. (Comics) Peter O'Donnell and Jim Holdaway, "Modesty Blaise." From R. Reiterberger and W. Fuchs, *Comics: Anatomy of a Mass Medium*, London and Harlow: Little, Brown and Company, 1971, p. 202. © London Evening Standard.

Crepax ("Valentina," "The Story of O") and Hugo Pratt ("Carto Maltese"). In the 1970s Spanish cartoonists like Esteban Maroto, José Gonzales, Fernando Fernández, and Jordi Bernet began to make their presence felt internationally. Even the British, whose production in the first half of the century had been devoted almost entirely to children's comics, came up with such popular creations as Reginald Smythe's "Andy Capp" and Peter O'Donnell and Jim Holdaway's "Modesty Blaise" (Figure 10).

Since the early decades of the twentieth century Latin America has had a local, if modest, comics production. Three countries have been especially active in the field: Mexico, perhaps best known for the satirical creations of Rius [Eduardo del Rio], whose tongue-in-cheek primers—*Castro for Beginners*, *Lenin for Beginners*—are widely published outside his native country; Brazil, noted for Mauricio de Souza's winsome creations, such as "Monica"; and Argentina, which produced the notable humor strip "Mafalda," described as a feminist "Peanuts," by cartoonist Quino [Joaquín Lavado]. Argentina can also boast of such remarkable artists as José-Luis Salinas (who for a long time drew "The Cisco Kid" for the U.S. market), Chilean-born Arturo del Castillo, and the highly original Alberto Breccia.

Comics readership is nowhere as widespread as in Japan. In 1980 the top five comics magazines had between them weekly sales of almost nine million copies. The resurgence of comics in postwar Japan was due almost entirely to one artist, Osamu Tezuka, who was acclaimed by the Japanese as "the god of comics." His many creations, especially Tetsuwan Atom (Astroboy) and Jungle Tatei (Kimba the White Lion), are well known outside his homeland. Following Tezuka, other Japanese cartoonists have gained international repute, including Reiji Matsumoto, Sampei Shirato, and Keiji Nakazawa, author of the moving "Gen of Hiroshima."

See also LITERATURE, POPULAR.

Bibliography. Stephen D. Becker, *Comic Art in America*, New York, 1959; Bill Blackbeard and Martin Williams, eds., *The Smithsonian Collection of Newspaper Comics*, Washington, D.C., 1977; Javier Coma, ed., *Historia de los comics*, 4 vols., Barcelona, 1982–; Pierre Couperie and Maurice Horn, *A History of the Comic Strip* (Bande dessinée et figuration narrative), trans. by Eileen B. Hennessy, New York, 1968; Denis Gifford, *The International Book of Comics*, New York and London, 1984; Irene Herner, *Mitos y monitos*, Mexico, D.F., 1979; Maurice Horn, ed., *The World Encyclopedia of Comics*, New York, 1976; Jeff Rovin, *Encyclopedia of Superheroes*, New York, 1985.

MAURICE HORN

COMMERCIALS

Short messages broadcast between programs or in intervals within programs, usually with the purpose of furthering the sale of a product or service or enhancing the image of a corporation or organization. The term is used mainly for messages broadcast in periods that have been purchased for the purpose. In RADIO, commercials began as simple spoken announcements, but in television they have evolved into complex productions that often cost more than the programs with which they share the schedule. In the United States it is not unusual for sums in excess of \$100,000 to be spent to produce a thirty-second television commercial, and additional millions to be spent to air it on stations and networks. Such messages, in filmed or recorded form, are generally rebroadcast many times and may appear internationally in various language versions. Thus, despite initial outlay, an advertiser may consider them economical when calculated on a cost-per-thousand-viewers basis. See TELEVISION HISTORY.

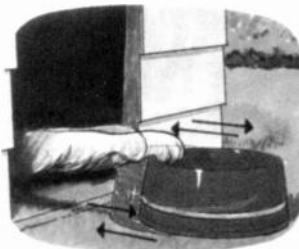
Because commercials embody an advertiser's central purpose in broadcasting, no efforts are spared in their planning and preparation. In countries with major commercial television industries, top-ranking

NEW
Purina
 brand **Kibbles and Chunks**
 DOG FOOD

*"BETTER WITH CHUNKS"
 :30 TV COMMERCIAL*



CHARLES NELSON REILLY: We hafta talk about this



I think you need va-ri-ety in your men-u so I have kibbles!!!



Oh, dear Doggie, this is new Purina Kibbles and Chunks!



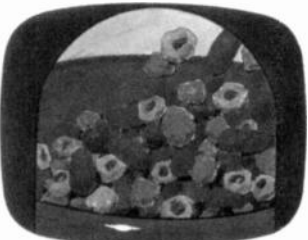
Kibbles taste better when they come with chunks!



Crunchy kibbles mmmmmmm



Chew-wee chunks



mmmmmmm, yummmmm
 New Purina brand
 Kibbles and Chunks dog food.



Two kinds of crunchy kibbles



taste better with two chewy chunks!



CHARLES: Whadaya say.



Purina Kibbles and Chunks better with chunks?



(CHARLES LAUGHS)
 Better with chunks!

CAC

CHUCKERBOARD ADVERTISING COMPANY
 A Subsidiary of the Ralston Purina Company

© Ralston Purina Company 1985

Figure 1. (Commercials) A storyboard: sketch for a thirty-second television commercial. Courtesy of CAC Advertising, a division of Ralston Purina Company.

performers, directors, writers, composers, arrangers, designers, and technicians may be enlisted in these miniproductions. Some STARS for a time resisted involvement in commercials, but this reluctance gradually gave way to an eagerness to participate, not only for financial reasons but because an uncertain professional status was sometimes reinvigorated by an amusing or stylish thirty-second performance, widely disseminated. By the mid-1970s the members of HOLLYWOOD'S Screen Actors Guild were earning more from commercials than from appearances in television films and theatrical films combined.

Historic Background

At the start of the radio broadcasting boom in 1920 (set off by radio bulletins of KDKA Pittsburgh, reporting on the presidential election that sent Warren G. Harding to the White House), few people imagined that ADVERTISING would play a major role in broadcasting. In fact, Herbert Hoover, who became Harding's secretary of commerce and thus acquired control over the issuing of station licenses, called it "inconceivable that we should allow so great a possibility for service to be drowned in advertising chatter." In spite of this dictum, Hoover posed no obstacle when the American Telephone and Telegraph Company (AT&T) in 1922 proposed a plan for a chain of advertising-supported stations. The first such station, which AT&T likened to a "phone booth" for public messages, became WEAJ New York. Its first revenue was a fee of fifty dollars for a message promoting a suburban apartment-house complex. The AT&T plan took hold slowly and was angrily denounced by diverse interests, but it gradually became a central feature of American radio and later television. The idea raised similar resistance in other countries, but in many the high cost of broadcasting—particularly with the advent of television—and effective LOBBYING by advertising interests gradually turned the tide. The commercialization was introduced with various restrictions, such as limits on the length, frequency, and positioning of commercials. Many government-operated systems were among those that eventually adopted plans for selling time for advertising. Some decided to cluster commercials in time periods designated for that purpose, without relation to specific programs. The intention was to insulate programming decisions from direct advertising influence. Some indirect influence was felt to be inevitable. The sale of time for electioneering purposes, which became permissible in the United States, was banned in most European countries as giving finance an undue influence in politics.

Types of Commercials

Diverse genres of commercials evolved over the years, developing along parallel lines in most countries

adopting commercial broadcasting. Commercial genres generally reflected dominant programming genres. The following variations appeared worldwide:

1. *Minidramas*. An individual faces a crisis in romance, business, or community status; the day is saved by Product.
2. *Musicals*. The infectiousness of SONG, sometimes supported by brisk choreography, is used to surround Product with a favorable atmosphere.
3. *Documentaries*. Quasi-DOCUMENTARY demonstration of Product in action, sometimes buttressed by charts and GRAPHICS, stresses its technical virtues.
4. *Testimonials*. The great and famous recommend Product as their personal choice among all available alternatives.
5. *Fantasy*. ANIMATION is enlisted to create imaginary creatures whose magic powers are associated with the magic of Product.
6. *Actuality*. Ordinary citizens, apparently observed unaware in restaurant, café, or other locality, discover and exclaim over the unique qualities of Product. See CINÉMA VÉRITÉ.
7. *Humor*. Comedians, promoting Product in unconventional ways, are permitted some of the liberties of the court jester. See COMEDY; HUMOR.
8. *News*. An announcer reveals that a new improvement makes Product even better than it has always been, assuring its continued supremacy over all competition.

Aspects of all the above genres are also used in diverse combinations.

Effects

Controversy over effects of commercials has been ever present. Commercials have been attacked on psychological, sociological, aesthetic, and political grounds. They are accused of exploiting and building personal anxieties, overemphasizing the material side of life, and distorting human and ethical values. It is argued that while they sell merchandise, they also sell a way of life, one that is linked to wasteful use of the world's finite resources and environmental pollution.

Such accusations are sometimes combined with charges of misleading advertising. Statements made verbally in television commercials are, however, seldom found false. In a visual medium, verbal tests of truth or falsity may have little meaning. When commercials feature SPORTS idols in cigarette or beer commercials, some viewers may consider this to be assurance that smoking and alcohol are compatible

with radiant and vigorous health, though no assurance of this sort has been verbalized. The success of such strategies, amid rising cancer and accident statistics, have led a number of countries to ban broadcast advertising of cigarettes and alcoholic beverages. In the United States cigarette advertising on the air became illegal in 1970.

Commercials have been categorized as *hard sell* or *soft sell*. Both extremes persist. In the early 1980s hard-sell advertising began to feature *negative advertising*—attacks on competing products or companies, identified by name. The trend was widely deplored, but also praised as providing an “informed choice.”

For the resolute opponent of commercials, various remote-control “mute” mechanisms have long been available, and their sale has caused some anxiety among advertisers. However, there is little evidence of any widespread anticommercial revolt in the general public. There is, on the contrary, evidence that commercials have won acceptance not merely as an information medium but also as skilled entertainment. Some phrases and slogans from commercials pass quickly into everyday use. Commercial jingles sometimes become popular songs and seem to turn into a species of modern folk music. In many countries commercials have apparently become an important component of popular culture.

See also CHILDREN—MEDIA EFFECTS; CONSUMER RESEARCH; FACT AND FICTION; MASS MEDIA EFFECTS; RATING SYSTEMS: RADIO AND TELEVISION; SPONSOR; VIDEO.

Bibliography. Leo Bogart, *Strategy in Advertising*, 2d ed., Chicago, 1985; Stuart Ewen, *Captains of Consciousness: Advertising and the Social Roots of the Consumer Culture*, New York, 1976; Bruce Kurtz, *Spots: The Popular Art of Television Commercials*, New York, 1977; Tony Schwartz, *The Responsive Chord*, New York, 1974.

ARTHUR ASA BERGER

COMMUNICATION, PHILOSOPHIES OF

The major ideas philosophers have developed about communication can be grouped under pragmatics, hermeneutics, existential communication, and pre-reflective communication. All have histories that reach back to antiquity and are, in this sense, classical.

Pragmatics

The word *pragmatics* was introduced by CHARLES MORRIS in 1938 to refer to the study of the users and contexts of signs (see SIGN; SIGN SYSTEM). Philosophers then were not interested in Morris's broad sense of pragmatics as involving all kinds of signs. They restricted the term to signs of LANGUAGE, but

even within this restriction they could not agree on a definition. The one that is most accepted states that pragmatics is concerned with the ways in which language functions as a communicative system. The flourishing of pragmatic studies since the early 1960s makes it seem as if philosophers had begun only recently to study the pragmatic aspects of language, but this is not so. Morris had launched the term pragmatics in reference to the work of CHARLES S. PEIRCE, WILLIAM JAMES, JOHN DEWEY, and GEORGE HERBERT MEAD. These philosophers shared a communal view of reality, in which communication by way of arguments and such notions as “agreement” and “disagreement” had pivotal roles. But as for argumentation being essential to any procedure for justifying truth claims, philosophic reflections about communication are as old as philosophy, originating roughly in what German philosopher Karl Jaspers called “axial time” (ca. 800–200 B.C.E.) with Vedantism and Buddhism in India, Confucianism and Taoism in China, and classical Greek philosophy in Europe. Among these, PLATO offers the most explicit philosophy of communication.

Plato: dialectic, rhetoric, sophistic. Plato believed that philosophical understanding is dialectic; that is, it implies the ability to demonstrate itself in argumentation. Beliefs have to be justified in discussion, and discussion, in turn, has to be based on the search for truth. This sets philosophical dialectic apart from RHETORIC as the art of PERSUASION and from SOPHISTIC as the art of argumentation in the service of public goals and interests. Plato thought that truth must be demonstrated by way of inner or outer SPEECH, so rhetoric is intrinsic to the acquisition of truth only as long as it remains in the service of truth. The same is true of sophistic, which, as long as it is subordinated to the search for truth, is assimilated to virtue defined as “the right usage of knowledge,” which consists essentially in being a good citizen. Under these circumstances, Plato regarded both sophistic and rhetoric as necessary conditions for communicating one's knowledge effectively, and for knowledge to be communicated effectively, it has to be accepted by the listener or reader.

Aristotle: the search for first principles. ARISTOTLE saw in Plato's dialectic the pragmatic setting for formal logic. He believed that without agreement on premises for starting points of an argument there could not be any philosophical communication. If communicators mistakenly assume that their audience agrees with their premises, they commit *petitio principii*—they beg the question. The argument miscarries not because of a logical error (“if *p*, then *p*” is logically valid) but because of an error in communication, that is to say, argumentation.

Cicero and Italian humanism: rhetoric and common sense. CICERO transmitted the classical Greek

philosophical concern with communication to the RENAISSANCE. His legacy to the Italian humanists was a view of communication as basically grounded in common sense and in the popular language that accompanies it.

This led in the fourteenth century to a revival of natural local languages, beginning with the work of the Italian poet Dante, who communicated his vision not in Latin but in the "vulgar" popular language of his time. He emphasized the role of pragmatic parameters in communication, such as time and place of utterance, speakers and addressees, and the larger context of the particular communication situation, and he was followed in this by the Italian humanists. In the twentieth century LUDWIG WITTGENSTEIN in Austria and John Austin in England picked up this tradition by viewing philosophy as being essentially conversational in the sense that the meanings of words are determined by the way people actually communicate and by the specific contexts of communication.

Deictic or indexical words. To analyze the context of communication some philosophers have been interested in deictic or indexical words. These are words whose INTERPRETATION depends on an analysis of the context in which they are used. Words like demonstratives (*this, there*), pronouns (*I, you*), and indicators of tense (*was, will be*) belong to this category. Peirce was the first to call them "indexical signs." He characterized the relationship between these signs and their referents as "existential." The English philosopher Bertrand Russell called them "egocentric particulars" and argued that in principle all indexicals refer to some kind of subjective experience. Hans Reichenbach, a German philosopher, saw indexicals as token reflexives: they refer to themselves. For example, the word *I* would refer to "the person uttering this token of the word *I*."

The most widely accepted philosophic approach to indexicals makes a distinction between the MEANING of an utterance and the proposition it expresses. Meanings are functions from contexts to propositions; propositions are functions from possible worlds to truth values. For example, a sentence like "I am forty-nine years old" has an invariable meaning, but the proposition picked out by this sentence differs depending on who is saying it, how (e.g., with irony), when, and where. In this theory pragmatics is preliminary to SEMANTICS, but the whole approach focuses mainly on those indexicals that are amenable to truth conditions. Some are not, such as performative indexicals like "I hereby . . ." or emphatic indexicals like "This is it."

Speech acts. In speech act philosophy, advanced first by Austin and subsequently systematized by the English philosopher John Searle, a large portion of speech is seen as a kind of action. For example, if I

say to someone, "I promise," I do not describe something true or false, but rather *do* something, namely, promise. I am engaged in a PERFORMANCE that Austin called an *illocutionary act*, whose force derives from social conventions. He distinguished two other kinds of speech acts: the *locutionary act*, which is achieved by the assertion of sense and reference, and the *prelocutionary act*, which includes all the effects an utterance may cause in a specific situation. Although these three kinds of acts are not always clearly separable, most philosophers have concentrated on illocutionary speech acts, probably because these acts clearly demonstrate that it is not truth conditions but social conventions that are central to our understanding of how we communicate. However, it is notoriously difficult to survey these conventions, and it is not likely that a comprehensive theory can be found.

Speaker meaning versus sentence meaning. Another philosophy of communication, proposed by the English philosopher H. Paul Grice, starts from the premise that it is not so much the culturally given illocutionary force of an utterance that is basic to communication but the communicative intention with which an utterance is conveyed and received. Communication is achieved by the mutual recognition on the part of sender and receiver of their intention to communicate. Only when such mutual knowledge of each other's communicative intention is present can we properly speak of successful communication. Grice distinguished between *natural meaning*, as in "This storm means trouble," and *nonnatural meaning* or *meaning-*nn**, which is the meaning conveyed by a communicative intention. Grice emphasized that what a speaker means by an utterance is not necessarily the meaning of the utterance, as in cases of irony or METAPHOR. This discrepancy can be taken care of by distinguishing between *speaker meaning* (Grice's meaning-*nn*) and *sentence meaning* or (which is the same) between *conveyed meaning* and *literal meaning*. Pragmatics is interested mostly in speaker meaning, while semantics is concerned mainly with sentence meaning.

Conversational implicature. The notion of *conversational implicature* bridges the gap between semantics and pragmatics, between what an utterance conveys as a sentence and what it conveys in terms of the mutual knowledge of the communicators. The theory of conversational implicature attempts to make explicit basic assumptions guiding successful conversations. Grice formulated general guidelines for people to follow to achieve efficient communication: they should be cooperative, rational, and efficient; that is, what they say should be true, informative, relevant, and clear. This is not to say that we always communicate this way, but we *implicitly* act under these assumptions when we communicate (hence the

notion of implicature). For example, when we do not understand a remark, we often ask for clarification, which illustrates Grice's point that we expect clarity in communication. This applies even to the use of figurative forms of communication, such as irony: the temporary bafflement of receivers who do not immediately get the point attests to the fact that they expected straightforward talk. The theory of conversational implicature is thus at least partly extendable to tropes (figures of speech). Its major constraints seem to come from those forms of communication that are systematically uncooperative, such as cross-examinations in a court of law. But even here one could argue that this form of noncooperativeness is conventionally sanctioned and in those terms precisely cooperative. *See also* LAW AND COMMUNICATION; TESTIMONY.

Universal pragmatics. The widest sense of pragmatics is to be found in the work of the German philosopher Jürgen Habermas, in which it assumes the status of a comprehensive theory of communicative action. Habermas sees communication as all socially coordinated activities through which the human species maintains itself as human, that is, rational. Rationality, in turn, is the ability to seek agreement by way of argumentative reasoning. Arguments contain validity claims, and Habermas's universal pragmatics addresses four universal validity claims that he sees as being necessarily presupposed by communication. Persons acting communicatively claim to be (1) *uttering* something understandably, (2) giving the hearer *something* to understand, (3) making *themselves* thereby understandable, and (4) coming to an understanding *with another person*. Although these validity claims are universal and as such are applicable to any type of communication, communicators always stand in culture-bound and language-specific traditions that support their "life-worlds"; they in turn renew and transmit these traditions by acting communicatively. Communication theory is thus for Habermas equivalent to *critical social theory*, in which any human action deserving that title becomes communicative action. Most critics of Habermas tend to agree with the notion of universal validity claims but are quick to point out that the apparent strength of such a view, its universality, is precisely its weakness in terms of how such claims can be validated empirically.

Hermeneutics

Hermeneutics, named after the Greek messenger god Hermes, developed in the Renaissance originally as the art of reviving classical and theological texts by means of written commentaries. But in the nineteenth century the German theologian Friedrich Schleier-

macher extended the art to CONVERSATION and speech, because he claimed that understanding texts implied communicating with their authors. In the twentieth century Schleiermacher's discourse-oriented notion of hermeneutics provided the basis for a hermeneutic philosophy of communication whose central notion is that of the hermeneutic circle.

According to German philosophers Martin Heidegger and Hans-Georg Gadamer, communicators bring their own culture-bound preconceptions, biases, and prejudices to bear on their understanding of a communicative event. Insofar as listeners or readers always understand messages in terms of their own prior understandings, communication contains a circular structure. Awareness of this structure improves the awareness communicators have of their own biases. It forces them to acknowledge their own cultural traditions and preconceptions as important influences on what they understand. Each message, besides coming from the other, is also a self-fabrication in terms of the receiver's own input of interpretation. In this way the hermeneutic circle lets speakers come face to face with themselves precisely when they communicate with others. *See also* CULTURE.

Existential Communication

While for hermeneutics the reflexive element of one's own self-projection is an integral element in communication, the confrontation with one's self in and through the act of communication can become the sole purpose of communication. This is the case in existential communication, whose best-known forms are known as maieutic communication, indirect communication, and oracular communication.

Plato's maieutic communication. In Plato's dialogue *Phaedrus*, Socrates saw in written communication a misleading implication that truth could be found outside the communicator's own soul. Plato thought to remedy this situation by writing in the form of dialogue in which Socrates practiced the art of "midwifery"—in Greek, *maieutike*—which involves asking questions in such a way that the listeners find the answers to the questions within themselves. In maieutic communication receivers are reminded that they are already in possession of the truth and that communication merely evokes that truth in them. In the *Meno* Plato demonstrated how Socrates elicited from an ignorant slave boy important mathematical information simply by asking him questions and drawing diagrams in the sand. Communication is here seen not as transferring knowledge from sender to receiver but as eliciting knowledge that the receiver already has but is not aware of and therefore is induced to recollect by the sender.

Besides evoking potential knowledge, maieutic

communication also aims at creating in communicators an attitude of passion for the truth, since the relationship to truth can only be a personal one in each case. Thus the search for truth is a search for one's true self. The Danish philosopher Søren Kierkegaard called this type of communication indirect communication.

Kierkegaard's indirect communication. For Kierkegaard, indirect (also called dialectical or existential) communication works against itself in the very act of communicating in order to facilitate the receiver's access to an ethical-religious existence. To live in the ethical order, individuals have to realize their own inwardness, in which what is objectively uncertain or even impossible is held fast by the infinite passion of faith. To lead individuals to such radical subjectivity, communicators have to lead, but at the same time they should remove themselves as leaders. In addition, since indirect communication should result in a realization of freedom and not an increase in knowledge, communicators must *be* what they teach and receivers must *become* what they are taught. Truth is not a doctrine but an existential transformation, and indirect communication is existence communication. To be existentially transformed is to stand alone in a relationship to God, but ironically one can be helped toward this inner one-to-one relationship with God by someone else. The other is therefore in a sense deceiving, since the other only seems to teach. In reality it is only God who can teach how to exist. This necessary ironic element of DECEPTION in indirect communication is very similar to the psychoanalytic view of communication, which the French psychoanalyst Jacques Lacan characterized as oracular communication.

Lacan's oracular communication. If for Kierkegaard the only teacher is ultimately God, for Lacan it is the Freudian unconscious. The unconscious is an effect of language, specifically of the way its binary semantic oppositions split the mind into states of "allowed/forbidden," "present/absent," "reality/fantasy," and the like. One side of these oppositions tends to be repressed and assumes its role as permanent other, whose heterogeneity is desired as such; that is, the self desires its own difference and absence as a constitutive part of itself. This is essentially Hegelian, and Lacan's reformulation of psychoanalytic communication turns out to be a unique blend of G. W. F. Hegel, Kierkegaard, and Heidegger, concisely expressed by Lacan's formula of communication: Human language constitutes a communication in which the sender receives its own message back from the receiver in an inverted form. The message relates to the necessity of difference in the very constitution of the speaking subject. Senders get their own difference back from receivers and thereby

show the structural necessity of communication: we communicate because who we are is always forthcoming from the other. *See also* FREUD, SIGMUND; PSYCHOANALYSIS.

Other Minds: Preverbal Criteria of Communication

The philosophical problem of the existence of other minds is, strictly speaking, not a philosophy of communication, but it can be viewed as addressing the foundation of a philosophy of communication, namely, the existence of other minds capable of communicating. Moreover, the way some philosophers, such as Wittgenstein and Frenchman Maurice Merleau-Ponty, addressed the problem carries with it a description of communication that is preverbal and prereflective. Wittgenstein believed that to understand first-person sentences we should see them as being similar to natural, nonverbal expressions of sensations. "My knee hurts," for example, replaces such behavior as crying, limping, holding one's knee; it does not describe it. First-person speech acts are seen as substitutes for original, natural expressions of sensations. Merleau-Ponty said similar things about gestures. The meaning of a GESTURE is not something "behind" it; it is the gesture itself. For example, a gesture indicating a fit of anger does not make one think of anger; it is anger itself. Merleau-Ponty called this type of communication *primordial*, because the act that communicates anger is anger itself and does not refer to some psychological state apart from it.

Philosophy as Communication

A strong philosophical tradition, ranging from Plato through Hegel to Heidegger, sees philosophy itself as an act of ongoing communication between self and other, identity and difference. For these philosophers communication is always in the service of truth, although they have different conceptions of truth. More recently U.S. philosopher Richard Rorty has claimed to see in philosophy a kind of communication that consists in the ability to sustain a conversation, generating ever-new descriptions of ways of looking at things, rather than a kind that is concerned with truth. Communication, in this view, is connected and concerned with itself rather than with the world.

See also MARXIST THEORIES OF COMMUNICATION; POETICS.

Bibliography. Hans-Georg Gadamer, *Truth and Method* (Wahrheit und Methode), trans. from 2d ed. by Garrett Barden and John Cumming, New York, 1975, reprint 1986; Jürgen Habermas, *Communication and the Evolu-*

tion of Society, Boston, 1979; Søren Kierkegaard, *Journals and Papers*, Vol. 1, A–E (Papirer, 1909), Bloomington, Ind., 1967; Jacques Lacan, *Écrits*, Paris, 1966, reprint (trans. by Alan Sheridan) New York, 1977; Stephen C. Levinson, *Pragmatics*, Cambridge, 1983; Richard Rorty, *Philosophy and the Mirror of Nature*, Princeton, N.J., 1979; C. J. Rowe, *Plato*, New York, 1984.

EUGEN BAER

COMMUNICATION MODELS. See MODELS OF COMMUNICATION.

COMMUNICATIONS, STUDY OF

The study of communications focuses on a process fundamental to the development of humans and human society—interaction through messages. By means of communication we share ideas and information, live in infinitely varied cultures, and extend knowledge and imagination far beyond the scope of personal experience. It is not surprising, therefore, that the study of communications in one form or another has long been of deep human concern. Philosophy, RHETORIC, POETICS, HOMILETICS, LINGUISTICS, SEMANTICS, and SEMIOTICS are just a few of the branches of learning that have dealt with aspects of communication.

However, organized academic programs in communications are relatively recent. The impetus for their establishment came from the growth of the mass media and other new communication technologies, which made possible the rapid mass production and distribution of messages and images. Thus, although lectures on journalism were being given at Leipzig University in 1672 and a doctoral dissertation on the press was presented there in 1690, such developments were few and far between, and the impact of communication studies was not widely felt until the twentieth century.

Modern media-oriented studies began with practical training in journalism, film, RADIO, SPEECH, television (see TELEVISION HISTORY), ADVERTISING, PUBLIC RELATIONS, and similar activities. These studies are often conducted as apprentice training by the media themselves or in connection with professional and trade organizations, unions, and government agencies. Communication or communications (often in combination with related terms, for example, speech communication or journalism and communication) is an area of scholarship and research whose purpose is to contribute to the critical understanding of interpersonal and social communication and its policies as well as to the practical skills of media production.

The broadening of communication studies from skills training to research and analytical and critical inquiry was a result of changes in social, artistic, and technological conditions. Early print had been a mo-

nopoly of literate elites, but cheap newspapers became a mass medium (see NEWSPAPER: HISTORY). Film and radio bypassed the need for LITERACY. Television completed the transition of modern media from “class” to “mass.” It also created the first media environment to pervade the home and fill the LEISURE hours of millions of people of all ages. New media also gave rise to new forms and styles of expression, socialization, and governance, challenging traditional modes of social analysis and cultural study.

The availability of relatively cheap (and cheaply printed) stories and pictures (including COMICS) in the late nineteenth and early twentieth centuries added fuel to the ancient debate about new modes of communication debasing the old and corrupting the impressionable and vulnerable. Each new MODE or medium also stimulated research, as well as controversy, about the consequences for CHILDREN, the “lower classes,” and CULTURE in general. The results of research enriched the scholarly basis of the new discipline and hastened its emergence. See also COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT.

In several European countries cinema studies began in the 1920s to address more specialized literary and artistic issues raised by the new medium. A tradition of media scholarship and criticism was initiated in independent centers only loosely connected, if at all, with academic institutions. This tradition of media studies eventually led to two distinct developments: the semiotic (or semiology) approach to analysis, especially in France and Italy, and the movements in screen EDUCATION and media studies in the United Kingdom and other countries.

In the United States the study of communications gained a relatively early entry into colleges and universities mostly as a “practical,” vocationally oriented course. However, in an academic environment it was forced to broaden its scope. Students of media had to take courses in philosophy, history, politics, and other liberal arts subjects. With the acceptance of communications in the academy and the development of graduate programs of research and analysis came a growing acceptance of the concept of communication as the core of a distinct academic discipline able to contribute to knowledge about human development, society, government, and the arts.

United States

The spread of communication studies in the United States reflects the prominence of communication media in the everyday life of its citizens. In the late 1980s more than six hundred U.S. colleges and universities (about 20 percent) had formal programs

(schools, departments, or other units) in communication media studies, employing more than seventeen hundred full-time faculty members. These programs included journalistic, artistic, and scientific approaches to the study of practice and policy in press, film, radio, television, advertising, public relations, speech, and telecommunications (the study of new communication technologies).

More than six out of every ten of these academic units grant bachelor's degrees, two out of every ten have graduate programs leading to the master's degree, and about 4 percent confer the Ph.D. The University of Iowa approved the first doctoral programs in 1945. Within ten years communications doctoral programs existed at the Universities of Illinois, Wisconsin, and Southern California, and Stanford University. By the late 1980s there were twenty-four doctoral programs in communications and related studies. More than five thousand students pursue graduate studies in communication fields, and about fifteen hundred graduate degrees in these fields are awarded each year by U.S. universities.

From journalism to communication scholarship. Germany was the first country to offer the study of journalism in its universities. The United States, however, pioneered in the nineteenth- and twentieth-century development of academic journalism.

In 1869 Robert E. Lee, hero of the Confederacy, who became president of Washington University (later renamed Washington and Lee in his honor), supported a university program for training journalists, which he called "journalism and printing," that was meant to aid in the rebuilding of the South. Editors disagreed about the appropriateness of the idea. Henry Watterson of the Louisville *Courier-Journal* declared firmly, "There is but one school of journalism and that is a well-conducted newspaper office." E. L. Godkin of *The Nation* and HORACE GREELEY of the New York *Tribune* lined up with Watterson. JOSEPH PULITZER of the New York *World* and Whitelaw Reid of the *Tribune* were on Lee's side. The program was not a great success and was disbanded before the end of the century.

The University of Missouri gave a course in the history and materials of journalism as early as 1878. The Wharton School of Business at the University of Pennsylvania offered a business journalism major from 1893 to 1901, under Joseph French Johnson, who had been financial editor of the *Chicago Tribune*. The first separate school of journalism was founded at Missouri in 1908, with longtime journalist Walter W. Williams as dean. The Pulitzer School at Columbia University, established in 1912 (later renamed the Columbia Graduate School of Journalism), was founded with an endowment from Pulitzer of about \$2.5 million.

Developments came rapidly. In 1910 there had been only one school (Missouri) and four departments of journalism. In 1917, 84 institutions were offering work in journalism. In 1934 there were 455 such institutions and 812 teachers. By 1987 more than 300 institutions offered degree-granting programs in journalism or journalism and mass communications, and nearly twice as many conducted some work in these and related communication subjects.

The American Association of Teachers of Journalism (AATJ) was founded in 1912, with Willard G. Bleyer as its first president. Administrators of journalism programs founded the American Association of Schools and Departments of Journalism (AASDJ) in 1917. The development of a formal accrediting program resulted in the establishment of the American Council for Education in Journalism in 1939 and a rival group, the American Society of Journalism School Administrators, in 1944. To resolve the confusion and to place leadership in the hands of teachers, the Association for Education in Journalism (AEJ) was formed in 1950, and it added "and Mass Communication" to its name (becoming AEJMC) in 1982. Other organizational mergers and alliances gave the field a coherent professional and scholarly structure, and it grew in total membership from the founding group of eighteen to more than two thousand members and from 14 college and university departments to 173 in 1987.

By 1924 the new field had a scholarly journal, the *Journalism Bulletin*, which in 1930 was renamed the *Journalism Quarterly* and is still published. In the first five years typical articles in the *Bulletin* were "Proof Errors Analyzed" and "Comparing Notes on Courses," but beginning in 1930, when Frank Luther Mott became editor and the name changed from *Bulletin* to *Quarterly*, tougher standards were applied. In the first five years of Mott's editorship the number of articles on the teaching of journalism was halved from the preceding five years, and the number of articles on international communication and the foreign press tripled.

Other scholarly journals joined the *Journalism Quarterly* to serve the field, such as the *Film Quarterly*, *Journal of Broadcasting and Electronic Media*, *Journal of Communication*, and *Quarterly Journal of Speech*, to name only a few. An *Index to Journals in Communication Studies through 1985*, published by the Speech Communication Association, listed fifteen scholarly journals, and four more have been started since 1985. Organizations such as the Association for Education in Journalism and Mass Communication, the International Communication Association, the Speech Communication Association, the Society for Cinema Studies, and the Broadcast

Education Association promoted scholarship as well as professionalism in the field. Clearly the academic face of journalism had changed.

Other changes took place as well. A few institutions began to call themselves schools of journalism and communication (or communications). Among these were some of the pacesetters, such as Wisconsin and Minnesota. Illinois combined journalism and several other departments into a school of communication, headed by a dean. By 1986 more than eighty-six thousand students were reported in 180 schools as majoring in journalism and mass communications.

The change in names had a dual significance. First, it signaled the broadening of the new field from newspaper journalism to all media and modes of communication. For example, when Stanford established a department of communication it included radio and film. Nonjournalism departments were affected also. At the University of Iowa the Department of Speech renamed itself the Department of Communication, but the school of journalism was left with its old nameplate, Journalism and Mass Communication.

A second and deeper effect of the name change was that a social science name—communication—replaced a vocational one. This change announced to the rest of the university that the practical study of journalism—like business and education—had joined academia and was looking at its problems and conducting its research with the same rigor that other social sciences insisted on.

Supporting the academic study of communications was the development of communications research as an academic specialty. Research until the 1960s concentrated on specific media and was sporadic and noncumulative. Its rapid consolidation was based on research undertaken during and immediately after World War II. The need to consolidate research findings and to plan further research led to the establishment of institutes for communications research, which were usually attached to schools or departments of communication. These attracted social scientists and research grants and made it easier for communications to claim disciplinary status among academic disciplines and to launch graduate programs leading to the Ph.D., a major scholarly recognition of such status. Communications doctoral programs trained researchers and scholars who prepared the way for the next advance: the introduction of communications as a fresh approach to the liberal arts, with subject matter necessary for all citizens in a media-dominated society. The doctoral programs became the chief training grounds for the critical and analytical approach to the new media environment. Their graduates were sought by many colleges and

universities in order to expand old and to launch new undergraduate programs.

A significant opportunity for progress in the new direction came with the establishment of graduate programs not dependent on undergraduate media training and free to chart their own courses. The first such opportunity arose when Walter H. Annenberg, prominent publisher and U.S. Ambassador to the Court of St. James, founded The Annenberg School of Communications at the University of Pennsylvania in 1959. The newly assembled faculty of media scholars and social scientists designed an innovative graduate curriculum focusing on three areas of communication study: analysis of the codes and modes of structuring images and messages, research on the behavior of parties to the communication process, and the study of communication systems, institutions, and policies. The new concept and its productivity in scholarship and publications contributed to the trend toward making communication study an integral part of the academic organization of knowledge.

Speech communication. Parallels between the university development of communication studies in speech and journalism are striking, although, of course, the study of journalism accompanied the mass media, whereas the study of speech goes back at least as far as the Greek and Roman rhetoricians and the Elder Sophists.

The classical rhetoricians provided a foundation in the first century B.C.E., and rhetorical studies in the early European universities built on that base. Rhetoric was part of the first curriculum of Harvard University in 1636. Princeton University, the University of Pennsylvania, and the College of William and Mary all taught rhetoric in the eighteenth century. In those years it was usually a part of the Department of English.

In 1910 seventeen teachers of speech walked out of the annual meeting of the National Council of Teachers of English and formed their own association. By 1914 they had created a National Association of Academic Teachers of Public Speaking, which later became the Speech Communication Association (1968).

Film. Film as the medium of MOTION PICTURES attracted the interest of artists, critics, educators, businesspeople, and students from the time THOMAS ALVA EDISON'S kinetoscope peepshows first became popular in New York in 1894. Soon films were being studied as the artistic expression of leading filmmakers, as vehicles of social protest, as instruments of revolutionary PROPAGANDA, as reflections of cultural tendencies, as instruments of education and information, and as historical documents.

European schools of filmmaking and film criticism

centered on such leading personalities as SERGEI EISENSTEIN and Aleksandr Dovzhenko (Russia), JEAN RENOIR and Jean-Luc Godard (France), F. W. Murnau and Rainer Werner Fassbinder (Germany), and Lucino Visconti and Michelangelo Antonioni (Italy). Training and study were for the most part conducted outside universities.

U.S. universities were somewhat more hospitable to film studies. The first known listing of a university course on motion pictures was one at Columbia University in the 1916–1917 academic year, initiated by Victor Oscar Freeburg but taken over by Frances Taylor Patterson when Freeburg left for war duty. Two pioneering textbooks emerged from this beginning: Freeburg's *The Art of Photoplay Making* (1918) and Patterson's *Cinema Craftsmanship: A Book for Photoplaywrights* (1920). The University of Southern California (in the shadow of the HOLLYWOOD film industry) first offered a course on the photoplay in 1929. By 1932 it had programmed a sequence of courses for a B.A. in film studies and by 1935 a sequence for an M.A. After World War II the growth in the number of courses dealing with motion pictures in U.S. colleges and universities was swift.

The first adoptions of film studies programs were in departments of education (in which film was studied as an audiovisual aid to TEACHING), speech, and DRAMA. Critical and empirical research approaches were represented by adoptions in departments of English, literature, and history and later in departments and schools of communication. From the beginning, filmmaking and production courses were very popular, as were courses on the history and AESTHETICS of the cinema and on the social and psychological aspects of films.

Radio and television. The first master's degree in broadcasting (which at that time was limited to radio) was offered by the University of Wisconsin in 1931. By the end of the 1950s eighty-nine universities and colleges offered bachelor's degrees in radio-television, forty-five offered master's degrees, and sixteen awarded doctorates.

By that time, of course, television had become the dominant audiovisual medium of modern times, attracting a nightly audience greater than the weekly attendance at movies when they were most popular, and more scholarly attention than either radio or films ever received. Craft and critical approaches to the three newest media tended to merge. Because of the importance of news and information to the broadcast media, graduates of schools and departments of journalism increasingly found employment with them. Researchers in radio and television found themselves studying parallel problems. Although cinema studies retained much of their AVANT-GARDE flavor and critical tendencies and continued as a

separate line of scholarship (as indeed do all the subdisciplines of communications), the ferment in communication studies in the 1980s led to the absorption and integration into the new discipline of many of the insights derived from film scholarship. Thus although their differences are as apparent as ever, the audiovisual media are reaching the end of the century with their patterns of study more unified than ever before.

Advertising. More than half of the world's advertising expenditures are in the United States and Canada, and, not surprisingly, the majority of programs of professional training and study are in North America as well. There was, however, little activity in advertising education before 1900 despite the long history of advertising itself. The advent of printed media (see PRINTING) in the seventeenth century greatly stimulated the use of advertising, and, in turn, advertising became the business subsidy that supported commercial media in capitalist countries.

The first university course labeled "advertising" was one offered by New York University during the 1905–1906 school year. In 1908 both the University of Missouri and Northwestern University offered their first courses in advertising. The Northwestern course was taught by Walter Dill Scott, a psychologist who wrote the first well-known textbook in the field—*Psychology of Advertising*—and later became Northwestern's president. The first major in advertising was offered at the University of Missouri around 1913. By 1930 more than thirty colleges and universities listed at least one course in advertising in their catalogs.

Advertising education, like all communication study, grew from varied roots: the interest of the advertising community in training, of psychologists and other social scientists in the effects of PERSUASION, of business organizations and schools of business in marketing, of new schools of journalism and communication in the economic mainsprings of commercial media, and of historians and social scientists in exploring advertising's influence on society and on individual lives.

In the United States an estimated five hundred institutions of higher learning offer some courses in advertising. Forty or more institutions have major programs in advertising. Among the students in schools of journalism and/or journalism and communication who have declared majors, about 18 percent chose advertising compared to about 30 percent who chose editorial journalism. Among graduates, about 8 percent go into advertising, 10 percent into public relations, and 14 percent into broadcasting; 12 percent work for daily newspapers, and some 10 percent get other media-related jobs. Nearly half do not find (or seek) careers in these areas.

Canada

Canadian scholars such as HAROLD INNIS and MARSHALL McLUHAN pioneered in the economic and cultural policy approaches to the study of communication, but early university education in the field followed the patterns established in the United States. Spurred by the demand for journalism education after World War II, three universities established journalism departments in Canada: Carleton University in Ottawa, the University of Western Ontario in London (Ontario), and Ryerson Institute of Technology (now Ryerson Polytechnical Institute) in Toronto. In 1965 Loyola College in Montreal started a course in mass communications, and soon many universities followed suit, including Windsor, Toronto, Saskatchewan, Simon Fraser, Concordia, McGill, Montreal, and Laval. The work and fame of McLuhan attracted students to the University of Toronto, which continues a McLuhan Centre for Culture and Technology.

By the late 1970s at least thirty universities and forty community colleges offered degree and diploma programs in communications or journalism. Graduate programs lead to a master's degree in communications at ten universities and to a diploma in journalism at three universities. Programs leading to a Ph.D. in communications were established at McGill and Simon Fraser universities and in a bilingual (French-English) program jointly conducted by the Université de Montréal, Université du Québec à Montréal, and Concordia University. The scholarly Canadian Communication Association was formed in 1980 and the Association de Recherche en Communication de Québec shortly thereafter.

Europe and the USSR

The study of communications in Europe tends to reflect the varied history and cultural context of its development. University lectures on press history were given in Germany as early as 1672. After World War I journalism training was promoted in England by the newspaper industry for former armed forces personnel. Practical and professional media studies developed rapidly in eastern Europe and the Soviet Union after World War II.

The Institute of Journalists, a trade organization, supported the establishment of the first graduate diploma course in journalism at London University in 1919. Not until 1970 was there another specialized professional program, the Centre for Journalism Studies at University College, Cardiff, a part of the University of Wales. A Chair of Film was set up at London University in 1967. By that time organized research programs in mass communication had been launched at the Universities of Leicester, Leeds, and Birmingham, and at the London School of Economics and Political Science. By the late 1980s at least twelve

universities, including several important polytechnic institutions, were offering organized degree programs in various aspects of communications, and more technical courses were offered by press and broadcast industry training programs.

Although the roots of communication study in Germany are very old, continuous study of the field began around World War I. MAX WEBER's proposal for the sociological study of the role of the press in PUBLIC OPINION formation was turned down at a Congress of Sociology in 1912. Instead, the German Institute for the Study of the Press was established in Berlin by professional associations and major publishers. However, the practical journalism training offered in Berlin and a growing number of other centers was not considered an appropriate function for universities. Therefore, *Zeitungswissenschaft* ("press science") at Leipzig and other centers of learning was considered a major subject, legally recognized for the granting of university degrees, and was closely related to history, politics, economics, and law, rather than to the skills and techniques of journalism.

In the 1920s sixteen German universities were offering study programs in press science, and the example was noted and followed in a number of other European countries. Between the wars *Zeitungswissenschaft* began to seem less appropriate as a title because of the growing influence of radio, especially in Germany, where public opinion and propaganda, rather than press history and press law, were beginning to dominate thinking about the media. After World War II the term *Publizistik* (which might be translated as "public communication") had begun to replace *Zeitungswissenschaft* as a name for the academic field.

In other western European countries the structure of communication study showed similar signs of change. The Institut für Zeitungswissenschaft at the University of Vienna changed its name to the Institut für Publizistik and also changed its research emphasis from press history and law to mass communication in general and began to concentrate on empirical approaches. In France an Institute of Press Science was established before World War II. It closed during the war, and its successor was eventually superseded by the Institut Français de Presse (French Institute of the Press), which was founded in 1951 and which became attached to the Sorbonne in 1957. In 1966 it was granted the power to award diplomas and degrees. Two influential programs in practical journalism were begun after World War II by the University of Bordeaux and the University of Strasbourg. In Strasbourg the program was connected with an International Center for Advanced Training in Journalism, established in 1956 with UNESCO's help, and it offered refresher courses for teachers of jour-

nalism and practicing journalists as well as aspiring journalists from Europe, Africa, and the Middle East. The "cultural approach" (involving the development of *STRUCTURALISM*), also practiced at the University of Birmingham's Centre for Contemporary Cultural Studies, thrived in the 1960s and 1970s at the Centre d'Études de Communications de Masse (CECMAS) in the École Pratique des Hautes Études in Paris. Government attention to the new communication technologies stimulated new training and research programs in the 1980s.

By the 1970s every European country was offering practical training in journalism in addition to the more academically oriented courses. Prominent centers of communication studies included the Universities of Madrid, Barcelona, Bilbao, and Pamplona in Spain, Naples and Bologna in Italy, Amsterdam and Nijmegen in the Netherlands, and Oslo, Lund, Göteborg, Helsinki, and Tampere in the Scandinavian countries.

Cinema and broadcasting, as might be expected, were added to the subject matter of communication study somewhat later than the press. Further, practical training in the audiovisual media was less likely to be given by universities than by institutes or film and broadcasting studios. It is generally observed that the coming of television after World War II not only stimulated and broadened mass media studies in Europe but also boosted research on the social use and effects of mass communication in general (*see MASS MEDIA EFFECTS*). Similarly the new approach to film studies in the writings of Gilbert Cohen-Séat, especially his philosophy of the cinema described as "filmology" that combined the cultural-aesthetic and social-psychological approaches to the film and stimulated the establishment of the Institute for Filmology at the Sorbonne, sparked an interest in studies of social communication in general, especially in France, Italy, and Belgium. Thus by the 1970s mass media studies, practical and theoretical, were well known in western Europe.

In the USSR the study of communication started outside the universities and concentrated on journalism and other media training. Its direction was strongly influenced by V. I. Lenin's concept of the press as "collective organizer." There was thus a practical political as well as a scholarly reason for an early start to education in communication.

Journalism and film training were established in Moscow shortly after the October Revolution. The State Institute of Journalism was founded in Moscow in 1921, reorganized in 1923, and largely supplanted by the establishment of university units after World War II. The first university department of journalism was founded at the University of Leningrad in 1946 as a Section of Journalism in the Faculty of Philosophy. At the Lomonosov State University of Moscow

a Section of Journalism was organized in the Faculty of Philology in 1947. Five years later it was transformed into a faculty (in U.S. university terminology, a school), the first such faculty in the country. It has grown tremendously since the early 1950s and continues to be the leading institution of journalism education in the country.

The three types of journalism education in the USSR all lead to a diploma: a full-time five-year course, evening classes for six years that meet three or four times a week, and correspondence courses with twice yearly individual examinations for practical journalists living outside Moscow or other major university centers.

The University of Moscow's Faculty of Journalism is divided into departments that include newspaper and *MAGAZINE* journalism, news agency journalism (*see NEWS AGENCIES*), radio and television journalism, and book *PUBLISHING* so that students can choose their specializations. Faculty members are divided among departments (called chairs) that include theory and practice of the Soviet press, foreign press and literature, history of Russian and Soviet journalism, sociology of the mass media, *LITERARY CRITICISM*, and stylistics of the Russian language. The general curriculum is a combination of liberal arts, Russian socioeconomic disciplines, and applied journalistic skills. Ten weeks of practice between summer and fall semesters at local newspapers, radio stations, and television stations is required of all students. (Specialization in radio and television journalism began in the mid-1960s and has been playing an increasingly important role in the system of journalism in the USSR.)

After the school of journalism was established at the University of Moscow, other universities throughout the country quickly followed suit. There are more than twenty schools and departments of media education in the USSR, in the capital cities of almost all the republics as well as in other major cities such as Leningrad, Sverdlovsk, Voronezh, and Vladivostok.

Moscow University's Faculty of Journalism has approximately twenty-five hundred students and about five hundred graduates each year. In the USSR as a whole the number of graduates is not much greater than six thousand, which falls far short of the country's needs. For this reason many journalists are drawn from other backgrounds and professions, such as teaching, economics, engineering, and writing, and they often draw on their specialized knowledge in their work as journalists. *See also* *NEWSPAPER: TRENDS—TRENDS IN THE SOVIET PRESS*.

The All-Union State Institute for Cinematography was established in Moscow in 1919 to give training in drama and *CINEMATOGRAPHY*, screenwriting, directing, producing, and cinema economics. Cinema

training is also offered by similar institutions in Minsk, Tbilisi, Tashkent, Kiev, and Leningrad. These institutions are not universities, but their diplomas have an equivalent status to the degrees of universities. Most of the academic units provide a full-time five-year education for future producers, camera operators, scriptwriters, actors, cinema critics, and cinema executives.

Czechoslovakia, the German Democratic Republic (DDR), Poland, and Yugoslavia began university-based journalism training after World War II. These universities combined practical training with academic teaching and research. One outstanding example is the journalism faculty of Karl Marx University in Leipzig in the DDR. The course aims at providing a basic orientation in journalism, followed by additional specialization in print media, radio, or television and a content area (foreign politics, political economy, cultural politics, etc.). Influential teaching and research institutions include the Press Research Center in Krakow and the film school in Lodz, Poland; the department of journalism and communication at the University of Ljubljana, Yugoslavia; and the Mass Communication Research Center of Hungarian Radio and Television, Budapest, Hungary.

Journalism studies in some of the socialist countries of eastern Europe were caught up in the political and ideological upheavals of the post-World War II era. An example is the history of such studies in Czechoslovakia.

University-level studies of journalism were introduced into the Higher School of Political and Social Science in Prague soon after the liberation of Czechoslovakia from Nazi occupation in 1945. The school was reorganized in 1950 and abolished in 1952. Although departments of "journalism and libraries" were organized in the philosophy faculties of both Charles University in Prague and Comenius University in Bratislava, the hybrid units did not last long. Problems with finding a satisfactory balance of practical, ideological, and scientific training at the universities led the Union of Journalists to organize its own independent Institute of Studies in Journalism in Prague in 1953 and one in Bratislava in 1955. In 1960 Charles University responded by launching its Institute of General Education and Journalism. That institute was reorganized as a faculty in 1965 and renamed in 1968 the Faculty of Social Sciences and Publicity to indicate its newly acquired social-scientific orientation. Some critics called the new unit "trendy" and lacking in critical rigor as well as practical applicability. In 1972 a new Faculty of Journalism was established at Charles University (and a similar faculty at Comenius University) and was charged with preparing "ideologically mature and politically conscious future specialists in different editorial boards." Their departments include propaganda, history of

journalism, broadcast journalism, press agency journalism, and socialist advertising and publicity. The faculties select each year about forty candidates in Prague and twenty candidates in Bratislava and give them full scholarships, including family stipends. The Prague faculty also maintains an Institute of the Theory and Practice of Journalism to coordinate research in the field.

Australasia

The development of communication studies in Australia reflects the long dependence of Australian universities on British and U.S. imports and European trends. The fifteen degree-granting programs in communications and media studies, spread over eighteen universities and fifty colleges or advanced institutes, have little in common. In the older universities the field was still struggling for recognition in the late 1980s, and there were no chairs (full professorships) in it. Work was mostly print oriented and eclectic, with media policy studies likely to be located in departments of sociology or politics with the focus on special topics such as television VIOLENCE and children.

The number of colleges of advanced education and institutes of technology has increased since the 1960s. These schools were designed to offer more skills-oriented programs. In fact, however, they became staffed with two groups. One was following the U.S. speech communication model, usually under the titles of interpersonal, organizational, and business communication, and more recently such specialties as health communication. The other group was influenced by the British screen education movement and the Birmingham school of critical "cultural studies," and it focused on political economy, semiotics, feminism, and issues of language and power.

In New Zealand there are five general communications courses in polytechnics and one chair of telecommunications. Work in communications in both Australia and New Zealand is also carried on by individual scholars working in departments ranging from the social sciences and anthropology to economics, business, and law. Most courses are underfunded, and many applicants compete for relatively few places.

See also AUSTRALASIA, TWENTIETH CENTURY.

Asia

In Asia, as in most other parts of the world, much of the training for work in the mass media is given on the job. However, Asia has more institutes and academic units providing formal education for communications than any other region of the world except North America. A 1975 tabulation by the

Asian Mass Communication and Research Center (AMIC) listed 210, and most of the unofficial tabulations since that time have placed the total at 250 or more.

The growth of Asian institutions for communication study has been rapid, particularly since midcentury. For example, in the late 1930s there were fewer than twenty journalism courses in all of Asia; by the middle 1970s there were four times that many. Furthermore, the variety of communications training and research organizations in Asia is quite remarkable, particularly among the institutions designed to support communication for social change and planned development (*see* DEVELOPMENT COMMUNICATION).

Slightly more than half of these schools, departments, and institutes (around 140) follow what might be called the U.S. pattern; that is to say, like schools of communications or journalism in the United States, they are organized as part of a university or college, offer degrees at the baccalaureate or graduate level or both, and combine academic study or research with practical preparation for work in the media.

The first professional school in Asia is believed to be the one founded in 1932 at the Department of Journalism in the Faculty of Letters of Jochi (Sophia) University in Tokyo. The four-year undergraduate program prepares candidates for the journalistic profession, and the two-year graduate program trains researchers. The second Asian professional school of communication was a branch of the Far Eastern University, founded in 1934 in Manila, and was built around a four-year course leading to a B.A. in speech arts, THEATER arts, or mass communication. In 1935 the third communication institution in Asia—National Chengchi University—was founded in China “to offer academic preparation for careers in communication research and mass media practice.” When the Nationalist Chinese moved to Taiwan, the university moved with them and set up its new home in Taipei in 1954. Indonesia, the Republic of Korea, and other states joined in, and by 1950 approximately twenty schools, departments, and institutes of various kinds in Asian countries offered specializations in communication study. That number had doubled by 1960 and is still increasing.

India—with more than twenty thousand journals (including more than fourteen hundred daily newspapers), written in sixteen principal languages and seventy-five other languages, and also large broadcasting and film industries—has the largest number of communication programs in Asia. Newspapers prefer to train their own journalists, but the central and state governments rely increasingly on university-educated communication specialists.

The first regular journalism department was established at Punjab University in 1941 with “a one-year course in journalism and related areas such as ad-

vertising, graphic arts, and public relations.” First located in Lahore, the university moved to Delhi in 1947 at the time of India’s independence and then to Chandigarh, the new capital of Punjab. Other early departments were founded at Madras in 1947, Calcutta in 1950, Mysore in 1951, Nagpur in 1952, and Osmania in 1954.

The government-supported Indian Institute of Mass Communication was set up as an advanced center for training and research in 1965. Of the thirty-seven other university courses and institutes that offer mass communication study programs, nine offer graduate work leading to a master’s degree. The inaugural issue of the *Indian Journal of Communication* was published in 1986. Despite this impressive growth, several commissions have called attention to a shortage of resources for research and training to meet the needs of the vast subcontinent.

A major trend in Third World communication education, development journalism (the use of communications to support national development) received much of its initial impetus at the Philippine Press Institute in 1963. With the help of UNESCO and other United Nations (UN) organizations, development journalism is now being taught and implemented in many Third World countries.

Communication study in China began at the turn of the century with the translation of foreign books on journalism. The first formal journalism course was offered at Beijing University in 1918. The following year the first Chinese book on journalism appeared. Journalism education developed rapidly after that.

Journalism departments were established in the 1920s at six universities: Beijing, Yenching, Fudan, Jinan, and People’s University in Beijing. After the setbacks of the turbulent 1930s and World War II, the People’s Republic revived journalism study on the Soviet model. The Cultural Revolution again disrupted study until 1978. However, by the end of the next decade more than sixteen universities had journalism departments, some offering graduate work leading to the M.A. and Ph.D. degrees and employing nearly four hundred faculty members. The Beijing Broadcasting Institute also offered courses of study. National and provincial journalism research societies were established. Communication study in China broadened to include broadcasting and film training in several universities as well as in some independent institutes and to encompass the critical and empirical approaches to research on media content and effects.

Japan, which, as noted, established the first department of journalism in Asia at Sophia University in 1932, has for the most part chosen to found communication institutes and programs outside the university. However, in addition to the department at Sophia, the University of Tokyo has a well-known

and well-staffed Institute of Journalism that was founded in 1949 and has an impressive output of research. This institute offers both M.A. and Ph.D. degrees.

Keio University in Tokyo has a program in communication study, founded in 1946. Osaka University of the Arts has a faculty for training and research in broadcasting. But much of Japan's visibility in communication studies derives from production-related organizations, including the Japanese Broadcasting Corporation (NHK), which has training programs and also maintains research programs, including the Radio and Television Culture Research Institute; and the Japan Newspaper Publishers and Editors Association (NSK), which has its own research organization and cooperates with the Japanese press in training staff members.

One of the interesting developments in communication study within Asia is the appearance of strong and influential institutes, most of which are entirely outside universities and offer no academic degrees. For example, Asia has at least twelve film and/or television schools, including the large and elaborate Indian film and television institute at Poona. There are eight schools for the study of educational communication, either audiovisual or print. At least six schools specialize in the improvement of communication for economic and social development. One of the most impressive of these is India's National Institute of Community Development, at Hyderabad. This organization maintains a large research program, provides consulting services, serves as a clearinghouse of information concerning community development, and issues a large number of publications. A somewhat parallel program to the one just mentioned is the Development Support Communication Service, financed largely by UN agencies (UNDP, UNFPA, and UNICEF) and headquartered in Bangkok. The purposes of the organization are to design and produce, or help in the production of, communication materials intended to ensure the adoption of development innovations and to build up national capabilities to support total development programs. Like the Indian institute, it has a large research program and offers training and advisory services.

One distinctive pattern in Asian communication institutes and programs is joint founding by a national agency and an agency from outside the country. For example, the Thompson Foundation of Great Britain has worked with Xinhua, the international news agency of China, to operate a journalism training center in China. We have already mentioned AMIC (located in Singapore), which is jointly sponsored by the Singapore government and the Friedrich-Ebert Stiftung (foundation) of the Federal Republic of Germany. This serves as a regional information center for media and media-related pro-

grams in Asia, sponsors research, and organizes conferences and training activities.

Still another not entirely common use of communication institutes and programs in Asia has been to meet needs that governments or media organizations find hard to handle. For example, in Indonesia a communication group trained Department of Information personnel in information science skills. In Taiwan a department of journalism was asked to prepare students to become public relations officers in the armed services. A Philippine research institute provided research on the progress of the government's program for community development.

See also ASIA, TWENTIETH CENTURY.

Latin America

Latin America's remarkably early start in professional training for journalism is almost without precedent in the Third World. Brazil and Argentina had schools of journalism in the mid-1930s; Colombia, Ecuador, Mexico, Peru, and Venezuela established them in the 1940s. Twenty-five more schools were organized in the 1950s. By the end of the 1960s eighty-one schools of journalism were active in Latin America. One reason for this early start is that most South and Central American countries received their independence earlier than many other Third World countries. Another reason is the example provided by the U.S. model of school-based training rather than apprenticeship. And third, the schools have been popular because professional education represents a road to upward mobility.

The large number of schools and their relatively early beginnings represent disadvantages as well as advantages. Most schools are not well financed. Many of the teachers teach only part-time and are not well trained in the academic requirements of professional instruction. Many of the schools are poorly equipped, even regarding typewriters and books. Not much research is carried out in the typical journalism school, and the curriculum is usually so brief that little opportunity remains for a broad educational background.

Signs of change have appeared. For one thing, a federal decree passed in Brazil in 1969 required all new entrants into a number of journalistic occupations to have a baccalaureate degree from "an approved school of journalism." Second, there has been a lively wave of writing and discussion in Latin America about the New World Information Order (*see* NEW INTERNATIONAL INFORMATION ORDER) and its import for the mass media, a development that represents a broadening of interest in both the mass media and the education people will require. Third, the efforts of the Centro Internacional de Estudios

Superiores de Periodismo para América Latina (CIESPAL, International Center for Advanced Studies in Journalism in Latin America) have borne fruit.

CIESPAL is a regional center established with help from UNESCO to improve education in journalism and other media. Its primary target, therefore, has been teachers, rather than students, of communication. It has conducted high-level regional and national seminars and courses, many of them drawing foreign teachers and scholars. Through CIESPAL's influence new communication-oriented subjects previously unknown in Latin America, including the sociology of communication, the psychology of collective information, public opinion, and, especially, the scientific investigation of mass communication, have been introduced. CIESPAL also has helped to organize and accumulate in Latin America a collection of books and journals about communications and has distributed bibliographies and abstracts.

Also of great help in raising the quality of communication teaching and research have been agricultural organizations such as the Instituto Interamericano de Ciencias Agrícolas (IICA, Interamerican Institute of Agricultural Sciences), which, with assistance from U.S. universities with agriculture programs, have helped support the extension of Latin American rural development.

In Latin America, as in many other regions, the support of leading newspapers and other media organizations has been instrumental in initiating and maintaining the quality of communication study. The editors of two highly respected newspapers in Buenos Aires, *La prensa* and *La nación*, proposed as early as 1901 that a school of journalism be established in Argentina. Thirty-two years later journalists from *La prensa* helped organize such a program at the National University of La Plata. Courses were first offered in 1934, and the school began to function in 1935.

The first professorship of journalism in Brazil was established in the Faculty of Philosophy and Letters at the new Federal University of Rio de Janeiro. When this university was replaced by a new University of Brazil in 1943, the course in journalism was moved there. The first school for professional training in journalism was established at the Catholic University of São Paulo in 1947.

One of the most elaborate programs of media studies in Latin America is at the School of Communications and Arts at the University of São Paulo. All students in this school take an introductory semester of seven courses. Then there are two main teaching streams: "communications" (journalism, editing and publishing, publicity and propaganda, radio and television, library science and documentation) and "arts" (cinema, theater, music, and plastic arts).

Argentina, Brazil, and Mexico were the three Latin American countries to begin university training in journalism before World War II. The first school in Mexico was established at the Universidad Femenina (Women's University) de México in Mexico City. One of the most interesting programs is the one at the Universidad Nacional Autónoma de México (National Autonomous University of Mexico), which takes five years to complete and is described as "a career in information sciences." It covers both theoretical and technical aspects of journalism, public relations, publicity, radio, television, cinema and press agencies, the psychology of information, sociological aspects of mass communication, journalism history and ethics (see ETHICS, MEDIA), law in relation to journalism research techniques (including historical and social research, CONTENT ANALYSIS, and the use of documentary material), and some technical and administrative subjects.

See also LATIN AMERICA, TWENTIETH CENTURY.

Africa and the Middle East

Since the MIDDLE AGES traditional communication geared to the needs of religious leaders has been taught at the center of Islamic studies in Cairo's al-Azhar University. A modern course in journalism started at the American University in Cairo in 1937. A few years later Cairo University established an Institute of Journalism, which in 1975 became the Faculty of Mass Communication. Three provincial university communication departments followed. In Israel sophisticated mass communication research and training of a modern kind are in progress at the Communications Institute at Hebrew University in Jerusalem.

The first degree program for media professionals in South Africa was launched in 1960 in the University of Potchefstroom. Since then some dozen universities have started programs in various aspects of communication study, and the Human Sciences Research Council established an institute to support media studies.

The first institute of journalism in North Africa was established in Tunis in 1964 and was followed in 1967 by the Institut de Presse et des Sciences de l'Information (Institute of the Press and Information Sciences) of the University of Tunis. In 1964 Algeria started its Institut National Supérieur de Journalisme (National Institute of Journalism), which became the Institute of Political and Communication Sciences within the framework of the University of Algiers in 1976. The University of Baghdad established a Department of Journalism in the Faculty of Arts in 1964. It suspended its courses in 1971 but resumed them in 1974 as a Department of Communications.

The Omdurman Islamic University in Sudan started the Journalism and Information Department in 1965.

The Lebanese University in Beirut set up its Institute of Journalism in 1967, renamed it Faculty of Communications in 1971, and then transformed it into a Faculty of Mass Communications and Documentation in 1975. The American University at Beirut opened its Department of Communication in 1970. In Saudi Arabia the University of Riyadh started its Department of Communication in 1972. In Libya the Unis Campus of the University of Benghazi established its Department of Communication Studies in 1975. In 1976 a Department of Communication was opened at the King Abdul Azziz University in Jidda, Saudi Arabia. The Higher Institute of Islamic Communication was established by the Imam Mohamed Ibn Saud Islamic University in Riyadh, Saudi Arabia, in 1976 with branches in Mecca and Medina. Damascus University in Syria established a communication department in 1986.

That is one side of the diverse picture of communication study in Africa and the Middle East. What must be remembered is that the entire African continent had only four independent countries in 1950 but thirty-six by 1970. Consequently, many of these newly independent countries have experienced extraordinary pressures for modernization, as well as political, social, economic, and even linguistic changes, that have forced them to turn to new measures in order to bring about these changes more quickly.

Radio, of course, is the mass medium that seems ideal when literacy is low and the bulk of the population is rural. The number of radio transmitters in Africa increased from 151 to 330 between 1955 and 1964, and the number of radio receivers from 350,000 to 12 million. The colonial or former colonial powers stepped in to help train communication staffs to operate the broadcast equipment and prepare the programs. The United Kingdom set up a small British Broadcasting Corporation (BBC) in each of its former colonies. France designated three places—Dakar, Brazzaville, and Paris—to broadcast regionally. The United Kingdom, France, and other countries provided “attachments,” fellowships, and study grants to help talented prospects from the new countries travel abroad for study and practice. U.S. and Soviet universities provide many scholarships for African and other Third World students of communications. The Prague-based International Organization of Journalists (IOJ) maintains the International Institute for the Training of Journalists in Budapest.

The new countries set up study and practice centers of their own as soon as it was possible. Such a training center for East African countries was at Nairobi; another, for Francophone countries, was at Yaoundé, in Cameroon. The African countries found that they needed to study the uses of radio for

development and to teach journalism and broadcasting skills as well. Zambia, for example, created an innovative program for a literacy campaign built around radio. Ghana's Institute of Journalism in Accra was begun by KWAME NKRUMAH in the late 1950s; it was succeeded by an Institute of Communication in the University of Ghana. Nigeria established an Institute of Mass Communications at the University of Lagos. Senegal was the first country in French-speaking Africa to organize university-level training for journalism and mass communication. The Centre d'Études des Sciences et Techniques de l'Information (CESTI) was founded in 1965 at the University of Dakar, but it closed in 1968 because of student unrest. It reopened in 1970 and made a cooperative agreement with the International Advanced School of Journalism at Yaoundé and the Center for Information Sciences at Antananarivo, Madagascar, for a common course of study. Senegal's three-year program leads to a diploma, equivalent to a university *license*, from the University of Dakar. The National University of Zaire, in Kinshasa, established in 1970 a Department of Social Communication within its Faculty of Economic and Social Sciences. This department's mission is to undertake teaching, research, and documentation and to provide training for cultural change and community development.

Despite these developments, a UNESCO-supported survey in 1987 found that 60 percent of the textbooks in journalism and communication were published in the United States and 20 percent in Great Britain and that there were few copies of any text to go around. In most classes the only TEXTBOOK belonged to the teacher, who distributed mimeographed handouts to students. Many of the basic needs of communication study are still not being met in most countries of Africa and the Third World. UNESCO's efforts to help meet these needs received little support from its wealthiest members. Hope for the future seemed to rest with the revival of international and regional cooperation and emphasis on cultural policy in the development effort. *See also* AFRICA, TWENTIETH CENTURY; ISLAMIC WORLD, TWENTIETH CENTURY.

Bibliography. Asian Mass Communication Research and Information Centre, *Asian Mass Communication Institutions: Teaching, Training, and Research—A Directory*, Singapore, 1973, 1975; Charles Berger and Steven Chaffee, *Handbook of Communication Science*, Beverly Hills, Calif., 1987; Garland C. Elmore, *Communication Media in Higher Education*, Annandale, Va., 1987; May Katzen, *Mass Communication: Teaching and Studies at Universities*, Paris, 1975.

GEORGE GERBNER AND WILBUR SCHRAMM

COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT

The historical roots of modern communications research reach back into the nineteenth century, when scholars began their systematic inquiry into the changes in the pattern of life brought about by the Industrial Revolution. The spread of LITERACY and the development of a popular literature (*see* LITERATURE, POPULAR), which were part of this transformation, received attention as did the daily newspaper, judged by many to be the most powerful organ in the formation and expression of PUBLIC OPINION (*see* NEWSPAPER: HISTORY). As French historian and political theorist Alexis de Tocqueville observed in 1835, when people are no longer united by firm and lasting ties they cannot combine until a "newspaper takes up the notion or the feeling which had occurred simultaneously, but singly to each of them."

Role of the Press

Tocqueville's and other pioneering attempts to analyze the role of the press were usually based on the writers' impressions of the political scene gathered through travel and journalistic experience, which were presented together with historical vignettes. All subscribed to the view that public opinion (in the modern sense) had developed in conjunction with the press, and they agreed, more or less, that its organs (newspapers) were highly effective in articulating certain dominant viewpoints but were not necessarily able to create them. That political leaders should fasten on newspapers as one of the important levers of influence was understandable, because with the help of newspapers one could make public opinion, if only for a day. As Albert Schäffle, an early sociologist, put it, "falsified" opinion often overshadowed native-grown opinion that one could not so easily grasp or measure, at least not with the methods then available. Schäffle was also very much aware, as were contemporaries such as economist Karl Knies, of the role of the press as a mediator between political parties and other interest groups.

Knies, in a book published in 1857 on how the telegraph affected the economics of information (*see* TELEGRAPHY), went a step farther and concluded that editors had the power to "set the agenda" (in contemporary parlance; *see* AGENDA-SETTING) but were constrained by their economic interest. Despite ample experience with one-sided reporting in his earlier career as a journalist, Knies insisted that the pressure to increase sales meant that editors had to appeal to the readers whom their paper purported or aspired to represent. This reciprocal influence of journalists on their readership and, indirectly, of readers on what appeared in the newspaper was seen as another kind of mediation by the press.

That the power of the press was not the same in every country was fully recognized. Tocqueville had gone out of his way to set forth the reasons why this power was greater in France than in the United States, where three-quarters of the newspaper space was devoted to ADVERTISING. It is not often that one finds much space devoted to the kind of passionate discussion with which French journalists are wont to indulge their readers. Because the influence of the press increases to the degree that it is centrally directed, it is important to note that there were far fewer newspapers in France than in the United States and that the most powerful were concentrated in a single metropolitan center under like-minded control. In the United States, however, almost every hamlet had its own newspaper. Consequently the U.S. press was influential only when a great number of papers took the same position on an issue and assailed public opinion from one viewpoint.

European scholars focused especially on the "anonymity" of the press. They reasoned that the absence of a byline and the frequent omission of any source of attribution—common practice at the time—gave all items the same claim to reliability and credibility. Even if some readers were uncritical enough to accept at face value whatever newspapers printed, knowledge of AUTHORSHIP would enable others to weigh more critically these impersonal, official-looking, and hence supposedly unbiased reports. The infamous Dreyfus affair, which so polarized France for several years in the late 1890s over the guilt or innocence of an alleged spy, had driven home more than any other event prior to World War I the ability of the press to fan emotion to a point at which—in the words of JEAN-GABRIEL DE TARDE, a student of collective psychology—the French public was exhibiting the characteristics of an irrational crowd (*see* CROWD BEHAVIOR).

In spite of this, most of these writers, including Tarde, remained aware that public reactions to sensational stories reported by a highly partisan press often fell short of alarmist expectations. Having examined in some detail six cases of war scare prior to 1914, English economist F. W. Hirst concluded that in these instances the yellow press had influenced the minds and policies of ministers without having any proportionate effect on the citizenry. To evoke a real national panic, as opposed to the semblance of such a panic, is very difficult.

None of the work mentioned so far involved the kind of systematic data collection that has come to be identified as communication research in the narrower sense. The first steps in this direction involved compilations of historical statistics on newspaper production and circulation. With the publication between 1859 and 1864 of Eugène Hatin's eight-volume

tome on the political and literary history of the French press, followed two years later by a bibliographical essay to which he attached a compendium of statistics, a major milestone was passed. Other noteworthy studies were those by German historians Heinrich Wuttke, *Die deutschen Zeitschriften und die Entstehung der öffentlichen Meinung* (1875), and Ludwig Salomon, *Geschichte des deutschen Zeitungswesen*, whose three volumes (1900–1906) treat the history of the press up to 1850.

Karl Bücher, economist, historian, sociologist, statistician, and founder of the Institut für Zeitungskunde at the University of Leipzig during World War I, helped routinize the systematic collection of all kinds of newspaper statistics in Germany. He is still better known as one of the first to treat the modern newspaper as primarily a commercial contrivance for the exchange of intellectual and material goods. His synthesis foreshadows in many ways writings on the immigrant press in the United States and on the nature of news by ROBERT PARK, who had studied in Germany and must have been aware of at least some of this work but never acknowledged a direct debt. Bücher investigated every aspect of newspaper production, including advertising, by which he meant not only sales promotion but every kind of PUBLIC RELATIONS and self-promotion. He recognized that advertising worked best in the promotion of new products, believing that it was most effective when improvements in industrial technology (*Betriebstechnik*) no longer made much difference to consumers. He saw all advertising as subject to the law of diminishing returns, concluding that once a product had found its market additional effort could bring no more than a few gleanings from people not previously reached.

About this same time other researchers were taking a closer look at the news carried in newspapers. Rudimentary forms of CONTENT ANALYSIS began to appear around the turn of the century. An early U.S. study by Delos F. Wilcox (1900) classified the allocation of space in a single issue of each of 240 newspapers; in 1902 Henri de Noussance presented even more detailed statistical tabulations of the contents of 20 Parisian and 7 French provincial newspapers for a single day. Drawing on the findings of the French study, Paul Stoklossa collected data about one week's output in 13 metropolitan and 17 German provincial papers over a full week as a basis for comparing the metropolitan and the provincial press in the two countries. These investigations were essentially evaluative, to see if the press was measuring up to what he deemed its moral obligations.

Content analysis was also singled out as the starting point for the large cooperative study of the press proposed by MAX WEBER to the first meeting of the German Sociological Association in 1910. Weber was not interested in moral evaluations; he wanted

a value-free inquiry aimed at discovering the historical and social causes that explained why things were as they were. The questions he wanted addressed are still germane: What gets into the papers, and what does not? How have views changed on what should get into the papers, and with what social and ideological variables do these views correlate? How do the policies and practices on what is privileged and what is legitimately in the public domain affect the distribution of power in society? What are the causes and consequences of the tension between the press as a source of information—especially of political information—and the press as an advertising medium? Do large papers with high capital investments become more (or less) sensitive about alienating their readership? What are the implications of chain ownership and MONOPOLY for the development of public opinion? Still other questions focused on journalistic traditions as affected by relations of the press to news sources, by a paper's dependence on newsstand sales, by the leeway a paper gives to individual journalists, by a paper's use of free-lance writers, by the trend toward factual reporting, and more generally by the existence of press associations and of corporations representing what in the 1980s would be called the "consciousness industry."

Weber believed that the answers to some of these questions were to be found in the papers themselves. To find them one had to proceed "in the most pedestrian manner, by measuring with compass and scissors" the relevant aspects of their content, and then, on the basis of these quantitative findings, to address the more qualitative ones. The content analysis was to be followed by an empirical study of journalists (their social origins, educational backgrounds, career patterns, and relation to politics) and of the social, political, and cultural effects newspapers have on readers (*see MASS MEDIA EFFECTS*).

Propaganda

Weber's comprehensive proposal, which never got off the ground, moved closer to implementation some three decades later, largely as an outgrowth of the interest in PROPAGANDA, an interest directly traceable to the all-too-apparent excesses of both sides during World War I and to the growing totalitarian threat of the following years. The prime mover was HAROLD D. LASSWELL, a University of Chicago political scientist, who led his contemporaries in focusing on the role of symbols in politics (*see POLITICAL SYMBOLS*). Working from the postulate that political power rests as much on symbol manipulation as on physical force, Lasswell sought to document how private deprivations and internalized conflict become attached to public (i.e., secondary) symbols. He showed how quantitative content analysis could be used not only to detect hidden propaganda themes but also to make

inferences about communicators and how communicators played on the susceptibility of audiences. One had to rely on communication output to study an otherwise inaccessible political unit, as during World War II when the United States devoted significant amounts of social science resources to the analysis of Nazi propaganda.

That research effort, in which many German refugee scholars participated, led to the elaboration of a number of social science propositions about propaganda in general and the conditions for its effectiveness. The idea that propaganda could not create facts but only reinterpret existing ones received firmer underpinning. Ernst Kris and Nathan Leites found that there was in much World War II propaganda a more factual tone than had prevailed in World War I, with less extreme divergence from the facts. They interpreted this trend as a sophisticated strategy for countering two pervasive tendencies in target populations: a generalized distrust of authority, including the fear of being manipulated, and a tendency on the part of many people to withdraw into their private worlds when confronted with global issues they found hard to understand and whose outcomes they did not believe they could influence.

In a synthesis of studies on morale in the German army during World War II, Edward A. Shils and Morris Janowitz noted the basic imperviousness of ordinary German soldiers to Allied propaganda even after a series of reverses should have made them recognize the inevitability of defeat. As long as primary groups retained their cohesiveness and continued to minister to these soldiers' essential need for survival, Allied leaflets offering safe conduct to deserters were found to have had little effect. All but a few misfits preferred to stick it out with their units. The effectiveness of primary groups as transmitters of organizational norms was further enhanced by repressive measures that prevented the open assertion of ideologically deviant tendencies. Most notable was the remarkable resiliency of faith in Adolf Hitler against all evidence of an impending catastrophe.

Group Interaction and Persuasion

The relative efficacy of face-to-face communication versus the more impersonal forms of public communication had already been a central topic for KURT LEWIN, another German expatriate, who had begun to test the utility of constructs derived from his topological psychology for problems of group interaction and attitude change (see ATTITUDES; GROUP COMMUNICATION). Experiments were conducted as part of the war effort on how best to persuade families in the United States to change their food buying and eating habits and to stop discarding as inedible certain nutritious meats still in ample supply during the general meat shortage. These experiments

showed that discussion among shoppers when followed by a group decision was a better strategy for producing change than lectures by experts. In conceptualizing these findings Lewin developed the notion of a gatekeeper able to control the flow of information. Gatekeeper functions can be performed by an informal OPINION LEADER, as in the group experiments, or by persons formally appointed to managerial or editorial positions. The latter play a crucial role in the determination of what gets into print or on the air and, as communicators, are as deserving of researchers' attention as the more feared propagandists.

Other achievements came from studies on PERSUASION by cognitive psychologists working under CARL HOVLAND as part of the U.S. Army Research Branch. The group systematically investigated the persuasive power of different versions of orientation films prepared by the army for new recruits. To what extent did new information change attitudes? Who was most affected? Did these changes persist, and under what conditions? After the war members of the research group continued this line of investigation using new variables and refining the ones used previously, but the effectiveness achieved in a contrived, simplified laboratory situation did not always carry over into the more complex situations encountered in real life.

Motion Pictures

THE ENTERTAINMENT film, along with comic books (see COMICS), loomed large in the public mind (as television does in the 1980s) as a possible and probable cause of antisocial behavior among the young (see CHILDREN—MEDIA EFFECTS; VIOLENCE). In fact, the landmark studies underwritten by the Payne Fund at the behest of the Motion Picture Council of America are strikingly similar in focus, though less sophisticated in method and more overtly moralistic in tone, to more recent studies on television and social behavior. Produced in the early 1930s by psychologists, sociologists, and educators from several universities, these monographs fall into two groups. One was aimed at measuring the effect of MOTION PICTURES as such on children and youths in five areas: information, attitudes, emotions, health, and conduct. The other was directed at current motion picture content and children's actual movie attendance in order to assess the overall effect of current commercial movie fare. The series included results of experiments and surveys, summaries of evidence gleaned from autobiographical essays by high school students, and reports from detailed follow-up interviews with some of the students.

The general conclusions drawn from all these studies, as set forth in the official summary by W. W. Charters, were that motion pictures as such were a

“potent medium of education,” inasmuch as even a single exposure could produce “measurable” attitude change. This effect may recede over time but is apt to be magnified by cumulative exposure to a large number of pictures. The movie fare, with its scenes of emotion-stirring drama, was judged to contain “too much sex and crime and love,” the inference being that it could result in “much more harm than help” to children. With this conclusion goes the reminder that motion pictures are only “one of many influences which mould the experience of children,” such as the home (*see* FAMILY), the SCHOOL, the church, street life, and community customs, none of which was surveyed by any of the studies.

In a volume entitled *Art and Prudence* philosopher Mortimer J. Adler was extremely critical of the methods and assumptions underlying these studies. Correlations between moviegoing and socially undesirable behavior, he pointed out, fall short of establishing a causal link. However, evidence that movies determine many of the games children play was at least suggestive, especially considering that movie portrayals are apt to have their greatest influence on those aspects of life about which people have not yet formed “definitely shaped images.” At least some of the characters, objects, and modes of living that receive dramatic and unambiguous realization in movies will be new to the experience of some viewers (especially the younger ones) and can lead them to redefine their rights and ideas about what they are entitled to enjoy. The possibility was raised, but by no means demonstrated, that those experiencing the greatest discrepancy between their own drab lives and the pleasures of freedoms portrayed on the screen may indeed become dissatisfied or discontented to the point of rebellion.

Radio and Audience Research

That even purely auditory imagery can carry conviction was documented during the transmission of “The War of the Worlds,” a RADIO production by ORSON WELLES based on the futuristic novel by H. G. Wells. It was aired about the time of heightened tensions in Europe generated by Hitler’s territorial demands on Czechoslovakia. A significant number of listeners were persuaded that invading Martians were wreaking destruction on the New York metropolitan area. HADLEY CANTRIL seized the occasion to do field interviews, which produced lively accounts. Analysis turned on only two points: how “news” of invading Martians fit into people’s frames of reference, and how, given this fit, “suggestibility” to the broadcast message hinged on an individual’s critical ability. Panic reactions were confined to those who mistook the fictional presentation for a live report because they had neither consulted their program logs nor paid attention to announcements within

the program and had failed to check the impressions received against other reliable sources of information. The study documents what scholars in earlier periods had already surmised, namely, that critical ability can greatly reduce the influence of false reporting.

The advent of radio and the commercial interests tied to it were an obvious boost to audience research, in the development of which Vienna-born PAUL F. LAZARSFELD had a major hand. The methodological orientation he brought to the early work on radio listening and program evaluation—much of it in collaboration with psychologist Frank Stanton, research director (later president) of the Columbia Broadcasting System (CBS)—has been extremely fruitful for programmatic research by broadcasting organizations in the United States and around the world. In his insistence that radio be looked at in the context of other communication activities Lazarsfeld went well beyond mere measurement. Studies by him and his students revealed an all-or-none pattern in the use of media. Heavy consumers of one medium tended to be heavy consumers of other media. Audience overlap—a measure of how many attending one medium, source, or program are also attentive to some other—turned out to be a useful concept for probing the way audiences were stratified into clusters. The stratification of the audience was replicated in the stratification of other activities. Thus low media consumers were also less active in politics, and their participation in the thought life of the larger community was severely restricted.

Media Effects

Lazarsfeld, notwithstanding his heavy involvement in research for limited practical purposes (administrative research), was in no sense oblivious to larger issues. For a good part of his career he was preoccupied with the design and analysis of a survey to pinpoint media effects of every kind: on how people voted, on what they purchased, on their attitudes toward minority groups, and so forth. Studies of the 1940 and 1948 presidential elections in the United States sought to track through repeat interviews with the same persons how voting preferences crystallized. With this innovation, the panel survey, as it came to be called, emerged as the favorite technique for explaining voting behavior as it related to communication exposure. These two studies and others that followed revealed that the correlations between how people vote and measures of exposure, usually based on self-reports, were greatly exceeded by correlations with other nonmedia influences. Many who followed in Lazarsfeld’s footsteps were apt to generalize from these findings to media effects without noting the limitations of this technique. For one thing, such a survey was better suited for explaining variations

that are related to personality, social background, social status, and other attributes of individuals than for uncovering how the mass media collectively intrude into everyone's thinking. For another, the specific effects observed during these electoral campaigns were limited by the fact that neither of the contending parties enjoyed anything even approaching a media monopoly, by the awareness of people during such a campaign that they were being propagandized, by the relatively short time span of a political campaign, and by the ignoring of other media-related aspects of the political situation. The tracking of attitudes by polls, which had begun by World War II, should probably have alerted the research community to how responsive people were to world events they could know only through the media. *See also* GAL-LUP, GEORGE; POLL; ROPER, ELMO.

The Critical Approach and Culture Studies

Concerns of a more basic kind were most clearly articulated by the group that had coalesced in Frankfurt around Max Horkheimer and THEODOR ADORNO in the years before Hitler. Nearly all its members later emigrated to the United States, resulting in some cross-fertilization between an empirical approach, more typical of U.S. research, and a "critical" European tradition. These émigré scholars were less preoccupied with specific measurable effects than with the values and ideological images reflected in the media content, particularly as these values and images were being modified by marketing strategies aimed at the popularization of knowledge, literature, and other elements of CULTURE through the same techniques developed in the United States for selling goods. To the exponents of the critical viewpoint, communications research should address the more subtle and long-term implications of the underlying structure and the implicit themes in the media content rather than specific effects directly traceable to some overt message content.

The mass media entertainment fare provided a rich archive of material for this kind of research. LEO LOWENTHAL's content analysis of biographies in popular magazines (*see* MAGAZINE) revealed that a decisive shift had occurred between the first and fourth decades of the twentieth century in the occupation and achievements of persons selected as appropriate subjects. In the latter period, the heroes of consumption prevailed over the previously dominant heroes of production. The shift indexed a more fundamental change in the character of U.S. society. In roughly similar fashion, Patricke Johns-Heine and Hans H. Gerth used magazine FICTION, Martha Wolfenstein and Nathan Leites used the movies, and Rudolf Arnheim used the daytime radio SERIAL as windows on prevailing values or, at least, on values presumed to hold the allegiance of audiences.

What made these offerings so appealing could be studied empirically. For example, conventional audience research had indicated that only a minority of women, albeit a sizable one, were attracted to the radio drama serials known as SOAP OPERA. Herta Herzog, another European closely associated with Lazarsfeld, found differences between listeners and nonlisteners to be related to the greater dependence of the former on radio, a difference that remained even after the effect of education had been eliminated. Her line of inquiry was later pursued by U.S. scholars W. Lloyd Warner and William E. Henry. From intensive interviews and projective psychological tests of regular listeners they inferred the gratifications these women derived from a serial whose plot revolved around "family-type" problems. An interesting outcome of this study was the difference between listeners' responses to the Thematic Apperception Test (TAT) pictures (which reflected their own difficulties in coping with life) and their responses to the Verbal Projective test (which tested their expectations about future plot directions in the serial). The projected outcomes for future plots were much more positive than the responses to the TAT pictures. Hence the program seemed to be a positive influence: it made women experiencing difficulties in coping with life feel similar to important people (the main characters in the serial), thereby directing their hopes into confident and optimistic channels.

The process resembles what Lowenthal in another context had dubbed "psychoanalysis in reverse." Its hypothesized effects run counter to the inference of rising dissatisfaction based on observations of youthful moviegoers in the Payne Fund studies. On a more general level, however, the two inferences are consistent; each implies that the popular fare, although catering to the dispositions and concerns of target audiences, helps shape rather than merely reflects their values.

Other evidence of hegemonic influence comes from studies of radio music conducted with some input from Adorno, who made this subject his sociological specialty. Research had been able to demonstrate empirically that "plugging" a song did indeed increase its popularity. The effect on musical taste remained within a specifiable musical GENRE. Could a radio symphony series create an audience for music different from what listeners were used to? According to one study, such a program served primarily to "reactivate" interest among persons with previous acquaintance but little subsequent opportunity to hear serious music performed live. The billing of the program as "symphonic" rather than "popular" music may have frightened away an undetermined number of potential listeners leery of anything with such a label. In an ingeniously designed study conducted in Denmark in the late 1940s, German-born sociologist Theodor Geiger was able to show that an

identical repertoire of by no means "ear-pleasing" serious musical selections attracted many more listeners when advertised as popular rather than classical and that very few of the listeners to the so-called popular program tuned out. Although Danish listeners had fewer stations to choose from than listeners in the United States, the study provides a compelling argument for the importance of labels in supporting an established hierarchy among TASTE CULTURES, an observation consistent with at least some tenets of the Frankfurt school.

Repeated exposure over time may indeed channel musical taste and increase the popularity of serious music. But Adorno in particular had remonstrated against the efficacy of this use of radio on the ground that dimensions mattered. On radio, he argued, the sound is no longer larger than the individual; the surrounding function of music disappears. Instead of hearing the musical piece, listeners merely pick up bits and pieces of information about it. The appropriation of the opening in Beethoven's Fifth Symphony as the victory theme in World War II is an example of this process, as are people who walk around whistling these "melodies." When the elements of the musical composition become detached from the action, they acquire the character of quotations for listeners eager to demonstrate their ability to recognize great music in order to qualify as small cultural owners within a big ownership culture.

This transformation of the music was seen by Adorno as more significant than any report by listeners of what they may have come to like. The music itself has ceased to be thought provoking, and their listening has degenerated into a merely pleasurable pastime. Whether such a transformation has actually taken place is an intriguing and researchable question, and some studies did indeed touch on it. Edward A. Suchman found the radio-initiated listeners to symphonic music were less appreciative of the more difficult classical composers than those who supplemented a well-developed prior interest by listening to the radio. The preference of the former for romantic as opposed to classical composers could be an empirical confirmation of Adorno's more esoteric speculations. It would have been worthwhile to find out whether radio listeners develop their taste to a point at which they seek out live performances. Of equal interest, of course, are the possible effects of mechanical reproduction, and electronic transmission affects not only the type of music produced but also other literary and visual genres. The pursuit of these questions could have led to a potentially highly productive fusion of communications research with cultural studies.

All too often empirical communications research has been mistakenly seen as a rather recent U.S. invention spurred by economic interests. Its deeper roots in the intellectual, social, and cultural concerns

that agitated European scholars as well tend to be overlooked. In fact, nearly all the empirical methods attributed to U.S. research were pioneered in the Old World and then were exported to the United States, many by refugee scholars. The other false notion is that the modern media were once considered to be all-powerful. On the contrary, most of the earlier writers revealed a sensitivity to the political and cultural context of communication that seems lacking in the more recent technically proficient but narrowly focused research.

See also MASS COMMUNICATIONS RESEARCH; MODELS OF COMMUNICATION.

Bibliography. Bernard Berelson, "The State of Communication Research," *Public Opinion Quarterly* 23 (1959): 1-6; W. W. Charters, *Motion Pictures and Youth*, New York, 1933; Donald Fleming and Bernard Bailyn, eds., *The Intellectual Migration: Europe and America, 1930-1960*, Cambridge, Mass., 1969; Hanno Hardt, *Social Theories of the Press*, Beverly Hills, Calif., 1979; Carl I. Hovland, Arthur A. Lumsdaine, and Fred D. Sheffield, *Experiments on Mass Communication*, Princeton, N.J., 1949; Kurt Lang, "The Critical Functions of Empirical Communication Research: Observations on German-American Influences," *Media Culture and Society* 1 (1979): 83-96; Anthony Oberschall, *Empirical Social Research in Germany 1848-1914*, Paris and The Hague, 1965.

KURT LANG

COMPUTER: HISTORY

The history of the computer is the story of a search for tools to help with laborious calculations and sorting through long lists. Early computer innovators sought both a saving in time and reduction in errors.

Early history. The first innovation that was developed to assist in calculations was the mechanical calculating machine, the equivalent of the modern four-function electronic pocket calculator. The first successful machine capable of adding and subtracting was built by French mathematician Blaise Pascal in 1642 (see Figure 1). Gottfried Wilhelm Leibniz, another mathematician, made a mechanical four-function calculator in 1694, and his design formed the basis for many later machines of this type. Neither Pascal nor Leibniz had adequate technology available to them to make commercially useful machines, but their machines did function and led the way to later commercial machines, such as the nineteenth-century comptometer.

The digital computer, or programmed calculator, was invented in the nineteenth century by English mathematician CHARLES BABBAGE as a way of computing tables of polynomials. Babbage conceived of a programmable calculator with a memory, an arithmetic unit, and punched-card input and output. One invention that influenced Babbage was the Jacquard

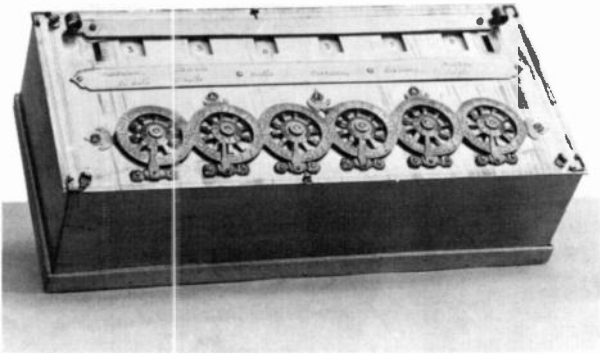


Figure 1. (*Computer: History*) Replica of the calculating machine of Blaise Pascal, 1642. Exterior. Trustees of the Science Museum, London.

loom (invented in 1801), which facilitated the weaving of intricately designed fabrics. The Jacquard loom's use of punched cards for input and sequence control was an essential and original step that made Babbage's "analytical engine" possible. Another key concept used by Babbage in his design was the algebra of binary arithmetic developed by the Englishman George Boole; the punched card uses a binary representation of numbers or characters. Conceptually, everything needed to make a digital computer was present in the device Babbage described at a scientific meeting in 1840. But better technology and engi-

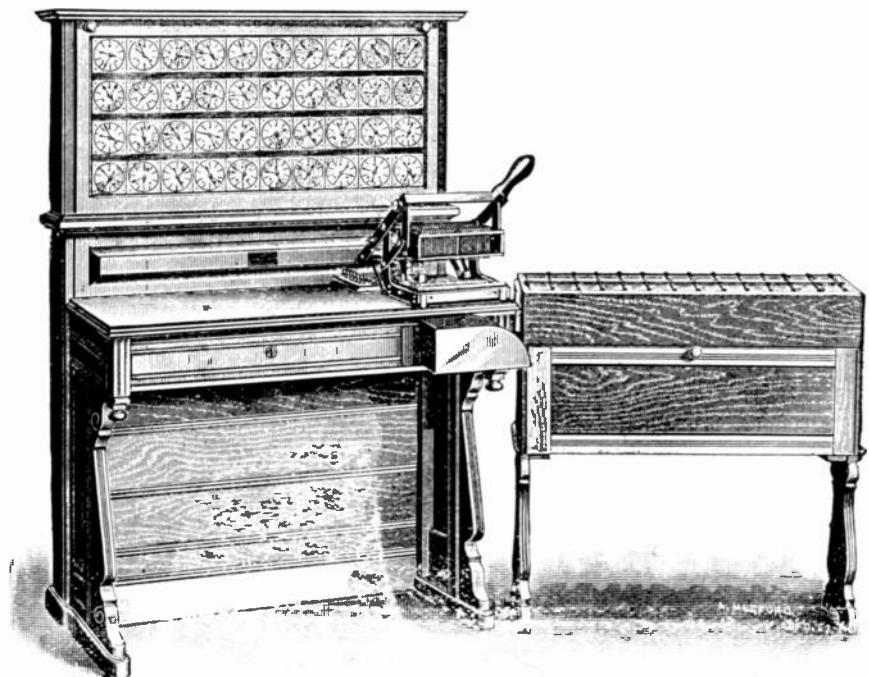
neering than Babbage was able to command were necessary to bring his idea to a practical realization.

The path to an effective digital computer led first through the development of a punched-card tabulating system by U.S. inventor Herman Höllerith. In the Jacquard loom the information coded on cards was sensed mechanically. Höllerith, however, used a combined electrical and mechanical sensing method in which movable conducting rods made electrical contact through the holes in the cards with mercury contacts underneath them. Höllerith's machine was used successfully in compiling the 1890 census, and this success led to his forming the Tabulating Machine Company in 1896 (see Figure 2). Improved versions of his machine incorporated new capabilities such as addition and subtraction, automatic card handling, and a decimal keypunch. He sold his company in 1911; it was merged with two other companies, and the merged company became the International Business Machines Corporation (IBM) in 1924.

These punched-card tabulating machines became essential tools for business accounting, and complex accounting jobs were performed with sets of interconnected punched-card machines. Scientific use of these machines developed after L. J. Comrie demonstrated their capability for astronomical computations in England in 1929. Wallace J. Eckert assembled a set of machines under centralized control at Columbia University in 1934, with the assistance of IBM, and used them for scientific computation.

The two remaining steps to the modern computer were the use of electronic technology to speed up the

Figure 2. (*Computer: History*) Engraving of the sorting counting machine of Herman Höllerith, 1890. Trustees of the Science Museum, London.



computations and the implementations of the stored-program concept. A major advance toward the use of electronic technology was made by John Mauchly and J. Presper Eckert at the University of Pennsylvania during World War II in response to the needs of the U.S. Army for improved ballistic trajectory computations. They completed the first operational electronic digital computer, the ENIAC, in 1946 (see Figure 3). The ENIAC group included JOHN VON NEUMANN from 1944 to 1946, and out of this group also came the stored-program concept and a means for implementing it. A memo from von Neumann is the first recorded description of the concept.

The ENIAC required that the instructions to the machine be entered by throwing a large number of switches, one by one. A new machine conceived by the group, the EDVAC, was designed to accept its instructions on punched cards, along with its input data, and to store the program internally. The EDVAC was described in a series of lectures at the University of Pennsylvania in 1946 and became operational in 1951. Also in 1951 the first UNIVAC computer was delivered. The UNIVAC, the first electronic digital computer built for commercial use, was made by the Eckert-Mauchly Computer Corporation, which was sold to the Remington Rand Corporation in 1950. The UNIVAC was the first computer to catch the public eye, and it did so by predicting the results of the 1952 U.S. presidential election. With less than 7 percent of the vote tallied, UNIVAC gave 438 electoral votes to Dwight D. Eisenhower and 93 to Adlai Stevenson. The final tally was 442 for Eisenhower and 89 for Stevenson.

Commercial development in the 1950s and 1960s. The UNIVAC, like the ENIAC, was a giant machine using thousands of unreliable vacuum tubes. It was usable, but vacuum-tube technology was clearly not suited to the task it was being asked to perform. Each computer circuit needed less than one-thousandth of one watt of power to carry out its operations, which were similar in principle to the stepping of the relays in mechanical adding machines. But each computer circuit included a vacuum tube requiring a heater that consumed more than a thousand times this amount of power in order to operate at all. The requirement of a heater for each electronic switch not only created a need for cooling but also made the early computers bulky and unreliable. Although individual electron tubes could be made to last thousands of hours, when eighteen thousand were connected together the probability of at least one failure in any given hour was very high. It was evident in the early 1950s that the vacuum tube would soon be replaced by some form of solid-state device that did not require a heater. Reliable semiconductor diodes (two-element devices) were available in 1950, and many of the essential computer circuits could be built

with diodes. The three-element solid-state device (the *transistor*) was invented in 1948 by John Bardeen, Walter Brattain, and William Shockley, and this device made the electronic computer a practical reality because it permitted all the computer circuits to be built with reliable electronic switches that consumed little power beyond that required to send signals to other circuits in the system. To a considerable extent, the story of the computer since 1950 has been the story of the *semiconductor*, and the computer industry has been the best customer of the semiconductor industry.

Remington Rand failed to make the necessary investments to maintain the leadership position it held in 1951 when the UNIVAC was introduced. IBM did make the necessary investments and developed a number of new computers in the 1950s in order to meet demand in both accounting and scientific applications. One of the most successful of these early computers was the IBM 650, first delivered in 1954. It used a magnetic-drum memory, which limited its speed but made it reliable and relatively cheap. About eighteen hundred were produced and delivered. Most major U.S. universities had one or more IBM 650s available in the late 1950s for scientific computation, and the machine was widely used in accounting as well. This machine was one of the first to allow the use of *assembly language*, as contrasted with *machine language*.

In machine language, the programmer, in effect, specifies the internal switches that are to be thrown in order to make the computation proceed as desired in terms of ones and zeros. In assembly language, programming is done through a symbolic language that does the same job as machine language but is easier to use. Still easier to use are *high-level languages* such as FORTRAN or BASIC. A high-level language is more like English than assembly language, but it cannot be executed directly by the computer. It is translated into machine language by a special program called a *compiler*. FORTRAN was introduced by IBM in 1957 as a scientific language for use with the IBM 704. FORTRAN offered computer programmers a significant time saving compared to assembly language and opened up computer programming to a large number of new users because it was so much easier to learn.

The IBM 704, first delivered in 1955, was an important early large machine. It used a magnetic-core main memory, which was much faster than drums or disks and more reliable than any available alternatives. The magnetic-core memory was invented at the Massachusetts Institute of Technology by Jay Forrester in 1949. The 704 made many scientific applications feasible for the first time because of its speed and the size of its main memory. The first *operating system* was developed to go with the

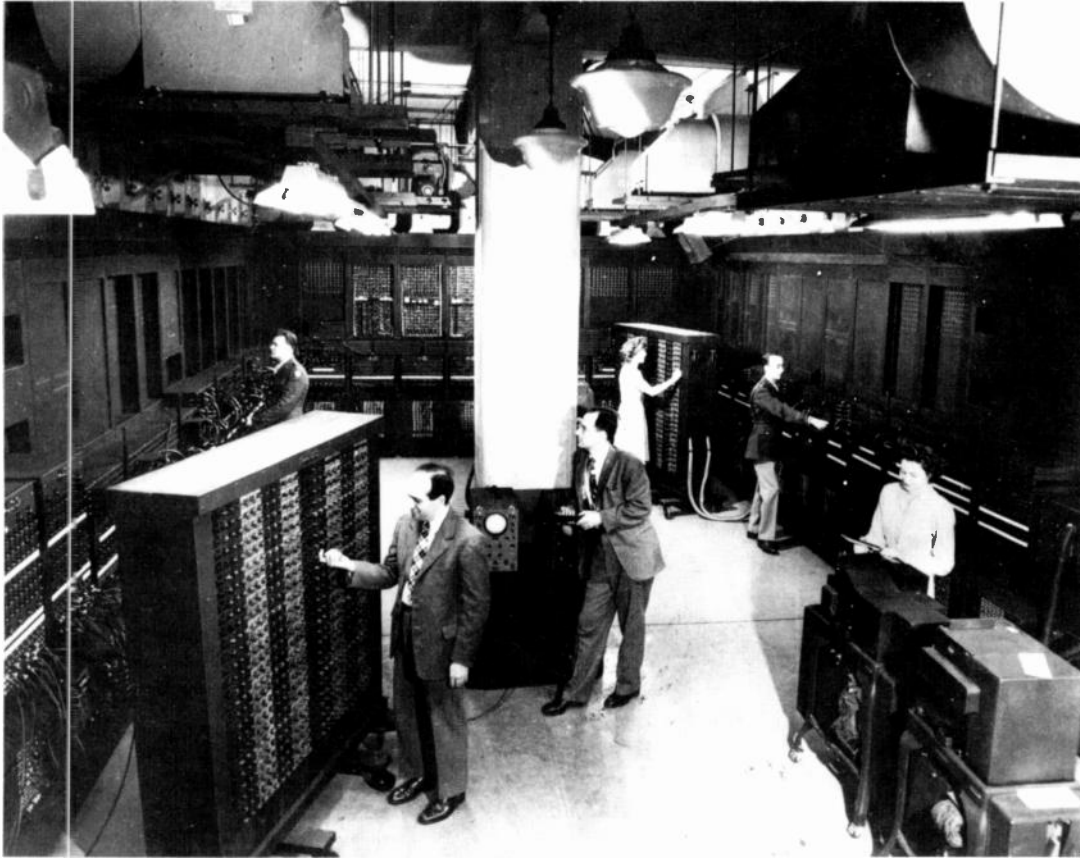


Figure 3. (*Computer: History*) ENIAC, the first general-purpose electronic calculator, which was dedicated at the Moore School of Electrical Engineering, University of Pennsylvania, in February 1946. In the foreground are the coinventors, J. Presper Eckert, Jr. (*left*), and John W. Mauchly. UPI/Bettmann Newsphotos.

704, and it quadrupled the 704's output capability. Before operating systems, the computer was given to users one at a time. Each user entered a program and input data through a card reader, printed out the results, and made way for the next user. The operating system provided an automatic mechanism within the computer for executing one job after another without operator intervention, so a backlog of jobs could be entered and maintained ready for execution. The input and output devices no longer limited the speed of the system. A related development was time-sharing, in which a number of user terminals are connected to the computer simultaneously. Time-sharing works by allocating each user a small amount of computer time every few seconds. Because users act so slowly relative to machine speed, each user seems to be able to communicate with the computer and receive results from the computer as if there were no other users sharing the machine.

By 1961 IBM was marketing fifteen different central processors and seven separate lines of computers with very little software compatibility. Even the peripheral equipment was not compatible from one line to another. The IBM System/360 was the next major step in computer development (see Figure 4). The

System/360 line of computers consisted of a number of models, each with a different price and performance. Both hardware and software compatibility were maintained throughout the line so that users could upgrade their systems and still use their old



Figure 4. (*Computer: History*) The IBM System/360, 1964. Courtesy of International Business Machines Corporation.

programs and peripherals. The System/360 set the pattern for all future large computer systems. The decision to develop the System/360 was an unusual business decision in that it replaced IBM's entire product line almost all at once. The number of IBM systems installed in the United States in 1964, when the System/360 was announced, was eleven thousand; in 1970 the number was thirty-five thousand, and IBM sales were twice as great as in 1964. The IBM System/360 can be viewed as the culmination of the early development of the computer. It did everything Babbage could have asked for, did it cheaply and well, and offered the capability in a wide range of packages to fit the needs of users with different applications.

Innovations and specialization. The System/360 and almost all computers before it were general-purpose computers. After 1965, however, the history of the computer moved in two directions: (1) toward continued improvements and cost reductions in general-purpose machines, and (2) toward the development of specialized machines for particular applications.

At the time the IBM System/360 was introduced the semiconductor industry had developed *integrated circuits*, but they were not yet reliable enough to be used in the System/360. Five years later, however, almost all new machines were built around integrated circuits. The appearance of a large general-purpose computer did not change much when integrated circuits were used, although the cost, size, and cooling requirements decreased.

Some users did not need the full-service package offered by IBM and wanted the hardware by itself, at the lowest price possible. Such users found that the *minicomputer* introduced in 1963 by the Digital Equipment Corporation fit their needs for low-cost computers that operated with the same program for years at a time. One example of a minicomputer application is process control in a chemical plant, in which a number of quantities, such as temperature or concentration, are monitored and a programmed response from a minicomputer adjusts settings of valves, heat sources, and so on. In a sense, the first robots were factory and plant automation systems of this sort, based on minicomputers. The minicomputer is thus a general-purpose computer that can be made into a specialized, single-purpose device by programming it to do a specialized job. The modern version of this application of the minicomputer is the *microcomputer*, or computer-on-a-chip, that is being built into a variety of machines to make their operation simpler, more precise, or more controllable. For example, the modern oscilloscope includes a small computer that allows the operator a wide range of options with respect to the display and analysis of signals being monitored.

The Tandem Computer Company introduced another type of specialized computer, which serves businesses such as airlines, banks, and telephone companies that make on-line transactions and are willing to pay a substantial premium for a computer that does not have any "downtime." It uses two parallel processors and software that allows the processors to work simultaneously (and also to work around any unit that fails) in order to increase reliability.

Computers and communications. A modern general-purpose computer consists of a central processing unit connected by means of cables that provide communication links to its input and output devices and to its data storage systems. In most systems the input devices are data terminals similar to personal computers. It is not difficult to design such systems to use communication links that allow the data terminals to be thousands of miles from the computer instead of a few feet. Airline reservation systems, credit card verification systems, and other transaction systems use this basic arrangement to permit users to communicate with a central computer that maintains a single, continuously updated file of airline seats or charges to particular accounts. Such systems allow users throughout the world to communicate with the computer through the existing worldwide TELEPHONE network. Specialized computer networks that use packet switching perform a similar function for substantially less than the cost of using a voice circuit. Packet switching, invented by Paul Baran in 1964, uses minicomputers to switch the data traffic, which is initially created in standardized packets. Each packet contains the address to which it is to be delivered and, typically, a thousand bits of information. Packet switching reduces costs by time-sharing a data channel among many users, each of whom typically uses the channel only a small part of the time.

This same type of computer system, with extended links to data terminals through the telephone network, can also be used to send personal messages from one user to another. Such systems provide electronic message service to their users by storing the message in the central computer and making it available to its intended recipient whenever the recipient logs onto the system. Modern private branch exchanges (PBXs) offer electronic message service to local users who have the proper data terminals as well as telephone service. In the future it appears that most business users will have both voice and data terminals on their desks and will be able to exchange messages in both forms.

To create a print message for an electronic message service, the user must have a system capable of some form of word processing. The user needs to be able to delete characters or words and to rearrange and

insert characters, words, or paragraphs into existing text. But this same set of word-processing functions is also needed if a user is preparing a printed text on paper for transmission through the mail. And a variety of extensions of word processing exist that permit users to create graphic displays of various sorts, to manipulate the graphics in ways that are similar conceptually to the insertion and deletion of text, and to print the resulting figures on paper, using multicolor inks if desired. The use of computers in word processing and in the creation of graphic displays makes possible print-on-paper communication of high quality at a much lower cost than has been possible in the past.

An electronic message service can include maintaining a file of the messages sent and received, thus creating a user file of personal correspondence. Office automation is usually conceived of as including electronic message service, word processing, personal files, and access to other data bases, such as an up-to-date company telephone directory. Computers are also widely used to provide access to large data bases maintained for use by the general public, such as bibliographic search files and census data.

Computers have played an important role in the development of the telephone network. Telephone switching is itself a form of computing in which the input data, the number called, is transformed into the closing of a specific set of switches that establishes a connection between the caller's telephone instrument and the receiver's instrument. The path between the two telephone instruments may be thousands of miles long and may involve closing hundreds of individual switches. The path chosen depends on what other calls are in progress at the time a call is made. The telephone switching computer must be able to seek out alternative routings automatically when the simplest route is busy (see Figure 5).

In the early switching systems one or more switches were closed mechanically somewhere in the system each time the caller dialed a number, until all the numbers were dialed and the final switch needed to establish the connection was closed. But switches can operate at speeds thousands or millions of times faster than callers can dial. Quite early in the development of the network this fact was realized and a device called a sender was used to store the dialed number and operate the actual switches at a much higher rate. In modern systems the number dialed is first stored in a computer. Then a signal is sent from the computer to the appropriate telephone switches, causing them to close. If the call is completed, the computer records the number called, the number to be charged, the duration of the call, and the charge, and it stores this information for use in preparing the subscriber's bill.

The modern electronic computer is conceptually

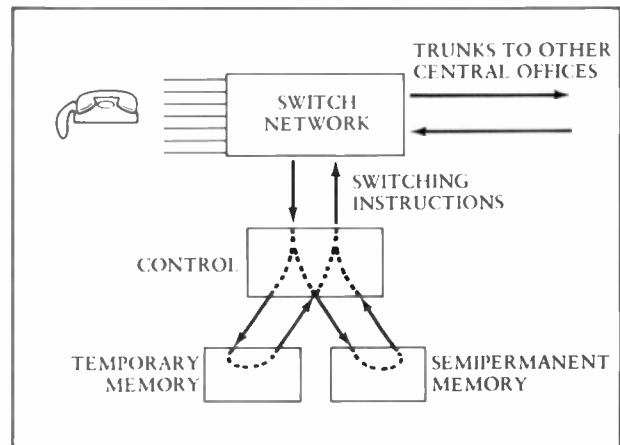


Figure 5. (*Computer: History*) A simplified diagram of the telephone switching system used in the 1960s. Adaptation of illustration by James Egleson in H. S. Feder and A. E. Spencer, "Telephone Switching," *Scientific American* 207 (July 1962): 141 (top).

remarkably similar to the machine conceived by Babbage in 1840. Its powerful central processing unit is now a compact, efficient set of integrated circuits. Its input/output devices and peripherals can be linked through the telephone network, allowing a wide range of personal message and transaction services to be provided on a worldwide basis. The cost of a basic machine dropped from a few hundred thousand dollars in the 1950s to a few hundred dollars in the 1980s. The applications of computers include factory automation, office automation, transaction services, message services, scientific uses, and personal computing (see Figure 6). The scope and intensity of these applications continue to increase as users and providers of software become more aware of the possibilities.

During the initial decades of the postwar period, IBM and other U.S. firms, universities, and research institutes led the field internationally in computer research and innovation. IBM maintained a major market share in the world computer market through the 1980s, but competition among North American, western European, and Japanese firms extended increasingly to many facets of computer system development. For example, improvements in quality control by Japanese firms gained them a market share in the market for semiconductor chips. Economic rivalries in the information technology sector can only be expected to intensify in the years ahead.

See also COMPUTER: IMPACT; DATA BASE; FIBER OPTICS; MICROELECTRONICS; TELECOMMUNICATIONS POLICY.

Bibliography. Stan Augarten, *Bit by Bit: An Illustrated History of Computers and Their Inventors*, New York, 1984; Donald A. Dunn, *Models of Particles and Moving Media*, New York, 1971; H. S. Feder and A. E. Spencer,



Figure 6. (*Computer: History*) A student at Marist High School, Atlanta, Georgia, masters a computer game on a school computer. UPI/Bettmann Newsphotos.

“Telephone Switching,” *Scientific American* 207 (1962): 133–143; Herman H. Goldstine, *The Computer from Pascal to von Neumann*, Princeton, N.J., 1972; René Moreau, *The Computer Comes of Age: The People, the Hardware, and the Software* (Ainsi naquit l’informatique), trans. by J. Howlett, Cambridge, Mass., 1984; Abbe Mowshowitz, *The Conquest of Will: Information Processing in Human Affairs*, Reading, Mass., 1984; Montgomery Phister, Jr., *Data Processing Technology and Economics*, 2d ed., Bedford, Mass., 1979; Joseph Weizenbaum, *Computer Power and Human Reason*, San Francisco, 1976.

DONALD A. DUNN

COMPUTER: IMPACT

This entry examines the social ramifications of the computer in a series of seven articles:

1. Overview
2. Impact on Military Affairs
3. Impact on Government
4. Impact on Education
5. Impact on Commerce
6. Impact on the Work Force
7. Impact on the World Economy

1. OVERVIEW

Following an initial period of military-sponsored innovation around World War II, computerized data processing rapidly penetrated the industrial and fi-

nancial base of the economy. By 1960 an estimated nine thousand computers were in use worldwide. In the United States, which accounted for nearly two-thirds of the total, computers had appeared in airlines, communications, utilities, banks, real estate, EDUCATION, government, and especially manufacturing. Computer use was concentrated heavily in urban economic centers.

It soon became clear that the interrelationships between computers and telecommunications systems would increase. Large corporate computer users increasingly sought to transmit data to and from distant sites; numerous business applications, from centralized inventory control to production scheduling and credit card verification, demanded the kinds of data functions that computers could provide. TELEPHONE switching began to be performed by instruments displaying a marked similarity to programmable computers. Data-transmission techniques and capabilities expanded. Experimentation focused on higher-capacity communications channels such as microwave RADIO, satellites (*see* SATELLITE), and processes based on FIBER OPTICS; development of sophisticated equipment for carrying data over conventional analog telephone lines (modems and multiplexers); and variants of digital switching. Regulatory policies devised to support basic voice telephone service were abandoned in favor of policies designed to accommodate specialized, and disparate, data-transmission needs—with profound implica-

tions for the structure and terms of access to public switched telephone networks. Computer applications burst through barriers set down by centralized batch processing, and by the mid-1960s networks using terminals to interact with host computers had grown more common. The number of on-line terminals in the United States mushroomed from 520 in 1955 to almost 46,000 a decade later. By the 1980s a single gigantic computer network—the AT&T telephone system—reportedly connected 100,000 terminals.

Social impact. At the same time, there was a growing concern to understand the social impact of large-scale computerization. Some early observers were concerned about the consequences for labor of this “second industrial revolution,” and the term *automation* was coined, some years before the first commercial computer was installed in 1954. This concept served to focus thinking about computerization on the consequences for work and employment. A succession of broader theories developed, stemming from the manifold changes in U.S. economic and occupational trends but at least partly inspired by an explicit concern with the computer’s social impact. These theories gave rise to the concepts of the services economy, the knowledge society, and the postindustrial society. Borrowing heavily from these approaches was a new synthesis, called the information society.

Information society analysts referred to several related shifts. First, computerized information systems were cited as constituting an unprecedented “intellectual technology,” radically discontinuous from past systems of information processing and control. Second, they claimed that a new class of white-collar information or knowledge professionals was coming to compose the vital portion of the work force in advanced market economies. Finally, they argued that information itself had supplanted capital and labor as the decisive factor of production. As a consequence, information services were said to be replacing manufacturing industry as the springboard to economic growth.

In fact, information society theorists tended to overstate their distance from the recent past. Some quite fundamental changes did indeed occur during the computer revolution. However, as noted by Krishan Kumar, a leading critic of the postindustrialists, the trends singled out by these theorists were often just “extrapolations, intensifications, and clarifications of tendencies which were apparent from the very birth of industrialism.” In this sense Alvin Toffler’s onetime neologism, the “superindustrial society,” captured more of what was truly new than Daniel Bell’s “postindustrial society” or Marc Porat’s “information economy.”

After all, the new information technology built directly on earlier innovations such as TELEGRAPHY,

telephony, punched-card electromechanical data processing, the typewriter, and vertical files. These developments in turn were intimately related to the growth of big business around 1900 and, especially, with business’s need to centralize control over production and marketing in expanding national markets. Later technological innovations, such as advances in MICROELECTRONICS, were stimulated by the needs of businesses and military agencies, which directed that investments be made in the new technologies. Each historical enlargement of the scale of business enterprise relied upon essential innovations in message transport and information processing.

Impact on work. The existence of a purported new class of knowledge workers was also often overstated. At issue were not the millions of white-collar workers pouring into the labor markets of advanced nations, even as farm and manufacturing labor categories shrank. In fact, the white-collar phenomenon originated in the late nineteenth century, when growing business enterprises replaced male clerks with legions of lower-paid women. According to information society theorists, however, the burgeoning white-collar sector differed in crucial ways from the older industrial working class. In marked contrast to the factory proletariat of previous decades, postwar knowledge workers were supposed to be highly skilled and to exercise considerable control over their work. In reality, empirical studies have shown that the vast majority of white-collar workers were not professionals but clerks, whose work was rigorously organized and supervised. Even in ostensibly professional refuges like medicine, architecture, and university teaching, the pace and substance of work were increasingly determined not by individual decision but by bureaucratized routine. The new class, in short, shared many of the characteristics of its pre-computer-age counterparts.

Global impact. Did knowledge replace capital and labor as the decisive factor of production? There can be no question that information was applied more and more systematically to all manner of productive and administrative processes. Econometric models, equations, and flow charts became the common coin of the business realm, along with computer-assisted prediction, projection, and modeling. The functions of research universities were also profoundly affected by the role of information in the business world. Universities were a growing market for computer and telecommunications companies and textbook publishers hawking information systems, networks, and software. Far from transcending the profit motive, as postindustrial analysts would wish, the university itself became subordinated to it. In sum, the character and quality of information of every kind were broadly restructured by market imperatives.

In this regard the information society theorists

were correct in claiming that information had become the key to economic growth. In the early 1980s U.S. annual exports of communication and information services were valued at an astonishing \$40 billion. Global markets for information showed unparalleled economic concentration across a wide range of enterprises. Investment in information systems by the U.S. services sector correspondingly increased rapidly. What *Business Week* called "the rapid industrialization of the service sector" impinged on everything from the organization and control of work to overall business strategy in fields as diverse as airline transport, data-base publishing, and international banking.

A global grid of TELECOMMUNICATIONS NETWORKS, permitting integration of once separate systems and services such as voice, data, and video, made possible the flexible distribution of computerized information services in a world market. Capacious digital networks became a chief object of telecommunications engineering, policy making, and planning in all the wealthy nations as well as multilateral organizations like the International Telecommunication Union. The evolution of these wideband, multipurpose digital networks, however, raised critical issues of access and control. Considerable disparities emerged in the control exerted over information resources by rich and poor nations and by private as opposed to public authorities. As a result, the next generation of information systems may well determine fundamental political and economic relationships.

By the early 1980s, as international economic competition intensified, information technology had been identified as essential to national prosperity in nations as diverse as France, Brazil, Canada, Great Britain, Japan, and the United States. National information policies correspondingly came to command increasing attention. An early exponent of deliberate national policy to shape and channel information technology development was Japan.

Earlier, Japan had reconstructed its industrial and manufacturing infrastructure and had begun to fashion a major role for itself as an exporter of manufactures. By the 1970s this role was decisively enlarged as Japanese companies and government agencies worked together to forge a place in information technology and electronics markets as well. Strong Japanese competitors emerged across an expanding range of technology industries, including producers of microelectronic circuits, telecommunications and computer equipment, and advanced instrumentation. With considerable consequences for U.S. and European firms, Japanese information technology companies such as Fujitsu, NEC, and Hitachi made major inroads into world markets.

Three exceptions to this trend should be noted. First, U.S. companies retained their lead in information services, including data bases, software, and related services. This was in part owing to the continuing dominance of the English language, not only in business and commerce but also in international science and popular culture. Second, major funding of computer and electronics companies by the U.S. Department of Defense continued to stimulate work on the cutting edge of the field, frequently at a level far surpassing that of Japan. Finally, both in main-frame computing and in many related markets, U.S.-based IBM remained a determining force. When coupled with growing recognition of the strategic, economic, and military importance of information technology, the extent of IBM's market power prompted reciprocal government initiatives in the information sector.

In western Europe these national efforts to defend domestic information companies and other interests had begun to falter by the 1980s. The costs of research and development for emerging generations of digital equipment such as telephone switches could no longer be recovered within any single national market. Yet coordination across national boundaries within the European Economic Community—the essential prerequisite for any concerted European initiative in information technology—proved difficult to achieve. Although some joint research and development efforts were launched, most of the activity occurred in a series of joint ventures between European- and U.S.-based telecommunications and computer firms, which created new intercorporate links and interests at the expense of national cooperation between states. The problems of competition and policy in the field of information technology were even more serious for smaller and poorer countries.

Increased role of business. One of the main sweeping results of the changes that occurred in the information technologies since World War II was the consistent extension of the market into wholly new areas: education, medicine, libraries, and even government. Like land and labor before it, information was transformed into a commodity—something produced solely for profitable exchange.

To serve global markets, a few thousand transnational business enterprises demanded substantial outlays for performance of information-based work in research, marketing, sales, and so forth. This inspired them to search for ways of making information work—like other types of work—continuously more productive and cost-efficient. Expenditures on information systems at such companies often became the third- or even the second-largest operating expense, amounting to hundreds of millions of dollars annually.

Computerized information systems also became essential to the competition for markets. One widely cited example was the manipulation of computerized airline reservation systems to favor carriers in a position to sponsor and diffuse the new technology; administration of invaluable intellectual property through licensing of patents, trademarks, and copyrights is another. Information and information technology were used as weapons of economic competition in everything from corporate planning to manufacturing processes to product design.

As information about markets, inventions, products, and new production processes was recognized as a major source of competitive advantage, the whole field of information resource management—treating information as a budgetable commodity with assignable production and distribution costs—became established in the corporate world. Increasingly, some of the largest corporations staked claims, not just to information technology but to information markets themselves. Each from its unique market sector, ranging from heavy manufacturing to consumer travel, attempted to capitalize on corporate knowledge.

Important though these market changes are—for instance, for relationships between countries—they also indicate a far broader social transformation. As information technology facilitates extension of the market economy into a vast new field, what features will come to characterize relations between business and the rest of society? Over what span of social and political life will business enterprises obtain direct dominion? Which of the functions such as child rearing and education, health care, and governance will remain outside the market? Will hierarchical forms of work organization and control come to define every form of social labor? The answers to such questions will be of profound import in the evolution of the social context for the computerization process.

Bibliography. Daniel Bell, *The Coming of Post-Industrial Society: A Venture in Social Forecasting*, New York, 1973; Ernest Braun and Stuart MacDonald, *Revolution in Miniature: The History and Impact of Semiconductor Electronics Re-Explored*, 2d ed., Cambridge, 1982; Harry Braverman, *Labor and Monopoly Capital*, New York, 1974; Irving D. Canton, "Learning to Love the Service Economy," *Harvard Business Review* 62 (May–June 1984): 89–97; David Dickson, *The New Politics of Science*, New York, 1984; Krishan Kumar, *Prophecy and Progress*, New York, 1978; Fritz Machlup, *The Production and Distribution of Knowledge in the United States*, Princeton, N.J., 1962; Dan Schiller, *Telematics and Government*, Norwood, N.J., 1982; Herbert I. Schiller, *Who Knows: Information in the Age of the Fortune 500*, Norwood, N.J.,

1981; Norbert Wiener, *Cybernetics: Or, Control and Communication in the Animal and the Machine*, 2d ed., Cambridge, Mass., 1961; Raymond Williams, *The Year 2000*, New York, 1983.

DAN SCHILLER

2. IMPACT ON MILITARY AFFAIRS

The computer and the military have had a long association. The military has made pioneering innovations in the computer field, and military technologies and strategies have become almost entirely dependent on computers. The consequences of this reciprocal relationship raise several new and troubling questions.

Military role in computer development. In the 1930s the U.S. Army and Navy used machines that employed high-speed digital circuits and a punch-card format for analyzing and deciphering CODE. However, these forerunners of the modern computer were highly specialized for a particular task (see COMPUTER: HISTORY). In the 1940s the military advanced the construction of general-purpose computers. In 1943 scientists at the University of Pennsylvania built the Electronic Numerical Integrator and Calculator (ENIAC) to compute artillery firing tables automatically for the U.S. Army. At about the same time IBM built the Mark I at Harvard University to process information about shell trajectories for the U.S. Navy, and a British team developed Colossus to decipher the codes in which the Germans sent military messages. By using computers to enhance weapons accuracy and gather intelligence, scientists developed the technique of stored program control. This allowed computers to carry out a number of different tasks simultaneously from instructions contained within the computer.

After World War II the military continued to shape the development of computer hardware and software. Stimulated by the development of the SAGE air-defense system, the United States maintained its lead in computer development. Great Britain remained second throughout the 1950s, although by the end of the decade the Federal Republic of Germany, France, Sweden, and the USSR had built workable electronic digital computers. The USSR was in fact the first nation in continental Europe to build a stored-program electronic digital computer. It began work on the project in 1948 and completed the MESM in 1951.

The United States maintained this lead through the 1960s and 1970s with a system of military investment and commercial development, principally through IBM. The Department of Defense provided much of the funding for the transition from large,

unreliable vacuum tubes to transistors and eventually to semiconductor integrated circuits. Between 1958 and 1974 the U.S. military provided about \$1 billion for semiconductor research and purchased between one-third and one-half of the chips produced. The U.S. military is largely responsible for underwriting the development of computer software, including the widely used computer languages COBOL (Common Business-Oriented Language) and, in the 1980s, Ada. In 1958 the United States established DARPA (Defense Advanced Research Projects Agency) to organize its research and development efforts in computers and to respond to Soviet developments culminating in Sputnik. DARPA worked with the Massachusetts Institute of Technology (MIT) to build time-sharing computers and with MIT, Stanford University, and the University of California, Los Angeles (UCLA), to create packet switching, a system that packages bits of information for distribution over a communication network. These developments led to the creation of Arpanet, a prototype computer communications network. The military used these evolving computer communications systems in a wide range of applications, including development of the intercontinental ballistic missile (ICBM), worldwide intelligence gathering led by the National Security Agency, and battlefield sensing and "automated battlefield" systems in Vietnam.

Computer applications in the military. Computers are used in a variety of administrative and battlefield applications. The former include such standard business functions as financial accounting, personnel management, supply, and stock control. In addition to these standard management functions, there are operations that require adaptations of commercial computer hardware and software. Among these are systems for training personnel, maintaining systems, and, of growing significance, operations analysis, or war gaming.

Computers are used extensively in weaponry and in command and control systems. Indeed, according to a U.S. Army deputy chief of staff, "Literally every weapons system that we are planning and bringing into development in some way employs minicomputers and microelectronics." Studies report that about 40 percent of all U.S. military hardware is electronic. Battlefield computers are used primarily for remote sensing of enemy troop movements, precise targeting and firing, and damage assessment. Miniaturization has spread the portable computer throughout the modern battlefield. GRiDSE.T, a briefcase-sized computer with a built-in mechanism for telecommunications, has been tested in action in Lebanon and Grenada, on the Space Shuttle, and in a nuclear weapon retargeting exercise aboard an airborne command post.

Computers are also widely used in naval forces. A typical guided-missile cruiser carrying nuclear warheads, antisubmarine rocket torpedos, and attack helicopters is managed by multiple on-board computers. These computer banks are organized into a system such as Aegis, which is driven by tactical software programs that provide instructions on what weapons to fire, at what targets, and when.

Military computers are integrated into systems of command, control, communication, and intelligence (C³I). Computers have given weapons greater range, speed, and accuracy. Linked to communication technologies, particularly satellites, computers have expanded intelligence, surveillance, and reconnaissance by providing more information over greater distances. As the real size of the battlefield increases over the earth and into space, C³I systems to acquire, process, and communicate information and issue commands grow more vital. C³I systems for local application, such as assessing troop maneuvers, are themselves integrated into global networks, such as the U.S. Worldwide Military Command and Control System (WWMCCS).

The growth of computerized weaponry and C³I systems has prompted creation of a specific field of military action called electronic warfare (EW). This refers to the battle for control of the electromagnetic SPECTRUM, including efforts to promote effective use of electronic communication and to resist efforts to obstruct it. The U.S. military spent \$3.4 billion on electronic warfare in 1984.

Owing to its slow start in computer development, the Soviet Union has lacked a command and control system as sophisticated as that of the United States. Though a leader in theoretical computer science and CYBERNETICS, the USSR has not kept pace in applications, particularly in the development of computer software. Until the late 1970s Soviet software existed primarily in isolated pockets of machine language programs. Nevertheless, the USSR has compensated for this deficiency by creating highly redundant military systems. For example, the Soviets have built about three hundred underground command posts for launching their ICBM force, three times the number in the United States. The United States has three very-low-frequency transmitters and six backup ones for communicating with its submarine fleet; the Soviet Union has built twenty-six. The U.S. military is very dependent on its land-based telecommunications network; the Soviet Union has a more extensive communications SATELLITE system that uses a large number of much simpler satellites to relay messages to and from its forces. In essence the United States relies on more sophisticated technology to provide military systems that the Soviets lack, such as instantaneous photoreconnaissance, early warning or elec-

Figure 1. (*Computer: Impact—Impact on Military Affairs*) Fire control computer of the Multiple Launch Rocket System (MLRS), containing the computer that integrates the vehicle and the rocket launching operations. Courtesy of the U.S. Army, Public Information Division, Washington, D.C.



tronic-intelligence satellites in geosynchronous orbits, or advanced computers. The Soviet Union chooses simpler, more redundant, and more durable systems.

Computers have their widest and most critical application in strategic weapons. Computers are essential for the amount and speed of information processing required for sensing, warning, launching, or responding to a nuclear attack. Moreover, as military weaponry enters outer space in the form of satellite, laser, particle beam, and other weapons, computer capabilities must expand.

Just as the military pioneered the development of computers in the 1940s, military projects continue to propel advances in computer technology. These include research on Very High Speed Integrated Circuits (VHSIC), Very Large-Scale Integration (VLSI), and alternative semiconductor materials such as gallium arsenide to decrease the size and increase the speed of computers.

One major goal is to develop computers with an ARTIFICIAL INTELLIGENCE capability. In 1984 the United States embarked on a five-year, \$600 million project, the Strategic Computing Initiative, to build such so-called expert systems. Major research areas include pattern and SPEECH recognition that could make drone aircraft and remote-controlled submarines commonplace, as well as increase the autonomy of land and space vehicles. Research in this area has strengthened the ties among the military; the computer, semiconductor, and communication industries; and major research universities. The only more ambitious artificial intelligence project is Japan's government-industry effort to develop commercial applications for expert systems.

Questions about military use. A number of issues have arisen about the use of computers in the mili-

tary, particularly in the area of nuclear weapons. Military policy officials wonder about the ability to achieve interoperability, or integration of the global network of military computers; similarly, nuclear planners work on strategic connectivity, or the ability to command and control nuclear forces. Ironically, technical advances that replaced electromechanical with completely electronic switching in computer communications systems make these systems more vulnerable to the high-energy charge, or electromagnetic pulse (EMP), released by a nuclear detonation. Moreover, greater integration increases the potential for security problems. Expenditures of more than \$100 million a year have not maintained complete security for the Pentagon's large computers. Other groups raise the specter of a war triggered by one or a series of computer malfunctions. The likelihood grows as the speed and power of weapons make for greater reliance on computers for detection and response. The computerized technology, it is widely held, has strengthened society's dependence on military applications for technological innovation and led to a greater reliance on military solutions to global problems.

See also DIPLOMACY.

Bibliography. Paul Bracken, *The Command and Control of Nuclear Forces*, New Haven, Conn., 1983; Daniel F. Ford, *The Button*, New York, 1985; N. Metropolis, J. Howlett, and Gian-Carlo Rota, eds., *A History of Computing in the Twentieth Century* (International Research Conference on the History of Computing, Los Alamos Scientific Laboratory, 1976), New York, 1980.

VINCENT MOSCO

3. IMPACT ON GOVERNMENT

Government use of computers for civilian data began in 1951, only five years after the first electronic computer was constructed, when the U.S. Census Bureau acquired Sperry Rand's UNIVAC I, the first electronic digital computer delivered on a commercial basis. In just over three decades, the U.S. government was spending more than \$10 billion annually on computing and telecommunications services. Throughout this time, federal agencies in the United States took a leading role in the governmental application of computer technology to both international matters and other jurisdictions within the federal system. Although U.S. federal agencies were the real pioneers in the government use of computers, state and local governments rapidly adopted computer technology in the 1960s and 1970s. By the mid-1970s more than 90 percent of U.S. cities with populations greater than fifty thousand were using computers.

Most advanced industrialized nations depended heavily on U.S. computing equipment manufacturers, particularly International Business Machines, through the 1970s, and they lagged behind the United States in both the application and the study of government information systems. Despite this lag, patterns of adoption and use of government information technology were similar cross-nationally, with the exception of the Soviet Union and several eastern European nations, which placed higher priorities on such uses of computing as planning and decision-oriented applications. Moreover, during the 1980s, the gap between the United States and other advanced industrialized nations narrowed as the computer industry developed in Canada, the Federal Republic of Germany, and Japan as well as in France, Great Britain, and other wealthy countries.

Organizational context. Early predictions about the implications of computing seldom recognized the flexibility of the technology and the degree to which its effects would be limited by its social and organizational setting. In government settings, the gap between expectations and performance was shaped less by the technology of computing than by the way public officials, administrators, and other personnel applied the technology.

During the 1950s and 1960s, digital computers were adopted primarily to replace electrical accounting machines used for large-volume data-processing operations such as accounting and billing. Governments continued to use computers for electronic data-processing through the 1980s, primarily for routine data-processing tasks. Public officials placed lower priority on the application of computing to management-oriented tasks such as record restructuring and sophisticated analysis (e.g., property tax assessment,

simulation, budget forecasting). Lagging still further behind were applications of computing to communication support tasks such as graphic and visual arts and communications.

In general, then, rather than using computer technology to provide public information services, governments automated revenue-producing and expenditure-controlling activities such as accounting, finance, budgeting, treasury, personnel, purchasing, inventory, and billing. In this respect, computing enhanced the prevailing priorities of governments, reinforcing public attitudes stressing government efficiency and law enforcement rather than social services or amenities.

Computer technology was managed conservatively by most government agencies, which had limited budgetary support for computing (about 1 percent of their operating budgets). The few agencies that approached the state of the art in the technology budgeted four to five times that allocation for computing and actually spent as much as double the amount budgeted. As a result, few governments have been highly computerized. Most U.S. local governments, for example, even by the late 1970s were using the equivalent of about one medium-sized business computer. Taxing and spending limitation measures permitted only incremental expansions of computing during the 1970s. Thus, governmental computing systems are often based on older technology than that available in industries of comparable scale. The fact that governmental computing is seldom state of the art has been important because advanced technology is a major determinant of the impact of computing on government operations.

Implications. The implications of computing in government affect several broad areas that cover most of the ways in which government institutions function. The areas that have been most affected by the introduction of computer technology are (1) responsiveness to the public, (2) decision-making resources and methods, (3) efficiency, and (4) degree of management control.

Responsiveness in this context has come to refer to the willingness of government institutions to supply information in response to public requests. In the 1960s, some U.S. academics felt that since new technologies made it possible for individuals to participate in public affairs from both home and office, computing and telecommunications could enhance public access to information and, in turn, to the democratic process. However, the reality rarely approached this ideal. For the most part, public officials did not use computing to provide public services, information, or opportunities for participation to citizens. In fact, computing has actually threatened public access in some ways. By making it more profitable to repackage and disseminate public infor-

mation, the new technologies tended to undermine the traditional role of the government in providing information to the public. This poses the risk that more information will migrate from the individual, home, and public agency into private and public files, where it will be treated as a marketable commodity.

Management and decision scientists expected that computer-based information systems, such as models, simulations, and data banks, would facilitate the rationalization of decision making by providing easier access to more accurate, wide-ranging, and up-to-date information. And there is evidence that computing did lead to qualitative improvements in the information available for planning and management decision making. However, in contrast to early expectations, the most valuable applications of computing for decision making have often been simple listings and ad hoc reports rather than more sophisticated decision-oriented analyses.

Computing improved the efficiency of many government operations, particularly routine and high-volume information tasks such as the processing of traffic tickets or social security checks. However, despite the expectation that office automation would cut costs, there has been little evidence in the public sector that computing has reduced clerical, management, or operational staff. Computing did make it possible for some agencies to handle increased work loads without hiring additional staff. However, computing also created the new challenges of "information technology management" as the problems of storing, searching, transmitting, and disseminating information without compromising efficiency, accuracy, or confidentiality were recognized. In the United States, such concerns led to the Paperwork Reduction Act of 1980, which established an Office of Information and Regulatory Affairs to oversee the use of computing, telecommunications, and information practices in federal agencies. While aimed at reducing paperwork burdens on the public and lowering the costs of information processing within the federal government, the establishment of a central coordinating office had implications for the relative autonomy of various agencies and departments of the federal government.

The introduction of computers also had implications for the degree of management control over government agencies. Public officials and managers believed that computing improved management control by providing information to management about the performance of subordinates. However, computing also created the potential for power shifts within these agencies, since the introduction of computing increases the likelihood that technocrats (the experts who understand how to use computing) will become more effective within organizations. While computing has generally been adopted and used in ways that

tend to consolidate rather than redistribute power in government organizations, the importance of the technocrats has tended to reinforce the general shift of power from legislative and judicial branches of the government to the executive departments and agencies, particularly top managers and their staffs.

Privacy and civil liberties. Since the 1960s, PRIVACY concerns have been the major public issue raised by the governmental use of computing technologies. Most nations of western Europe and North America have established privacy and data protection laws. In the United States rights to privacy derive from the First, Fourth, and Fifth Amendments to the Constitution and were incorporated in such federal legislation as the Privacy Act of 1974 and the Cable Telecommunications Act of 1984, and in hundreds of state and local privacy laws. Several European nations created independent privacy and data protection boards to oversee governmental uses of personal information. In the United States this protection has been more decentralized, although it is the formal responsibility of the Office of Management and Budget, a federal agency. Canada, Great Britain, Sweden, and the United States have sponsored major studies of the implications of computers for privacy.

While the underlying issue of privacy is independent of computing, the new technologies have increased the scale on which abuses of privacy can occur. Computers expand the possibilities for monitoring telephone conversations, analyzing transactional data bases (such as those created by electronic banking), searching large files, matching (e.g., comparing social security numbers within different files so that they can be merged), profiling (e.g., using information about an individual to estimate the likelihood of a particular kind of behavior, such as tax evasion), and other forms of electronic surveillance. Early privacy studies directed by Alan Westin concluded that in many cases computing improved the handling of information without jeopardizing privacy. Later studies—of automated criminal justice information systems—have presented a more negative assessment by identifying problems with the accuracy, accountability, and comprehensibility of large-scale data banks. Moreover, in the mid-1980s several accounts of military and political surveillance by major U.S. government agencies such as the National Security Agency renewed fears about actual invasions of privacy.

As computers become increasingly essential for communication within government and between the government and the public, the applications of computers will have a growing influence on such issues as freedom of speech, press, and assembly, and the right to petition the government. As more government records and communications are computer-

based, issues of freedom to publish and obtain access to government officials and records—the right to know—inevitably become tied to computer technology.

Bibliography. James N. Danziger, William H. Dutton, Rob Kling, and Kenneth L. Kraemer, *Computers and Politics: High Technology in American Local Governments*, New York, 1982; William H. Dutton and Kenneth L. Kraemer, *Modeling as Negotiating: The Political Dynamics of Computer Models in the Policy Process*, Norwood, N.J., 1985; Stephen E. Frantzich, *Computers in Congress*, Beverly Hills, Calif., 1982; Kenneth L. Kraemer, William H. Dutton, and Alana Northrop, *The Management of Information Systems and Bureaucratic Reform*, New York, 1974; Alan F. Westin and Michael A. Baker, *Data Banks in a Free Society: Computers, Record-Keeping, and Privacy*, New York, 1972.

WILLIAM H. DUTTON

4. IMPACT ON EDUCATION

The role of the computer in EDUCATION has been the subject of educational research and development for decades. The introduction of the microcomputer made computer technology widely accessible to teachers, students, and parents and ushered in a new era of discussion about the appropriate design and use of software and hardware (see Figure 1).

As microcomputers entered homes, schools, and offices, children and adolescents were among their primary users (see SCHOOL). Computer-assisted instruction, games and simulations, word processing, data bases (see DATA BASE), and electronic mail are

contributing to a changing media environment for learners of all ages. Often compared with television in its attractiveness to young people, the computer offers new opportunities for flexibility and interactivity between student and subject matter and ultimately for improving the processes of learning (see INTERACTIVE MEDIA). By combining features of print and visual media as well as mass and INTERPERSONAL COMMUNICATION, the computer is redefining the boundaries of communications media (see MASS COMMUNICATIONS RESEARCH).

The increasing use of computers in education has also amplified debates about the virtues and vices of educational technology. Decisions to implement computers in the CLASSROOM raise fundamental questions about the philosophy of education in the selection of subject matter, curriculum goals, and instructional style. Should computers be used to convey traditional school subject matter or to prepare students for living and working in a computerized society? Given a school's limited financial resources, should computers be used mainly to bring lower-achieving students up to a par with their classmates or to accelerate the progress of more talented students? Should computer software emphasize the transmission of knowledge directed from teacher to student or stress a child's own discovery of knowledge? These and other questions will be asked frequently as the technology advances and educational experience accumulates.

Technological Features

Two basic types of computer systems in use in education can be distinguished. The first and older sys-



Figure 1. (*Computer: Impact—Impact on Education*) Children at the Tri-Cities Children's Center, Fremont, California, learning to use Qume's electronic graphics tablet, 1982. Words and pictures are reproduced on both a computer screen and a printer terminal. UPI/Bettmann Newsphotos.

tems involve groups of computer terminals attached via cable to large mainframe computers. "Courseware," ranging from individual lessons to entire courses, resides in the mainframe computer, with students able to work through the material according to individual aptitude and pace. The computer keeps a record of each student's progress and, in more sophisticated systems, provides individualized guidance for skill improvement. The second configuration, made possible through microprocessors, involves stand-alone microcomputers—also known as personal computers—each with its own memory, processing unit, and software loaded from a storage medium, most commonly diskette.

Historical Development

Use of computer technology for instructional purposes dates back to the 1950s. Since the 1960s large mainframe computers have provided courseware based on principles of programmed instruction. This style of software, known as computer-assisted instruction (CAI), encompasses several types of programs. CAI can include drill-and-practice programs in which students receive training in discrete skill areas, such as arithmetic or foreign languages; tutorials, in which the computer poses questions and can interpret a limited range of student responses; and demonstrations, in which the computer's GRAPHICS, color, and sound are used to depict concepts and relationships, typically in the sciences or MATHEMATICS. CAI systems of various kinds have been developed in the United States, Great Britain, Canada, Japan, and other countries.

The microcomputer brought computer ownership within the reach of individual schools and families. Microcomputer adoption by schools in the United States has outpaced other educational innovations (see DIFFUSION), increasing dramatically from around thirty thousand in 1981 to more than one million by 1985. By the mid-1980s over 90 percent of elementary and secondary schools had at least one computer, and one-fourth of the nation's teachers were using computers. Adoption rates were higher in high schools than in elementary schools and in schools with larger student populations (see Figure 2).

Estimates of home ownership of microcomputers in the United States during the mid-1980s ranged between 20 and 25 percent, increasing for wealthier urban and suburban communities. School systems in other countries, notably Great Britain and France, also made acquisition of microcomputers a priority, often through the sponsorship of centralized educational authorities. Home and school purchases of computers continue at a steady pace, aided by falling prices in computer hardware.

During the second half of the 1980s computers

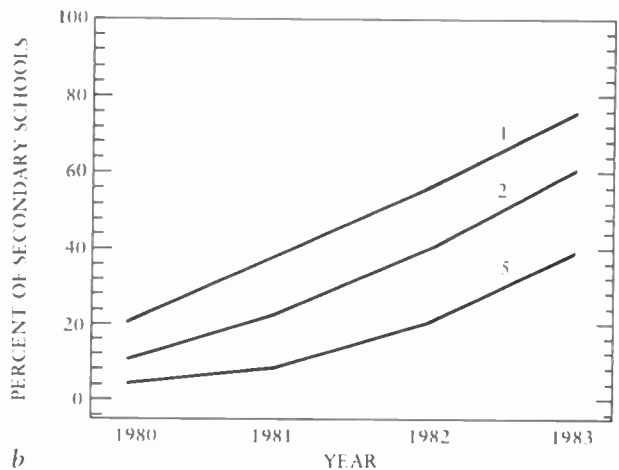
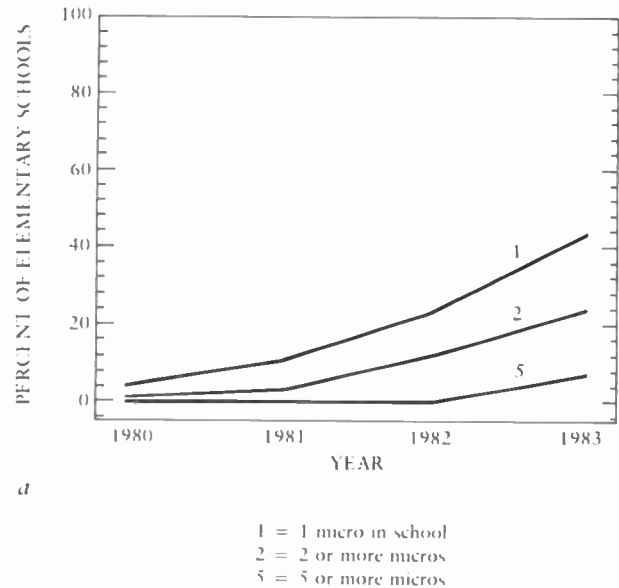


Figure 2. (*Computer: Impact—Impact on Education*) Microcomputers in (a) U.S. elementary schools and (b) U.S. secondary schools. Redrawn after H. J. Becker, "How Schools Use Microcomputers," *Classroom Computer Learning* 12 (1983): 41-44.

entered a more mature phase of utilization characterized by a developing professionalism among teachers, principals, software designers, computer manufacturers, researchers, and education officials. Software continued to diversify and improve, accompanied by a more stable market in computer hardware. A growing corps of teachers at both the elementary and secondary levels is acquiring greater sophistication in the uses of computers in classrooms. Several national and INTERNATIONAL ORGANIZATIONS, such as Computer-Using Educators (CUE), and conferences, such as the National Educational Computing Conference, provide ongoing forums for exchanging knowledge about the role of computers in educational practice, a process additionally supported by numerous publications, including trade

magazines, academic journals, and newsletters (*see* MAGAZINE; NEWSLETTER).

Research Issues

Research on computers in education brings together work at the forefront of several social sciences, including communication, education, cognitive psychology, and computer science. As with older print and broadcast media, the research can be divided into two broad domains of inquiry: effects and utilization. The first class examines types of educational effects that occur from exposure to computers and can include changes in academic achievement, cognitive skills, or ATTITUDES. The second domain studies patterns of utilization within educational environments, including formal instruction in schools as well as informal education in homes, museums, computer camps, or other settings. Both types of research can help shape educational policies to promote patterns of use related to positive learning outcomes.

Computer literacy and computer programming. The research agenda for computers in education has been evolving with uses of the technology. In the 1970s and 1980s studies of educational effects focused on traditional computer LITERACY and computer programming courses. Instruction in computer literacy emphasizes basic computer concepts, such as the components of computer systems, the history and social role of computers, and elementary programming. Computer programming has been studied as a possible aid to COGNITION. Programming languages commonly taught in schools include BASIC, Pascal, FORTRAN, and LOGO. LOGO, developed by Seymour Papert and others at the Massachusetts Institute of Technology in the 1970s, has attracted much attention as a powerful language designed especially for use by young children. Since programming requires detailed specification of procedures and their interrelationships, it has been hypothesized that acquisition of programming concepts might foster higher-order cognitive skills related to problem solving, planning, and systematic thinking.

Nonprogramming applications. With proliferation of other instructional uses of computers besides programming, and anticipation that future uses of computers will not require programming skills, research has shifted to include learning from educational computer games, simulations, word processors, and other "applications" software. Some of this software is designed to convey content knowledge or skills in specific subject matter, such as language arts, mathematics, or history, often in a gamelike format.

Other types of software commonly in use are designed to facilitate performance of information tasks, such as word processors for WRITING, data bases and

spreadsheets for data organization and handling, and graphics for data presentation. Questions about the educational potential of these types of software involve not only mastery of their features but also longer-term transfer of learning to higher-order intellectual skills. Will word processors improve the quality of students' writing by simplifying the process of revision, providing checks on GRAMMAR and spelling, and encouraging planning and organization? Will data bases provide students with powerful models for categorizing and manipulating information? These questions exemplify a developing research agenda for computers in education.

Computers also offer an alternative channel to face-to-face communication between teachers and students (*see* INTERACTION, FACE-TO-FACE). Computer networks make it possible for students and teachers to exchange information through electronic mail and conferencing, within classrooms and across schools. Since there are typically fewer computers than students in a classroom, computer usage can lead to new methods of classroom organization and teacher-student interaction. For instance, computers can be used in ways that encourage peer collaboration and reciprocal tutoring. The technology can also help ease teachers' administrative burdens. Software for generating student grades, lesson plans, and handouts has provided teachers with a tool for minimizing paperwork.

The computer can also operate as a terminal for receiving information and software "downloaded" over phone or cable lines or through broadcast transmission. This use of the computer, generically termed VIDEOTEX, also holds educational potential. Students and teachers can tie into computer networks for communication with other students, teachers, professionals in various fields, and special-interest groups, or access data bases of subject matter or reference materials (e.g., on-line encyclopedias, newspapers, and bibliographic collections). *See also* ELECTRONIC PUBLISHING.

Computers and social equity. The diffusion of educational computing raises issues of social equity as well. Computers may contribute to "knowledge gaps" between social groups. Most obviously the financial investment required for computers threatens to create gaps in their availability and use among more and less economically advantaged families and schools.

Studies of microcomputer adoption have indicated a predictable pattern of early purchase by wealthier families and schools. Initial studies also found inequities in school use, with some evidence that, for instance, CAI was more frequently used with lower-achieving, inner-city, or minority students. Whether ownership of computers will continue to divide the computer "haves" from the "have-nots" is not clear.

Local- and state-funded initiatives, as well as donations and discounts from computer manufacturers, may serve to narrow such gaps in computer ownership.

Other equity issues involve psychological, cultural, and attitudinal factors in computer use. GENDER differences in computer use, from childhood through adulthood, have emerged as another significant equity issue. The computer sciences, like other fields of science and engineering, have historically attracted greater participation from males than from females. Studies of microcomputers have often documented more frequent use and positive attitudes among male students than among female students, especially during the adolescent years. Just as gender gaps in mathematics, science, and engineering decreased through the 1970s and 1980s, the gender gap in computing may be ameliorated by the entry of more young women into those related fields and by the rise of numerous applications for computers in business, the humanities, and the arts.

A further equity issue concerns the use of computers in special education. For students with physical or mental disabilities the computer can help promote equality of educational opportunity, serving as a powerful "prosthetic device" offering access to educational materials. New devices for user interfaces (e.g., special keyboards for the physically handicapped, the Kurzweil Reading Machine for the blind) and engaging software may help students to overcome barriers posed by impairments to movement, hearing, speech, or sight.

Research on educational and social effects of computers can profit from the legacy of communications research on earlier media, most notably the extensive body of television research (see MASS MEDIA EFFECTS). Foremost among those lessons is the need to look beyond simplistic, mechanistic conceptions of direct "effects" of computers on students to more detailed study of specific attributes of the educational stimulus, variation in learner aptitude and motivation, and differences in educational settings and instructional styles of teachers.

Future Directions

Advances in computer technology will offer newer, faster, and "friendlier" computers with improved options for text, graphics, and user interfaces. Research on ARTIFICIAL INTELLIGENCE may enable computers to utilize complex mental models of learners in the course of computer-assisted instruction. Such systems have been developed, for instance, for diagnosing patterns of student errors in arithmetic problems. This genre of software, termed "intelligent computer-assisted instruction" (ICAI), may place impressive new tools in the hands of teachers and

educators. At the same time, ICAI confronts difficult challenges in attempting to model the complexities of the human mind.

New computer-based systems merge the computer with other developing technologies, such as the videodisc, combining the power of computers with the full audio and visual features of television and film. The first generation of interactive videodiscs has been used primarily in training and simulation for corporations and the military, although intriguing experiments have been conducted, for instance, in science and art education. New storage media, such as compact discs, may overcome current memory limitations of microcomputers. Farther into the future, computers may communicate by accepting human speech input and responding through synthesized speech.

These new learning machines again pose a familiar dilemma for communications media: technological progress advances more swiftly than human progress in understanding. In 1948, three decades before the age of the microcomputer, HAROLD D. LASSWELL posed the classic question for communication research: "Who says what to whom through which channel and with what effects?" That question can be restated for computers in education: "Who learns what from which attributes of a computer-based system and with what effects on other learning and behavior?"

Bibliography. Milton Chen and William Paisley, eds., *Children and Microcomputers: Research on the Newest Medium*, Beverly Hills, Calif., 1985; Jack Culbertson and Luvern L. Cunningham, eds., *Microcomputers and Education*, Chicago, 1986; Seymour Papert, *Mindstorms: Children, Computers, and Powerful Ideas*, New York, 1980; Gavriel Salomon, *Interaction of Media, Cognition, and Learning*, San Francisco, 1979; Robert Taylor, ed., *The Computer in the School: Tutor, Tutee, Tool*, New York, 1980; Sherry Turkle, *The Second Self: Computers and the Human Spirit*, New York, 1984; Decker F. Walker and Robert D. Hess, eds., *Instructional Software: Principles and Perspectives for Design and Use*, Belmont, Calif., 1984.

MILTON CHEN

5. IMPACT ON COMMERCE

Commerce includes both the large-scale exchange or buying and selling of goods and a wide variety of supporting functions necessary to facilitate these transactions. It encompasses not only wholesale and retail operations but also banking, insurance, commodity and other exchanges, warehousing, transportation, and business communications. Human efforts devoted to commerce are enormous; in the United

States, for example, more than a third of the labor force was engaged in commerce in 1980, and the sector had been growing rapidly for decades.

All components of commerce depend heavily on information. Many of the advances in information technology, starting with the development of WRITING, have been made in response to commercial needs. In particular, the computer has had and will continue to have a major impact on how commercial activities are conducted. To understand the impact of the computer on commerce, it is useful to consider three characteristics of commerce: standardization, regulation, and intermediaries.

Standardization. The need for agreement among related businesses and for the development of standards has an important influence on the use of technology; in fact, it almost always delays the introduction of new technologies until long after the technologies have become available in practical form. A good example of the issue of standardization in commerce is the commonly used service offered by banks—the checking account. Checks became a widespread and reliable means for making and receiving payments only after agreements were reached, and supported by law and regulation, concerning obligations and liabilities with regard to checks for which inadequate payer funds were available and concerning procedures for prompt processing of checks from the bank of deposit to the payer's bank. Modern check processing by computer required still further agreements, this time in order to establish STANDARDS for Magnetic Ink Character Recognition (MICR) machine-readable codes. (These codes were to be imprinted on all checks to identify the account on which the check was drawn and the bank at which this account was located.) The overall process took almost fifteen years. However, the development of the standard code for MICR also provided a basis for automating all demand deposit (e.g., checking) accounts and offered a starting point for the introduction of computerized teller support systems and automatic teller machines. Later, similar codes were used with a different code system imprinted on debit cards. Through terminals located at retail stores, these cards permitted payments for goods to be made by instantaneous transfer of funds from a purchaser's bank account to the store's. The same codes were again employed as a nationwide bank-at-home system was evolving.

Similar needs for standardization can be found in many other areas of commerce. One example is the development of Universal Product Code (UPC) bar coding on food items to permit use of automatic checkout equipment. Its adoption required cooperation among a number of different industry associations. More complicated was the introduction of large-scale containerization in maritime operations.

This required the development of physical standards for the containers themselves and a host of agreements among the many parties involved (shippers, freight forwarders, overland carriers, insurance companies, longshoremen, customs brokers, shipping lines, and various regulatory agencies), as well as the availability of modern computers, before the innovation could become practical.

A somewhat different approach to establishing compatibility among participants is to focus on the communications link. In 1980 the U.S. grocery industry followed this path by adopting Electronic Data Interchange (EDI) standards for industrywide ordering and shipment advisory activities. Individual participants then either implemented the same standards for internal use or built computer software interfaces between their internal systems and the communications standards. The Transportation Data Coordinating Committee (TDCC) has been active in this field for many years, and the approach is likely to be followed by other industry groups.

Regulation. Throughout history governments have both regulated commerce and facilitated its development. The regulation of commerce has had a significant impact on decisions to implement new, computer-assisted technologies. These effects are particularly pronounced when regulation is combined with government subsidies or when tax benefits are granted. An example of the influence subsidies can exert is illustrated in U.S. maritime operations. For many years subsidies were provided to balance the relative costs of U.S. and foreign crews. This subsidy removed the incentives for introducing more automated ship control and handling equipment, which would have been a more farsighted economic path to have followed. See GOVERNMENT REGULATION.

Price regulation also has implications for the introduction of new technologies. For example, it will favor use of technology for cost reduction purposes, since the financial returns from cost savings can be made very rapidly in a price-regulated industry. Regulator attitudes toward depreciation policy also affect the ability of technologically based industries to install improved versions of equipment rapidly, and tax treatment of depreciation can have similar results. At the same time, the deregulation of both banks and telecommunications in the United States arose in part because the growth of new, largely computer-based technologies permitted businesses to bypass and render ineffective the government regulation of these activities.

Intermediaries. Commerce is replete with intermediaries engaged in providing information services and other types of interaction between participants. The entire investment community, and much of the operations of banking and insurance, are devoted to providing highly structured intermediaries for those

Figure 1. (*Computer: Impact—Impact on Commerce*) Examples of Universal Product Code (UPC) bar coding.



who wish to exchange properties and money. Computer technology is a powerful factor in changing the role of these intermediaries and in some cases bypassing them entirely. Large investors make use of computer-based systems for trading blocks of stocks, which reduces the role of brokerage firms. Individuals and corporate travel offices bypass travel agents by using computer systems to order air travel tickets directly from airlines. More and more, the two parties involved in commercial transactions deal directly with each other, rather than operating through a series of intermediaries. And most of these changes have been made practical by the introduction of computers and improved communications. At the same time, the need for increased information to support the ability of parties to deal directly with one another has grown dramatically; here again, the computer provides solutions. As a result, information services and information brokerage have expanded rapidly.

Evolution of computer uses. Commercial organizations were often the pioneers in adopting the new computer technology. Four overlapping phases characterized the process:

1. *Batch record storage and manipulation.* These systems were installed in the mid-1950s and dealt primarily with bookkeeping operations and the production of transaction records such as bills and invoices. Usually the operations were not unlike the early punched-card systems, although key-to-tape input was adopted rapidly once it became available. In large installations the batch operations acquired many of the characteristics of continuous-flow operations. By the early 1980s, batch recordkeeping and transaction systems were in use in essentially all medium-size and larger businesses. Very small businesses, employing fewer than twenty people, were dependent on service bureaus or continued to use manual systems until the introduction of low-cost microcomputers. With microcomputers, even the smallest companies could conduct their own computing operations, although penetration was slow until appropriate software became available.
2. *Real-time transaction systems.* Far more relevant to the needs of commercial enterprises was the

introduction of real-time transaction systems, which started in 1963 with the first commercial airline reservation system. Computer technology facilitated the rapid growth of airline operations during the 1960s and 1970s, since the earlier semiautomatic reservation systems simply could not have handled the massive increase in passengers. Automated airline reservations led in due course to automated ticketing and seat selection. The availability of reservation systems was expanded from airlines to hotels, theatrical and sporting events, automobile rental, and a host of other activities. The on-line techniques also moved into the financial industries and mail-order organizations, making on-line inquiry and automated ordering services easier and quicker to conduct. This phase of computer applications was largely completed early in the mid-1980s. More importantly, it laid the groundwork for the third phase—user-input transaction processing.

3. *Direct user transaction systems.* This activity was still in an early growth period in the 1980s. For businesses a typical application was the cash management system provided by banks that permitted business customers to enter directly instructions for the movement of funds from one account to another. For consumers debit cards provided a related type of service. Numerous information service companies offered individuals opportunities to inquire about prices and then order a wide variety of goods and information services, and to make airline and other reservations directly through their own computers. Bank-at-home systems began to make it practical to eliminate check writing and directly enter instructions for the conduct of a large number of household financial transactions. Existing direct user transaction systems bypassed numerous intermediaries. Some of these were independent operators, such as travel agents; others were members of the labor force of, for example, financial institutions, such as bank personnel who previously processed checks.
4. *Advanced decision support processes.* This development phase, which emerged in the mid-1980s, was based on the application of ARTIFICIAL INTELLIGENCE techniques to the problems of commercial organizations. While not the first pri-

vate-sector users of artificial intelligence, financial institutions were leaders in the development or purchase of early applications. Attention initially was focused on financial planning, portfolio management, loan analysis, and some types of trading operations. Not far behind were applications in the communications and transportation sectors, such as diagnosis of pending equipment failures or causes of actual failures, support of complex scheduling problems, and design of complex equipment configurations.

In contrast to many of the applications described earlier, the advanced decision support phase was limited more by technology than by the constraints of standardization or regulation. Artificial intelligence efforts were devoted mainly to systems that could be used within a single company, as tools of competition, rather than to those requiring some form of industrywide adoption. In the long run, the major limitations of these systems are likely to be technological—until new types of computer and software architectures can deal with greater complexity and with many more subject areas—and management-related, since management structures will require changes to employ effectively more of the available total corporate knowledge.

The computer has come a long way in commerce. Its capabilities have been used to lower costs, improve quality, increase capacity, speed transactions, and contribute to the development of a global economy. As its capabilities grow and are spread more widely, computer technology will continue to exert a major influence on this key economic area.

See also COMPUTER: HISTORY; COMPUTER: IMPACT—OVERVIEW; COMPUTER: IMPACT—IMPACT ON GOVERNMENT; COMPUTER: IMPACT—IMPACT ON THE WORLD ECONOMY; DATA BASE; ORGANIZATIONAL COMMUNICATION.

Bibliography. James L. Heskett, "Sweeping Changes in Distribution," *Harvard Business Review* 51 (1973): 123–132; Arthur D. Little, Inc., *The Consequences of Electronic Funds Transfer: A Technology Assessment of Movement toward a Less Cash/Less Check Society*, prep. for the National Science Foundation, Research Applied to National Needs (RANN), Washington, D.C., 1975; idem, *The Relationship between Market Structure and the Innovation Process*, prep. for American Telephone and Telegraph Co., under the direction of Gordon Raisbeck with the assistance of Mark Schupack, Cambridge, Mass., 1976 (filed April 8, 1976, FCC Docket 20003, Bell exhibit 52); John H. Mahoney, *Intermodal Freight Transportation*, Westport, Conn., 1985; James Martin, *The Wired Society*, Englewood Cliffs, N.J., 1978; National Transportation Policy Study Commission, *National Transportation Policies through the Year 2000*, Washington, D.C., 1979.

MARTIN L. ERNST

6. IMPACT ON THE WORK FORCE

Computerization differs in several ways from earlier phases of automation. In the first place, it involves the substitution of machinery for human mental as well as physical labor. Second, before the development of computers, machines could normally perform only one fixed sequence of operations. Computers and computerized equipment, on the other hand, can be programmed to perform a variety of tasks. During the nineteenth and early twentieth centuries the mechanization of work usually meant that jobs had to be broken down into a number of separate tasks, each performed by a different group of workers using a different machine. With computer-based automation, and particularly with the growing use of integrated computer-communications networks, this process is reversed, and a single computerized system can be used to control a complex series of diverse activities. See COMPUTER: HISTORY.

The role of computers in the workplace. Computers have transformed many types of work. In the first stage of computer applications beginning in the 1950s, factory computerization took three main forms: process automation, numerical control (NC), and the use of robots. In process automation, computers were used to monitor crucial variables in the production process, such as the volume and flow of raw materials and temperature changes. Numerical control refers to methods of controlling the operations of machine tools by means of numerical programs, which developed in the early 1950s. The 1970s saw the rapid diffusion of a more sophisticated version of this system, computer numerical control (CNC), whereby the machine tools are directly connected to a computer that stores several programs. Robots were introduced into industry in the first half of the 1960s. They are widely used in tasks such as welding and spray painting. Although earlier versions were sometimes programmed in other ways, by the late 1970s virtually all robots were computer-controlled.

The second stage of factory automation began in the mid-1970s and emphasized the use of computer and communications technology to create integrated productive systems. One example is the flexible manufacturing system (FMS), in which various types of computer-controlled machinery are linked together into a hierarchy whose apex is a central computer, which communicates to and receives information from all parts of the factory.

In the office, as in the factory, there has been a trend from the computerization of individual activities toward the creation of integrated computer-communications networks serving many needs. In the 1950s and early 1960s the use of computers was most widespread in areas such as scientific research and the processing of large amounts of standardized data (payrolls, censuses, etc.). The growing use in

Figure 1. (*Computer: Impact—Impact on the Work Force*) At a refinery in Rotterdam, ST 3000 smart transmitters accurately measure and control process flow, liquid level, and pressure. Courtesy of Honeywell, Inc.



the 1970s of mini- and microcomputers and the development of new applications (e.g., word processing) led to the increasing computerization of routine office work. Technical and managerial work was also affected by the introduction of applications such as computer-aided design (CAD) and management information systems (MIS). At the same time there was growing interest in the development of total computerized office systems. By the first half of the 1980s communications developments such as the local area network (LAN) were making it possible for a small but increasing number of offices to introduce such systems, in which many forms of information could be both processed and communicated from one part of the office to another.

Integrated computer-communications systems have not only appeared within the factory and the office. By the 1980s they were also beginning to link factory and office together. In a U.S. communications equipment company, for example, new designs from the research laboratory were transmitted directly to a computer in the factory, which calculated manufacturing specifications and conveyed them to minicomputers controlling the factory's automated machine tools. This type of system is called computer-integrated manufacturing (CIM).

Since computers connect workplaces with one another, they have the potential to change the spatial distribution of employment. They even make it possible for some employees to work at home using terminals linked to a central computer. In 1984 one British firm employed 850 computer-service workers, 80 percent of whom worked from home.

Computers and the quality of work. There can be no doubt that these developments have radically altered the nature of many occupations. There is

debate, however, about whether computerization improved or degraded the quality of work. Computers can have both positive and negative effects on work. For example, they may make old skills redundant but may also make new skills necessary. The impact of computers also varies according to the nature of the job and even according to the organizational structure of the factory or office concerned. Surveys in Japan have shown that the use of computerized equipment has both advantages and disadvantages in the eyes of the workers but that the costs and benefits differ depending on the type of equipment used. Electrical-assembly workers and machinists in highly automated plants were found to be more likely than their counterparts in unautomated plants to feel that their work in a computerized setting was important and that it helped them develop new skills, but they were also more likely to feel "used by the machine." In welding, however, the introduction of robots appeared to have a predominantly negative effect on the quality of work. Welders in robotized factories were more likely than others to feel that their work was unimportant, low-skilled, and machine-controlled.

As a general rule, factory automation seems to reduce the depth of skill but increase its breadth: demand for specialized manual skills in occupations such as welding, painting, and machining decreases, while the amount of nonmanual supervisory work such as checking machines and reading dials expands. When integrated computer-control systems are introduced, the workers responsible for operating the systems are usually able to obtain a broader overview of the operations of their factory than nonautomated-factory workers, who are more often involved in only one part of the productive process.

In the office the impact of computerization is rather different. Secretarial and clerical work has traditionally been more varied than factory work. One U.S. study suggests that as little as 2 percent of the average working day of general secretarial staff may be devoted to typing. The remainder is spent photocopying, carrying messages, filing, taking dictation, and so on. With the emergence of integrated office information systems, several of these functions (typing, communicating messages, filing, copying documents) can be transferred onto the computer. As a result, while efficiency increases, variety is likely to decrease. The amount of general office work is reduced, and the amount of keyboard work expands.

For managerial and technical workers computerization offers easier access to data and may reduce dependence on the help of secretarial and clerical staff. The trend is likely to increase with the development of computers that are capable of effective voice recognition. As much as 85 percent of the working time of managers and administrators is spent communicating written and spoken information. Computer networks and teleconferencing systems, which speed flows of information between offices

and reduce the need for travel to meetings, have great potential to enhance managerial productivity. As communication flows improve and management-related software standardizes various administrative tasks, patterns of decision making within the managerial hierarchy will also change. Some studies suggest that higher-level planning functions will become increasingly centralized, and certain lower-level routine decision-making tasks will be decentralized.

The changing structure of employment. Computerization has resulted in the disappearance of some jobs and the creation of others. Because computers can store human knowledge about methods of performing particular tasks and can use this information to control machinery, their introduction tends to reduce the need for direct manufacturing labor and to increase the amount of labor directed to the creation of knowledge (research, planning, design, engineering, programming, etc.). An analysis of the cost of a typical U.S. batch-manufactured product in the early 1980s showed that direct manufacturing labor costs accounted for a mere 5 percent, while engineering costs accounted for 15 percent, of the total sales price. Computer-integrated manufacturing makes it possible for companies to change the design of their products more rapidly. As a result, the share of the work force engaged in research, design, and planning is likely to increase still more in the future.

Many of the occupations whose decline can be directly attributed to the computer are skilled manual jobs, and the occupations created by computerization are mostly in the area of knowledge production. Both trends can be seen in the Japanese machine tool industry. In this industry between 1977 and 1980 production expanded and planning and research staff increased, but the number of manufacturing jobs fell by an estimated 4.8 percent. The assembly of computerized equipment often requires less labor than the production of older types of mechanical equipment. In the Federal Republic of Germany the manufacture of office and data-processing machinery grew rapidly from 1970 to 1977, but employment in the industry fell by more than twenty thousand. Although the production of computer hardware did not create much employment, software production was a major source of job creation. Between 1960 and 1985 the number of computer-programming jobs in the United States increased by about three hundred thousand.

Many people believe, therefore, that computerization is a reason for the proportional decline of manufacturing employment and the increase of information-sector employment in developed countries. By 1980 it was estimated that almost half of the U.S. work force was employed in information-related occupations and that the figure in most developed nations was more than one-third.



Figure 2. (*Computer: Impact—Impact on the Work Force*) At a large automobile plant in the United States, a computer system simplifies the engineering process. Courtesy of Honeywell, Inc.

Figure 3. (*Computer: Impact—Impact on the Work Force*) The “XZY-1 Computerized Diagnosis System of Electrocardiogram,” developed at Wuhan City, Hubei Province, People’s Republic of China, being put to clinical use in 1983. The Bettmann Archive, Inc.



But computers have not encouraged the growth of all types of information work. The development of simpler programming methods and more effective computer-communications networks reduces the amount of human labor involved in the transmission and routine processing of data. In banking, for example, the introduction of computer networks has been associated in many countries with a decline in the number of bank tellers. The spread of computerized office information systems is also likely to reduce demand for secretarial and clerical skills.

Some analysts predict that if the automation of relatively routine information-related jobs continues, the work force could become polarized between well-paid, highly educated information producers on the one hand and, on the other, people employed in the lower-paid personal service jobs that have not yet been greatly affected by automation.

Computers and unemployment. Do computers destroy more jobs than they create? In 1950 NORBERT WIENER, the originator of CYBERNETICS, prophesied that computerization would have effects far more serious than those of the Great Depression, and ever since then the idea of computer-generated unemployment has been a source of widespread concern. In the late 1970s, when computer usage multiplied manyfold, most developed countries experienced unusually high levels of unemployment, but it is not possible to trace a simple or direct connection between the two phenomena. Attempts to balance the job losses and job gains directly connected with computerization have failed to show that computers are a major source of unemployment. A study conducted in Great Britain in the first half of the 1980s suggested that only about 5 percent of job losses in

manufacturing were directly attributable to new technologies. In Japan a similar survey estimated that between 1977 and 1982 about 180,000 jobs had been lost through the introduction of robots and NC equipment, while some 176,000 new jobs had been generated in the production of computerized equipment and software.

The employment implications of computerization cannot be precisely measured because there are many indirect effects to be taken into consideration. For example, if the new computer-related jobs were well paid, the workers in these occupations would help to create new employment by spending their incomes on various goods and services. On the other hand, information-related jobs generally require skills that redundant blue-collar workers do not possess. In the absence of suitable EDUCATION policies there is a danger of a mismatch of skills, with redundant workers existing side by side with unfilled vacancies in expanding occupations. Furthermore, the impact of computers is not confined by national borders. When one country adapts to a new technology more successfully than others, it may reap the employment benefits of computerization while its trading rivals suffer job losses. This problem is of great concern to many less developed countries whose industries rely heavily on labor-intensive production techniques and who are vulnerable to competition from the highly computerized corporations of the developed world. Efficient computer communications also mean that information used in one country can be processed overseas. This again is likely to result in a concentration of job creation in information-rich countries (*see* NEW INTERNATIONAL INFORMATION ORDER).

Dire predictions of computer-generated unemploy-

ment have proved incorrect. However, computers do reduce the amount of labor needed to produce a given quantity of goods or information. In the future, unless high rates of growth prevail, this may cause a reduction in demand for human labor. Whether the result is increased LEISURE or increased unemployment will depend on the economic and social choices of individuals and societies.

See also AGENDA-SETTING.

Bibliography. Robert Blauner, *Alienation and Freedom*, Chicago and London, 1964; Harry Braverman, *Labor and Monopoly Capital*, New York and London, 1974; Tom Forester, ed., *The Information Technology Revolution*, Cambridge, Mass., 1985; Barry O. Jones, *Sleepers, Wake! Technology and the Future of Work*, New York and Melbourne, 1982; Koyō Sokushin Jigyōdan Shokugyō Kunren Kenkyū Sentā, *Mekatoronikusu Jidai no Jinzai Kaihatsu* (The Development of Human Resources in the Mechatronics Age), Tokyo, 1983; Mitchell L. Moss, ed., *Telecommunications and Productivity*, Reading, Mass., 1981; Simon Nora and Alain Minc, *L'informatisation de la société*, Paris, 1978 (The Computerization of Society, Cambridge, Mass., 1980); Organisation for Economic Co-operation and Development, *Information Activities, Electronics and Telecommunications Technologies: Impact on Employment, Growth and Trade*, Paris, 1981; Diane Werneke, *Microelectronics and Office Jobs*, Geneva, 1983.

TESSA MORRIS-SUZUKI

7. IMPACT ON THE WORLD ECONOMY

After World War II the world economy moved rapidly into increasingly dense electronic relationships in which the computer, linked with television, cable, SATELLITE, VIDEO, and other new technologies, played an increasingly prominent role. The effects of computerization and the new information technologies on the world economy were complex and uneven. Important questions raised by these effects concern the degree to which the introduction of these technologies helped bring about a more equitable balance among nations and peoples or reinforced earlier inequitable relationships. See CABLE TELEVISION; TELEVISION HISTORY.

Structure of the world economy. The introduction of computer technology occurred unevenly across the globe. An important cause of these regional variations was the complex and contradictory organization of the world economy—that is, its division into organizational and decision-making systems that affect the introduction of any new product or technology on a global scale. On the one hand there is the very visible system of nation-states. On the other there is the world business system, composed of several thousand transnational corporations, each located in more than one country and engaged in

billions of global economic transactions. This world business system has been responsible for a large and growing share of world economic activity.

In addition to the major division of the world economy into more or less sovereign political states and powerful private economic units, there are innumerable other entities, all of which affect developments in the world economy. Among these—and perhaps the most influential—are the intergovernmental agencies such as the United Nations, UNESCO, the World Health Organization, the Law of the Sea Conference, and the International Telecommunications Union (see INTERNATIONAL ORGANIZATIONS). There are also nongovernmental groups representing professional organizations and special interests such as consumers, women, labor, lawyers, and librarians. Finally, there are millions of individuals who enter into international activities such as TOURISM; these individuals constitute a diffuse but by no means negligible force in the world economy.

Since the early 1960s, when the new instrumentation began to be available on a large scale, the initiative in promoting the new equipment and processes was exercised by the transnational corporate system and, more precisely, by individual companies within that order. With the considerable assistance and encouragement of government in matters of funding research and development and promulgating supportive legal arrangements, national and international networks and communication infrastructures were created as the transnational firms installed and applied the new instrumentation and processes to their daily business on a truly global scale. As a result a huge and growing volume of data in electronic form flowed through intercontinental and national circuits, constituting the so-called transborder data flow. Its major components are records of financial transactions, production and resource information, tax and fiscal data, and personnel and individual records.

Complementing the private networks of data transmission were the global electronic connections that enabled national military systems to maintain a worldwide presence. A high-technology information industry came to be viewed not only as a basis for major industrial growth but at the same time as an essential component of military power and influence (see section 2, above).

Deregulation. A related and key development from the end of World War II on—largely an outcome of the enormously strengthened transnational business system evolving during this period—was the movement toward deregulation. Originating in the United States and extending rapidly to western Europe and elsewhere, deregulation meant the comprehensive reduction of the size and scope of publicly administered functions such as the POSTAL SERVICE, transport,

communication, health, EDUCATION, and an ever-widening number of economic activities. This process was accompanied by privatization, in which vital activities were transferred from the public sphere to private ownership and direction. Public and state-managed enterprises—PTTs (government agencies administering postal, telegraph, and TELEPHONE services), broadcasting systems, and communication facilities—were thus reduced while private electronic networks were established and strengthened. The main users of these new private networks and the information they supplied were the transnational companies and the military.

International division of labor. All of these related developments—the greatly expanded power of the transnational corporations, the development of advanced information technology, and the spread of deregulation—had important consequences for the structure of the world economy and particularly for the labor force in various countries. The economic importance and implications of the new information industries led to a long-term global rearrangement, a worldwide redistribution of industrial manufacturing, which placed serious burdens on many workers, including job loss and dislocation as a result of these larger developments. The resulting shifts constituted a new international division of labor.

It is important to note that while the new division of labor clearly resulted from many independent decisions by a large number of people, it was not a random or accidental process. It reflected the widely held view that optimal benefits occur when each nation exchanges what it produces most advantageously. Thus the most developed countries were producing electronic technology and developing processed information goods and services while the rest of the world was turning to older forms of industrialization.

Techniques such as remote sensing by satellites and complex information processing of the secured data have afforded new kinds of power on a global scale. Older mechanisms of global influence—control of capital flows, deployment of armed forces, political PERSUASION and coercion—hardly disappeared. But they were significantly supplemented by the new powers of information organization and control.

The less industrialized nations were by no means denied the new technologies. On the contrary, the installation of advanced communication technology in as many places as possible, as rapidly as possible, seemed to serve the purposes of developed and developing societies alike. But these were served differently. As exports of information hardware and information-processing services flowed out of the centers of high technology, data flowed in, were processed, and returned to the international information current as U.S. or other Western products.

In the 1980s the United States was the world's leading importer and exporter of information technology and data.

To a large extent the drives stemming from developing societies for a new economic order and a new information order were successfully diverted by the transnational corporate system. Production in conventional goods and services was transferred worldwide to sites with impoverished workers, tax exemptions, and cooperative governments, creating new centers of industrial activity in far-flung locations. At the same time information industries became central bases of economic activity in the regions that had been the first to industrialize. That a new economic order and a new information order were unfolding was clear. But the rise and diffusion of the new technologies, in ways that involved new inequities, compounded existing inequalities and generated resistance. The resistance seemed certain to persist, manifesting itself in diverse arenas (*see NEW INTERNATIONAL INFORMATION ORDER; SPECTRUM*).

The use of computers in the world economy has been and will continue to be affected by the major social movements of the times. These remain the global quest for meaningful national independence and, equally, a near-universal striving for both material improvement and greater social equity within national boundaries. The extent to which computerization is applied to the implementation of these aspirations will depend on the shape of evolving structures, national and international, in the world economy.

Future issues. The transcendent issue revolves around priorities to be assigned to the usage of the new technologies. For example, it has been taken for granted that the densest communication networks should be those between the most advanced market economies. However, another approach might be based on social need. This could lead to a very different global disposition of computerization and telecommunications facilities. The conflict is also one between private and international decision making, a conflict involving many intractable issues.

Bibliography. *Communications, Computing and Global Development* (special issue), *InterMedia* 12, nos. 4–5, 1984; Wilson P. Dizard, *The Coming Information Age*, New York, 1982; Oswald H. Ganley and Gladys D. Ganley, *To Inform or to Control: The New Communications Network*, New York, 1982; George Gerbner and Marsha Siefert, eds., *World Communications: A Handbook*, New York, 1984; Robert W. Haigh, George Gerbner, and Richard B. Byrne, eds., *Communications in the Twenty-first Century*, New York, 1981; Cees J. Hamelink, *Finance and Information*, Norwood, N.J., 1983; Intergovernmental Bureau for Informatics (IBI), publications and proceedings, Rome, 1961–; Armand Mattelart, *Multinational Corpora-*

tions and the Control of Culture: *The Ideological Apparatuses of Imperialism*, Sussex, Eng., 1979; Dan Schiller, *Telematics and Government*, Norwood, N.J., 1982; Herbert I. Schiller, *Information and the Crisis Economy*, Norwood, N.J., 1984; idem, *Who Knows: Information in the Age of the Fortune 500*, Norwood, N.J., 1981; Anthony Smith, *The Geopolitics of Information: How Western Culture Dominates the World*, New York, 1980; *Transnational Data Report (TDR)*, Vols. 1–7, Amsterdam, 1978–; United Nations Centre on Transnational Corporations, publications, New York, 1977–.

HERBERT I. SCHILLER

CONFUCIUS (ca. 551–479 B.C.E.)

Chinese philosopher whose name and ideas (or supposed ideas) have been a constant presence in Chinese communications since ancient times. His prestige has been such that his name was constantly invoked as an accepted point of reference for correct action in such diverse fields as governing, EDUCATION, the arts, and DIPLOMACY. It served as a kind of ideological continuum, a powerful unifying factor. His status has been under attack at various times but remains an extraordinary phenomenon of Chinese life. See EAST ASIA, ANCIENT.

His real name was Kong Qiu. The name Confucius is the latinized form of Kong Fuzi ("Master Kong"). He was born in the state of Lu (now Shandong Province) at a time when China was a congeries of contending feudal states. Member of a noble but impoverished clan, he received a good education and became an itinerant teacher. His fame spread as a man of learning and upright character, and disciples recorded his teachings. In response to the incessant strife and lawlessness of his time Confucius developed the concept of *ren*, the righteous way in personal conduct and social relations. He taught not a religious but an ethical code of conduct as a way to overcome the evils of society.

Confucius had a chance to put his theories into practice when at the age of fifty he was appointed the state of Lu's minister for crime. His administration apparently helped to restore order, and Lu became strong and prosperous. Later enemies brought about his dismissal, and in 496 B.C.E. Confucius again became a traveling teacher seeking a ruler who would share his ideas. Returning to Lu in retirement, he wrote commentaries on the classics until his death.

Confucianism as we know it today is the product of the development of his ideas by notable disciples such as Mencius (Meng Zi, ca. 390–ca. 305 B.C.E.) and Xun Zi (ca. 298–ca. 230 B.C.E.) and the neo-Confucianist Zhu Xi (1130–1200 C.E.). The basic texts of Confucianism are known as the Five Classics: *Yi jing* (Book of Changes), *Shu jing* (Book of History), *Shi jing* (Book of Poetry), *Li ji* (Book of Rites),



Figure 1. (*Confucius*) Confucius. Stone rubbing from a relief after a painting by Tang Dynasty artist Wu Taotzu. Courtesy, Museum of Fine Arts, Boston.

and *Chun qiu* (Spring and Autumn Annals), edited by Confucius; and the Four Books: the *Lun yu* (Analects); the *Da xue* (Great Learning); the *Zhong yong* (Doctrine of the Mean), collections of his sayings with commentaries by his disciples; and the *Meng Zi* (Book of Mencius), an exposition of Confucius's teachings by his most illustrious follower. These volumes present Confucius's philosophical, so-

cial, political, and ethical precepts. He believed the turmoil of his time could be checked if rulers provided compelling examples of worthy living and people followed the path of righteous conduct; that if right relations were not established among the basic elements of society—in families and between people and government—the basic structure of society would not be sound. The ethical teachings of Confucius stress the virtues of *ren* (benevolence, love of humankind), *yi* (integrity), *xiao* (filial piety), *li* (decorum, proper behavior), *shu* (charity), and *chung* (loyalty) and include his version of the Golden Rule: "Do not do unto others what you do not wish to be done to yourself." Mencius underscored the duty of a ruler to care for the people or risk being deposed. The facility of the immediate and later followers of Confucius in adapting his basic ideas to current needs helped to assure their long-lasting influence.

The Confucian classics were the basic texts in education in the centralized Chinese feudal empires from the third century B.C.E. to the republican revolution of 1911. Success in the imperial civil service examinations was the gateway to an official career, and success demanded proficiency in the Confucian classics. But the teachings of Confucianism proved inadequate when China was invaded by the modern, industrialized world in the mid-nineteenth century. Progressive intellectuals of the twentieth century (see ASIA, TWENTIETH CENTURY) saw exclusive reliance on the Confucian classics as a cause of the nation's decline and opened modern schools to teach science and democratic ideals.

During Mao Zedong's Cultural Revolution, Confucius was vilified as never before as a proponent of slavery, but later his statues and memorial temples were restored. While the quasi-religious veneration once accorded him has ended, the influence of his ethical teachings remains pervasive in Chinese life.

Bibliography. William T. De Bary, Wing-tsit Chan, and Burton Watson, *Sources of Chinese Tradition*, New York, 1960; Jack Chen, *Inside the Cultural Revolution*, New York, 1975; Confucius, *The Analects*, ed. by William Edward Soothill, New York (reprint of 1910 ed., Shansi), 1968; Yang Jung-kuo, ed., *Selected Articles: Criticizing Lin Piao and Confucius*, Beijing, 1974.

JACK CHEN

CONSUMER RESEARCH

Advertisers study the consumer in four ways, starting with (1) introspection, and proceeding to analysis of observed consumer behavior with (2) segmentation, (3) analysis of attitude structures, and (4) analysis of decision processes. Campaign planners do this research to assess the soundness of alternative communication strategies.

Introspection. ADVERTISING planners start with introspection because they realize that they themselves are consumers. Studies have shown that advertising executives' introspections about their own consumer behavior are more accurate predictors of actual consumer behavior than are those same executives' guesses about consumer behavior. This does not mean that introspection can be used as a total research program. It does mean, however, that introspection can provide a realistic beginning to a program of research on consumers.

Planners and researchers invoke introspection by using the product themselves and asking themselves a series of questions about their personal relationship to the product. Over and over again, creative people in advertising talk about how their own experiences trigger ideas. These kinds of experiences come from the introspection stage.

Segmentation. Effective advertising campaigns are targeted at specific population segments. Researchers look for those segments that are most likely to respond to advertising. A segment is a grouping of people defined by certain socioeconomic, demographic, psychological, or usage characteristics. Such groups may be highly homogeneous internally and quite different from other groups or segments.

Advertisers need to identify segments carefully because this allows them to allocate resources efficiently to particular campaign strategies and media. The resource allocation involves assigning particular messages to media vehicles that are known to reach certain groups or segments of consumers efficiently. It is never possible to direct a campaign to a particular audience segment with complete efficiency (i.e., reaching only people in the segment). Therefore, knowledge about the characteristics of a segment allows construction of messages that will attract that particular segment, which will then self-select the campaign's message.

It is important to distinguish between consumer segments and publics on the one hand and marketing segments on the other. Publics are large groups of people who may or may not actually buy or use the marketing offering but may affect and be affected by the communicating organization. Public sector marketing organizations and advertisers doing corporate campaigns are most concerned with publics (see PUBLIC RELATIONS).

Marketing segments are groupings of distribution organizations, such as retailers or wholesalers, that demand different types of marketing and advertising programs. Marketing segmentation almost always follows a concern with segmentation of the consumer population.

There is a wide variety of segment descriptors. Researchers segment on the basis of geographic, socioeconomic, personality, benefits, product usage, and

brand loyalty descriptors. The dilemma is that while brand loyalty segmenting is the most useful and sensitive, data relating to it are the least accessible and applicable, particularly in terms of resource allocation. On the other hand, geographic and socioeconomic data are quite accessible for campaign resource allocation purposes but less useful and sensitive in terms of actual consumer response.

There are several solutions to this dilemma. First, there are research services that give product usage and brand loyalty data by media exposure. Second, advertisers can use psychographics, a combined use of all the types of descriptors, to get a detailed insight about the type of person in the target segment (*see MOTIVATION RESEARCH*). Psychographics concentrates on the personality and benefit segment descriptors, and begins with long questionnaires asking about psychological variables such as ATTITUDES, interests, and opinions. Other types of variables are also measured to give accurate and lifelike pictures of people for communication planning. A third solution to the segmentation problem is attitude structure analysis (described below), which is used for various usage and loyalty segments.

Advertising researchers have found that segment response to advertising is critically related to three factors: motivation, ability, and opportunity. Motivation is the degree to which a consumer segment considers it important to make the right choice in the product category. This is sometimes called product category involvement. Ability is the amount of awareness and experience the consumer has with the product or service to be advertised. Opportunity relates to where consumers get their information. Print media, for instance, give more opportunity for deep processing of messages than do broadcast media such as television. When motivation, ability, and opportunity are high, consumers are likely to experience each individual advertising exposure at a deeper level.

While there are as many segmenting strategies as there are advertising campaigns, the most typical situation is characterized by three segment types: those favorable to the advertiser's message, those opposed to the message, and those who are neutral. Planners usually attempt to maintain the favorable segments, avoid those opposed, and concentrate on those with potential for favorable shift.

Attitude structure analysis. Once segments are discovered and understood in an intimate and significant way, it is important to understand how people in each segment think specifically about the problems and market offerings. At this stage advertisers want to know what is in their key prospects' minds.

Attitude structure analysis requires data on four consumer factors: (1) the product characteristics or attributes considered by the key segment to be sig-

nificant, (2) the relative importance attached to each attribute by consumer prospects, (3) perceptions of the advertised brand on each attribute, and (4) perceptions of each competitive brand on each attribute. Once these four factors are determined, it is possible to develop a matrix showing consumer perceptions.

These data can be developed first by introspection and then in an exploratory way by using focus groups of individuals from the target segment, brought together to interact and discuss the market offering. Once salient product characteristics are determined in a provisional way by focus groups, it is possible to determine perceptions more precisely by other techniques such as interview and questionnaire research, in which consumers' perceptions are determined by their ratings of the relative characteristics of various market offerings.

This research allows the advertiser at least six positioning strategies. The first strategy would be to attempt to change consumer goals and events related to the whole product class (e.g., the "frequent flyer" bonus programs offered by many airlines). With the second strategy, advertisers would attempt to make salient a product characteristic or attribute that previously was not considered by consumers (e.g., new television sets that are cable-ready or can also be used as computer monitors). The third strategy involves altering the perception of product characteristics already considered by consumers. This could be done either by increasing the importance or salience of attributes or by changing the range of acceptable product attributes (e.g., pharmaceutical products packaged in more than one way for greater consumer convenience, such as pain relievers available in various forms). The fourth strategy is the one most often used in advertising. With it, advertisers attempt to change perceptions of their market offering—usually trying to improve the perception of one or more attributes, sometimes attempting to improve perceptions of the brand in general without regard to particular attributes (often called image advertising; e.g., a brand of toothpaste that claims endorsement from a majority of dentists). The fifth possible strategy recognizes that no brand or market offering is an island unto itself. Therefore, this strategy is an attempt to change perceptions of competing brands. Although all strategies are formed in relation to competition, this one most specifically addresses that issue (e.g., by including tables comparing products and their features, companies and the services they offer, etc.). Finally, when advertisers use the sixth possible strategy they attempt to change the way consumers use their perceptions to make decisions about products and brands. For instance, if the advertiser finds that the product is strong on one important attribute but relatively weak on others, the advertising could suggest that consumers make de-

decisions on only that attribute rather than considering all attributes (e.g., trying to sell a car on engine power alone, without mention of cost, safety, energy efficiency, and other features).

Consumer decision process analysis. Once advertisers know their target segments and the perceptions and preferences held by those segments, they can begin to look at the steps consumers go through to make purchase and use decisions for the product, service, or social issue of concern.

The consumer decision process for any advertising situation can be determined by any combination of introspection, archival searches of secondary data (see DATA BASE), exploratory research with focus groups, questionnaire research, and computer simulation. Advertisers usually do not have to do extensive research on decision processes, because virtually all consumers go through four steps in a typical decision process; all occur at some time in a consumer's experience with each product, service, or social issue in question. The four common steps are developing need, searching for and comparing alternatives, purchasing, and the postpurchase stage. Advertising is done differently depending on how consumers go through these stages. In some situations—such as buying a home or electronic equipment or making an industrial purchase—consumers consider all four stages quite thoroughly. In other situations, when consumers are making an infrequent but economically unimportant decision, they go through all four stages but not with great intensity. In still other situations the need-development, search, and postpurchase activities are almost nonexistent, and repeated purchases are made almost automatically.

It is possible for the entire target segment to be at a particular stage in the decision process. For new products or products that are new to a segment, for instance, the need-development part of the decision process is most important, and advertising to consumers is done accordingly. For more mature products and consumers with more experience, the stage of searching for and comparing alternatives is most important, and advertising that positions market offerings among competition on the basis of attributes is indicated. When the product battle is in the store or at the sales call, the act of purchasing is most important, and advertising can emphasize prices, specific alternatives, places where the brand can be purchased, and the act of purchasing itself. For many advertising situations the postpurchase stage, in which consumer satisfaction and communication to other consumers about the product are determined, is extremely important. The nature of advertising for this type of situation is to support and augment consumer-use experiences or to suggest ways in which consumers can communicate brand benefits to other

consumers—thereby extending the effectiveness of the advertising campaign.

See also COMMERCIALS; MASS MEDIA EFFECTS; OPINION MEASUREMENT.

Bibliography. Leo Bogart, *Strategy in Advertising*, 2d ed., Chicago, 1985; Harold H. Kassarian and Thomas S. Robertson, *Perspectives in Consumer Behavior*, 3d ed., Glenview, Ill., 1981; Charles Ramond, *Advertising Research: The State of the Art*, New York, 1976; Michael L. Ray, *Advertising and Communication Management*, Englewood Cliffs, N.J., 1982; Leon G. Shiffman and Leslie Lazar Kanuk, *Consumer Behavior*, 2d ed., Englewood Cliffs, N.J., 1983.

MICHAEL L. RAY

CONTENT ANALYSIS

Content analysis is indigenous to communication research and is potentially one of the most important research techniques in the social sciences. It seeks to analyze data within a specific context in view of the meanings someone—a group or a culture—attributes to them. Communications, messages, and symbols differ from observable events, things, properties, or people in that they inform about something other than themselves; they reveal some properties of their distant producers or carriers, and they have cognitive consequences for their senders, their receivers, and the institutions in which their exchange is embedded. Whereas most social research techniques are concerned with observing stimuli and responses, describing manifest behaviors, differentiating individual characteristics, quantifying social conditions and testing hypotheses relating these, content analysis goes outside the immediately observable physical vehicles of communication and relies on their symbolic qualities to trace the antecedents, correlates, or consequences of communications, thus rendering the (unobserved) context of data analyzable. The methodologically critical requirement of any content analysis is to justify the inferential step this involves.

Definition. Formally, content analysis is a research technique for making replicable and valid inferences from data to their context. This definition encompasses those of Bernard Berelson, which equates content analysis with the scientific "description of the . . . content of communication," and of HAROLD D. LASSWELL, which emphasizes the quantification of the "what" that messages communicate. Ole R. Holsti adds such antecedents as the "who" (the source), the "why" (the encoding process), the "how" (the channel), and the consequences or "effects" they have "on whom." Although conventional conceptions of content (what) and communication contexts (who says it to whom) are common in content analy-

sis, the formal definition encompasses other communicative circumstances and contexts, such as psychoanalytical (psychological conditions that explain a particular statement), institutional (socio-economic interests that underlie a particular television program), and cultural (functions that particular rituals serve).

Data for content analysis. The most obvious sources of data appropriate for content analysis are texts to which meanings are conventionally attributed: verbal discourse, written documents, and visual representations (*see* MEANING). The mass media have been the most prominent source, and the literature is dominated by content analyses of newspapers, magazines, books, RADIO broadcasts, films, comics, and television programming. However, the technique is increasingly applied to data that are less public: personal letters, children's talk, disarmament negotiations, witness accounts in courts, audiovisual records of therapeutic sessions, answers to open-ended interview questions, and computer conferences. Data that are meaningful only to small groups of experts are also considered: postage STAMPS, motifs on ancient pottery, speech disturbances, the wear and tear of books, and dreams. Anything that occurs in sufficient numbers and has reasonably stable meanings for a specific group of people may be subjected to content analysis.

Uses of Content Analysis

Content analysis rarely aims at a literal description of communications content. Examples of exceptions are efforts to determine whether a radio station used obscene language in its broadcasts or to establish the exact phrasing of a politician's campaign commitments. The ability to support inferences that go beyond the unaided understanding of a text is largely due to the systematic treatment of content analysis data. Ordinary readers (including literary scholars) tend to change their perspective as they read through large volumes of material and to be selective in support of their favored hypotheses. Content analysis assures not only that all units of analysis receive equal treatment, whether they are entered at the beginning or at the end of an analysis but also that the process is objective in that it does not matter who performs the analysis or where and when. Moreover, content analysis allows researchers to establish their own context for inquiry, thus opening the door to a rich repertoire of social-scientific constructs by which texts may become meaningful in ways that a culture may not be aware of. Both features enable the content analyst to provide aggregate accounts of inferences from large bodies of data that reveal trends, patterns, and differences no longer obvious to the untrained individual.

Studies of media content. Probably the most widespread use of content analysis is to infer the importance writers, producers, media, or even whole cultures assign to particular subject-matter categories from the frequency or volumes with which such subject matter is mentioned. Early examples are analyses of how the attention by newspapers to particular news categories has changed over time, how advertisements intrude into the coverage of religious matters, and how SPORTS and crime have taken over space from the cultural sphere. Others sought to explain differences among newspapers' attention in terms of ethnicity, readership characteristics, economics, and so on. Many of these studies are motivated by the feeling that journalistic standards are inadequately applied. For example, concerns for fairness are implied in numerous content analyses that aim to show the inequality of the coverage of the two (or more) sides of a public controversy, the imbalance in the favorable and unfavorable treatment of an issue, public figure, or foreign country.

The attention paid to particular phenomena, ideas, or ATTITUDES is the target of many social research efforts. An early content analysis showed how the image of popular heroes in MAGAZINE fiction had changed over a forty-year period from merchant-entrepreneurs to entertainers. Similarly, the images of teachers, scientists, police officers, and important politicians have been studied comparatively, in different media, and over time. A worldwide content analysis of the POLITICAL SYMBOLS in the prestige papers of several countries attempted to discern structural changes in governments and to predict revolutions. Analyses of the demographic, socio-economic, ethnic, and professional characteristics of the population of television characters yielded considerable biases when compared with corresponding audience characteristics. Longitudinal studies of the kind, magnitude, and frequency of television VIOLENCE, attitudes toward war, the role women assume in popular serials, and arguments used to sell products or services have provided a basis for cultural criticism and have made the public aware of how the mass media may create particular beliefs or reinforce existing prejudices. Content analyses of news sources and references to foreign countries in various national media have demonstrated considerable imbalances in international news flow and attention. Systems for monitoring a corporation's symbolic environment by content analyzing newspaper clippings on issues and public attitudes of interest to that corporation have aided experiments in public relations and signaled significant changes in product perception, corporate image, state of the competition, and so forth.

Evidence provided by content analysis has been presented in U.S. courts in cases of plagiarism and COPYRIGHT violations and in a famous case involving

the identity of foreign news bureaus operating in the U.S. Inferences regarding the latter were based on various tests revealing privileged access to information, consistency with stated (foreign) PROPAGANDA aims, and deviations from neutral news sources.

Intelligence gathering and political studies. A government's knowledge about political developments in foreign countries often relies on communications in the form of diplomatic correspondence, foreign broadcasts, journalistic accounts in the domestic press, or speeches made by political leaders not necessarily intended to reveal these developments. Although political analysts typically do not take the time to codify their methods of drawing inferences from such data, there are several examples in which content analysis has provided important insights. Speeches by Soviet Politburo members delivered on the occasion of Joseph Stalin's birthday revealed the power structure within the Politburo and shed light on the anticipated succession to power (substantiated after Stalin's death). During World War II inferences about the war mood in Germany and changes in the relationships between Axis countries were based on systematically monitored domestic broadcasts. Similarly, the speeches of JOSEPH GOEBBELS, intended to boost German morale and prepare the population for forthcoming events, were successfully used to extract military intelligence. Content analyses to monitor a country's compliance with strategic arms limitation agreements have been proposed. Content analyses of communications exchanged on the eve of World War I, during the Cuban Missile Crisis (1962), and in the Sino-Soviet conflict (late 1950s) have employed interactional constructs, viewing the diplomatic and public statements made by leaders of countries in conflict as stimulus-response sequences.

Beyond these uses in politics, content analyses have shed light on the kind of values expressed and attitudes held on particular issues by candidates for political offices, and how these change in response to particular circumstances and with the kind of audiences addressed. Cross-national comparative analyses revealed differences in leadership values and elite aspirations, and studies of party platforms, British crown speeches, and Soviet May Day slogans established trends of interest to political scientists. Early efforts to detect propaganda techniques and to identify the "propagandists" thought to use these techniques to undermine rational judgments might be mentioned here as well.

Social sciences and literature. Much of the determination of individual psychology rests on verbal responses to interview questions, taped psychoanalytic sessions, diaries, essays, and letters (see DIARY; LETTER). The search for patterns of speech that would indicate particular psychopathologies is widespread. Content analysis is virtually built into projective tests,

in which subjects give verbal responses to standardized stimuli that are then categorized and counted. Content analysis is also used to infer various psychological states of a speaker, such as the level of anxiety from the frequency of a speaker's speech disturbances (see SPEECH ANXIETY), or a speaker's idiosyncratic worldview from the kind of logical errors made during arguments. The kind of construct underlying the latter inferences has been applied to suicide notes, talk by alcoholics, and speeches by historical figures. Personal letters are similarly analyzed to reconstruct the individual dynamics and personality of the writer. Verbal records of dreams are a similar source of insights that content analysis opens to systematic inquiry.

In EDUCATION content analysis has been used to analyze textbooks for the sexual, racial, and national prejudices they contain, including how the depiction of wars differs in the history books of former enemies. An important educational use of content analysis is to infer the readability and reading interest of a text from the kinds of words, grammatical constructions, punctuation, and so on used. See READING; TEXTBOOK.

A natural candidate for content analysis is literature. The construction of concordances and the analysis of literary metaphors, symbols, themes, figures of expression, styles, GENRE differences, and intended audiences all fall into the domain of content analysis but are rarely so called. An interesting exception is the statistical identification of the unknown author of a literary work, successfully accomplished in the case of the medieval text *De Imitatione Christi*, several unsigned *Federalist* papers, and the differentiation of sections of a text written by different authors. The establishment of literary influences might be mentioned here as well as efforts to date documents by an analysis of WRITING styles and contents, attempts to infer achievement imagery in Greek literary works, and searches for themes that differentiate best-sellers from other novels (see STYLE, LITERARY).

Content analysis may be an integral part of a larger social research effort. For example, to minimize interviewer biases, open-ended answers to interview questions are often subjected to content analysis in order to obtain frequency distributions, scales, indexes, or variables that can then be correlated with directly measurable interviewee characteristics. Experiments with small (problem-solving, conflict simulation, or therapeutic) groups employ content analyses to differentiate among kinds of verbal interactions, to quantify the contributions made by members, and to conceptualize the role they assume in directing the emergence of social structures that may become explainable in these terms. MASS MEDIA EFFECTS have been studied by correlating content analysis measures of fictional television violence with estimates of ac-

tual violence obtained from heavy and light viewers.

Content analysis may also parallel other research techniques and check or shed light on the validity of either's findings. For example, a comparison of the actual crime statistics in a U.S. city, a poll of residents' concern about violence in that city, and a content analysis of the crime coverage in the local newspapers showed significant correlations only between the latter two, suggesting that they both indicate similar phenomena that are only marginally related to the "facts." A content analysis of essays written by students yielded findings substantially similar to those obtained from attitudinal questionnaires filled out by the same students. Such parallels enhance the analysts' confidence in the validity of their findings and justify their substitutability. On the other hand, an effort to find a strong correlation between various ways of counting references to U.S. presidents in a political science text, commonly accepted as a measure of attention or importance, and rank orders of the significance of these presidents provided by the author of that text failed to reach acceptable levels. This speaks against the unreflected use of frequency measures and points to the importance of establishing the validity of any content analysis.

Procedures and Their Criteria

Content analyses commonly contain six steps that define the technique procedurally.

Design. A conceptual phase during which analysts define their *context*, what they wish to know and are unable to observe directly; explore the source of relevant data that either are or may become avail-

able; and adopt an analytical construct that formalizes the knowledge available about the data-context relationship, thereby justifying the inferential step involved in going from one to the other. These three principal features constitute the framework for analysis (see Figure 1). Besides delineating the empirical procedures to be employed, the design should also spell out the observational conditions under which the inferences made could be considered valid, in the sense of representing what they claim to represent.

Unitizing. The phase of defining and ultimately identifying units of analysis in the volume of available data. *Sampling units* make possible the drawing of a statistically representative sample from a population of potentially available data: issues of a newspaper, whole books, television episodes, fictional characters, essays, advertisements. *Recording units* are regarded as having meanings independent of one another: references to events, individuals, or countries; evaluative assertions; propositions; themes.

Sampling. While the process of drawing representative samples is not indigenous to content analysis, there is the need (1) to undo the statistical biases inherent in much of the symbolic material analyzed (e.g., the attitudes of important people are expressed more frequently in the mass media than are those of the larger population) and (2) to ensure that the often conditional hierarchy of chosen sampling units (e.g., publications—newspaper dates—page numbers—articles—paragraphs—words) becomes representative of the organization of the symbolic phenomena under investigation.

Coding. The step of describing the recording units or classifying them in terms of the categories of the

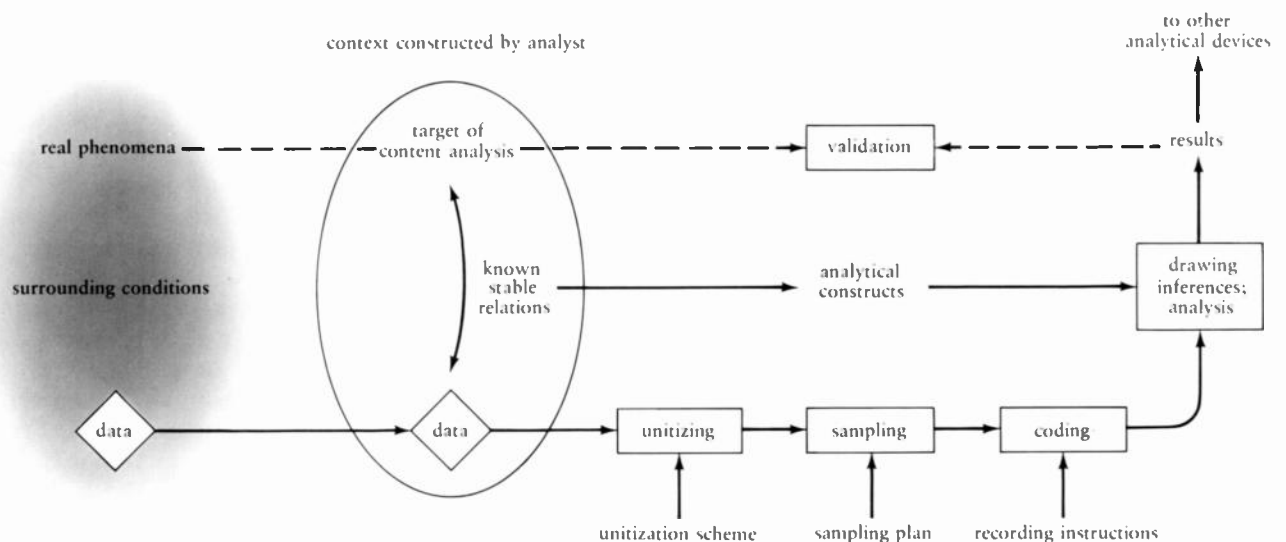


Figure 1. (Content Analysis) The content analysis research process. Diagram by Klaus Krippendorff.

analytical constructs chosen. This step replicates an elementary notion of meaning and can be accomplished either by explicit instructions to trained human coders or by computer coding. The two evaluative criteria, reliability as measured by intercoder agreement and relevance or meaningfulness, are often at odds. Human coders tend to be unreliable but good at interpreting semantically complex texts (see INTERPRETATION). Computers have no problems with reliability but must be programmed to simulate much of a native speaker's linguistic competence. Notwithstanding major advances in the use of computers, their application usually sacrifices the criterion of meaningfulness in favor of reliability and speed.

Drawing inferences. The most important phase in a content analysis. It applies the stable knowledge about how the variable accounts of coded data are related to the phenomena the researcher wants to know about. The inferential step involved is rarely obvious. How the frequency of references indicates the attention a source pays to what it refers to, which distinct literary style uniquely identifies a particular author, and the way preferences for certain verbal attributions manifest speaker or listener attitudes need to be established by independent means. Analytical constructs of this kind need not be so simple either. In extracting military intelligence from enemy broadcasts, analysts employ elaborate "maps" of known relationships involving the role of and conflicts within the national leadership and among the population addressed. Similarly, inferences about individuals' worldviews from their idiosyncratic styles of reasoning involve several levels, each employing elaborate psychological constructs of their cognition.

Validation. The desideratum of any research effort. However, validation of content analysis results is limited by the intention of the technique to infer what cannot be observed directly and for which validating evidence is not readily available. For example, why would one want to extract military intelligence from enemy propaganda if the adversary's planned activities were already known, why would one want to infer media attention if attention were measurable directly, or why would one want to infer Kennedy's changing attitudes during the Cuban Missile Crisis from his communications if it were possible to interview him? Nevertheless, content analysis should not be undertaken without at least the possibility of bringing validating evidence to bear on its findings.

Limitations

Despite its claim to generality, content analysis has some inherent limitations. The first stems from its commitment to scientific decision making. Statistically significant findings require many units of analysis, and seeking such findings amounts to a commitment to be quantitative. This discourages the

analysis of unique communications or connected (nondecomposable) discourses characteristic of literary, historical, or psychoanalytic inquiries.

The second limitation stems from the replicability requirement. This implies fixed and observer-independent categories and procedures that must be codified without reference to the analyst and the material being analyzed. Computer content analysis is one of its results. It favors the use of data in contexts that entail stable and unambiguous interpretations and leaves little room for those whose meanings evolve in the process of communication and in ways characteristic of the different communicators or social groups involved. Such ambiguities are frequent in political and private discourses.

The expectation to contribute to social theory leads to the third limitation. If categories are obtained from the very material being analyzed, findings are not generalizable much beyond the given data. If they are derived from a general theory, findings tend to ignore much of the symbolic richness and uniqueness of the data in hand. The compromises content analysis must seek are rarely easy ones.

See also AGENDA-SETTING; COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT; MASS COMMUNICATIONS RESEARCH.

Bibliography. Bernard Berelson, *Content Analysis in Communication Research*, Glencoe, Ill., 1952, reprint New York, 1971; George Gerbner, Ole R. Holsti, Klaus Krippendorff, William J. Paisley, and Philip J. Stone, *The Analysis of Communication Content: Developments in Scientific Theories and Computer Techniques*, New York, 1969; Ole R. Holsti, *Content Analysis for the Social Sciences and Humanities*, Reading, Mass., 1969; Klaus Krippendorff, *Content Analysis: An Introduction to Its Methodology*, Beverly Hills, Calif., 1980; Harold D. Lasswell, Nathan Leites et al., eds., *Language of Politics*, Cambridge, Mass., 1949; Harold D. Lasswell, Daniel Lerner, and Ithiel de Sola Pool, *The Comparative Study of Symbols*, Stanford, Calif., 1952; Klaus Merten, *Inhaltsanalyse*, Opladen, FRG, 1983.

KLAUS KRIPPENDORFF

CONVERSATION

Most human communication takes place in face-to-face informal settings in what may be described loosely as conversational exchanges. In these exchanges the linguistic, paralinguistic, and kinesic (see KINESICS) channels are all involved and interlinked simultaneously. This form of human communication is quite obviously basic. It is the context in which children acquire their first languages (see LANGUAGE; LANGUAGE ACQUISITION), and until the comparatively recent developments of widespread LITERACY and electronic communications it was almost the

only fundamental kind of human verbal communication found in all societies.

Despite this self-evident primacy, conversation has been studied intensively only in very recent years, this study having been facilitated by advances in recording equipment. This research has revealed that, in contrast to earlier views, conversation is not a relatively unstructured form of human interaction. Conversational exchanges are subject to extremely complex procedures that regulate when and how speaking is done and how particular contributions—verbal or nonverbal—will be understood (which depends on their placement with respect to earlier contributions).

Organization of conversation. We owe our knowledge of the structural properties of conversation largely to a group of sociologists—Harvey Sacks, Emanuel Schegloff, Gail Jefferson, and others—who have undertaken intensive qualitative study of taped natural talk. Some of their basic findings can be briefly summarized.

A crucial property of conversation is that it is fundamentally interactional: how a conversation develops is determined jointly rather than by any one party to it, and this holds at almost every level. For example, a pause is something that can only be produced if all parties to a conversation desist from speaking; it is not the product of a single speaker. By the same token, an utterance that is produced without overlap (i.e., simultaneous SPEECH from another) is to that extent jointly arranged.

This coordination is achieved through the use of procedures that regulate verbal interaction as it unfolds. An obvious but fundamental characteristic of conversation is rapid turn taking, that is, speech by one party accompanied by silence from others, with frequent transition of parties between speaking and nonspeaking roles. This repetitive transition is often achieved with split-second timing and little overlap; typically no greater pauses occur between speakers than are found within a single speaker's utterance. Such transitions might be effected in a number of ways, for example, by a speaker producing as long an utterance as desired followed by an "over and out" signal, as on a field radio. Although some investigators have claimed to discover subtle verbal or nonverbal signals with this function, such signals do not seem to be essential to coordinated turn transitions. Rather, turn taking seems to be organized on the following rule-governed basis: the current speaker has the right to finish a minimal linguistic unit (clause or other prosodically defined unit), at the end of which any party may choose to speak, first speaker winning rights to that next unit, which in turn is subject at its completion to competitive turns by others. This predicts, correctly, that overlap will occur typically at transition points and will be

caused by competitive first starts. Or overlap can occur just before the intended transition point at which a speaker has appended a tag question, name, or other unpredictable addition. When, because of competitive simultaneous starts, two speakers find themselves speaking simultaneously, there seem to be methods for resolving who should continue to speak. These methods largely involve indicating a degree of determination to continue, signaled, for example, by amplitude increase and syllable lengthening.

Despite ethnographic reports to the contrary, such a system of turn taking in informal talk appears to be universal. Claims that in other cultures people generally speak simultaneously, and thus do not abide by any turn-taking arrangements, seem to be based on impression rather than on careful analysis. For example, quarrels typically involve simultaneous speech, but this is produced more by competitive starts at turn-transition points (as allowed by the hypothesized rules) than by sheer disrespect for the current speaker's right to a turn.

A speaker may use his or her turn to constrain the possibilities of the next speaker's turn by, for example, selecting the next speaker by name or using one of a set of paired turn types, like greetings or question-answer pairs. Known as "adjacency pairs" because each part is normally (but not invariably) produced one after the other, these turn types produce a minimal conversational "sequence" of (at least) two turns, in which the first is so produced to elicit the second and the second so designed to address the first. However, they can also serve to structure considerable portions of conversation, as in the following:

- | | | |
|----|----------------------------------|--------------|
| A: | Where's the nearest post office? | (Question 1) |
| B: | Well, you know the town hall? | (Question 2) |
| A: | Yes. | (Answer 2) |
| B: | Just down from there. | (Answer 1) |

Note that although the answer to the first question is not adjacent to it, the second question is interpreted as preparatory to the still relevant answer. Adjacency pairs are also utilized to coordinate joint actions, as in the exchange of greetings and partings that achieve orderly initiation and termination of conversations.

Responses to adjacency pairs may be delayed (as in the above example), but they are nevertheless due. Nor are all possible responses equal in kind. For example, an invitation acceptance is usually immediate, brief, and simple ("Sure, we'd love to come"), whereas a rejection is likely to be hesitant and hedged with excuses ("We'd love to, but . . ."). Responses that are simple and direct have been termed "preferred," in the sense that the asymmetry of response types favors that kind of response. A small pause (or

other sign of hesitation) after an invitation, offer, or request will be interpreted as a preface to the "dis-preferred" or rejecting action, providing a powerful SEMIOTICS of pauses.

There are other kinds of recurrent sequences. For example, requests or invitations (themselves first parts of adjacency pairs) are often preceded by "pre-sequences":

- A: Are you busy? (Pre-request)
 B: Not too bad, why? ("Go ahead")
 A: Could you possibly help me move this filing cabinet?
 B: Sure

Pre-sequences typically check whether the forthcoming request or invitation is likely to meet with success, a motivation apparently being to avoid the dis-preferred response (a refusal). One kind of sequence is basic to the maintenance of effective communication, namely, a procedure for indicating problems of hearing and understanding and for effecting resolution of those problems. Known as the system for "repair," it often engenders sequences such as:

- A: John's got in Amstrad.
 B: He's got a what?
 A: An Amstrad computer.

Here a specific syntactic pattern ("echo-question") is used by a puzzled recipient to indicate the word causing the communication problem and to request an amplification or correction. In this example B has initiated (requested) repair of the preceding turn in the following turn, requiring the speaker of the problem word to explain. Often, however, the speaker may detect (e.g., from the recipient's pause) that what he or she has said so far is unclear, so that the speaker may continue the turn and without explicit prompting deliver a correction or amplification. This "self-initiated self-repair" is in fact the preferred option; the recipient may delay a response specifically to invite such a self-correction.

These kinds of procedures, which operate across a few turns at a time and which may be invoked at almost any point, are the essential characteristics of conversational exchanges. But such procedures occur selectively outside conversations proper—even, for example, in courtroom interrogation (but not in sermons, lectures, or other forms of monologue). Mostly these other kinds of exchanges are characterized partly by a selection from the wide range of procedures available in conversation; British or U.S. courtroom testimony, for example, is restricted almost entirely to question-answer adjacency pairs. They may, however, involve systems of turn taking alien to conversation, as when speakers' turns are allocated in advance by an agenda or selected by a chairperson in a committee. In either case our understanding of these other kinds of talk exchange is greatly enhanced by

attending to the selection or alteration of conversational procedures.

In addition to these conversational procedures (which appear to have considerable cross-cultural generality) conversations, as opposed to other kinds of speech exchange, have recognizable (and here culture-specific) overall structures. Conversations have conventional opening sequences (of the "Hello, how are you" sort) and closing sequences and, at least in the case of telephone calls, an expectation that the overt reason for engaging in talk will be produced immediately after the opening sequence in what is recognizably "first topic" position. Thus we can say that a conversation is characterized not only by employing conversational procedures (most forms of talk use at least some of those) but also by conforming to certain expectations about how the whole exchange will be structured.

Inferential basis for conversational coherence. In addition to the organizational procedures that may be seen to guide conversational interaction there are other ways of analyzing conversational process. One mode of analysis, derived from speech act theory (see SEMANTICS), seeks to explain the sense of cohesion in conversation in terms of an underlying level of action: each utterance, or turn, performs an action (e.g., the utterance of an interrogative sentence performs the act of requesting the addressee to supply the indicated information), to which the next utterance responds by performing the relevant next action (e.g., the utterance of an assertion, which performs the action of supplying the questioner with the requested information). Thus cohesion lies in the rule-governed sequence of interlocking actions, each expressed linguistically or nonlinguistically. Such an approach has been promoted by both sociolinguists and workers in ARTIFICIAL INTELLIGENCE, but it has numerous difficulties. It is hard to specify by invariant rule which utterances perform which actions and which action sequences are allowable.

Another related approach seeks the cohesion in conversation in unstated inferential links. English philosopher H. Paul Grice has proposed that conversation is governed by the presumption of cooperation, which gives rise to numerous unstated, nonlogical, but nevertheless reasonable inferences. For example, if A asks, "What time is it?" and B responds, "Well, the newspaper has just been delivered," we interpret the response as a connected answer to the question even though superficially it appears unrelated; what transforms the response into an answer is the inference that "the time is just after whenever the newspaper is normally delivered," but this inference is only warranted on the assumption that B is being cooperative and not, for example, introducing another topic.

Grice's ideas have stimulated much work on infer-

ence in conversation, and this has shown the great extent to which our understanding of discourse is based on inferential principles. Meanwhile in LINGUISTICS and artificial intelligence other ideas are being explored about how these inferences are made and how, for example, pronouns are linked to the nouns for which they do duty. It is to be hoped that future work will be able to synthesize the best in these various traditions.

See also INTERACTION, FACE-TO-FACE.

Bibliography. J. Maxwell Atkinson and John Heritage, eds., *Structures of Social Action: Studies in Conversation Analysis*, Cambridge, 1984; Geoffrey Beattie, *Talk: An Analysis of Speech and Non-verbal Behaviour in Conversation*, Milton Keynes, Eng., 1983; Michael Brady and Robert C. Berwick, eds., *Computational Models of Discourse*, Cambridge, Mass., 1983; Teun A. van Dijk, ed., *Handbook of Discourse Analysis*, 4 vols., New York, 1985; Charles Goodwin, *Conversational Organization: Interaction between Speakers and Hearers*, New York, 1981; John Gumperz, *Discourse Strategies*, Cambridge, 1982; William Labov and David Fanshel, *Therapeutic Discourse: Psychotherapy as Conversation*, New York, 1977; Stephen C. Levinson, *Pragmatics*, Cambridge, 1983; George Psathas, ed., *Everyday Language: Studies in Ethnomethodology*, New York, 1979; Jim Schenkein, ed., *Studies in the Organization of Conversational Interaction*, New York, 1978; Dan Sperber and Deirdre Wilson, *Relevance: Communication and Cognition*, Cambridge, Mass., 1986.

STEPHEN C. LEVINSON

COOLEY, CHARLES HORTON (1864–1929)

U.S. sociologist whose work has significantly influenced the study of communications. Born in Ann Arbor, Michigan, Charles Horton Cooley spent his entire academic career at the University of Michigan in the Department of Economics but early on shifted his research and teaching interests to sociology.

Some authors, like Edward Jandy and Robert Cooley Angell (the latter Cooley's relative and disciple), stress the intimate relationship between Cooley's early years and the nature of his later scholarly work. Apparently ill of digestive maladies for long periods while growing up, Cooley came to appreciate his mind as his most important possession. He treasured the mental abilities of the human species and gave the mind a central place in his work. There are two fundamental propositions of Cooley's thought: the mind is social, and society is a construct of individual minds. The first proposition is now taken almost for granted, especially by sociologists and social psychologists, in the explanation of individual human development. Nevertheless, it should be stressed that Cooley's work, together with that of WILLIAM JAMES, JOHN DEWEY, and GEORGE HERBERT MEAD, laid the

foundations for such an explanation. On the other hand, the proposition that society is a collective mental construct was controversial from the beginning. Mead, for instance, disagreed with Cooley. According to Cooley, the ideas we develop about others are the real fabric of society. But Mead affirmed the objective existence of the social self independent of the individual's perception or idea of it.

The originality of Cooley's work is evident in his studies of the self and the group, especially his coinage of the terms *looking-glass self* and *primary group*. He built his theory of self-development by observing his own three children, but he was greatly influenced by James's explanation of the social self in *Principles of Psychology* (1890). Cooley was also in debt to Dewey's activism and James Mark Baldwin's dialectics of personal growth in developing his own explanation of the group as an organic whole that behaves in a tentative fashion. Cooley's concepts of the self and the group have repeatedly contributed to the study of human communication. The first concept, the self, has been instrumental to our understanding of LANGUAGE ACQUISITION and use and the emergence of consciousness, reflective mental skills, and empathy. Cooley's discovery of the primary group has influenced the study of how information flows through society. For instance, the concept of the primary group helped communication scholars to eliminate the notion—or, for some authors, the myth—of the mass media as all-powerful. The "sociological argument," as Elihu Katz has named it, explains that the information originating from the media passes through different steps and gets filtered and reinterpreted before it reaches the target audience. The information passes through the social milieu that surrounds the individual receiver: the group.

This explanation helped bring about the conception of the mass media's limited effects (see MASS MEDIA EFFECTS), based on the work of KURT LEWIN regarding the DIFFUSION of new habits. Another important theoretical development in mass communication studies grounded in the notion of primary groups is the anchoring of people's ATTITUDES (political and otherwise) in their respective reference groups. This research tradition originated in social psychology with the Bennington studies carried out by Theodore Newcomb and later evolved into MASS COMMUNICATIONS RESEARCH, especially in the study of the effects of persuasive messages (see PERSUASION).

Cooley was also directly interested in communication as a process of both personal and social development. In the second part of his *Social Organization* (1909) he devoted five chapters to the analysis of the nature and importance of communication in society. For Cooley communication was "the mechanism through which human relations exist and develop—

all the symbols of the mind, together with the means of conveying them through space and preserving them in time." The study of communication was to a very large extent the study of the integration of society and its development, which paralleled the integration and development of the individual. At the societal level the integration of the social whole occurred in terms of WRITING, PRINTING, TELEGRAPHY, the TELEPHONE, and "whatever else may be the latest achievement in the conquest of space and time." At the individual level attitudes, FACIAL EXPRESSION, GESTURE, and voice provided the means to come into contact with others and to develop oneself.

Cooley's work can be viewed as the mirror image of Mead's. Cooley tried to demonstrate that the explanation of the emergence of the self—that is, the point at which the individual and society meet—leads us to the conception of society as the larger mind; Mead concluded that the emergence of the self bears witness to the fact that the nature of the human mind incorporates what society is, transforming the individual into a social whole. As a U.S. scholar writing at the end of the nineteenth century and the beginning of the twentieth, Cooley also continued the pragmatic interest in MEANING started by CHARLES S. PEIRCE and joined in the optimistic belief that society is a vital means to attaining progress and democracy.

See also DURKHEIM, ÉMILE; FOUCAULT, MICHEL; PIAGET, JEAN; VYGOTSKY, LEV.

Bibliography. Charles Horton Cooley, *Human Nature and the Social Order* (1902), rev. ed., New York and Chicago, 1922; idem, *Social Organization: A Study of the Larger Mind*, New York, 1909, reprint 1962; idem, *Social Process*, New York, 1918.

ABRAHAM NOSNIK

COPYRIGHT

This entry, tracing the development of copyright from ancient to modern times, comprises three articles:

1. The Evolution of Authorship Rights
2. International Arena
3. Challenge of the Communications Revolution

1. THE EVOLUTION OF AUTHORSHIP RIGHTS

Copyright is the term used in English-speaking countries to denote the legal protection of rights in creative works of AUTHORSHIP. *Copyright law* usually refers to the body of statutes, regulations, and jurisprudence defining the beneficiaries, subject matter, scope, conditions, and duration of protection for works of authorship within a particular country; a copyright is the aggregate of rights that the owner of a work enjoys under the country's copyright law.

Historically copyright in this sense can be dated from enactment in England of the first copyright statute in the early eighteenth century.

But copyright is much more than a statute or a body of positive law. The concept of copyright is better expressed by the terms used in some other languages (*le droit d'auteur*, *Urheberrecht*, *el derecho del autor*, etc.): the rights that authors can rely on to control the exploitation of their works, to be remunerated fairly for the uses to which their works are put, and to be protected against piracy and plagiarism. An important adjunct to copyright in some countries is the so-called moral right, a personal right of authors to be identified with their works and to prevent distortion or mutilation of the works. Considered in its broadest sense—as the various means societies employ for encouraging and rewarding creative expression—copyright can be traced back to the beginnings of human history.

Ancient Beginnings

Long before the invention of alphabets (*see* ALPHABET) and written records, something resembling a copyright system existed in primitive societies. Individuals in patriarchal or tribal communities were encouraged to give expression to their creative thoughts for the benefit or glorification of their leaders or social units and were honored and perhaps rewarded for their contributions. A form of proprietary control over the use of creative works was exercised. The cultural expressions of a particular society—folktales and songs, magical teachings, tribal myths and legends, carvings, paintings, ceremonial dances and other rituals—were tightly controlled by the rulers of the tribal unit and were divulged only under strict conditions.

The discovery of WRITING and the evolution of WRITING MATERIALS made it possible to give material form to creative expression, to preserve and duplicate it, and to disseminate it to others outside one's presence. These developments gradually changed the nature and conditions of authorship. Classes of authors and scribes emerged; authors' works began to be collected and consulted in libraries, and in a few cases they were even reproduced and distributed in copies. For the most part authors did their work under tight authoritarian control and were remunerated as in any other master-servant relationship of the time. There were, however, some examples of a patronage system. During the reign of Ramses II (1304–1237 B.C.E.) in Egypt a number of philosophers, poets, and scholars were assembled at the royal court and were handsomely honored and rewarded by the patron for their best efforts. In ancient China authorship was one of the most honored of professions. It attracted a large number of scholars

and creative writers who were compensated directly from the state treasury and were given honors, preferments, official appointments, and apparently a good deal of influence and intellectual freedom. See EAST ASIA, ANCIENT.

It appears that the masterpieces of Greek literature were created by their authors mainly in hope of receiving the honor of the laurel crown from their fellow citizens and without much thought of material compensation. Distribution of books was extremely limited, and works of authorship reached the public mainly through PERFORMANCE, recitations, orations, and lectures (see ORATORY; PUBLIC SPEAKING). In some cases authors apparently shared in the receipts from paying audiences, and many authors enjoyed royal patronage, but it is hard to find any evidence of systematic compensation. Later on, when the growth of an educated class of scribes and copyists enabled BOOK production and distribution to exist in Athens on a larger scale, most of the works being copied were by authors long dead. Although Greek literature is generally silent on how authors managed to subsist, it is full of controversies about plagiarism. Uncredited borrowings and outright appropriations were not uncommon and were widely deplored; but, except in a few extreme cases, the injured author could do nothing but complain. See HELLENIC WORLD.

Following the Roman conquest of Greece, Alexandria became the greatest center of literary activity in the world. The publishers of Alexandria and their armies of expert scribes acquired a virtual monopoly on book production that lasted for nearly three centuries. Scholars and authors from throughout the Hellenic world were attracted to Alexandria and were given salaried appointments to support their research and writing. There is also evidence to suggest that in Alexandria, for the first time, authors began to share in the profits from publication of their works.

At first the books that reached the Roman public were written in Greek by Greek authors. Later, Roman authors writing in Latin simply appropriated as their own the whole body of Greek literature, translating and adapting as they saw fit and in most cases making no reference to the original authors. In the early days of the Roman republic plagiarism was far more common than original authorship.

As Rome expanded its borders and influence the remarkable network of military outposts and colonial settlements, connected by excellent roads, made possible the widespread distribution of Roman goods. Roman publishers emerged and developed their own book manufacturing and distribution machinery. An enthusiastic and wealthy reading public evolved. Authors and scholars were attracted to Rome as a cultural center. Some found rich patrons; one of

these, Maecenas, gave his name to all bountiful supporters of literature and the arts. See ROMAN EMPIRE.

During the century following the establishment of the empire, Caesars from Augustus through Hadrian strongly encouraged all sorts of cultural pursuits and creative endeavors. Roman publishers supplanted those of Alexandria, and Roman authors were able to break away from Greek models and write original works in Latin for a large audience of readers, playgoers, and listeners. For the first time in history a large class of contemporary authors were not only encouraged to write original works but were also able to see their own works reproduced in multiple copies and efficiently distributed to widely separated readers. And in some cases at least, authors were able to share in the profits of the PUBLISHING enterprise.

A major factor contributing to this outpouring of cultural activity was the existence of a large class of educated slaves who were trained as scribes and copyists and were remarkably skillful in the fast and accurate reproduction of manifold copies. Editions of between five hundred and one thousand copies of a book were common. One way of producing multiple copies was to have a reader dictate the work to a group of *notarii*, who transcribed identical copies simultaneously.

Writings from the centuries of the Roman Empire are full of references to the business dealings between authors and publishers, the financial difficulties facing authors, and the continuing problems of plagiarism. Roman law gave no recognition whatsoever to authors' rights. Nevertheless, CICERO's letters to his publisher show that he was compensated for the sale of his published works and that the amount of payment was related to the number of copies sold; and after his death the rights in his works were transferred from one publisher to another. Other authors received one-time lump-sum payments for their works, and some complained that the amounts were too low. Martial and Horace, among others, often inveighed against plagiarism; Martial, in fact, was the first to apply the term *plagiarius* (the kidnapping of slaves and children) to literary theft.

Authors and Rights in the Middle Ages

It is hard to overestimate the importance of the role played during the MIDDLE AGES by Benedictine monasteries in preserving and reproducing ancient manuscripts and in providing centers for learning and scholarship. But the culture that was being preserved, analyzed, studied, and taught was based on writings of earlier times; there is little evidence to suggest that contemporary authors or their rights received consideration. At the same time, the creative work of the

copyists themselves came to represent a magnificent ART form. Illuminated manuscripts were treated as precious literary property. Manuscripts were hidden, folios were chained to desks, anathema was called down upon anyone who stole or mutilated them, and the right to make copies was sometimes transferred for a fee or other remuneration.

A famous dispute of this sort, which arose in Ireland in 567 C.E., resulted in the first reported copyright decision. Columba of Iona (then known as Columba or Columcille) paid a visit to his former teacher, Finian of Moville, and asked to be allowed to copy a psalmbook that Finian had shown him. On being refused permission, Columba worked during several nights and finished his own copy, only to be caught red-handed. Finian demanded surrender of the copy, Columba refused, and the dispute was referred to the high king, Diarmid, who was holding court at Tara. The king ruled in favor of Finian, declaring: "To every cow her young cow, that is her calf, and to every book its transcript. And therefore to Finian belongeth the book thou has written, O Columcille."

The monasteries not only preserved the works of the past in their libraries and duplicated them in their scriptoria; they also distributed copies to other monasteries and established schools (*see* SCHOOL) in which READING and the heritage of the past were taught. In some cases such a school evolved into a UNIVERSITY, and, beginning in the thirteenth century, universities developed into centers of learning and intellectual activity outside the direct control of the church. The teaching methods employed at those universities relied heavily on the written textbook, and a new class of publishers and scribes emerged to supply this need. For a long time these *stationarii* were licensed and their activities closely regulated by the university authorities. By the beginning of the fifteenth century, however, there was enough popular demand for literature outside the universities to create a regular trade in manuscripts in some cities. The scene was thus set for the arrival of the PRINTING press, with a structure of professional publishers and booksellers already in place and a reading public eager for cheap books.

The Renaissance, the Printing Press, and Privileges

The explosive revival of learning and creativity known as the RENAISSANCE brought with it a new class of independent authors, some of them writing in the vernacular, and added to the pressure to discover a manufacturing method capable of reproducing multiple copies of books at low cost. JOHANNES GUTENBERG's technological breakthrough in 1450 not only

revolutionized book production and distribution; it also vastly increased the demand for works of authorship and led directly to the legal recognition of literary property, authors' rights, and what we now call copyright.

Within twenty years after publication of Gutenberg's first book, printing presses sprang up in mercantile centers in Germany, Italy, and France. It did not take long for the printers to discover that, easy as it was to reproduce one's own edition from a manuscript, it was even easier to issue a piratical edition of someone else's printed book. An instance of book piracy was recorded as early as 1466, and a dispute between two publishers over the literary property rights in a series of books was decided by a court in Basel in 1480.

Before the end of the fifteenth century, Venice emerged as a world leader in printed book production, as well as a pioneer in the protection of literary property. Venice's greatest printer-publisher, Aldo Manucci (Aldus Manutius), founder of the Aldine Press, operated his press for some twenty years beginning in 1495; the high quality, prestige, and educational value of his work attracted printers and scholars from east and west and made Venice a center of learning and a latter-day Alexandria in the production of books.

It was in Venice that the pattern of granting a "privilege" for the exclusive production of certain printed books or types of printed books originated. The Doge of Venice in 1469 granted such a privilege to Johann of Speyer, giving him a monopoly for five years on the printing of books in Venice and prohibiting the importation of books printed elsewhere. By giving government-protected rights of this kind for written material, this privilege combined elements of copyright protection and trade monopoly. In 1486 the Venetian senate created something much closer to a modern copyright: it granted to the historian Antonio Sabellico the exclusive right to publish his *Decade of Venetian Affairs* for an indefinite period of time and prescribed a fine of five hundred ducats for infringement of this right. It appears that Sabellico was not only the first copyright owner in the modern sense but also the first individual author in history to be accorded state-recognized rights in his own work.

By the last decade of the fifteenth century the system of privileges had started to gain momentum. Although the earliest privileges were granted to authors and were unlimited in time, the large majority of later privileges were accorded to printer-publishers for works of both classical and contemporary authors and were subject to time limits and other conditions. In 1496 the Aldine Press received a twenty-year privilege for all works it might print and publish

in the Greek language, and there are other examples of privileges covering whole bodies of literature of one sort or another. Most privileges, however, were granted upon receipt of a formal petition or application covering a particular work.

Since it was generally assumed during the pre-Reformation era that ownership of a copy gave a right to reproduce it freely, piracy and the need of protection existed wherever there was a printing press. The Venetian system of granting privileges was adopted in other Italian cities and gradually spread throughout Europe. In Germany the earliest privilege was granted in 1501; privileges in France date from 1503, and in England from 1518.

But the system of privileges was complicated and haphazard, hard to enforce, territorially limited, and subject to abuse. To afford themselves better protection, some printer-publishers began banding together in associations, guilds, and "book fairs," whose members undertook not to poach on one another.

It did not take authorities long to realize that the granting of privileges could be combined, conveniently and effectively, with CENSORSHIP. Publishers, to obtain privileges protecting themselves against piracy, were required to submit their works for government approval and to receive an official imprimatur or license attesting that the works were free of heresy and authorizing publication. The granting of privileges became a widespread and standardized procedure involving applications, deposit of copies, and in some cases payment of fees. In addition, authorities balanced suppression of writings they found objectionable with encouragement of unobjectionable writings through increasingly liberal privileges and patronage.

Combining privileges with censorship therefore had mixed results. It turned the evolution of copyright toward a system in which government approval and permission were the price for protection against piracy. In the long run, however, the combining of privileges and censorship fostered the development of copyright. The granting of exclusive rights in works of authorship was greatly accelerated, and the whole system of privileges was beginning to fall into patterns approaching standardized legal norms. In the public mind piracy was beginning to be regarded as morally reprehensible if not legally wrong.

The Situation of the Individual Author

By seeking privileges from those in authority and by banding together to protect their own mutual interests, publishers had at least some possibility of combating piracy and realizing a profit on their investment. But individual authors, the real creators of the economic good, had no equivalent bargaining power or political influence.

In the sixteenth century, however, there is some evidence to suggest that, underlying the privilege system and despite the rampant piracy, authors retained inherent rights in their works. Certainly this was true with respect to works in advance of their publication. Authors were regularly compensated for the sale of their manuscripts—an act that, in effect, conveyed first publication rights. In this connection a decree of the Venetian Council of Ten in 1545 represented a landmark of sorts. It forbade the printing or selling of a work without first presenting documentary proof of the author's consent.

The granting of privileges always started on a one-to-one, personal, ad hoc basis and without any governing standards. At some point this arbitrary arrangement would begin to break down in complexities and uncertainties, disputes between rival privilege holders, onerous formalities, and abuses by unscrupulous publishers. The ruler or government authority would then step in to lay down the law in some definite terms, in some cases abolishing old privileges and starting from scratch with new ordinances, statutes, or decrees. Examples of this progression can be found in Venice, Germany, France, and elsewhere, but perhaps the clearest and most significant example occurred in England.

The early history of English publishing and authorship is one of diminishing freedom and gradually increasing crown control over every aspect of the press. The first step was the appointment in 1504 of a "royal stationer," or official printer to the king. Through this office Henry VIII proceeded to assume complete monopoly rights in several important bodies of printed literature, including statutes and other government publications, Bibles, testaments, and the Book of Common Prayer.

As in other countries the spread of English printing was accompanied by a proliferation of piracy and, before long, by urgent petitions from printers and publishers seeking government protection. In England the earliest documented privileges, sometimes called patents, were granted by Henry VIII in 1518. After that date great numbers of privileges, usually of seven years' duration, were granted to publishers and an occasional author. A kind of early copyright notice, including the phrase *cum privilegio a rege*, began to appear commonly in English books. English printers were also protected from foreign competition by an act of Parliament in 1534 that prohibited the sale and importation of books manufactured abroad.

Privileges gave protection against piracy but not against competition from other publications in the same field. As part of their move toward absolute control over the press in England, Henry VIII and his Tudor successors, notably Elizabeth I, began to grant "patents of monopoly," which gave publishers

exclusive dominion over specified bodies of literature (e.g., law books, schoolbooks, and almanacs) in which the crown claimed a royal prerogative.

Finally, having assumed control over who could print books in England, Henry VIII tried to take control over what could be printed. To censor every book published in England involved a great deal of complicated administrative machinery. The crown, which was already granting privileges and patent monopolies to publishers, found an ingenious way to combine this with the licensing system. In effect, the London publishers agreed to operate the crown's licensing system in exchange for suppression of competition and the recognition and protection of their "copies" (i.e., their copyrights).

The Stationers Company, the corporate association of ninety-seven publishers formed for this purpose, was chartered by Mary Tudor (and her husband King Philip of Spain) in 1557. The charter prohibited all printing except by members of the company or by printers who held a special license from the queen. Over the next century and more, the powers of the Stationers Company were further confirmed and expanded by successive acts of the crown, the Star Chamber (the judicial arm of the Privy Council), and Parliament. The control of the Stationers Company over publishing in England was nearly complete.

There is little evidence that any consideration was given to the legal rights of authors. The regular granting of privileges under Henry VIII was soon superseded by entry on the Stationers Company Register, and only member-publishers could make registration. Unless they contrived to find another source of income, authors had to subsist on patronage and outright sale of their manuscripts. Some, including Shakespeare, possibly shared in the profits from performance of their dramatic works, but the notion of authors' royalties from sale of printed copies was virtually unknown during this era.

Yet the rights of authors to their unpublished writings were certainly recognized, even before the seventeenth century, and the justice of protecting authors' rights after publication was beginning to be argued. A unique and apparently ineffective order issued by the House of Commons in 1642 required the Stationers Company "to take especial Order that the printers do neither print nor reprint anything without the name and consent of the Author." The voices of well-known authors were also beginning to be heard on the subject. In his great 1644 tract, *Areopagitica*, one of the landmarks in the struggle for freedom of the press, JOHN MILTON referred to "the just retaining of every man his several copy [i.e., copyright] (which God forbid should be gainsaid)," and in his 1649 book, *Eikonoklastes*, Milton declared: "Every author should have the property of his work reserved to him after his death, as well as

living." In 1667 Milton negotiated a contract with the publisher of *Paradise Lost* that, although the amounts were pitifully small, may be the first royalty agreement in the history of English publishing.

The Statute of Anne

The history of English copyright during the seventeenth century shows four trends. One was the establishment and repeated confirmation of the existence of the "copy" (copyright) as a property right in published works, presumably without time limit, and recognition of a government obligation to offer effective protection against piracy to the owner of the copyright, if the work had been entered on the Stationers Company Register. A second trend was a general revulsion against censorship and repressive control through the licensing of printing and publishing, with a corresponding increase of support for complete freedom of the press. A third was dissatisfaction with the monopolistic practices of some London publishers, accompanied by strong sentiment for breaking up the Stationers Company monopoly, allowing freer competition among publishers in Britain and giving readers more books at lower prices. And fourth, there was increasing concern for the rights of authors, with recognition that by giving a printing monopoly to publishers rather than authors under the old system, the government had done an injustice to the individuals who actually created the works being monopolized by others.

These trends led to profound changes in political, social, and intellectual attitudes. One result was that, despite objections from the crown, the last of the printing acts was allowed to expire in 1694. With it went organized government censorship, control over the press, and publishers' monopolies. But this also meant the loss of government-sanctioned copyright protection and an almost immediate surge of piracy. For the next fifteen years there was increasing pressure on Parliament by members of the Stationers Company to save their copyrights. Their petitions were based on the assumption that they already had common-law protection but that they needed a statute giving them more. They claimed that, by virtue of their purchases of the rights of authors and their successors, they still had perpetual rights for their works under English common law but that the remedies for infringement of common-law copyrights were insufficient to deter piracy. What they needed, the publishers said, was the restoration of perpetual statutory protection with strong enforcement provisions and ample monetary remedies.

These petitions and what led to them brought copyright history to its great watershed, the Statute of Anne. Enacted by Parliament in 1709 with an effective date of April 10, 1710, the new law turned

out to be quite different from what the publishers had been seeking. Under the Statute of Anne the beneficiary of protection was the author or the author's successors; the copyright consisted of "the sole right of printing"; and the subject matter of protection was limited to "books." Two terms of copyright were provided: (1) for books already printed, twenty-one years from April 10, 1710; (2) for new books, a first term of fourteen years from date of publication, plus another term of fourteen years to be returned to the author if he or she were still alive at the end of the first term. After each of the terms the statute added the phrase "and no longer." Statutory penalties for infringement were specified, and there were provisions aimed at keeping the price of books reasonable. Entry in the Stationers Company Register was required as a condition of protection, but the opportunity to register a copyright was no longer confined to members of the Stationers Company; it was now open to all copyright owners, including authors.

As interpreted by the English courts during the eighteenth century, the Statute of Anne had truly revolutionary results. It broke the Stationers Company copyright monopoly and therefore the monopoly over English publishing, in effect reducing the company to a registry office. By granting copyright protection in the first instance to the individual author rather than the publisher, the statute enhanced the legal position of authorship and made it possible for future generations of authors to own their own copyrights and exploit their works to their best advantage. It laid the groundwork for royalty arrangements whereby authors could enjoy a continuing share in the benefits from use of their works.

The Statute of Anne based the copyright term on the date of publication, but it also made the length of the term dependent on the length of an individual author's life. It thus paved the way for later statutes giving copyright to authors for their lifetimes and beyond. By superseding and cutting off common-law copyright in published works and substituting definite terms of duration, the statute brought an end to the publishers' claims to own exclusive rights in old works in perpetuity. And it set the pattern for copyright statutes enacted during the next two centuries in countries throughout the world.

Bibliography. Lyman Ray Patterson, *Copyright in Historical Perspective*, Nashville, Tenn., 1968; H. L. Pinner, *The World of Books in Classical Antiquity*, Leiden, 1948; George Haven Putnam, *Authors and Their Public in Ancient Times*, 3d ed., New York, 1896, reprint 1967; idem, *Books and Their Makers in the Middle Ages*, 2 vols., New York, 1896–1897, reprint (1906–1907 ed.) 1962; Fredrick S. Siebert, *Freedom of the Press in England, 1476–*

1776: The Rise and Fall of Government Controls, Urbana, Ill., 1952.

BARBARA RINGER

2. INTERNATIONAL ARENA

In the mid-eighteenth century dramatic changes in the rights and interrelationships of authors and publishers were brought about by the Statute of Anne (see section 1, above), the first national copyright statute. As the copyrights granted under the statute began to expire, English publishers were again faced with competition from unauthorized editions and found that their only recourse was to the courts, reiterating their claim to perpetual common-law protection underlying the expired statutory rights. It is noteworthy that in bringing their cases to court the publishers no longer argued for protection in their own right but based their claim on the purchase of the rights of individual authors.

A series of cases on this question produced decades of intense public debate and ultimately resulted in a landmark decision of the House of Lords in *Donaldson v. Becket* (1767). The Donaldson case, which established the fundamental framework for copyright jurisprudence in English-speaking countries, confirmed the individual author as the fountainhead of copyright protection and recognized the author's inherent rights in unpublished works. At the same time it denied the possibility of natural or inherent rights in published works subject to statutory protection; once a work is published its protection is governed entirely by the terms of the statute. This supremacy of statutory or positive law over natural rights has distinguished Anglo-Saxon copyright systems from those of civil-law countries throughout their history.

The Era of National Copyright Legislation

On the Continent, as in England, authors were becoming their own most effective advocates and helped bring about an outpouring of copyright statutes throughout Europe and the rest of the world. To Denmark belongs the honor of enacting the second national copyright statute, a 1741 act giving liberal protection to authors and publishers. But the French republican decree on copyright of 1793 was the most influential of the early acts. It remained the foundation of the French copyright system for 150 years and during the Napoleonic conquests was extended to Belgium, the Netherlands, Italy, and Switzerland; it eventually became the model for copyright protection in other civil-law countries.

In France the 1793 decree was the most generous offered by an enactment up to that time. It covered "writings of all kinds" and provided protection to

authors during their lifetimes and to their heirs and assigns for ten years thereafter. The term of ten years *post mortem auctoris* was extended in 1810 to life plus twenty years, in 1854 to life plus thirty years, and in 1866 to life plus fifty years. After well over a century the life-plus-fifty term remains the international norm for copyright duration.

By 1886 sixteen European countries and eight countries in the Western Hemisphere had adopted full-fledged copyright statutes, and nine other countries had laws of some sort protecting authors' rights. Spain enacted copyright statutes in 1834, 1847, and 1879, and these were the models for statutes in Latin America. In czarist Russia the earliest statutory copyright provisions appeared in an 1828 CENSORSHIP law, and with minor amendments and a transfer to the law on property these remained in effect throughout the rest of the century.

As might be expected, the two centuries after the Statute of Anne saw a great deal of further English copyright legislation. Subject matter, duration of protection, and rights of copyright owners were all substantially expanded, but by a patchwork of separate acts and amendments that by the end of the nineteenth century cried out for codification.

The first of many laws enacted expressly for the protection of graphic artists was the Engravers' Copyright Act of 1735, known as Hogarth's Act after the great artist whose problems with piracy led him to initiate the legislation and lobby for it. This provided protection for the work of engravers and certain other graphic artists for fourteen years. This term was doubled in 1767. The act was expanded in 1852 to cover all kinds of prints, including lithographs. Beginning with protection for fabric designs, other acts were passed to protect other kinds of creative ART, culminating in the Fine Arts Copyright Act of 1862, which covered paintings, drawings, and photographs and gave the creators of these works control over the making and sale of reproductions. Although the Statute of Anne was held to cover printed dramatic and musical works as "books" and to protect them against reprinting, it offered no protection against unauthorized performances. Bulwer-Lytton's Act, the Dramatic Copyright Act of 1833 named after its chief sponsor, took a step toward filling this gap. The authors of lectures were given statutory protection in 1835 against unauthorized printing and publication of their works. Another act, in 1842, extended performing rights for the full copyright term to both dramatic and musical composition.

Length of copyright in Great Britain was also extended substantially in the nineteenth century. In 1814 Parliament lengthened copyright to twenty-eight years from publication or the life of the author,

whichever was longer. After a famous debate in which Thomas Babington Macaulay, the historian, was a chief participant, the term of protection was further extended in 1842 to forty-two years from publication or life plus seven years, whichever was longer. This remained the basic English copyright statute until 1911.

In the United States all federal copyright legislation is based on Article I, section 8 of the U.S. Constitution, which empowers Congress "To promote the Progress of Science and useful Arts by securing for limited times, to Authors . . . the exclusive Right to their . . . Writings. . . ." The first federal copyright statute was enacted on May 31, 1790, during the second session of the first Congress. Like earlier state laws enacted under the Articles of Confederation, it paralleled the Statute of Anne but with certain differences. Protection was given to "charts, maps and books" but was available only to citizens and residents of the United States; compliance with additional formalities, including a copyright notice in newspapers and renewal registration for the author's second fourteen-year term, was required.

The early development of U.S. copyright law followed somewhat the same course as that in England. The subject matter of copyright protection was gradually enlarged. The term of protection was extended to forty-two years (first term of twenty-eight years plus renewal term of fourteen). The scope of copyright was gradually broadened to include (in addition to the exclusive right to print, reprint, copy, and vend) the rights to perform a dramatic work (1856, 1897), to dramatize or translate a work (1870), and to perform musical compositions in public (1897). But there were still some major differences.

Most obvious was the duration of copyright: by 1900 most countries had adopted terms based on the life of the author, but U.S. copyright was still based firmly on the date of first publication and was destined to remain so for many more generations. Another major difference lay in the insistence of U.S. courts and lawmakers on punctilious observance of formal requirements as a condition of copyright protection. A notice of copyright appearing on published copies of the work, registration of the copyright, and deposit of copies were all mandatory, and for a long time the courts were extraordinarily finicky in their demands for exact formal compliance. By far the most controversial feature of U.S. copyright law between 1790 and 1891, however, was its failure to offer any protection to works by foreign authors. By limiting its beneficiaries in this way, the U.S. law sanctioned the unrestrained reprinting of works by popular English authors, to the disastrous competitive disadvantage of the very national U.S. literature it was supposed to encourage. Rampant piracy in the

United States produced fierce resentment and agitation on both sides of the Atlantic, and the names of some of the greatest literary figures of the time—Charles Dickens, Anthony Trollope, Thomas Carlyle, William Cullen Bryant, and Mark Twain, to name only a few—figured prominently in the struggle for reform. Although the International Copyright Act of 1891 made U.S. copyright protection possible for foreign works, it also introduced the so-called manufacturing clause making U.S. manufacture a condition of copyright. The requirements of this clause were so rigid that they made the extension of copyright protection to foreigners illusory. Although the manufacturing clause was liberalized a number of times between 1904 and 1986, it remained throughout most of the twentieth century as a discriminatory affront to authors and publishers of English-language books.

The Berne International Copyright Convention

The problems of international copyright piracy in western Europe during the latter half of the nineteenth century induced a number of countries to negotiate bilateral treaties, but these proved ineffective. A movement was started among authors and artists aimed at establishing a worldwide union of countries pledged to the uniform protection of authors' rights, and this ultimately produced the first worldwide multilateral copyright treaty in history, the Convention for the Protection of Literary and Artistic Works adopted at Berne (Bern), Switzerland, on September 9, 1886. Although a modest beginning, the original Berne Convention established some fundamental international copyright principles. Instead of adopting the concept of reciprocity, which obliges a country to protect foreign works only to the extent that its own works are protected in return, the Berne Convention is based on the principle of national treatment or assimilation, under which a country agrees to give foreign authors the same protection it accords its own authors. The Berne Convention established an International Copyright Union of all member states, still known as the Berne Union. It required that, among union members, the right to translation be protected for a minimum of ten years. The 1886 text established no other specific requirements, but its later revisions have so expanded the minimum requirements that Berne members must now offer a relatively high level of copyright protection. The original Berne Union membership consisted of only fourteen countries but grew to more than seventy countries, not including the United States or the Soviet Union.

Building on the added minimum requirements incorporated into the texts of the Berne Convention adopted in Berlin in 1900 and in Rome in 1928, the

1948 Brussels revision probably represents a high-water mark in international copyright protection. It was adopted at a time when the impact of new communications technology and the challenge of the developing countries had not yet been felt in international copyright. The prevailing philosophy was one of broadening the international protection of authors, and the only real challenge to this concept came from broadcasting interests, which did achieve some concessions.

Under the Brussels text, protection is required for "every production in the literary, scientific and artistic domain, whatever may be the mode or the form of its expression." Member states were obliged to accord a wide range of exclusive rights to these works, including public PERFORMANCE, broadcasting, wire diffusion, adaptation, arrangement, translation, recording (*see* SOUND RECORDING—INDUSTRY), and motion picture adaptation (*see* MOTION PICTURES). Each and every one of these rights had to be granted, though some of them could be limited in certain ways.

An important innovation at Brussels was the provision recognizing the author's "moral right" as a mandatory requirement: regardless of the ownership of copyright in authors' works, the authors themselves had to be given rights to claim authorship and prevent distortion throughout their lifetimes. Even more important was the establishment of a mandatory minimum term of protection set at the life of the author plus fifty years. The Brussels text retained the provision, introduced in Berlin in 1908, prohibiting member countries from copyright protection conditional on the performance of any formality.

The Universal Copyright Convention

By the time of the Brussels conference there was general recognition that the international copyright situation had become unsatisfactory and that some way had to be found to bring the United States and other non-Berne countries, mainly in Latin America, into a global copyright system. It was clear that the Berne Union would not permit the level of protection achieved in the Brussels revision of 1948 to be lowered to accommodate nonunion countries. But it was equally apparent that the United States in particular would continue to insist on maintaining certain principles of its law—notably, compliance with formalities as a precondition of copyright and a term of protection based on first publication—and that any further effort to gain U.S. adherence to the Berne Convention would be futile.

Under the leadership of forces within the United States, the Berne Union, and the newly formed UNESCO (United Nations Educational, Scientific and Cultural Organization), a compromise solution was

found. The approach adopted was a new "common denominator" convention intended to establish a minimum level of international copyright relations throughout the world without weakening or supplanting the Berne Convention. In a remarkably short time after it was first proposed, the Universal Copyright Convention (UCC) was adopted in Geneva on September 6, 1952.

Like the original Berne Convention of 1886, which it resembled in many ways, the UCC was based on the principle of national treatment and contained very few minimum requirements. UCC countries were required to give works originating in other countries protection at least equivalent to that given their own works; this protection had to be "adequate and effective"; there was an obligation to recognize translation rights for at least seven years, after which compulsory licensing would be established; and, with some qualifications, the minimum term of protection had to be twenty-five years from either the death of the author or the date of publication. Unlike the Berne Convention, the UCC did not require adherents to give retroactive protection to works previously considered to be in the public domain in their own countries.

The greatest compromise of the UCC involved formalities. Article III provides that the formal requirements of a country's copyright law would be satisfied for foreign UCC works if all published works bore a special UCC notice: the symbol © with the name of the copyright owner and the year of publication printed in a reasonably prominent position. In exchange for this single formality the United States agreed to forgo, for works by foreign UCC authors, the other formalities of its law: the special notice requirements, deposit and registration, and the manufacturing clause.

For their part the members of the Berne Union agreed to accept a convention with a lower level of protection and a notice requirement in exchange for new multipartite copyright relations with the United States and other countries. To ensure that the Berne Convention was not weakened in the process, however, they prudently insisted on something called the Berne safeguard clause. This intricate provision established two principles: (1) between states that are members of the Berne Convention as well as parties to the UCC, it is the Berne Convention that governs their copyright relations; and (2) no country may leave the Berne Union and thereafter receive protection in any Berne country under either the Berne Union or the UCC. The second part of this safeguard clause constitutes a sanction against any country denouncing the Berne Convention.

The United States was one of the first nations to ratify the UCC, which came into effect on September 19, 1955. Between 1955 and 1971 the membership

of the UCC grew to include roughly the same number of countries as that of the Berne Convention, and there was a large overlap in membership between the two conventions. The UCC vastly simplified copyright relations between the United States and other countries, and it brought other countries into the international copyright community on terms they found acceptable. The basic aim of the UCC—to form a bridge between the Berne Union and the rest of the world—seemed to have been achieved.

The Stockholm Conference and the Paris Conventions, 1967–1971

Beginning in the mid-1950s more and more countries were gaining independence from colonial authority. By 1967 some thirty-seven out of fifty-eight members of the Berne Union were developing countries (*see DEVELOPMENT COMMUNICATION*). As these new countries came to grips with their problems they began to feel the pinch of copyright obligations. They urgently wanted access to printed materials from developed countries but were inhibited by the high level of protection imposed on them by the Berne Convention. And they found they could not denounce the Berne Convention and rely on the UCC because of the Berne safeguard clause.

Rumblings about the need for concessions to developing countries became a roar in the 1960s. The first line of attack was aimed at revising the UCC to remove the safeguard clause, but this was deflected pending the outcome of the scheduled conference for revision of the Berne Convention, held in Stockholm in 1967.

The Stockholm Conference turned out to be an epochal event in the history of copyright. The developing Berne Union countries, under the leadership of India, went to Stockholm with a well-organized and aggressive program aimed at special concessions in their favor. The developed nations were caught off guard; they were not yet prepared for the difficult problem of balancing, on an international level, the rights of authors with the needs of the Third World. *See NEW INTERNATIONAL INFORMATION ORDER.*

Aside from the question of concessions in developing countries, the Stockholm Conference had some other accomplishments to its credit. It created the World Intellectual Property Organization (WIPO) as the secretariat of the Berne Union; WIPO later became a specialized agency of the United Nations. The Stockholm Conference also adopted a number of relatively minor changes in the Brussels text of the Berne Convention. It added reproduction to the exclusive rights a union country must protect and broadened somewhat the exemptions dealing with news reporting and instructional uses. It included provisions to facilitate the international exchange of

motion pictures and television programs (see TELEVISION HISTORY), to strengthen the author's "moral right," and to create special minimum terms for the duration of copyright in motion pictures, photographs, and works of applied art.

But the most significant product of the Stockholm Conference appeared to be the Protocol Regarding Developing Countries (the Stockholm Protocol). This consisted of extremely sweeping concessions to developing countries, allowing them to make unauthorized use of works of other union countries under broad and loosely defined compulsory licensing systems. As it turned out, the concessions were so broad that the developed countries refused to accept the new text as long as the Stockholm Protocol was part of it. The developing countries threatened to denounce both the Berne Convention and (because of the safeguard clause) the UCC.

As the impasse deepened into a crisis, urgent if belated efforts were undertaken to save the structure of international copyright and to find a way to meet the needs of developing countries without damaging the legitimate copyright interests of developed countries.

These efforts proved successful. International conferences for the revision of both the Berne Convention and the UCC were held in Paris in 1971. The coordinated program of these conferences resulted in revised texts of both conventions. The Paris text of the Berne Convention retained the revisions already adopted at Stockholm but dropped the protocol in favor of an "additional act" that made more realistic concessions to developing countries with respect to reproduction and translation of materials having educational value. Equivalent changes were made in the UCC, which was also amended to require member countries to accord at least some minimum level of protection to the rights of reproduction, public performance, and broadcasting. The Paris text made it possible for developing countries to leave the Berne Union without forfeiting rights under the UCC, but since the concessions to developing countries were the same in the two conventions there would be less incentive for them to do so.

The 1971 revisions of both the Berne and the Universal Copyright Conventions came into effect in 1974. At least for the immediate future they seemed to have restored stability in international copyright and to have left the two conventions—complemented by multilateral treaties adopted in the 1960s and 1970s to protect performers, record producers, and broadcasters and to prohibit piracy of sound recordings and SATELLITE signals—relatively harmonious. But the world of media was experiencing a communications revolution, which would have an impact on human life and culture comparable to that of the printing press five centuries earlier—and perhaps be

even more sweeping. Its effect on AUTHORSHIP, the dissemination of works of the intellect, and the protection of authors' rights would be profound and would involve challenges that seemed to defy solution.

Bibliography. American Bar Association, *Two Hundred Years of English and American Patent, Trademark, and Copyright Law*, Chicago, 1977; Augustine Birrell, *Seven Lectures on the Law and History of Copyright in Books*, London and New York, 1899; Richard R. Bowker, *Copyright, Its Law and Its Literature*, New York and Boston, 1886; P. F. Carter-Ruck and F. E. Skone James, *Copyright: Modern Law and Practice*, London, 1965; Richard C. De Wolf, *An Outline of Copyright Law*, Boston, 1925; Eaton S. Drone, *A Treatise on the Law of Property in Intellectual Productions in Great Britain and the United States*, Boston, 1879; F. E. Skone James, ed., *Copinger and Skone James on the Law of Copyright*, 8th ed., London, 1948; Benjamin Kaplan, *An Unhurried View of Copyright*, New York, 1967; Stephen P. Ladas, *The International Protection of Literary and Artistic Property*, 2 vols., New York, 1938; T. E. Scrutton, *The Law of Copyright*, 4th ed., London, 1903.

BARBARA RINGER

3. CHALLENGE OF THE COMMUNICATIONS REVOLUTION

In the closing decades of the twentieth century the principles of copyright appeared to face an uncertain future. Copyright, as it had come to exist between 1750 and 1950 (see section 2, above), guaranteed exclusive control over the market for a work, enabled authors to share in the returns from that market, and offered effective legal sanctions when the market was invaded. But new communication devices were making it impossible for existing copyright laws to perform these functions.

The earliest of the new communication devices—SOUND RECORDING, silent and sound MOTION PICTURES, RADIO and television broadcasting (see TELEVISION HISTORY)—resulted in widespread piracy and enormous copyright controversies. Yet there was still the possibility of a link between the copyright owner and the user, and copyright law was able to function. Exclusive rights could still be licensed, and unlicensed uses could still be suppressed; when the link became too weak, it was still possible to reinforce it by setting up collective arrangements and compulsory licensing schemes under copyright law.

But with the next wave of communications technology—including magnetic audio and VIDEO recordings, photocopying and microreproduction, computers (see COMPUTER: IMPACT), and SATELLITE transmissions—the potential link between copyright owner and user was broken. When every individual

had immediate, unrestricted access to a work and the unlimited technological capability of storing, displaying, reproducing, performing, and transmitting it, there seemed no way for traditional copyright principles to operate. The author's old markets were being lost because they could not compete with unauthorized uses that were incredibly cheap and easy; and the new uses could not be controlled because they were pandemic.

For the most part the national copyright laws enacted in the 1950s, 1960s, and 1970s showed little recognition of the fundamental change in the condition of AUTHORSHIP and the new problems of protecting authors' rights. Even in countries in which the new devices were already in people's homes, the copyright statutes largely followed old models and the Berne Convention.

This was the case with the British Copyright Act of 1956; although its provisions are detailed and elaborate, they did not go much beyond the 1948 Brussels text or the Berne Convention. Similarly, the United States did not break much new ground with its Copyright Act of 1976, although the statute was revolutionary in a different way: it finally severed ties with eighteenth-century English law and went at least partway toward adopting the standards of the Berne Convention. The 1976 act abolished common-law copyright and established a system of automatic federal statutory copyright from creation, to last for the life of the author plus fifty years. Unlike earlier U.S. laws, which had emphasized publishers' rights, the 1976 act was directed much more toward the rights of individual authors and included a number of provisions aimed at protecting authors in their dealings with publishers, producers, and other entrepreneurs. It expanded the copyright owner's exclusive rights and for the first time created rights to royalties, under compulsory licensing systems, for jukebox performances, nonprofit broadcasting, and CABLE TELEVISION transmissions. Notice, registration, deposit, and manufacturing formalities were retained, but their requirements were greatly liberalized.

Compared with concurrent copyright enactments in other countries, the U.S. Copyright Act of 1976 offered a fairly high level of protection. Like the other enactments, however, it largely failed to protect copyright owners from the onslaught of the new communication devices.

Nonetheless, there were indications that copyright experts were awakening to the changed situation and that legislators were beginning to undertake the difficult task of adapting copyright law to meet the challenge of the new technology. Provisions in a few statutes (such as the 1965 copyright law of the Federal Republic of Germany), some amendments to existing copyright laws, and a variety of separate

enactments for specific purposes suggest directions that copyright law may be on the verge of taking. The following trends are discernible:

- *Increased compulsory licensing.* In some cases in which users can be identified but their uses are so great in number, variety, or unpredictability as to make one-on-one licensing impracticable, blanket licensing or, more often, compulsory licensing schemes are being established under government control and supervision.
- *Unified collection agencies.* To save certain types of users from an impossible task of seeking out and negotiating copyright licenses with an indeterminate number of copyright owners or organizations, unified collection agencies may very probably be recognized or established. Users will pay a total amount of specified royalties into a single pool, and to receive their share of the royalties authors and copyright owners will have to either belong to the agencies or at least deal with them.
- *Government tribunals.* Government bodies have been or will be set up to ensure that compulsory licensing royalty rates are adjusted to economic conditions, to regulate the activities of collecting agencies and their members, and in some cases for purposes of CENSORSHIP. As copyright law changes to include more collective activities and rate-making requirements, these official bodies will assume greater authority. They will inevitably begin contributing to or making government copyright policy.
- *Abandonment of the "first sale" doctrine.* Under traditional copyright principles the buyer of a copy or record embodying a copyrighted work was free to exhibit or dispose of the artifact without copyright restrictions. Changes in technology have begun to break down this once-sacred doctrine. Exclusive rights with respect to the display of copies owned by someone else are beginning to be recognized. Provisions giving copyright owners rights to control or obtain royalties from rentals of copies and records are being enacted. "Lending right" statutes providing royalties from libraries to authors under a variety of royalty arrangements have been adopted in quite a few countries.
- *Surcharges on reproducing equipment.* Governments are beginning to recognize that there are cases in which it is impossible to identify or restrain a user but in which authors are entitled to be remunerated for the use. Individual users with reproducing equipment cannot be prevented from using that equipment to capture, store, copy, and perform copyrighted works, and no direct payment from user to copyright owner can be expected or demanded in this situation. Traditional copyright markets are being devastated by these practices,

and alternative methods to recompense copyright owners are urgently being sought. In some countries that already have the necessary structure of a single collecting organization and a regulatory government tribunal, a method being tried is to place a surcharge on the purchase of "software" for reproduction (e.g., audio- and videotape), on "hardware" for reproduction (e.g., recording and photocopying machines), or on both. This surcharge is paid by the buyer through the retailer to the collecting organization.

- "Fair use" or "fair dealing" provisions. The doctrine of fair use has grown up alongside copyright statutes to excuse small noncompetitive uses of copyrighted material. In recent decades there has been a trend toward broadening the concept of fair use from a privilege to an outright exemption to the exclusive rights of copyright owners. Fair use came to be a justification for widespread and systematic photocopying, microreproduction, audio and video recording, and computer uses—not only by libraries, educational institutions, and research organizations but also by their suppliers and by individuals using the institutions' equipment for personal use. At least in developed countries there seems to be a trend away from recognizing these broad exemptions.
- *The rights of individual authors.* In an era when technology appears to be forcing more and more collectivization upon the operation of the copyright law, the pecuniary and personal situation of individual authors once more becomes a major issue. The age-old problems recur in a new setting: freedom of expression versus censorship; freedom to publish versus state-controlled MONOPOLY; independent creation versus creation as an employee for hire or as a member of a collective group; moral rights versus the power of entrepreneurs or governments to distort the author's work, to suppress the author's name, or to suppress the work itself.

The long struggle for authors' rights represents too important a chapter in human history to be lost to new technology. In altering the course of copyright law to meet the challenge of technology, governments would do well to study copyright history and to learn from the lessons it has to teach.

Bibliography. Lyman Ray Patterson, *Copyright in Historical Perspective*, Nashville, Tenn., 1968.

BARBARA RINGER

CRITICAL THEORY. See COMMUNICATION, PHILOSOPHIES OF; COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT; FEMINIST THEORIES OF COM-

MUNICATION; IDEOLOGY; MARXIST THEORIES OF COMMUNICATION; POETICS.

CROWD BEHAVIOR

Crowds have been analyzed and studied at different levels and by different disciplines, the most prominent of which include psychology, sociology, and history. In the late nineteenth and early twentieth centuries French sociologist Gustave Le Bon endeavored to adapt the theory and practice of government to the challenges of mass society, while his colleague and contemporary JEAN-GABRIEL DE TARDE moved toward a psychology of mass communications when he examined the notions of *public* and *opinion* (see PUBLIC OPINION).

Background. The French Revolution was the first event of modern history in which crowds played a pivotal role. The framework for understanding social movements of this sort includes the Industrial Revolution and increased urbanization, which attracted to the cities multitudes of individuals predisposed by the rupture of traditional bonds to other forms of association. The crowd was the most spectacular of the new forms.

Le Bon's celebrated and influential study, *Psychologie des foules* (Psychology of Crowds, 1895), which appeared in English as *The Crowd: A Study of the Popular Mind* (1896), has continued to dominate most thinking on the subject. His work was organized around the opposition individual/crowd. Such corresponding polarities as conscious/unconscious, rational/irrational, and moderate/extremist reflect the general feeling that individuals should be guided by intelligence, not dominated by emotion. That is why crowds tend to seem menacing, dangerous, indeed criminal, even if one does not deny them courage, heroism, and sometimes generosity.

In the late nineteenth century hypnosis was cited in attempts to explain in a coherent way both the suggestibility that leads to the fusion of individuals into a crowd and the ascendancy of the leader—for, in Le Bon's words, "the leader has most often been first a follower hypnotized by an idea of which he has subsequently become the apostle." To this conception of natural or spontaneous crowds, Tarde and SIGMUND FREUD added that of artificial or organized crowds, thereafter called *masses*. Church and army are prototypes, but political parties, unions, and government institutions are obviously other examples. The theory thus enriched encompasses all aspects of social and political life, from its temporary and egalitarian forms to other more permanent, hierarchical ones.

The public. In *L'opinion et la foule* (On Communication and Social Influence, 1901) Tarde announced the appearance of a new type of social group

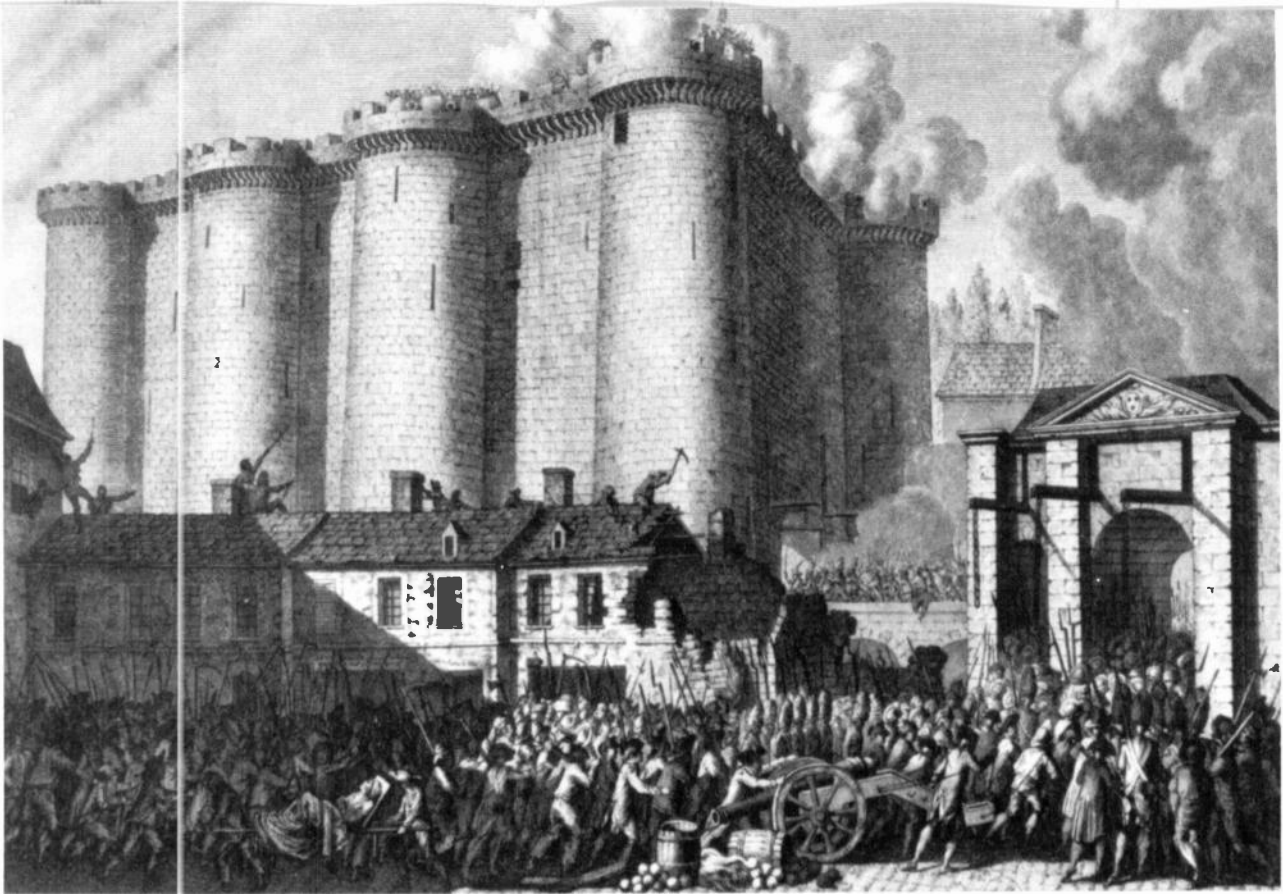


Figure 1. (*Crowd Behavior*) Jean-Louis Prieur, *The Taking of the Bastille*, July 14, 1789. Musée Carnavalet, Paris. Giraudon/Art Resource, New York.

defined as a “dispersed crowd, where the influence of minds on each other operates . . . at greater and greater distances”: the public. From the crowd the public derives the simultaneity of experience and from the mass the permanence of a spiritual community, but it is distinguished from both by an inclination to ignore traditional borders, whether local or national. The distinctive role of a public is to generate opinion. In past eras PUBLIC SPEAKING played an important part in this, largely supplanted in modern times by mass media. In all eras an especially crucial role is played by private talk.

Tarde’s approach can be seen as an early version of the “two-step flow of communication” promulgated decades later by PAUL F. LAZARSFELD and Elihu Katz, which again emphasized the role of interpersonal relations. The opinion leaders of modern theory (see OPINION LEADER) are not far distant from Tarde’s *élites*. The close kinship between old and new approaches may be seen further in the common perception that communication is interrelated with all sorts of social phenomena worldwide. An important example is the spectacular development of ADVERTISING (*publicité*), which links consumers (publics) and producers (as sources of influence) in complex systems of markets, prices, and far-flung wholesale and retail transactions.

As a factor in the growing role of crowd psychol-

ogy, Tarde noted the amplification made possible by mass media when he wrote, “A pen is sufficient to set millions of tongues in motion.” If updated, such a statement would have to take note of television and its impact in all societies in which it has been introduced. Its effectiveness in enacting the first step in the two-step flow of communication may perhaps be explained in part by the hypnotism model. As Tarde put it, with regard to the press, “every newspaper has its *star*, and this star—highlighted every now and then—captures the attention of all readers, hypnotized by its brilliance.”

Outlook. Studies of crowd behavior have had an influence on sociology and political thought (e.g., in the work of ÉMILE DURKHEIM and Hannah Arendt) and echoes in philosophy (e.g., in José Ortega y Gasset, Henri Bergson, and Karl Jaspers) as well as in literary works by Hermann Broch and Elias Canetti, among others. Yet crowd behavior studies have gone through a period of decline. Experimental psychology, little represented because the subject does not lend itself readily to experimentation, has nevertheless contributed ingenious tests of hypotheses. For example, the “crowd crystals” evoked by Canetti to describe the genesis of a crowd became, in a field experiment by Stanley Milgram and Hans Toch, “precipitating groups” in a New York City street crowd.

The decline, however, could only be temporary, given the importance of the issues involved in the study of crowds. Tarde's call for a shift from the study of crowds to the study of publics has, in fact, been heeded—as evidenced, for example, in the multitude of public opinion polls (see POLL) and in analyses of the audiences for the mass media (see RATING SYSTEMS: RADIO AND TELEVISION). The media's dispersed publics, constituted of isolated individuals, find themselves unable to “talk back” to the media effectively, subjected to a one-way process that has reduced the importance of conversation and, in general, of all interpersonal channels. Thus a new kind of crowd has been created: *mass society*, a primary concern of the Frankfurt school (see ADORNO, THEODOR) for which the central questions—never fully answered—of crowd behavior become relevant: What is a mass? How can it have so much influence on the individual? What is the nature of the transformation undergone by individuals as they become part of this mass? These questions have drawn new interest in the 1980s (e.g., Serge Moscovici's *The Age of the Crowd*, 1985) because prominent contemporary events—modern social upheavals and the governments that emerge from them—can scarcely be understood unless such questions are successfully confronted. To do so would seem to be of crucial importance, with implications for the future of civilization itself.

See also DEMONSTRATION; MASS COMMUNICATIONS RESEARCH; MASS MEDIA EFFECTS; MASS OBSERVATION; POLITICAL COMMUNICATION.

Bibliography. Sigmund Freud, “Group Psychology and the Analysis of the Ego” (1921), in *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, Vol. 18, ed. by James Strachey, London, 1953; Carl F. Graumann and Serge Moscovici, eds., *Changing Conceptions of Crowd Mind and Behavior*, New York, 1985; Elihu Katz and Paul F. Lazarsfeld, *Personal Influence*, Glencoe, Ill., 1955; Gustave Le Bon, *The Crowd: A Study of the Popular Mind* (*Psychologie des foules*), 1896, reprint New York (with a new intro. by Robert K. Merton), 1960; Stanley Milgram and Hans Toch, “Collective Behavior: Crowds and Social Movements,” in *Group Psychology and Phenomena of Interaction*, Vol. 4, *The Handbook of Social Psychology*, 2d ed., ed. by Gardner Lindzey and Elliott Aronson, Reading, Mass., 1969; Serge Moscovici, *The Age of the Crowd* (*L'âge des foules*), trans. by J. C. Whitehouse, Cambridge and New York, 1985; Jean-Gabriel de Tarde, *L'opinion et la foule* (*On Communication and Social Influence*), Paris, 1901.

MARTIN GORIN AND SERGE MOSCOVICI

CRUSADES, THE

The modern name given to a number of military expeditions instigated by the papacy between the end

of the eleventh and the fifteenth centuries. These expeditions were launched in the interests of the Christian community that used the Latin rite and looked to the pope as its head, not in the interests of any particular secular government. Appeals to take part in a crusade were addressed by the popes, bishops, and priests to Christians in many parts of western Europe.

The Crusades can be seen in retrospect as a major chapter in the evolution of international communication, with complex and often contradictory effects. They extended Western civilization and control into areas hitherto under Muslim or other domination. They were among the phenomena that contributed to the growth and consolidation of papal authority in the Western church and, subsequently, to the exposure of the papacy to criticism; to development of new forms of the religious life; to the devising of new forms of taxation, both of clergy and of laity; to the increased use of indulgences, both as an inducement to give support to a crusade and as a financial device; to the extension of trading activity by Italian merchants; to European penetration of Asia; and to changed Western attitudes toward Muslims and wider acceptance of the idea of converting them to Christianity. This promoted the study of Arabic and other oriental languages as part of the training of missionaries. The effects reverberated through later centuries.

The best-known crusades were the successive expeditions directed by popes to the eastern Mediterranean. The main purpose of these was ensuring that the Holy Land in general and the Christian holy places in Jerusalem in particular were either conquered from the Muslims or defended against them. The original undertaking of this kind was preached by Pope Urban II in 1095 (Figure 1). This First Crusade conquered Jerusalem by force in 1099, the only crusade ever to do so (Figure 2).

As a result of this success, a minority of those who had taken part in the First Crusade settled in Palestine and Syria and took their places as a ruling group among the indigenous Christian and Muslim population. Some of the leaders of the crusade established governments in Jerusalem, Antioch (now Antakiya in Turkey), Edessa (now Urfa in Turkey), and Tripoli (now in Lebanon). Such were the so-called crusader states, which in the latter stages of their history maintained themselves only with difficulty in the face of mounting Muslim pressure. In 1291 they were finally extinguished on the Asian mainland.

The crusader states were always in need of reinforcement from western Europe, and in time of crisis that reinforcement sometimes arrived in the form of a major crusade. Thus the loss of Edessa to the Turkish atabeg (governor) Zangī in 1144 provoked the Second Crusade, while the loss of Jerusalem to the Muslim sultan Saladin (Figure 3) in 1187 brought

Figure 1. (*Crusades, The*) Pope Urban II arrives in France and preaches his call for a crusade at the Council of Clermont in 1095. From Roman de Godefroi de Bouillon, 1337. Giraudon/Art Resource, New York.

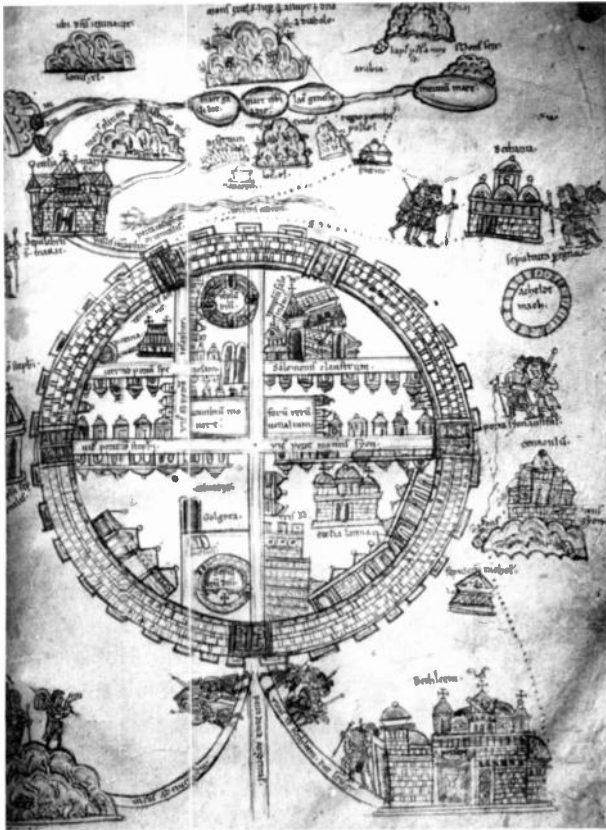


Figure 2. (*Crusades, The*) Twelfth-century map of Jerusalem. The Bettmann Archive/BBC Hulton.

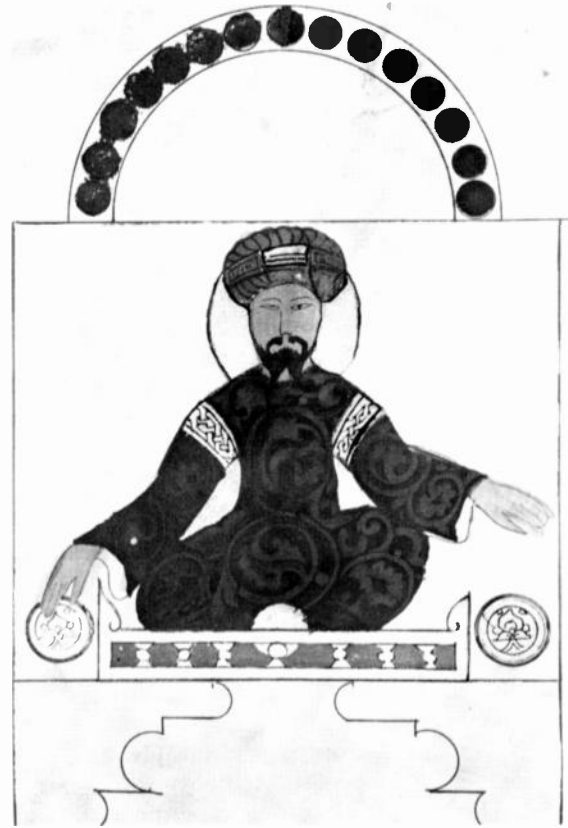


Figure 3. (*Crusades, The*) Portrait of Saladin (?), Persian miniature, Fatimid school, ca. 1180 c.e. Giraudon/Art Resource, New York.

the Third, in which England's Richard I (Lion-Hearted) played so prominent a part. His efforts to regain Jerusalem in 1191–1192 failed, but further attempts were made during the thirteenth century. Some failed while far from their objective. The Fourth Crusade (1202–1204) was diverted to Constantinople; the Fifth (1217–1221) and the Seventh (1248–1250) tried to break Muslim power in the Nile delta and got no farther. The Eighth in 1270 did no more than besiege Tunis. As a result of the Sixth (1228–1229), Jerusalem was regained by the negotiating skill of the Western emperor Frederick II, but it was lost again in 1244. These eight are the expeditions that have been traditionally regarded as the Crusades. There were other important expeditions to the Holy Land (for example, in 1124, 1129, 1177, 1239, and 1271) that were not included in the traditional numbered sequence.

The medieval papacy promoted episodes of warfare other than those intended to deliver or defend the Holy Land. The Muslims who held the land in which the human Christ had lived and the city in which he had died were seen as damaging the interests of Western Christians as a whole. There were those who believed that similar damage was done by groups both inside and outside Europe who deprived Christians of lands they considered rightfully theirs, or who threatened the security or unity of the church of which they were members, or the ability of the papacy to govern it. Such government was widely seen as necessary to preserve the unity and faith of the Roman church. Muslims in Spain, Slavs in the Baltic lands, Greek Christians in Byzantium, or groups of heretics in Europe who rejected the authority of the Roman see—even secular rulers in the Christian West who threatened the temporal rule of the popes in parts of Italy—all these were seen by some as no less dangerous to Christian interests than the Muslims of the Levant. They too needed to be removed by force. The popes took the lead in organizing warfare against them, and the means employed were the same as those used to send crusades to Jerusalem. From this point of view they were in all respects crusades.

Among present-day historians, therefore, there are two ways of regarding the Crusades. Traditionalists reserve the name for the expeditions planned against the Muslims in the eastern Mediterranean, especially in the Holy Land. A growing number, however, extend the term to the whole range of military undertakings set on foot by the medieval papacy, in which the participants wore the sign of the cross and received the material and spiritual privileges first devised for the crusade to Jerusalem. This was the view taken by the U.S. historians who planned the great cooperative *History of the Crusades*, with volumes published at the University of Pennsylvania and later at the University of Wisconsin.

Organization of the Crusades

These crusades, numbered and unnumbered, not only had the common objectives already described, but also came to have common features in recruitment and organization. They were initiated and publicized by various popes. In order to finance them, novel measures of taxation came to be devised, some by secular rulers and some by the popes, who levied mandatory taxes on the entire Western clergy. Individuals joined a crusade by making a solemn vow to take part in it and displayed their commitment visibly by stitching a cross to their clothing. When they had thus formally become Crusaders, the church made it easier for them to leave home for what might be a lengthy period by guaranteeing the protection of their lands, goods, and families. If they were involved in litigation, proceedings were stayed until their return, and so was the repayment of interest on their debts. The most powerful inducement of all was the indulgence. The advantages this bestowed were differently understood at different times by different people. They certainly included the remission of the penance due for the commission of sin, both during life on earth and in purgatory after death; but many came to believe that indulgences removed all guilt and all punishment for sin.

The promotion and organization of a crusade depended on oral and written communication throughout western Europe. The original appeal to Christians to take part was normally initiated in the papal curia or at a council over which the pope presided. It was carried further by preaching tours undertaken sometimes by the pope himself and sometimes by other designated clerical agents. The pope also sent encyclical letters to a wide variety of addressees, many of them archbishops of Western Christendom. In them the pope urged, often quite eloquently, the need for a new crusade. It was intended that these letters should be read aloud in provincial and diocesan synods, as well as in churches, and should be made the basis of preaching there. *See also* HOMILETICS.

Influence of the Crusades

The extent to which the Crusades affected the transmission of information, ideas, and attitudes is not easily determinable. Crusading activity contributed in some degree to a number of developments that would have occurred even if there had been no Crusades. For example, papal initiatives in launching and sustaining the crusading movement helped to build up the authority of the Roman see in the Western church, just as the growing volume of criticism of the Crusades in the later MIDDLE AGES included the papacy in the criticism; but the growth of papal government, like its subsequent difficulties, stemmed from many causes, of which the Crusades

were only one. The same is true of the ever more extensive trading carried on in the Levant (and subsequently still farther east) by Italian merchants, especially those from Venice, Genoa, and Pisa. The naval help they gave to crusading expeditions and to the establishment of the crusader states in Palestine and Syria assisted these developments but did not create them. Nonetheless, the contribution made by the Crusades was important, extending in some degree to further changes to which the growth of Mediterranean trading gave rise. These included a greater volume of interregional trading within Europe itself, a multiplication of the fairs and markets in which goods were exchanged, and the greater importance of merchants in medieval society and of the towns in which they lived.

Other changes arose mainly and more directly from the Crusades. The need to protect and care for pilgrims in the Holy Land as well as the pressure for campaigns against Muslims there and in Spain brought into being a new form of the religious life. These were the military orders, the most famous of which were the Templars and Hospitalers, whose members took the normal monastic vows of poverty, chastity, and obedience, but who also pledged themselves to fight mounted and armored against the Saracen enemy.

The use of indulgences involved another change. At first a device for rewarding those who went on crusades, it came to be offered to those who made only financial contributions. By the end of the Middle Ages this development had made indulgences a subject of criticism and even of scandal, which played their part in bringing about the Lutheran Reformation (Figure 4).

There came to be a close connection between crusading and missionary work. The earliest crusades were sent against Muslims, not with the object of converting them to Christianity, but with that of driving them by force from formerly Christian terri-

tory and of wresting from Muslim control Jerusalem and its holy places. There were always a few Crusaders, however, who expressed the hope that some Muslims might be converted, and a few such conversions were recorded during the course of each crusade. The coming of the friars gave further encouragement to the advocates of missions to non-Christians. The preaching of St. Francis of Assisi before the sultan of Egypt during the Fifth Crusade set an example to members of his rapidly growing Franciscan order. The Dominicans followed the same path and before 1300 had taken the lead in setting up schools in which friars could learn the languages of the peoples among whom they would preach. This initiative received official approval from the Roman church when authority was given at the Council of Vienne in 1311 for the establishment of schools in certain Western universities at which the Arabic and Tartar languages would be taught.

During the thirteenth and fourteenth centuries the connection between crusades and missions was often discussed. There were those who rejected crusades altogether, partly on the grounds that their repeated failure showed them to be displeasing to God. Relations with non-Christians, it was argued, should be founded on discussion and peaceful persuasion. At the other extreme were those who believed that the only arguments non-Christians understood were those of force. The strongest support was given to a position midway between the two extremes, which was stated most effectively by Pope Innocent IV (1243–1254). He believed that a crusade could be used legitimately to compel a non-Christian ruler to admit Christian missionaries into his lands.

There were occasions in the thirteenth century when missionaries were sent far into Asia to seek out the Mongol khans. These missionaries hoped that if the khans could be converted to Christianity the purposes of the Crusades could be achieved by the forging of an irresistible alliance against Islam.

Figure 4. (*Crusades, The*) Hans Holbein the Younger, *The Traffic in Indulgences* (detail), early sixteenth century. The Metropolitan Museum of Art, New York, Harris Brisbane Dick Fund, 1936. (36.77)



Italian merchants, whom crusading had helped to bring into Asia, undertook similar journeys. As a direct result of crusading, then, missionaries and merchants discovered more about Asia than medieval Europeans had ever known and provided a powerful incentive to further international communication.

Throughout the Middle Ages and even into early modern times crusading never entirely lost its appeal. The movement declined, however, as mounting costs, divisions within the Western church, and the preoccupations of secular rulers nearer home progressively increased the difficulties of launching an expedition, especially against distant objectives.

See also ISLAM, CLASSICAL AND MEDIEVAL ERAS; RELIGION.

Bibliography. A. S. Atiya, *The Crusade in the Later Middle Ages*, 2d ed., London, 1938, reprint New York, 1970; Eric Christiansen, *The Northern Crusades*, London, 1980; Norman Housely, *The Italian Crusades*, Oxford, 1982; B. Z. Kedar, *Crusade and Mission*, Princeton, N.J., 1984; Derek W. Lomax, *The Reconquest of Spain*, London, 1978; Hans Eberhard Mayer, *The Crusades* (in German), trans. by J. Gillingham, Oxford, 1972; Jonathan Riley-Smith, *What Were the Crusades?* London, 1977; idem, and Louise Riley-Smith, *The Crusades: Idea and Reality, 1095–1274*, London, 1981; Sir Steven Runciman, *A History of the Crusades*, 3 vols., Cambridge, 1951–1954; Kenneth M. Setton, ed., *A History of the Crusades*, 2d ed., 4 vols., Madison, Wis., 1969–.

R. C. SMAIL

CRYPTOLOGY

The technology of secret communication. **SECURITY** distinguishes cryptology from the rest of communication. Cryptological communications are not public communications. Cryptology includes the mechanisms that, on the one hand, produce private communications and, on the other, illegitimately penetrate them. Thus it incorporates the scientific study of both *cryptography* (the transformation of messages into secret form by codes and ciphers) and *cryptanalysis* (the solution of secret messages). Cryptology has changed as communications technology has changed, and major advances in technology, such as the invention of the **RADIO**, have significantly affected it. See also **CODE**.

Communications Intelligence and Communication Security

Cryptology here is used in its narrow sense to refer only to people-to-people communications; it will not deal with electronic intelligence, which includes active and passive sensors, such as radar and infrared detectors.

The means of penetrating secret communications are called collectively *communications intelligence*. They fall into three categories:

1. *Interception*. Begins with simple eavesdropping and mail opening and includes monitoring radio transmissions, wiretapping, bugging, and gaining unauthorized access to a computer's data bank. In addition, technological advances now allow the acquisition of acoustic or electromagnetic emanations of office equipment. For example, the display on a computer terminal screen gives off voltages that can be picked up from many feet away and used to reproduce the display.
2. *Traffic analysis*. Maps communication networks (on the basis of radio direction finding, call signs, message receipts, common frequencies, message serial numbers) to infer underlying organization and determines volume on different links to predict forthcoming actions.
3. *Cryptanalysis*. Solves codes or ciphers to reveal the text of the messages encrypted in them and analyzes recordings of acoustic and electromagnetic emanations to determine the letters or symbols they represent. For example, the sound of a typewriter striking an *a* will differ slightly from the sound of it striking a *b*, and the sounds, or their graphic representations, can be treated as a cryptogram and solved like one.

The means of protection, called *communication security*, fall into three corresponding categories:

1. *Steganography and transmission security, emanation security, and computer-system security*. Steganography hides the presence of a message by means of, for example, invisible ink, microdots, open codes, or messages concealed in pictures. Transmission security consists of such methods as whispering, sealing letters, and transmitting a long radio message in a spurt. Emanation and computer-system security utilize metal shielding and other techniques to prevent or minimize electrical leaks, electrical sweeps of rooms to detect bugs, passwords, and restrictions on levels of access.
2. *Traffic security*. Changes radio frequencies, varies call signs, imposes radio silence, transmits dummy messages.
3. *Cryptography, cryptophony, and cryptoeidography*. Cryptography puts messages, whether from humans, computers, or sensors (such as telemetered data from missiles or spacecraft), into secret form using codes or ciphers. The word *attack* may become BUUBDL in a substitution cipher; *do not yield* might become ODONYTEIDL in a transposition cipher. Cryptophony encompasses such varied forms of secret oral communication

as criminals' argot, pig latin, and scrambled telephony. Cryptoeidography includes a third-base coach's secret hit-and-run sign (*see also* SIGN LANGUAGE—ALTERNATE SIGN LANGUAGES), a collusive glance between friends, encrypted facsimile sent over long-distance telephone wires, and the coded broadcasts of subscription television (*see also* CABLE TELEVISION).

The Development of Cryptology

The development of cryptology has been affected significantly by advances in communications technology. The historical record suggests that secret WRITING arises in any culture as soon as writing becomes widely enough used to be more than a secret communication itself. This happened, for example, in Egypt, Mesopotamia, and India—though not in China, perhaps because of its ideographic writing system or because LITERACY was uncommon. The Greeks Homer and Herodotus mention uses of cryptography, and other reports come from Nigeria, Thailand, Scandinavia, Armenia, Persia, and ancient Ireland. The Arabs discovered cryptanalysis by letter frequency no later than the fourteenth century, but their discoveries were subsequently lost.

Cryptanalysis was apparently reinvented in the West when permanent embassies emerged during the RENAISSANCE. Cipher secretaries prepared elaborate nomenclators (lists of letters, syllables, and names with secret equivalents) for confidential communications between the Italian city-states and their ambassadors. And cryptanalysts sought, often with success, to solve the enciphered missives of rivals. By the 1700s their efforts had expanded into full-fledged black chambers—curtained, candlelit rooms where letters were unsealed and ciphers broken.

The telegraph reshaped cryptography. For flexible signal communications, armies developed the field cipher—cryptographic systems on a sheet or two of paper with keys that could be changed easily. For secrecy and economy, foreign offices evolved thick codebooks, in which words and whole phrases were represented by code groups like MIRASOL and 07181.

Half a century after the development of TELEGRAPHY, radio, whose transmissions are easily intercepted, made cryptanalysis into a significant intelligence force. During World War I the German army's readings of Russian military messages helped it defeat the czarist forces; French solutions of German army messages opened the way to one tactical victory after another. The British cracking of the Zimmermann telegram, in which the German foreign minister was revealed offering Mexico her "lost territories" of Texas, Arizona, and New Mexico in return for engaging in hostilities against the United States, helped bring the United States into the war.

The enormous burden of encrypting so many radiograms stimulated inventors to mechanize the work. In 1917 a U.S. engineer, Gilbert S. Vernam, automated cryptography. He joined an electromechanical ciphering device to a teletypewriter to make a mechanism that, once fed its key of punched tape, encrypted the plaintext (the message to be sent in secret form) and transmitted the result without human intervention to the receiving cipher teletypewriter. This teletypewriter automatically decrypted the ciphertext (the enciphered or encoded plaintext) and printed the plaintext. U.S. Army major Joseph O. Mauborgne, basing his work on Vernam's key tape, combined the concept of a key that was random with that of a key that was endless into the one-time system, the only theoretically and practically unbreakable cipher. At about the same time, a U.S. entrepreneur, Edward H. Hebern, and a German engineer, Arthur Scherbius, independently invented the rotor, or wired code wheel.

The armed forces of various nations adopted rotor machines of their own design in the 1920s and 1930s, but brilliant, mathematically oriented cryptanalysts solved them. U.S. cryptanalyst William F. Friedman solved Hebern's mechanism, and Polish mathematician Marian Rejewski broke Scherbius's Enigma machine.

During World War II code breaking—sometimes aided by protocomputers—led to the victories of Midway and the battle of the Atlantic, to the cutting of Japan's lifelines by U.S. submarines and the midair assassination of Admiral Isoroku Yamamoto, and to scores of tactical victories on the battlefields of Europe. It shortened the war by months.

In the decades following the war, computers played a major role in helping both to solve and to design cryptosystems (*see* COMPUTER: IMPACT—IMPACT ON MILITARY AFFAIRS). The transistor and the integrated circuit permitted the development of systems far more complex than electromechanical devices were capable of. Nonlinear shift registers, for example, can generate streams of binary digits for keys that are electronically added, modulo 2, to the plaintext binary digits; the sum constitutes the cryptogram. Even if a part of the key stream is known to an enemy, what is known cannot be extended forward to read further cryptograms. Many modern cryptosystems are unbreakable in practice. Moreover, microprocessors have made good encryption so cheap and easy to use that more and more communications systems are utilizing it. For example, the messages between bank cash-dispensing machines and the bank's central computer are encrypted.

In all these "classic" cryptosystems both sender and receiver must have been given in advance and in a secure way the cryptosystem's key. Recently, cryptosystems have been developed in which encrypting

these questions by giving the television answer is an indication of television's contribution to viewers' conceptions of social reality.

Instances of clear-cut divergence between symbolic and "objective" reality provide convenient tests of the extent to which television versions of the "facts" are incorporated or absorbed into what heavy viewers take for granted about the world. For example, television drama in the United States tends sharply to underrepresent older people, the fastest-growing segment of the U.S. population. Heavy viewers are more likely than light viewers to believe that the elderly are in worse health, that they do not live as long, and that there are fewer of them compared to twenty years ago.

Violence profiles. Much cultivation analysis has focused on the implications of exposure to television violence. Year after year, well over half of all major characters on prime-time U.S. television are involved in some kind of violent action, and violence is overwhelmingly more prevalent on television than in real life. The research has generally found that heavy exposure to the world of television cultivates exaggerated perceptions of the number of people involved in violence, as well as numerous other inaccurate beliefs about crime and law enforcement. But cultivation analysis is not limited to the comparison of television "facts" with real-world statistics. The "facts" of the world of television can become the basis for a broader, more general worldview, thus making television a subtle but significant source of general values, ideologies, and perspectives as well as specific assumptions, beliefs, and images.

The "mean world" syndrome. One example of this has been called the "mean world" syndrome of interpersonal mistrust. Studies of television content say little explicitly about people's selfishness or altruism, and there are no real-world statistics about the extent to which people can be trusted. Yet the research suggests that one "lesson" viewers derive from regular heavy exposure to the overly violent television world is that most people cannot be trusted and that most people are just looking out for themselves.

Similarly, cultivation researchers have argued that since television's messages are designed to disturb as few viewers as possible (in order to attract as many viewers as possible), they tend to avoid potentially controversial extremes, attempt to balance opposing perspectives, and steer a middle course along a safe and supposedly nonideological mainstream. This has been used to explain the finding that heavy viewers are significantly and substantially more likely to label themselves politically "moderate" rather than either "liberal" or "conservative."

Thus cultivation analysis explores specific assumptions about facts and extrapolations from those facts

to more general perspectives and orientations. Overall, cross-sectional and longitudinal results consistently demonstrate television's ability to cultivate beliefs and assumptions in a wide variety of areas, such as images of violence, sex- and age-role stereotypes, conceptions of occupations, science, EDUCATION, health, FAMILY life, minorities, political self-designations and orientations, RELIGION, and other issues.

Specifying the Process

Demographic, social, family, and personal contexts influence the precise shape, scope, and degree of the contribution of television to viewer conceptions. Therefore cultivation is not a unidirectional flow of influence from television to audiences but part of a dynamic process of interaction among messages and contexts.

In some cases those who watch more television are more likely—in all or most subgroups—to give the television answers. But in many cases the patterns are more complex. Television viewing usually relates in different ways to different groups' life situations and worldviews.

Cultivation is both dependent on and a manifestation of the extent to which television's imagery dominates viewers' sources of information. Cultivation research has found that factors such as personal interaction make a difference. Adolescents whose parents are more involved in their use of television show smaller relationships between amount of viewing and perceiving the world in terms of television's portrayals, and children who are more integrated into cohesive peer or family groups are less vulnerable to cultivation (see CHILDREN—USE OF MEDIA).

Direct experience also plays a role. The relationship between amount of viewing and fear of crime is strongest among those who live in high-crime urban areas—a phenomenon called *resonance*, because reality and television provide a "double dose" of messages that "resonate" and amplify cultivation. Further, relationships between amount of viewing and the tendency to hold exaggerated perceptions of violence are more pronounced within those real-world demographic subgroups (usually minorities) whose fictional counterparts are more frequently victimized on television.

In sum, a wide variety of demographic, individual, social, and family factors and processes produce systematic and theoretically meaningful variations in cultivation patterns. "Mainstreaming," a particular pattern of differential vulnerability, has received greater research attention.

Mainstreaming. Transcending historic barriers of LITERACY and mobility, television has become a primary source of everyday culture for otherwise het-

erogeneous populations. Television provides, perhaps for the first time since preindustrial religion, a strong cultural link between the elites and all other publics. It provides a shared daily RITUAL of highly compelling and informative content for millions of otherwise diverse people in all regions, ethnic groups, social classes, and walks of life. From the perspective of cultivation analysis, television provides a relatively restricted set of choices for a virtually unrestricted variety of interests and publics.

The mainstream is a relative commonality of outlooks and values that heavy exposure to the features and dynamics of the television world tends to cultivate. Mainstreaming implies that heavy television viewing may absorb or override individual differences in perspectives and behavior stemming from other factors and influences. In other words, differences in the responses of different groups of viewers or differences that can be associated with varied cultural, social, and political characteristics of these groups are diminished or even absent from the responses of heavy viewers. Mainstreaming thus represents a relative homogenization and absorption of divergent views held by otherwise disparate viewers.

Perspective

Cultivation analysis has been criticized on theoretical, methodological, and epistemological grounds. Lively (and occasionally acrimonious) debates have led to refinements and enhancements in the approach. Some researchers have examined additional intervening variables and processes (e.g., perceived reality, active versus passive viewing), some have questioned the assumptions of stability in program content over time and across genres, and others have studied cultivation in countries such as England, the Netherlands, Korea, Sweden, the Federal Republic of Germany, and elsewhere. The literature contains numerous failures to replicate its findings as well as many independent confirmations of its conclusions. This debate suggests that the theory of cultivation and its associated methodology will continue to play an important role in communication research.

Bibliography. George Gerbner, "Cultural Indicators: The Third Voice," in *Communication Technology and Social Policy*, ed. by George Gerbner, Larry Gross, and William H. Melody, New York, 1973; George Gerbner and Larry Gross, "Living with Television: The Violence Profile," *Journal of Communication* 26 (1976): 173-199; George Gerbner, Larry Gross, Michael Morgan, and Nancy Signorielli, "The 'Mainstreaming' of America: Violence Profile No. 11," *Journal of Communication* 30 (1980): 10-29; idem, "Living with Television: The Dynamics of the Cultivation Process," in *Perspectives on Media Effects*, ed. by Jennings Bryant and Dolf Zillmann, Hillsdale, N.J., 1986;

Robert P. Hawkins and Suzanne Pingree, "Television's Influence on Social Reality," in *Television and Behavior: Ten Years of Scientific Progress and Implications for the 80's*, Vol. 2, ed. by David Pearl, Lorraine Bouthilet, and Joyce B. Lazar, Washington, D.C., 1982; Gabriele Melischeck, Karl Erik Rosengren, and James Stappers, eds., *Cultural Indicators: An International Symposium*, Vienna, 1984.

MICHAEL MORGAN

CULTURAL INDICATORS

A standardized instrument of measurement by means of which it is possible to assess quantitatively some relevant aspect of a society's CULTURE. Such measurements are necessary for relating culture to other large societal systems, such as the economy. The systematic juxtaposition of economic, social, and cultural indicators allows a quantitative study of these relationships, about which until recently only verbal speculation has been possible.

The term *cultural indicators* was coined by U.S. social scientist George Gerbner in 1969 and was then taken to cover three different approaches: (1) *institutional process analysis* inquiring into mass media decision making and policy formation; (2) *message system analysis* studying large aggregates of media content, especially on television, as a reflection of the mainstream of modern cultures (see TELEVISION HISTORY); and (3) *cultivation analysis* based on controlled comparisons of groups of light and heavy users of the medium being studied.

The systematic study of culture by means of indicators has proceeded at least since the 1930s in the United States, when sociologist William F. Ogburn included quantitative measurements of mass media content in his *Recent Social Trends in the United States* (1933) and when sociologist Pitirim Sorokin wrote his four-volume landmark work, *Social and Cultural Dynamics* (1937-1941). Other pioneers of cultural indicators research include the political scientists HAROLD D. LASSWELL and Ronald Inglehart and the psychologists David McClelland and Milton Rokeach.

Cultural indicators may be used to measure specific subsystems of high culture, such as ART and literature, but in general they are used to tap culture in the sense of the word used in social science and communication studies: patterns of shared ideas manifesting themselves in regularities of actions and artifacts characterizing whole societies or relevant subsystems thereof. In modern societies culture in this sense is to a large extent produced and reproduced, distributed, consumed, and gradually changed by means of the mass media. Cultural indicators research therefore falls to a considerable extent within the field of MASS COMMUNICATIONS RESEARCH.

Types. Theoretically there are two main types of cultural indicators: one tapping the *structure* of culture (as well as changes of that structure), the other the *processes* occurring within that structure. The former is system oriented, measuring macrophe- nomena; the latter is individual oriented, measuring microphenomena.

Methodologically there are three main types of cultural indicators, based on (1) quantitative CON- TENT ANALYSIS, (2) survey analysis, and (3) statistical analysis of behavioral data (often secondary analyses of data collected originally for other purposes).

A close relationship exists between theoretical and methodological aspects of cultural indicators. Thus cultural indicators based on content analysis have been used primarily to measure culture as structure: patterns of societal values appearing in the mass media. Gerbner's VIOLENCE profile based on content analysis of U.S. television output exemplifies this type of indicator. Cultural indicators based on secondary analysis of statistical data have been used primarily to measure the individual behavioral processes oc- curring within a given cultural structure. Various types of time-budget data, consumption statistics, and the like may be used to this end. Survey analysis measuring values and cognitions held by individuals in the population may be said to tap culture either as a process (societal values and cognitions as flowing into the individuals) or as a structure (cognitions and values held by groups of individuals sharing this or that social characteristic). Gerbner's CULTIVATION ANALYSIS exemplifies the former type of individual- oriented indicators; Rokeach's and Inglehart's value scales exemplify the latter.

Since cultural indicators may be related to eco- nomic and social indicators, it is important that the theoretical relationships among these three types of societal indicators be clarified. Economic indicators tap the production and accumulation of goods in society. Social indicators tap the distribution and consumption of goods (and ills) in society. Cultural indicators tap the state of culture (as well as its reproduction and gradual change): the patterns of ideas, beliefs, and values that govern and are gov- erned by the other large societal systems.

Being functionally rather than substantively de- fined, economic, social, and cultural indicators are not bound to any specific substantive sector of soci- ety. For instance, economic and social indicators may be, and actually have been, applied in the cultural sector of society (see, for instance, the UNESCO Statistical Yearbook), while cultural indicators could be used to evaluate important aspects of the eco- nomic and political culture of a given society.

Approaches. In the late 1970s cultural indicators research had two main centers: the Cultural Indica- tors group at the University of Pennsylvania in Phil-

adelphia and the Swedish Cultural Indicators Research Program. While the Philadelphia group to a large extent is utilitarian and empiricist in its approach, Swedish cultural indicators research has been more interested in theoretical and methodological prob- lems, trying to establish connections with the pre- cursors of cultural indicators research mentioned above.

At the Vienna Symposium on Cultural Indicators Research in 1982 it became clear, however, that the notion of cultural indicators was used in much wider circles than these two groups. For instance, in the U.S.-European Namenwirth-Weber-Klingemann group, economic indicators were related with some success to cultural indicators based on computerized content analysis. Thus the time-honored problem expressed in Marxist theory as the relationship be- tween base and superstructure has become amenable to sophisticated quantitative analysis (*see* MARXIST THEORIES OF COMMUNICATION). The two techniques of multivariate statistical analysis, LISREL and PLS, working with causal relations between latent and manifest variables, are eminently suited to these and similar problems.

The flow of information, beliefs, opinions, ATTI- TUDES, and values from the mass media to their audiences represents a special case of the general process by which a society's culture—a macrostruc- ture—is transferred to and internalized by the indi- viduals in it, especially the young. The process is multifaceted and goes under a host of terms, such as enculturation, socialization (primary and secondary), and EDUCATION. In mass communications research such phenomena have been conceptualized in two ways: either the use made by the individual of a given mass media content or the effects of the mass media on their audiences (*see* MASS MEDIA EFFECTS).

Over the decades, effects research has gradually turned from the study of specific, short-term effects to more general, long-term effects. These develop- ments have brought both uses-and-gratifications re- search and effects research closer to socialization research. Indeed, the term *cultivation*, as used by the Philadelphia group for the specific, long-term type of effect exercised by television on its audience, is very appropriate in that it highlights this phenomenon. Cultivation is a specific type of effects process: en- culturation and socialization by means of individuals' use of television.

No doubt cultural indicators research will continue to draw on the heritage of the classical scholars of social science who have dealt with the problem of culture and society—KARL MARX, MAX WEBER, Tal- cott Parsons, and others—as well as on the meth- odological and theoretical advances made by the modern precursors of cultural indicators research. Indeed, if cultural indicators research succeeds in

combining the heritage from its past with the possibilities offered by modern multivariate statistical analysis, it is likely that gradually it will be able to provide answers to such basic problems as

- the relationship between a society's technoecological base and its mental superstructure;
- the relationship between a society's social system and its cultural system;
- the way in which a society (1) produces, reproduces, and develops its culture; and (2) distributes it among its members.

See also COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT; EVALUATION RESEARCH; SELECTIVE RECEPTION.

Bibliography. Teun van Dijk, ed., *Discourse and Communication: New Approaches to the Analyses of Mass Media Discourse and Communication*, Berlin, 1985; George Gerbner, Ole R. Holsti, Klaus Krippendorff, William J. Paisley, and Phillip J. Stone, eds., *The Analysis of Communication Content: Developments in Scientific Theories and Computer Techniques*, New York, 1969; Ronald Inglehart, *The Silent Revolution: Changing Values and Political Styles among Western Publics*, Princeton, N.J., 1977; K. G. Jöreskog and Herman Wold, eds., *Systems under Indirect Observation: Causality, Structure, Prediction*, Amsterdam, 1982; Hans-Dieter Klingemann, ed., *Computerunterstützte Inhaltsanalyse in der empirischen Sozialforschung*, Kronberg/TS, 1982; David C. McClelland, *The Achieving Society*, Princeton, N.J., 1961; Gabriele Melischek, Karl Erik Rosengren, and James Stappers, eds., *Cultural Indicators: An International Symposium*, Vienna, 1984; J. Zvi Namenwirth and Harold D. Lasswell, *The Changing Language of American Values*, Beverly Hills, Calif., 1970; Milton Rokeach, ed., *Understanding Human Values*, New York, 1979; Karl Erik Rosengren, *The Climate of Literature*, Lund, Sweden, 1983; Pitirim A. Sorokin, *Social and Cultural Dynamics*, 4 vols., London, 1937–1941.

KARL ERIK ROSENGREN

CULTURE

The concept of culture has an agricultural origin: it first referred to the tending or "cultivation" of crops. In the later stages of its history the concept has retained within it the sense of process. The "culture of the mind" is not acquired at once, nor does a person become "cultivated" at once. Many attempted definitions of the word *culture* have been inspired by the sense that it was being misused. One reason is that during the eighteenth and nineteenth centuries it acquired new meanings far removed from its humble origins. For some people it became a thing in itself, a state rather than a process, or perhaps an achievement or veneer, something that persons or

societies either had or did not have. Pride in a specific national culture was a buttress of nationalism, and both developing educational and communications systems were geared to enhancing it.

For Matthew Arnold (1822–1888), self-proclaimed bearer of "sweetness and light" to mid-Victorian Britain, culture was "the pursuit of our total perfection by means of getting to know, on all the matters which most concern us, the best which has been thought and said in the world." In referring to the world and not to the nation, Arnold was insisting that the best was universal. He objected to parochialism in both space and time and insisted that the pursuit of culture should be "disinterested," a "mode of enquiry." Thus he was also one of the first critics of media manipulation. His influence has remained considerable in the twentieth century, since one of the ways into cultural studies (and related communications studies) has been through literature. Arnold had less to say about other aspects of culture, and what he said about the need for literary discrimination has provoked charges of social bias.

For less idealistic social critics who wished to distinguish among different cultures, sometimes in the name of evolution, culture was the creative expression of a particular society through its symbols, literature, ART, and music and, for some, its institutions and the values and experiences that shaped them. Such creative expression was thought of as constituting a cultural heritage transmitted from one generation to the next. It had to be safeguarded, however, as well as communicated. Such a sense of culture could encourage either cultural relativism or the placing of cultures in an order that could be conceived of as evolutionary or aesthetic. In any case it was deemed essential to appreciate cultures and "to get inside them" rather than simply to observe or describe them.

On the basis of this second approach to culture it was also possible to classify and to analyze. "High culture" was distinguished from "peasant culture," "folk culture," "popular culture," "mass culture," and "midculture," and each of the variants was distinguished from and related to the rest. Subcultures were identified also, variants of a main culture shared by limited segments of a population identified by, for example, age, economic level, or social class. Such distinctions were related both to other social indicators and to modes of communication. Thus the origins of high culture were traced back through cities—with a debate about whether there was a significant difference between "culture" and "civilization"—or through monasteries, universities, academies, and societies. Peasant cultures were compared with one another. Preindustrial folk culture was contrasted with postindustrial popular culture. The roles of technology and of travel were examined.

Mass Culture

As the conceptual vocabulary expanded, clusters of new meanings were introduced into the ascription of forms and styles of culture. New issues were also opened up. One of the most controversial issues has been the assessment of mass culture, which drew concern about the erosion of quality as soon as it appeared. In the twentieth century this concern has focused especially on the effects of technology via postprint media. For Bernard Rosenberg modern technology was "the necessary and sufficient cause of mass culture," and the products of that technology were "broadened and thickened and coarsened characters." The "cultivated person" was in danger of being contaminated. For Dwight Macdonald, writing in 1952 before the growth of the television audience, "masscult," as he called it, was "bad in a new way; it doesn't even have the theoretical possibility of being good." Such an approach to mass culture, which was sometimes but not always distinguished from popular culture—some held that the one had destroyed the other—was attacked from the start. One line of attack was that it rested on a false view of "mass" and "masses." Another was that it was elitist. A third was that it stifled curiosity—and fun.

Sociologists attempted to sort out the issues. Edward Shils distinguished in 1960 between "superior or refined culture"; "mediocre culture," less original than "superior" culture but more reproductive; and "brutal culture," in which "the depth of penetration" was almost negligible, "subtlety" was almost entirely lacking, and "a general grossness" of PERCEPTION was a common feature. Such sorting out became increasingly difficult during the 1960s and has remained so since.

Cultural myths. There had always been a danger that argument about culture could become highly abstract and that philosophical or even prophetic strains would become dissociated from empirical fact. The history of culture as written in the twentieth century was shot through with myth long before World War II. Theories of "massification," like those of José Ortega y Gasset, whose *La deshumanización del arte* appeared as early as 1925, four years before his *La rebelión de las masas*, often rested on massive generalization. Theories of discrimination, like those of British critic F. R. Leavis, made too much of organic village community before the Industrial Revolution. Folk culture, it was often claimed, rested on the base of personal face-to-face communication, and the culture grew directly from the people who enjoyed it (see FOLKLORE). By contrast mass culture was a commodity marketed by profit-seeking providers who claimed misleadingly that they were giving the people what they wanted. The contrast was too sharp, as historians of the development of popular

culture have shown, but they in turn have been accused of "culturalism," neglecting economy and technology.

Whatever the standpoint of the writer, the history of culture in the twentieth century has always been directly related to the history of communications. All historians have noted the strategic importance of converging economic and technological change in the late nineteenth century, with the development of the telegraph (see TELEGRAPHY), the TELEPHONE, electricity, RADIO, MOTION PICTURES, the automobile, ADVERTISING, and the popular press. These developments gave a new sense to both space and time and elicited many prophetic pronouncements, as diverse as they were numerous.

Prophets and liberators. The implications of a continuing communications revolution did not begin to be fully discussed until the 1950s and 1960s, and then there was no shortage of prophets. MARSHALL McLuhan followed up his *The Mechanical Bride: Folklore of Industrial Man* (1951) with *The Gutenberg Galaxy* (1962) and *Understanding Media: The Extensions of Man* (1964). A later title was *Culture Is Our Business* (1970). Macdonald reserved his main critique not for "masscult" but for "midcult," Shils's "mediocre culture," the merging of high and low culture in a swampy middle ground. There was also excitement in the feeling that the artist was "smashing open the doors of perception." Some sub-cultures—intellectual, literary, musical, or artistic—had always been AVANT-GARDE or, in different terms, "adversary cultures." Now there was talk of a "counterculture" or "bomb culture." Far from pursuing "the best," cultural rebels spurned all aspects of the authority that seemed to them to determine the criteria by which the best was chosen. They chose instead to liberate themselves from all authority and to subvert it or ridicule it in public. There were strong critical reactions. Daniel Bell wrote of a "radical disjunction" between the social structure and the culture. George Steiner coined the term *postculture* to cover "disarray, regress into violence, moral obtuseness." Meanwhile, in China—a very different culture with strong traditions—there was a self-proclaimed "cultural revolution" during which the cultural heritage of the past was deliberately and violently jettisoned. The contest seemed to be as universal as Arnold's quest for perfection. See also REVOLUTION; VIOLENCE.

Culture and Government

The radical attitudes toward culture during the 1960s eventually became dated. Some of them influenced the development of "mainstream culture." Others were themselves jettisoned, not least in China. Cultural discontents have not disappeared. Meanwhile

culture itself has increasingly come to be thought of as a sector of government. The word itself has followed the word *industry* in being used with reference not to a particular human quality but to a range of institutionalized activities sponsored respectively by business and government. The origins of both business and governmental institutions go back before the 1960s. There were ministers of culture before World War II, and cultural committees and delegations. Since the 1960s their numbers have increased. In Third World countries fears of "cultural penetration" and loss of cultural identity have been a potent force in encouraging explicit "cultural policies." These may have a developmental or a protectionist character. See DEVELOPMENT COMMUNICATION.

There has also been international debate on such issues, much of it centered in UNESCO, just as there has been debate inside developed countries on the implications of mass culture (see INTERNATIONAL ORGANIZATIONS; NEW INTERNATIONAL INFORMATION ORDER). The fact that the United States from the rise of the film industry onward has been a major exporter of cultural products has colored the debate. In the longer-term perspective there have been many other influences. The colonial empires created their own networks of cultural communication that have not completely snapped in the postcolonial era (see COLONIZATION). They work through LANGUAGE and customs, leaving intact, for instance, a great cultural divide between the English-speaking and the French-speaking former colonial territories. Thus there can be stronger cultural links with the distant former metropolis than with neighboring countries. Each country also has its own cultural geography, which is influenced by MIGRATION as much as by former political association. One of the most interesting situations is in Canada, where there is not only a strong cultural difference between English-speaking and French-speaking provinces but also a strong sense of the presence of the United States as a neighbor with a very different cultural history from both.

The Anthropological Approach

A third approach to culture, the anthropological, necessarily moves within a world context. The origin of the view that culture is a "whole way of life" can be traced back to German writers on ethnology a generation before E. B. Tylor published his *Primitive Culture* in 1871. It has been Tylor's definition of culture, however, that has been most often quoted, a proof of the selective nature of intellectual and cultural transmission over time. For Tylor culture was that "complex whole which includes knowledge, belief, art, morals, customs and many other capabilities and habits acquired by man as a member of society."

Religionists and Marxists. Many nineteenth- and twentieth-century anthropologists held that RELIGION, through myth, was the key to the understanding of "primitive culture," a view congenial to T. S. Eliot, who in his *Notes towards the Definition of Culture* (1948) called culture "the incarnation of religion." It did not require a direct Marxist influence to establish the importance within a "whole way of life" of "material culture"—culture as revealed in materials and artifacts (see ARTIFACT). But this view characterizes the Marxist influence derived from KARL MARX's specifically materialist interpretation. For Marx the material base along with the modes of production determined systems of meanings and values. Culture was "superstructure." There was room for a great variety of Marxist interpretations of the relationship between base and superstructure, and there has been ample debate on competing versions since the 1950s, some of it directly related to the debate on cultural revolution. No Marxist version, of course, would be compatible with an interpretation that the springs of culture are religious in character. See also MARXIST THEORIES OF COMMUNICATION.

All anthropological approaches to culture center, however, on regularities within cultural patterns, explicit or implicit. Culture is seen as being transmitted from one generation to the next through symbols and through artifacts, through records and through living traditions. There can be breaks in transmission, as in twentieth-century Europe, the United States, and China. Yet a "whole way of life" can be upset either from within, through atrophy or conflict, or from without, through contact with other cultures, including contact through trade, technology, war, invasion, or empire. The result can be cultural disintegration. In twentieth-century postcolonial circumstances the invasion could be conceived of as a communications invasion through imported communications technology or programs or through TOURISM. Migration outside and return could have similar consequences.

While it became a tradition in British anthropology to start with social structures and to refer to anthropology itself as social anthropology, most U.S. anthropologists started with culture traits, culture patterns, personality and culture, and comparative cultures and called their subject cultural anthropology. In the light of the latter tradition A. L. Kroeber and Clyde Kluckhohn reviewed concepts and definitions of culture in 1952 on the eve of some of the biggest changes in cultural sensibilities. More recently Clifford Geertz, collecting evidence from many societies, has conceived of culture as everything that is produced by and capable of sustaining shared symbolic experience, including, for example, cooking and sport (see FOOD; SPORTS). CLAUDE LÉVI-STRAUSS, outside both U.S. and British traditions of anthro-

pology, has treated culture as comprehensive and universal, and society as derivative: "Man reaches his essence, his universality only in culture." Behind a multiplicity of forms, old and new, there are underlying configurations of meanings, which have to be decoded (see CODE; MEANING).

Structuralist influence. It is via the anthropology of Lévi-Strauss and French LINGUISTICS and semiology that structuralist approaches to culture have come to influence the whole development of cultural studies (including communications studies), particularly, though not exclusively, in Europe since the 1950s (see SEMIOTICS; STRUCTURALISM). Structuralist approaches have converged with explicitly Marxist influences, too, especially through the work of ANTONIO GRAMSCI and Lucien Goldmann, and have reshaped attitudes toward both cultural history and contemporary culture and subcultures. Their influence can be discerned, for instance, in the writings of Raymond Williams, whose first important book, *Culture and Society* (1958), was within as distinctive an English tradition as the work of the social anthropologists. The influence of Gramsci's theories of cultural hegemony has been particularly apparent in the publications of the Center of Cultural Studies at Birmingham University. There is still a gulf, however, between the different approaches to culture and the terms used, and fashion as well as science or politics determines the outcomes.

Bibliography. Matthew Arnold, *Culture and Anarchy*, London, 1869, reprint Cambridge, 1960; Daniel Bell, *The Cultural Contradictions of Capitalism*, New York and London, 1976; Tony Bennett, Graham Martin, Colin Mercer, and Janet Woollacott, eds., *Culture, Ideology, and Social Process*, London, 1981; T. S. Eliot, *Notes towards the Definition of Culture*, London, 1948; Herbert J. Gans, *Popular Culture and High Culture: An Analysis and Evaluation of Taste*, New York, 1974; A. L. Kroeber and Clyde Kluckhohn, *Culture: A Critical Review of Concepts and Definitions*, Cambridge, Mass., 1952; Bernard Rosenberg and David Manning White, eds., *Mass Culture*, Glencoe, Ill., 1957; Bernard Waites, Tony Bennett, and Graham Martin, eds., *Popular Culture: Past and Present*, London, 1982; Raymond Williams, *Culture and Society*, London, 1958.

ASA BRIGGS

CUNEIFORM

Writing systems in which signs were made by the impression of a sharpened reed stylus on clay tablets. The term comes from the Latin for "wedge-shaped." The first and principal cuneiform system was invented to write the Sumerian LANGUAGE in southern Mesopotamia just before 3000 B.C.E. and persisted

into the first centuries of this era (see Figure 1). The earliest cuneiform tablets, excavated at the site of the ancient city of Uruk, evolved from a preexisting numerical notation system of CLAY TOKENS and token-inspired impressed tablets. Cuneiform, a system of more than one thousand signs that could represent not only numbers and measures but words and personal names, vastly increased the possibilities for information storage and communication. This is the earliest example of a durable, nonspoken representation of language. See SIGN; WRITING.

The speed and efficiency of cuneiform writing depended on impressing the wedge-shaped stylus onto a soft surface, and 99 percent of all surviving cuneiform documents are clay tablets ranging in size from 2 by 2 centimeters to 30 by 30 centimeters. The only other suitable medium for accepting the stroke of the stylus was wax; wax-covered writing boards were used extensively in the first millennium, though only one has survived. For purposes of commemoration or identification, cuneiform could be chiseled into stone, engraved in metal, and painted or scratched on wood or ceramics. See WRITING MATERIALS.

The invention of cuneiform writing is the subject of an episode in the Sumerian epic tale Enmerkar and the Lord of Aratta. Enmerkar, mythical ruler of the Sumerian city of Uruk whose historical prototype would have ruled about 2700 B.C.E., demands submission and tribute from the ruler of the distant Iranian city of Aratta, rich in the natural resources that Sumer lacked. Enmerkar's demands are communicated in a series of long messages delivered by a courier. When one message is too long for the courier to remember, Enmerkar invents "writing on clay tablets" as an aide-mémoire. This native etiology is scarcely plausible, and documentary evidence indicates that the earliest use of writing was for administrative recordkeeping, not diplomatic exchange—that is, cuneiform was used for information storage for several centuries before its full communicative potential was realized.

Development and evolution. Each sign stood for a Sumerian word of one or two syllables. In the earliest cuneiform repertory there were some abstract signs, such as a cross inscribed in a circle for "sheep." However, the great majority of signs were originally pictographic (see Figure 2), although modern scholars frequently cannot determine exactly what a given sign depicts. Whereas pictograms can adequately represent concrete objects, a variety of devices were employed to represent abstract notions. Signs could be juxtaposed, as in "woman" + "foreign land" = "slavegirl" (see Figure 2*f*), or "mouth" + "food" = "to eat" (see Figure 2*j*). In addition, a pictograph might be used to suggest an action accomplished by means of the pictured object, as in "foot" = "to go, stand" (see Figure 2*m*). But the potential to express

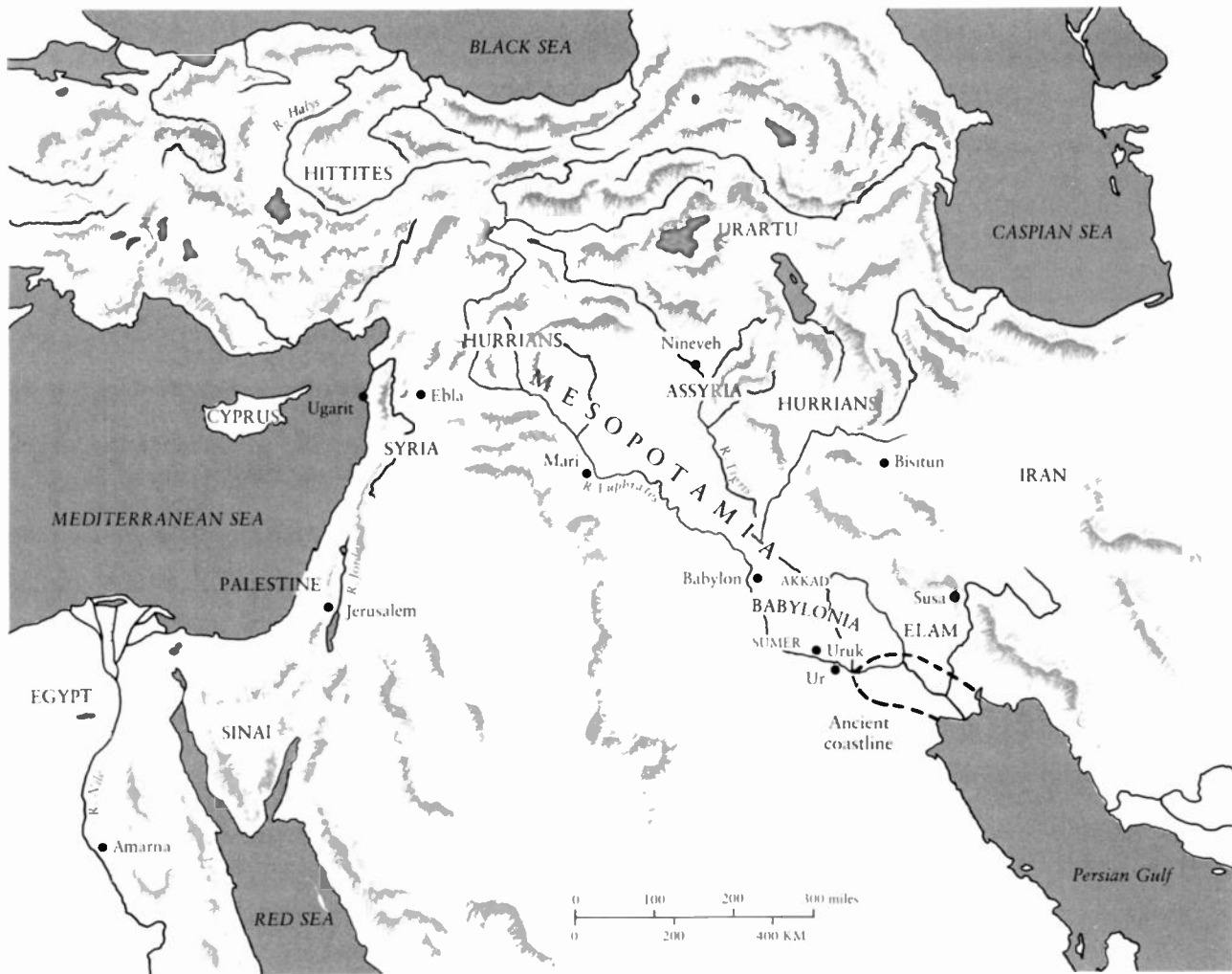


Figure 1. (*Cuneiform*) Ancient Mesopotamia and the cuneiform world.

the complete lexical and grammatical possibilities of language depended on the development of purely phonetic representation, which was accomplished through use of the rebus principle, by which the sign for one word came also to represent a homophone (a word that sounded the same but had a different meaning). Rebus writing allowed the use of the pictogram for the Sumerian word *ti* ("arrow") to be used to write its near homophone *ti(l)* ("to live"), or the pictogram *ga* ("[jar of] milk") to be used to write the verbal prefix *ga-* ("let me . . .").

The small number of rebus writings present in the earliest tablets proves that phoneticism was incipient at writing's beginning, but it was far more fully developed in later centuries. The rebus principle not only made the writing of many abstract words and grammatical particles possible but also enabled cuneiform signs to be used as purely phonetic representations in the writing of languages other than Sumerian.

Spread—linguistic and geographical. Speakers of the Semitic language ancestral to Akkadian (Assyro-Babylonian) were present in southern Mesopotamia early in the third millennium. Another Semitic lan-

guage, known from the Italian excavations at Ebla, was spoken in northern Syria. The early use of cuneiform to write Semitic languages in both these areas was confined to proper names, and at Ebla, lists of Semitic words and their Sumerian equivalents. Otherwise, documents from these regions use Sumerian elements, which may have been read as Semitic, with only a few phonetically written Semitic prepositions and pronouns.

The first continuous texts written completely in Semitic are attested in Mesopotamia proper in the Old Akkadian, or Sargonic, period (beginning ca. 2350 B.C.E.). Akkadian cuneiform persisted in Mesopotamia into the early years of the current era, although Akkadian as a spoken language began to be replaced by Aramaic (*see* ALPHABET) early in the first millennium B.C.E. In all periods, the paradigm for writing Akkadian established in the Old Akkadian period remained valid: phonetic representation using a restricted corpus of monosyllabic signs, supplemented by a limited number of Sumerian logograms, that is, words written in Sumerian but read as Akkadian. These usually represented very com-

	I	II	III	IV	V
a					
b					
c					
d					
e					
f					
g					
h					
i					

CHRONOLOGICAL PERIODS

- I Protoliterate (3000 B.C.E.)
 II Early Dynastic (2700 B.C.E.)
 III Early Dynastic II/III (2500 B.C.E.)
 IV Third Dynasty of Ur (2000 B.C.E.)
 V Neo-Assyrian (900-700 B.C.E.)

READING AND MEANING OF THE SIGNS

- a *dingir* (god); *an* (heaven)
 b *ki* (earth, place)
 c *lu* (man)
 d *munus* (woman); *sal* (thin, fine)
 e *kur* (mountain, foreign land)
 f *geme* (female slave)
 g *sag* (head)
 h *ka* (mouth); *mim* (word); *dug* (to speak)
 i *ninda* (food, bread); *gar* (to place)
 j *ku* (to eat)
 k *a* (water)
 l *nag* (to drink)

	I	II	III	IV	V
i					
k					
l					
m					
n					
o					
p					
q					
r					

- m *du* (to go); *gub* (to stand)
 n *mushen* (bird)
 o *ku* (fish)
 p *gud* (bull)
 q *ab* (cow)
 r *she* (grain, barley)

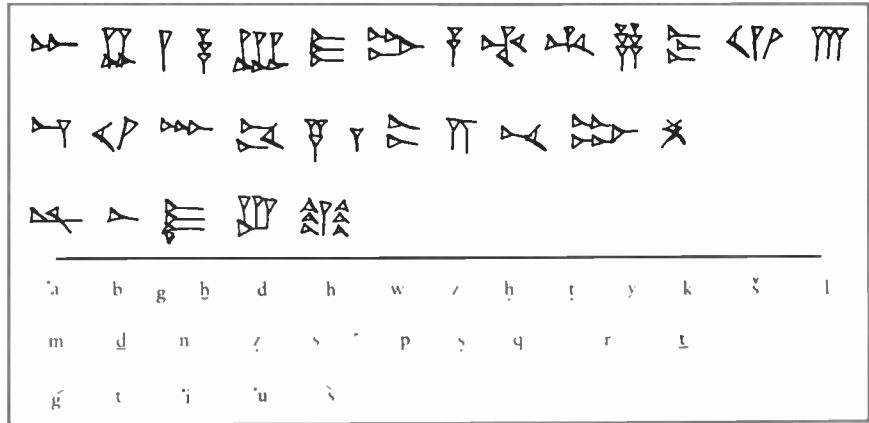


Figure 3. (*Cuneiform*) The Ugaritic alphabet as written on an exercise tablet excavated at Ugarit. From David Diringer, *Writing*, London: Thames and Hudson, 1962, pp. 115, 116. Transliteration updated by Jo Ann Hackett, The Johns Hopkins University.

Figure 4. (*Cuneiform*) The Old Persian syllabary. From G. R. Driver, *Semitic Writing from Pictograph to Alphabet*, London: Oxford University Press, 1948, p. 132.

	a		gu		tu		la		mu		la		"king"
	ṛ		ka		da		pa		ya		sa		"land"
	u		ka		di		na		wa		za		
	ka		ga		du		nu		wi		ša		"earth"
	ku		gi		ta		ma		ra		ra		"god"
	ga		ta		pa		mu		ru		ba		word divider

mon terms, such as “king” or “earth”; legal formulas; or technical terms, such as the names of items of furniture, semiprecious stones, or parts of the sheep’s liver.

By the middle of the second millennium B.C.E., several of Mesopotamia’s neighbors had adapted the Akkadian syllabary together with Sumerian logograms to write their own languages. These include the Elamites of southwestern Iran; the Hurrians, who were spread in an arc stretching from the Zagros Mountains in the east to the Taurus ranges in the west; and the Hittites, who controlled a large empire from their capital in central Anatolia. During this same period (ca. 1500–1200 B.C.E.), Akkadian became the lingua franca of the Near East and was used regularly in diplomatic communications between capitals. A large archive of Akkadian tablets unearthed at Amarna, in Egypt, contains the correspondence to pharaohs from Assyrian, Babylonian, Hurrian, and Hittite rulers as well as from Egypt’s vassals in Syria and Palestine.

In the first millennium, Sumero-Akkadian cuneiform was used to write other languages only in the east (Elam) and the far north, where it was adapted to write Urartian, a language akin to Hurrian spoken

in the area that would later become Armenia. In Syria and Palestine cuneiform and clay tablets were replaced by the easier-to-learn alphabet and papyrus or parchment, a process that was occurring in Mesopotamia as well.

Sumero-Akkadian cuneiform inspired two completely new and radically simplified writing systems utilizing configurations of wedges impressed on clay tablets. At Ugarit, on the Syrian coast, archives from the late second millennium containing both Akkadian records and records written in the local Canaanite language, Ugaritic, have been excavated. Ugaritic was written in a cuneiform alphabet of thirty signs, which suggests that the Semitic cursive alphabet had been developed already (see Figure 3). In the middle of the first millennium, the Achaemenid Persians developed a cuneiform syllabary of thirty-six signs and five logograms (see Figure 4) for writing Old Persian, which they used for commemorative purposes only; their administrative records are in cuneiform Elamite or alphabetic Aramaic.

Content. An enormous variety of texts were written in Sumerian and Akkadian, the languages of the vast majority of all cuneiform texts. As in modern civilization, the most common are records—administrative, legal, and economic—the “laundry lists” recording the daily transactions of large bureaucratic organizations (temple and palace) as well as individual families and firms. Many letters were exchanged

◁ Figure 2. (*Cuneiform*) The development of cuneiform signs. From Samuel N. Kramer, *The Sumerians*, Chicago: The University of Chicago Press, 1963, pp. 304, 305.

in the course of these transactions as well as for personal reasons between individuals (*see* LETTER). Affairs of state are recorded in diplomatic correspondence and international treaties. Commemorative inscriptions of rulers identify donations to the gods or building activities and often contain records of military accomplishments. Assyrian annals and Babylonian chronicles were dedicated to recording events of historical importance, the former in the name of the king and hence never less than flattering, the latter seemingly disinterested and objective. A small number of collections of laws, including the famous Code of Hammurabi (ca. 1800 B.C.E.), attest to a long tradition of legal conceptualization and formalization. There was a large body of scientific and technical texts, often arranged in long, multitablet series. Their subjects include divination, rituals, astronomy, mathematics, medicine, glassmaking, and lexicography.

Literature represents the smallest textual category, although there are many thousands of tablets containing literary compositions. These include hymns and incantations; epic and myth, including the justly celebrated Gilgamesh Epic and the Enuma Elish (Creation Epic); wisdom literature, such as the Poem of the Righteous Sufferer, proverbs, and fables; and historiographic compositions, which provided tendentious literary interpretations of events and great figures of the past (*see* HISTORIOGRAPHY). Both the number of copies of an individual composition and catalogs of literary texts in single holdings reflecting the scribal curriculum suggest that there was a sort of canon of literary texts, which were copied and transmitted by scribes in the course of their education and beyond. However, this canon was not at all rigid, and there is certainly no evidence for a category of forbidden texts. *See also* LITERARY CANON.

Literacy. It is assumed that, as in most traditional societies, LITERACY was restricted. This assumption is reinforced by the comparative complexity of cuneiform, the mastery of which required a rather long period of education. But there is no way of knowing whether it was restricted to scribes, scientists, and technicians or whether there was a wider literate public. In some periods, at least, there is evidence to suggest that businessmen could have mastered a repertory of signs large enough to understand their business records and letters.

The initial steps toward cuneiform literacy were copying individual signs and short excerpts from sign lists. Extant tablets preserve the instructor's copy in the left-hand column and the awkward student's imitation on the right; often the student's attempt has been wiped away many times. After learning how to write, the student copied more advanced lexical lists, compendiums of legal phrases, sample documents, and literary and technical compositions. The only detailed information available on the or-

ganization of schools and the curriculum is for the period around 1800 B.C.E., when education seemed to be provided by private academies rather than the large religious or secular institutions. A whole GENRE of literature, predominantly humorous and ironical, takes the scribal academy as its topic.

Decipherment. Cuneiform first drew the attention of Europeans through artifacts and reports brought back by visitors to the Near East, especially Persepolis, the ancient Persian capital, in the seventeenth and eighteenth centuries. Copies of Achaemenid royal inscriptions on stone were circulated, and it was soon established that some were trilingual, although none of the three languages—Old Persian, Elamite, and Akkadian—had been deciphered at that time. One of the three languages was written in a much simpler writing system, which by the early nineteenth century was correctly assumed to be Old Persian, the language of the Achaemenids (*see* Figure 4). The first steps toward decipherment were taken by the Göttingen scholar Georg Friedrich Grotefend (1775–1853). His work was continued by other scholars, but substantial progress could be made only when a sufficiently long inscription was found and copied. This was accomplished by the Englishman Henry Rawlinson (1810–1895), who at great personal risk copied the inscription of Darius I on the cliffside at Bisitun. In 1848 he published his decipherment of the Old Persian version, and by the mid-1850s the third language of the inscriptions, Akkadian, had been deciphered through the efforts of Rawlinson, the Irishman Edward Hincks (1792–1866), and the Frenchman Jules Oppert (1825–1905). This was possible only when it was realized that Akkadian was written both syllabically and logographically and that syllabic Akkadian writing was both polyphonic and homophonic (i.e., a given sign could have more than one reading, and a given sound might be expressed by any one of several signs). Because Akkadian was clearly related to other, better-known Semitic languages, this initial breakthrough led to rapid progress in decipherment, in turn facilitating the decipherment of cuneiform texts in a variety of languages during the following decades.

The second language of the Achaemenid inscriptions, Elamite, is without any known relation and is still only imperfectly understood. Sumerian, whose existence was established only after study of the tablets excavated by the British at NINEVEH, also has no known cognate languages, and its decipherment proceeded more slowly than that of Akkadian. Cuneiform Hittite was deciphered in 1915—less than a decade after the first lot of tablets was excavated—by the Czech scholar Bedřich Hrozný (1879–1952). The decipherment of Ugaritic (*see* Figure 3) was even more rapid. Soon after the first tablets were discovered by French excavators in 1929, independent decipherments were offered by the French scholars

Charles Virolleaud (1879–1968) and Édouard Dhorme (1881–1966) and the German Theo Bauer (1896–1957). The first Eblaite tablets were published by the Italian scholar Giovanni Pettinato after their discovery in 1974, and work on them has been continued by him and other scholars.

Divine patrons. The Sumerian god of wisdom was Enki (Ea in Akkadian), but writing proper was the domain of the goddess Nisaba, patron of scribes and the scribal academy. By the first millennium, this role had been transferred to the god Nabu. Nabu's emblems were the scribe's stylus and tablet.

See also ARTIFACT; EGYPTIAN HIEROGLYPHS; INDUS SCRIPT.

Bibliography. D. O. Edzard, "Keilschrift," *Reallexikon der Assyriologie*, Vol. 5, Berlin (1928 ed.), 1980; Samuel N. Kramer, *The Sumerians*, Chicago, 1963; Ministry of Culture, *Naissance de l'écriture: Cunéiformes et hiéroglyphes*, Paris, 1982; A. Leo Oppenheim, *Ancient Mesopotamia*, 2d ed., rev., Chicago, 1977.

JERROLD S. COOPER

CYBERNETICS

The word *cybernetics* was derived by mathematician and social philosopher NORBERT WIENER from the Greek word for the art of steering, *kybernētēs*. He defined it as "the science of control and communication," and to emphasize that the material embodiments of these processes were not central to its concern he added "in the animal and the machine." Before its modern meaning, André-Marie Ampère had used the word in 1838 and 1843, and ideas of cybernetics have been traced to Hero of Alexandria, who lived in the first century C.E.

Cybernetics is fundamentally concerned with organization, how organization emerges and becomes constituted by networks of communication processes, and how wholes behave as a consequence of the interaction among the parts. Cybernetics surfaced in a series of interdisciplinary meetings that began in the 1940s at a time when machines were envisioned that could do intellectual work; when communication and control became an increasingly important feature of society; when organizational challenges, especially during World War II, revealed scientific limitations; and when overarching organizing principles such as religion, IDEOLOGY, and imperialism seemed to give way to notions of autonomy, self-government, and, last but not least, information.

Wiener's book *Cybernetics*, first published in 1948, summarized the interdisciplinary collaboration and set forth the accomplishments and visions of the new field. In 1956 British psychiatrist W. Ross Ashby wrote an influential introduction to the field and suggested that cybernetics be concerned with systems

that contain and process their own information or are informationally closed. For management consultant Stafford Beer, cybernetics became the science of effective organization. U.S. neurophysiologist Warren S. McCulloch saw in cybernetics an experimental epistemology that enabled him to study communication within the brain and between observers and their environments. Late in his life JEAN PIAGET recognized cybernetics as an approach to modeling the cognitive processes underlying the human mind (see COGNITION). And GREGORY BATESON stressed that whereas the subject matter of science previously had been matter and energy, cybernetics, as a branch of MATHEMATICS dealing with problems of control, recursiveness, and information, focuses on forms and "the patterns that connect."

Circularity and Purpose

Probably the single most fertile idea in cybernetics is that of circularity. When A causes B and B causes C but C causes A, then A essentially causes itself, and the whole—consisting of A, B, and C—somewhat defies external manipulation. The cybernetic notion of circular reasoning has expanded scientific explanation and has yielded extraordinarily important constructions.

Traditional machines, culminating in the Industrial Revolution of the nineteenth century, replaced human physical labor in many areas, but humans still had to control the machines. For example, cars contain engines for locomotion, but drivers have to keep them on course. Early control theory aimed at the design of servomechanisms, that is, machines that could control other machines. Thermostats for temperature regulation, automatic pilots, industrial robots, wholly automated chemical plants, and, unfortunately, goal-seeking missiles are the results. In all of these examples the purpose is imposed from the outside by a human user or designer. When this theory is applied to human behavior, the negative feedback implied requires internal representations of desired states of affairs against which perceived deviations are measured and counteracted. For example, William T. Powers linked actions to perceptions and developed a psychology from the insight that all human behavior controls PERCEPTION.

During the seminal Macy Foundation conferences on cybernetics between 1946 and 1953 the multidisciplinary participants came to realize that circular causalities—such as a steersman who acts on the observed consequences of his actions, a speaker who continuously modifies her presentation while monitoring audience reactions to what she says, or the homeostatic mechanisms by which a living organism keeps important physiological variables in balance—underlie all purposive actions and that systems that embody them are fundamentally different from those

that do not. As a consequence of circular causalities within their organization the initial conditions and actual trajectories of behavior of such systems are insignificant in view of the final state to which they converge or the goal that they maintain in spite of outside disturbances. This recognition gave rise to a new teleology in which circular forms of organization (processes) and final conditions (states or structures) mutually define each other without reference to an origin or external purpose. Finding such circularities everywhere in the human nervous system suggested scientific research into questions of mind, consciousness, the notion of self (as in self-organization, self-identification, self-awareness), and an approach to human behavior without recourse to inside representations of outside events, controllers, or values. Such research is distinct from a search for linear causalities that either remains incomplete or ends in ultimate causes (theology). The early study of circular causalities helped to identify pathologies of the nervous system and aided the design of artificial organs. To social scientists it meant that purpose and mind may be seen as distributed (not centralized) and imminent in the way people interact or communicate with one another regardless of whether participants are fully aware of them. Examples of applications of this principle range from the maintenance of homeostasis in families to the working of checks and balances in an economy. Here cybernetics shifted attention from control *of* to control *within*.

Stability and Morphogenesis

Control theory is conservative in the double sense of motivating systems capable of stabilizing some of its variables and of requiring that such systems remain organizationally invariant during the process (morphostasis). Consequently, the modeling of social phenomena in terms of negative feedback control theory tends to promote the status quo. But circular causalities also can lead to runaways, such as arms races, explosions, meltdowns, or cancerous growths. These appear "uncontrolled" for fear of the unknown destruction they may cause. However, Japanese anthropologist Magoroh Maruyama has shown that deviation-amplifying circular causalities need not always be destructive. They may lead, through temporary instabilities, to new forms (morphogenesis), and in fact may account for many processes of social change. For example, above a certain threshold, organizational success breeds more success and initiates growth until new constraints are encountered; or an originally insignificant dissatisfaction may mushroom into widespread dissent until the whole social system is ready to undergo structural changes, reorganize itself, or assume a new identity. Managers, politicians, and therapists do not hesitate to initiate such "vicious cycles" for creating new systems. Ash-

by's concept of ultrastability, French mathematician René Thom's catastrophe theory, and Belgian physicist and Nobel laureate Ilya Prigogine's work on dissipative structures all concern such forms of morphogenesis.

Communication

Modern communication theory arose out of the cybernetic marriage of statistics and control theory. The idea that messages could be distorted by unpredictable perturbations ("noise") and recovered within limits by a receiver led to a concept of communication as the variation that senders and receivers share, or of information as the pattern that is invariant throughout the noisy transmission of messages from one place or medium to another. CLAUDE SHANNON's 1948 monograph "A Mathematical Theory of Communication" was a milestone for understanding communication quantitatively (*see* INFORMATION THEORY). Since its publication, explanations in terms of information processing, encoding-decoding functions, channels of communication, pattern recognition, uncertainty, redundancy, noise, equivocation, entropy, and the like have come to be used in nearly all fields of science. The theory reflects a shift in emphasis from isolated objects to organized wholes or from the separate study of senders, receivers, and messages to an inquiry into how they are related dynamically and quantitatively. Ashby's extension of the originally bivariate notion of communication to one embracing many variables renders information theory a statistical tool for tracing information flows in complex systems. The theory also provides measures of diversity, memory capacity, intelligence, and organization, plus a new way of conceptualizing cultural functions of art.

Computation and Algorithms

The development in cybernetics of an algorithmic logic that incorporates circularities in the form of recursive functions (functions that contain themselves in their arguments, like the square root of the square root of the square root . . .) and time profoundly changed scientific thinking. Against the background of Kurt Gödel's famous incompleteness theorem, whose proof involved recursive functions, British mathematician Alan M. Turing's work on a theory of computation, McCulloch and Walter H. Pitts's logic of neuronal networks containing loops, and, after experiences with ENIAC (the first operational vacuum-tube-based "ultra-rapid calculating machine"), JOHN VON NEUMANN presented a landmark proposal to an international symposium on Cerebral Mechanisms of Behavior (the 1948 Hixon Symposium) that became the foundation of the theory of finite-state automata and a blueprint for modern programmable digital computers (*see* COMPUTER:

HISTORY). These ideas not only gave birth to computer science, the field of ARTIFICIAL INTELLIGENCE, and the computerization of society but also shifted scientific attention from existing structures (ontology) to the operations that bring about particular phenomena (ontogenesis). In addition, they challenged the verification theory of truth, on which traditional science could heretofore rely, by positing instead a computability/decidability criterion. The notion of computation has since been generalized to a great many processes—technological, mental, and social—and theory constructions in the form of algorithms, which are a prerequisite of computer and mathematical modeling, are increasingly common. *See also* COMPUTER: IMPACT.

Contributions to Biology

Research in biology, by U.S. physiologist Walter B. Cannon on homeostasis and continued by Ashby on adaptation, ultrastability, information, and intelligence, revealed the enormous “wisdom” in the human nervous system. Work by McCulloch on neuronal communication nets, by von Neumann on self-reproduction, and by Austrian-born biophysicist Heinz von Foerster on learning and self-organization led to a view of the human brain as a model of sophisticated computing machinery and expanded greatly the conception of computers as an aid to human intelligence. (In the field of artificial intelligence this relationship is often reversed, taking computers as models of human cognition.)

Chilean biologists Humberto R. Maturana and Francisco G. Varela, along with others, suggested autopoiesis, a recursive process of self-production, as the fundamental process characterizing all living systems. Varela proposed various principles of biology, based on the autopoietic organization of living systems, relating especially to the concepts of autonomy and closure, that aim to overcome the previous preoccupation with control. In Maturana's work on the biology of cognition he challenged the epistemological foundations of all sciences that claim to study nature without acknowledging that all scientists are constitutionally tied to their own biology of cognition and that their universe is thus confined to computations in their own nervous systems. These ideas originated in biology, but the theories and computational models they inform are generalizable to other disciplines.

Contributions to the Social Sciences

Wiener, quoting Bateson and MARGARET MEAD, recognized that the social sciences are fundamentally concerned with organization, that communication systems and circular flows of messages in particular are the “glue” that holds social organizations together, and that cybernetics therefore is essential for

understanding the ontogenesis of society. Von Neumann and Oskar Morgenstern's game theory was an early cybernetic contribution to social interaction. It formalizes the coordination of action by players who have to consider their own behavior and the behavior of others. Extended to many players—so-called *n*-person game theory—to longer strategic commitments—so-called meta-game theory—and to different levels of information available, the theory is now a standard approach in economics and political decision making.

The idea that purpose could be structurally manifest in social organization proved attractive to anthropologists, sociologists, political scientists, and management scientists. With its emphasis on organization, variety, teleology, autonomy, and epistemology, cybernetics offered attractive alternatives to the usual theological, hierarchical, and linear causal constructions of social reality. Beer derived cybernetic principles of decision making, social learning, and adaptation and successfully applied them to business organizations and governments. Political scientist Karl W. Deutsch explored teleological models in the social sciences and developed a cybernetic approach to government. For some sociologists, cybernetics has lent mathematical substance to KARL MARX's idea of “structural purpose.” Polish economist Oskar Lange used cybernetics to model the economics of production. Bateson suggested “messages in circuit” as a unit of analysis and applied cybernetics in his explorations of art as communication, of human reasoning, and later of family therapy. Taking seriously the fundamental circularity in human interactive communication, Bateson saw the therapist as a participant in a system in which the family could develop its own autonomy, much as British educational theorist Gordon Pask viewed education as a mutual process in which teachers and learners adapt to and learn from each other. U.S. anthropologist Roy A. Rappaport employed cybernetics to demonstrate the regulative function of RITUAL and sanctity in human ecology. And in a related analysis Bateson showed convincingly how planning, as a supreme manifestation of human conscious purpose, will destroy the environment and thereby humans as well unless this received mode of action is replaced by a cybernetic understanding of the human role in an ecology of mind.

Contributions to Epistemology

Since Mead suggested in 1968 that cybernetics apply its insights about circular communication and organization to itself, the cybernetics of cybernetics, or second-order cybernetics as von Foerster called it, has become an increasingly fascinating subject. In this pursuit cybernetics not only relativizes itself but also challenges the traditional paradigm of scientific

inquiry at its base. Whereas the latter insists that scientific observers not enter their domain of observation, the cybernetics of cybernetics suggests instead that observers cannot escape participation in the very phenomena they observe. This necessarily self-referential involvement converges to world constructions that reflect more the recursivity of observing than the (unknowable) perturbations that may enter the process from outside. Austrian-born psychologist and philosopher Ernst von Glasersfeld, who calls himself a radical constructivist, therefore insists that all realities are, within experiential constraints, cognitively constructed. Von Foerster worked on the role of LANGUAGE and logic in such constructions. Austrian-born family therapist Paul Watzlawick points to the interactional grounding of such constructions. With this shift in ground, cybernetics leaves ontology (the branch of philosophy concerned with the nature of reality or what exists independent of its observation) in favor of an epistemology (the branch of philosophy concerned with processes by which we come to know) and lays the foundation for a new approach to human social cognition and self-understanding.

For the scientific study of communication the methodological consequences of this development are enormous. Theories of communication in systems that include their observers must be constructed within the very object they claim to describe, and the act of formulating such theories is also an act of changing the object while it is being described. Knowledge so obtained can no longer be evaluated as representative of an independently existing reality but as recursively embedded in actions that realize (construct or compute) its claims. Scientists—or any cognitively involved being, for that matter—can then no longer blame an objective reality for their “findings” but must assume responsibility for their own constructions. This responsibility has become the basis for ethical considerations of a cybernetic epistemology.

Cybernetics is not a mere collection of facts but a scientific approach to communication, knowledge, and reality construction with all of its cognitive and social consequences. True to its interdisciplinary origin, it provides a language for scientists to talk to one another across disciplinary boundaries. Cybernetics has been a continuous source of revolutionary ideas, has given rise to numerous specialized disciplines, and is providing a theoretical foundation for understanding the paths toward an information society. Its implicitly humanistic aim is wholly emancipatory.

See also MODELS OF COMMUNICATION.

Bibliography. W. Ross Ashby, *An Introduction to Cybernetics*, London, 1956, reprint New York, 1961; Gregory Bateson, “Cybernetic Explanation,” in *Steps to an Ecology of Mind*, New York, 1972; Gregory Bateson and Mary Catherine Bateson, *Angels Fear*, New York, 1987; Mary Catherine Bateson, *Our Own Metaphor*, New York, 1972; Stafford Beer, *Cybernetics and Management*, London and New York, 1959, reprint 1964; Walter F. Buckley, ed., *Modern Systems Research for the Behavioral Scientist*, Chicago, 1968; Walter B. Cannon, *The Wisdom of the Body*, rev. and enl. ed., New York, 1939; Roger Conant, ed., *Mechanisms of Intelligence: Ross Ashby's Writings on Cybernetics*, Seaside, Calif., 1981; Karl W. Deutsch, *The Nerves of Government: Models of Political Communication and Control*, New York, 1963; Oskar Lange, *Wholes and Parts* (Całość i rozwój w świetle cybernetyki), trans. by E. Lepa, Oxford, 1965; Warren S. McCulloch, *Embodiments of Mind*, Cambridge, Mass., 1965; Warren S. McCulloch and Walter H. Pitts, “A Logical Calculus of the Ideas Immanent in Nervous Activity,” *Bulletin of Mathematical Biophysics* 5 (1943): 115–133; Magoroh Maruyama, “The Second Cybernetics: Deviation-Amplifying Mutual Causal Processes,” *American Scientist* 51 (1963): 164–179, 250A–256A; Humberto R. Maturana and Francisco J. Varela, *Autopoiesis and Cognition*, Boston, 1980; Otto Mayr, *The Origins of Feedback Control* (Zur Frühgeschichte der technischen Regelungen), Cambridge, Mass., 1970; William T. Powers, *Behavior: The Control of Perception*, Chicago, 1973; Ilya Prigogine and Isabelle Stengers, *Order Out of Chaos* (La nouvelle alliance), New York, 1984; Roy A. Rappaport, *Pigs for the Ancestors*, new enl. ed., New Haven, Conn., 1984; Arturo Rosenblueth and Norbert Wiener, “Purposeful and Non-purposeful Behavior,” *Philosophy of Science* 17 (1950): 318–326; Arturo Rosenblueth, Norbert Wiener, and Julian Bigelow, “Behavior, Purpose, and Teleology,” *Philosophy of Science* 10 (1943): 18–24; Francisco J. Varela, *Principles of Biological Autonomy*, New York, 1979; Heinz von Foerster, ed., *Cybernetics of Cybernetics*, San Jose, Calif., 1985; Heinz von Foerster et al., eds., *Cybernetics: Circular Causal and Feedback Mechanisms in Biological and Social Systems*, 5 vols., New York, 1950–1955; John von Neumann, “The General and Logical Theory of Automata,” in *Cerebral Mechanisms in Behavior*, ed. by Lloyd A. Jeffress, New York, 1951, reprint 1967; John von Neumann and Oskar Morgenstern, *Theory of Games and Economic Behavior*, 3d ed., Princeton, N.J., 1944, reprint 1980; Norbert Wiener, *Cybernetics: Or Control and Communication in the Animal and the Machine*, 2d ed., Cambridge, Mass., 1961; idem, *The Human Use of Human Beings: Cybernetics and Society*, 2d ed., rev., Garden City, N.Y., 1954, reprint 1967; Marshall C. Yovits, G. T. Jacobi, and G. D. Goldstein, eds., *Self-Organizing Systems*, Washington, D.C., 1962.

KLAUS KRIPPENDORFF

A large, bold, red capital letter 'D' is positioned on the left side of the page. The letter is a classic serif font with a thick vertical stem and a rounded, bowl-shaped top and bottom.

(*dī*), the fourth letter of the Roman alphabet, corresponding in position and power to the Phœnician and Hebrew *daleth* and Greek *delta*, Δ, whence also its form was derived by rounding one angle of the triangular form. It represents the sonant dental mute, or point-voice stop consonant, which in English is alveolar rather than dental. The plural has been written D's, Ds, de's.

DAGUERRE, LOUIS (1789–1851)

French artist and inventor of the first successful photographic process. Louis-Jacques-Mandé Daguerre dedicated himself to capturing and communicating to large audiences the visible world. His first achievement—the diorama—created the illusion of nature through a combination of exact draftsmanship and imaginative lighting effects. When enthusiasm for such illusions waned, Daguerre turned to the exploitation of light itself. Building on the discoveries of JOSEPH-NICÉPHORE NIEPCE, he perfected a process using silver iodide and mercury vapor that revolutionized the way people looked at the world around them and at one another: the daguerreotype.

Daguerre was initially trained as a painter of stage designs, in which the goal was to display a scene with such impact that the audience almost accepted the illusion as a reality. In 1822 he opened a diorama whose scenes were so realistic that viewers claimed

to have seen figures in them move. By manipulating ceiling and wall panels Daguerre was even able to vary the light and create a sense of passing time and changing events (e.g., avalanches, volcanic eruptions).

Daguerre soon began a long series of experiments aimed at using light to create images of real objects, not just to illuminate the artist's designs. In 1829 he became the partner of Niepce, who by about 1826 had created the first permanent photograph using bitumen on a pewter plate. Daguerre rightly insisted that iodine on silver would yield better results, and in 1835 he found that a relatively short exposure to light (as little as five minutes) created a latent image, which could then be brought out by the action of mercury vapor. This photographic chain of events, in which a latent image is developed after exposure of the picture, remains the basis of film processes today.

The last major obstacle was the need to fix the

Figure 1. (Daguerre, Louis) Honoré Daumier, "Pose considered the most suitable for obtaining an attractive Daguerreotype portrait." Lithograph, 1844. Gernsheim Collection, Harry Ransom Humanities Research Center, The University of Texas at Austin.

LES BONS BOURGEOIS.

1 49



Position réputée la plus commode pour avoir un joli portrait au Daguerreotype

image permanently. In 1837 Daguerre found that common salt would perform the duty; two years later English scientist Sir John Herschel found a superior fixative, hyposulfite of soda, and Daguerre eagerly adopted it. The French government agreed to buy all rights to the process, and Daguerre's procedure was triumphantly announced to the world at a meeting of the French Academy of Sciences on August 19, 1839. The result was a craze for PHOTOGRAPHY that has never abated. Although the wet collodion process soon superseded Daguerre's process, the daguerreotype remained unequaled for sharpness until the development of fine-grained films in the twentieth century.

HARTLEY S. SPATT

DANCE

A complex form of communication that combines the visual, kinesthetic, and aesthetic aspects of human movement with (usually) the aural dimension of musical sounds and sometimes POETRY. Dance is created out of culturally understood symbols within social and religious contexts, and it conveys information and MEANING as RITUAL, ceremony, and en-

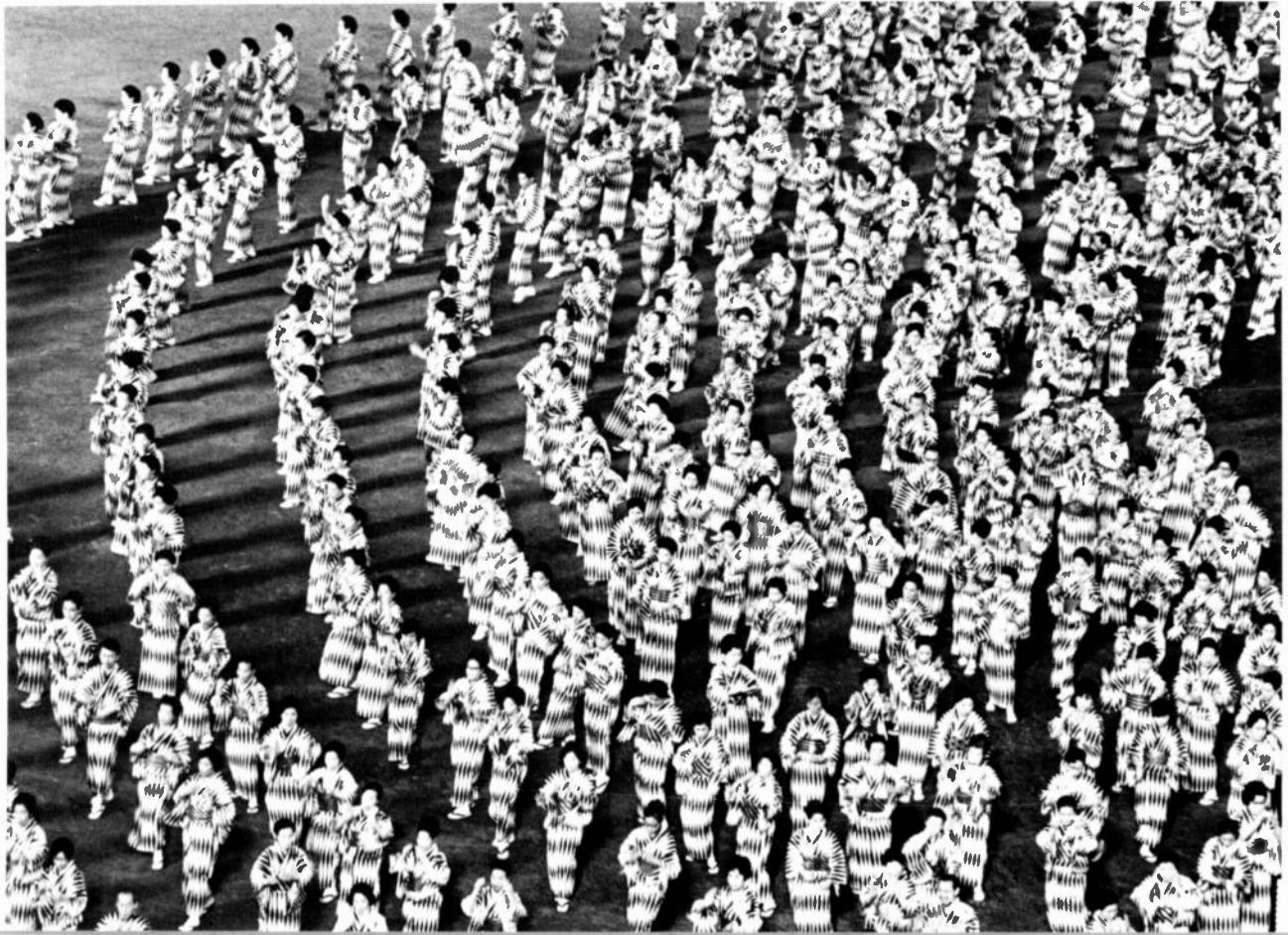
tertainment. For dance to communicate, its audience must understand the cultural conventions that deal with human movement in time and space.

Many definitions of dance have been proposed, but none has focused on its communicative aspects. With few exceptions writers simply assert without further elaboration that dance communicates, or else they focus on the NARRATIVE or mimetic potential of dance movement. From such assertions one can conclude only that the rigorous formulation and investigation of the communicative aspects of dance are still in their infancy.

Dance in a Cultural Context

Dance is a cultural form that results from creative processes that manipulate (that is, handle with skill) human bodies in time and space so that the formalization of movement is intensified in much the same manner as poetry intensifies the formalization of LANGUAGE. The cultural form produced, though transient, has structured content that conveys meaning, is a visual manifestation of social relations, and may be the subject of an elaborate aesthetic system. Often the process of performing is as important as the cultural form produced (*see* PERFORMANCE). Dance may be considered ART, work, ritual, ceremony, en-

Figure 1. (*Dance*) O bon festival dance (*bon odori*) performed in mid-August, Japan. Courtesy of Japan National Tourist Organization.



tainment, or any combination of these, depending on the culture or society that produces it. It is misleading to assume that dance is a universal language, as many have done in the past. Except on a most superficial level, dance cannot be understood (i.e., communicate) cross-culturally unless individual dance traditions are understood in terms of the culture in which each tradition is embedded.

Dance consists of structured movement that is usually part of some larger activity or activity system. Many societies do not have a cultural category comparable to what Westerners call dance, and it could be argued that dance is not a valid cross-cultural category. Structured human movement that has the characteristics mentioned above is found in most societies. Indigenous categories can best define dance in any particular society, but a larger view that takes other performances into consideration is more appropriate for studying dance as communication. In some societies cultural forms based on human movement performed for the gods may be considered ritual instead of dance, but essentially the same movement sequences may be considered dance if performed for a human audience. The movement dimension of a Balinese religious FESTIVAL communicates to specific supernatural beings that the ritual is being carried out in order to obtain specific ends. The same group of movement sequences performed on a secular stage will communicate different information to a human audience, and this information will vary depending on whether the viewer is from the dancer's own village, a Balinese from a different village, an Indonesian who is not Balinese, a non-Indonesian who understands the specific cultural form through study or participation, or a non-Indonesian who knows little or nothing about this cultural form.

Different "dance" forms within a culture may communicate different information to different audiences. In Japan, for example, *mikagura*, a movement activity performed by specific individuals for the gods in Shinto shrines, communicates primarily to gods, priests, and believers that the proper ritual is being carried out. The movement product is an elegant, basically bilaterally symmetrical form. The movement form known as *buyo*, performed within or separate from a Kabuki DRAMA, communicates to a knowledgeable audience a story or part of one as a dramatic incident with moral, social, or religious implications. The movements are often diagonally focused and asymmetrical, recalling the AESTHETICS of flower arranging and the "floating world" of another time and place through sumptuous costumes and elaborate staging. The movement activity that accompanies the O bon festival known as *bon odori* comprises dances of participation performed to honor the dead. In a circular pattern around a structure that usually holds the musicians, the movements are



Figure 2. (Dance) Masked dancers (Aruava), Kayapo, Central Brazil. Joan Bamberger/Anthro-Photo.

choreographed in a simple way so that everyone may join in. Primarily a social/religious activity, performing *bon odori* helps one remember the dead in a less emotional context and in addition communicates to oneself as well as to others that one is Japanese or is appreciative of Japanese culture. *Mikagura*, *buyo*, and *bon odori* use quite different movements, in different contexts, and with different intent. What these movement sequences communicate and to whom is also vastly different both in Japan and elsewhere, such as in Hawaii, where numerous O bon festivals are held throughout the summer.

Structure and Meaning

In order to communicate, dance must be grammatical. Dance GRAMMAR, like the grammar of any lan-



Figure 3. (*Dance*) British Morris dancing. Copyright British Tourist Authority.

guage, includes both structure and meaning, and one must learn the movements and syntax. From a cross-cultural perspective several types of movement can be identified. Movement may communicate mimetically. Australian Aborigines use mimetic movements of kangaroos, snakes, and other animals as part of rituals dealing with the conservation and fertility of their land, as well as its human and nonhuman inhabitants. Dance may communicate through REALISM and drama. The many forms of the Indian Ramayana usually tell a segment of the story through realistic and dramatic means in which the storytellers are actors who use movements of their whole bodies

to illustrate specific incidents. Communication will have taken place if the spectator knows where the incident fits into the Ramayana epic as a whole and understands its portrayal.

Dance also may communicate in a more abstract way akin to poetry. In Polynesia, for example, although it is said that "the hands tell the story," if one does not know the abstract conventions that the hands and arms are projecting as movement, the story cannot be understood. And even if one understands the movement conventions in one Polynesian society, it does not follow that one will understand the movement conventions in other Polynesian societies. In Hawaiian dance, for example, a flower may be suggested by shaping the hands to look like a flower, essentially illustrating the flower as a noun. In Tonga a flower may be suggested by moving the hands around each other, alluding to the agitation of air that carries the smell of flowers. In both dances the movements enhance the text they accompany, which in some way makes reference to flowers. In both cases, however, the referent is probably a chief who is referred to metaphorically as a flower. The movement is an abstraction of the essence of a flower (in Hawaii the way a flower looks, in Tonga the way a flower smells), which is a METAPHOR for a high-status person.

A further abstraction includes movements that never had and never were meant to have referential meaning. This probably includes most movements in any dance tradition. Thus, relating movement to communication theory, dance movements may be signs or symbols in any combination that convey various kinds of information in many contexts. The observers—participants, human audience, or gods—must know or look for a familiar pattern of structure or patterned sets (i.e., not isolated movements) in order to decode the message.

Figure 4. (*Dance*) Traditional Chinese "ribbon dance." Courtesy of the Information and Communication Division in New York, Coordination Council for North American Affairs.



In addition to MIME, dramatic realism, or abstraction, movement may communicate as a kind of decorative cultural ARTIFACT conveying the primary message that these movements belong to a specific culture or subculture or that a specific GENRE of movement is being activated for a particular purpose. Such movements may be participatory, movements to empathize with, or movements to admire as art or work. Such movements may have been given by the gods or ancestors and retained and perpetuated as cultural artifacts and aesthetic performances. These movements are important, even if their meanings have been changed or forgotten, as reference points for ethnic or cultural identity that nurtures itself through forms of cultural expression.

In order to understand movement as a cultural artifact the performer and observer must have communicative competence in the medium, socially as well as cognitively constituted. This is acquired in much the same way as competence in a language. Only after one has competence in this enlarged sense is it possible to improvise in a culturally appropriate manner. The movement and choreographic dimensions often are only components in a larger social activity that must be understood as a whole in order to understand what or how dance communicates in a particular instance.

Dance movement, syntax, and meaning are learned by watching and participating, the knowledge passing from teacher to student in a more or less formal

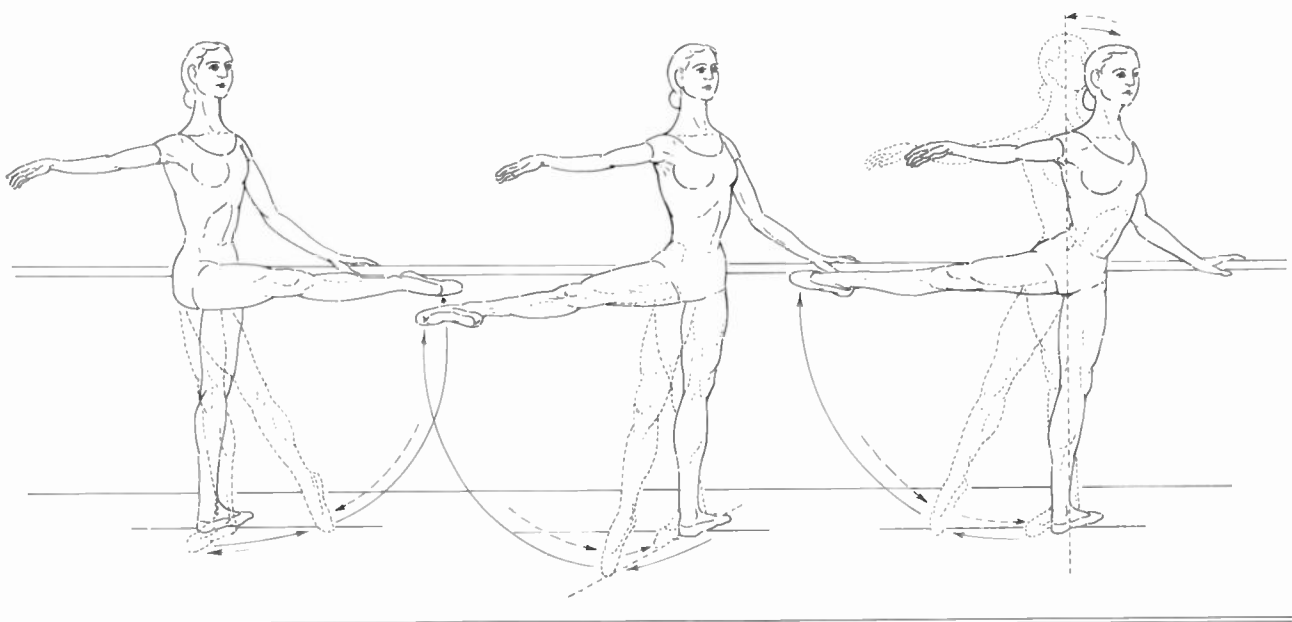
manner. The teacher communicates to the student not only the movement tradition, choreography, style, and context but also information about the culture in which the movement tradition is embedded, such as male and female roles in movement (see GENDER), social status, and social structure. Learning about dancing varies from watching at a distance to some Balinese styles in which the teacher actually moves the student's body and limbs.

Theories of Dance

We understand the meaning of what is being communicated if we understand the rules or grammar of a cultural form. It remains, then, to discuss what dance grammar is and how the moving body is a mechanism by which meaning is produced; how dance communicates as syntax, SEMANTICS, and pragmatics.

Adapting linguistic analogies to the study of dance, some scholars have used the emic/etic distinction to derive emic units or kinemes by observing movement behavior and questioning which etic behaviors are cognitively grouped or separated into emes (that is, are they the same or different—do they contrast). They then derive the movement system by observing and questioning how the emic units are structured into morphokines and motifs and what the relationships are between them. With this syntactic knowledge—which dancers of a specific tradition and those

Figure 5. (Dance) Grand battement jeté. From Lincoln Kirstein and Muriel Stuart, *The Classic Ballet: Basic Technique and Terminology*, New York: Alfred A. Knopf, 1952, plate 10.



with competence in it already know “intuitively”—an observer or participant will be able to tell whether movement sequences are grammatical. In Western ballet, for example, a dance (pas de deux, etc.) can convey meaning as “pure dance,” that is, through its form and structure; it can also convey emotion, such as a male-female pas de deux as part of *Swan Lake*. In other dance traditions such as Indian Bharata Natyam, the smallest hand gesture of the *hasta mudra* system may convey specific narrative meaning.

Other theories using linguistic analogies are concerned primarily with the semantics of body languages and focus on meaning as “linguistically tied, mathematically structured and empirically based” human actions. In this system one or more kinemes make up a kineseme, which is analogous to a word or lexeme. Kinesemes are independent units of movement that involve the whole body, include the element of time, and convey meaning.

Both of these systems emphasize that communication involves both structure and meaning—syntax and semantics—tied to specific cultural traditions. Pragmatically dance (or the movement dimension of activities) conveys or communicates information as a symbolic medium that is quite different from language and thereby is a significant part of uniquely human social and cultural systems. Dance as a symbolic system that operates through conventionalization creates meanings that can be undone or revised with relative ease and thereby can respond to changing contexts or circumstances. As biologically undetermined, arbitrary forms, dances convey conventionalized information only to those who understand the cultural and social constructs of which they are a part. Personal, social, and cultural, dance communicates as form and feeling in context.

See also ACTING; BODY MOVEMENT NOTATION; CHOREOMETRICS.

Bibliography. Jack Anderson, *Dance*, New York, 1974; Judith Lynne Hanna, *To Dance Is Human: A Theory of Nonverbal Communication*, Austin, Tex., 1979; Adrienne L. Kaeppler, “Structured Movement Systems in Tonga,” in *Society and the Dance: The Social Anthropology of Process and Performance*, ed. by Paul Spencer, Cambridge and New York, 1985; Joann W. Kealiinohomoku, “A Comparative Study of Dance as a Constellation of Motor Behaviors among African and United States Negroes,” *CORD Dance Research Annual* 7 (Dance Research Monograph No. 2), ed. by Adrienne L. Kaeppler, New York, 1976; Mary M. Smyth, “Kinesthetic Communication in Dance,” *Dance Research Journal* 16 (1984): 19–22; Drid Williams, “Introduction to Special Issue on Semasiology,” *Journal for the Anthropological Study of Human Movement* 1 (1981): 207–225.

ADRIENNE L. KAEPLER

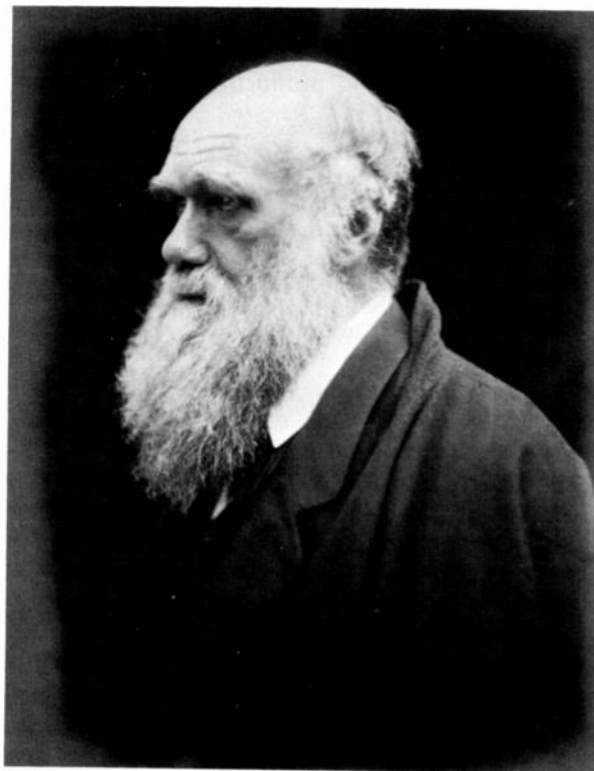


Figure 1. (Darwin, Charles) Julia Margaret Cameron, *Portrait of Charles Darwin*, 1868–1869. Photograph, albumen print. National Portrait Gallery, London.

DARWIN, CHARLES (1809–1882)

English naturalist whose writings—especially *The Origin of Species*, *The Descent of Man*, and *The Expression of the Emotions in Man and Animals*—profoundly altered humanity’s view of itself and its institutions and relationships, including ways of communicating. In particular, his observations on animal signaling and human facial expressions and gestures sparked an interest in the study of NONVERBAL COMMUNICATION.

Charles Robert Darwin was born and raised in Shrewsbury, England. He studied medicine at Edinburgh and then theology at Cambridge. But his major preoccupation was natural history, and this led to his being appointed ship’s naturalist on what he later wrote of as “The Voyage of the *Beagle*.” During this five-year expedition, Darwin made observations that caused him to question the immutability of species.

In South America and the Galápagos Islands, Darwin found, for example, a correlation between species affinity and geographical proximity and a similarity between extinct and extant forms from the same localities that seemed to him to be inconsistent with the creation doctrine. Back in England he became persuaded by his evidence that evolution had

occurred. He then read, in 1838, Thomas Malthus's *An Essay on the Principle of Population*, which argued that since food production cannot keep up with human population growth, people are forced into a struggle for existence. Darwin saw that the same principle applied in nature but also that individual variation must bias the chances of success. Individuals whose characteristics best suit them to the circumstances will live longer and leave more progeny than their competitors; assuming such characteristics to be hereditary, the representation of the most fit in the population will increase as generation follows generation. This process of "natural selection" gave evolution the transforming agency that Darwin needed to parallel that of artificial selection in the production of domestic strains of plants and animals.

Darwin wrote preliminary drafts of his theory but shrank from the prospect of publication. Then, in 1858, he received from Alfred Russel Wallace a statement of a theory essentially like his own, which put his priority in jeopardy. To solve the problem, Darwin's and Wallace's versions were made public together. They caused little stir. The following year (1859) Darwin published *The Origin of Species*. Reaction was immediate, sensational, and divided. The work represented a challenge to basic principles of biology and to many Western assumptions about humankind.

Darwin continued to work on biological problems for the rest of his life. *The Origin of Species*, in addition to its theory of evolution, provided a framework for consideration of aspects of communication, such as how signaling evolves. However, its chapter on instinct can be viewed as a mixed blessing. While it demonstrated that there is evidence for behavioral evolution comparable to that for the evolution of structure, it used the term *instinct* in several different senses and fostered confusions that have confounded much subsequent discussion, such as that of heredity versus experience in behavioral development.

The Descent of Man is important mainly for its theory of sexual selection, an attempt to account for instances of differences between the sexes that seemed maladaptive, such as bright coloration in males of many fish and bird species that increases their conspicuousness to predators, and courtship displays that take time and energy away from supposedly more pressing activities like foraging. According to Darwin, the selective pressures in such cases are competition among members of the same sex for access to resources necessary for breeding—for example, territory; or mate choice, in which sexual advertisement affects an individual's chances of being picked as a breeding partner. Signals have been elaborated for use in both intrasexual and intersexual



Figure 2. (Darwin, Charles) Caricature of Darwin, from the *London Sketch Book*, 1870s. The Bettmann Archive/BBC Hulton.

competition in ways that ETHOLOGY and sociobiology continue to elucidate. See also ANIMAL SIGNALS.

In *The Expression of the Emotions in Man and Animals*, Darwin anticipated ethology in showing how signals can evolve from behavior serving other functions and be interpreted in motivational terms. His observations on human facial expressions, postures, and gestures also pioneered the study of non-verbal communication and KINESICS.

See also ANIMAL COMMUNICATION; BODY MOVEMENT; FACIAL EXPRESSION; GESTURE.

Bibliography. Gavin de Beer, *Charles Darwin: Evolution by Natural Selection*, Garden City, N.Y., 1964; Michael T. Ghiselin, *The Triumph of the Darwinian Method*, Berkeley, Calif., 1969; Howard Gruber, *Darwin on Man: A Psychological Study of Scientific Creativity*, 2d ed., Chicago, 1981.

COLIN G. BEER

DATA BASE

An ordered collection of information in computer-readable form. Data bases vary by type, subject matter, and content and may be word-oriented or number-oriented. There are data bases covering virtually all types of information, ranging from such major subject areas as chemistry, finance, law, physics, and medicine to more specialized topics such as automobile recalls and solid-waste disposal. Some contain complete information including textual material and are sometimes called source data bases; others contain pointers to information or data and may be called reference data bases.

Development. The earliest data bases were created in the 1950s, when computers first came into prominent use, to take advantage of their capacity for storing and searching large amounts of data. The data-base industry grew continuously in the following decades. The number of data bases available to the public grew to about three hundred by the mid-1970s and to more than thirty-five hundred by the late 1980s. See *COMPUTER: HISTORY*; *COMPUTER: IMPACT*.

The first generation of data bases was funded mainly by the U.S. government and included those of the National Aeronautics and Space Administration (NASA) and the Atomic Energy Commission (AEC); these were mission-oriented and contained bibliographic information and references to published literature, mainly government reports. In the 1960s several professional societies and other not-for-profit enterprises like the American Institute of Physics and Engineering Index (later Engineering Information, Inc.) and the Chemical Abstract Service of the American Chemical Society created their own data bases; these were largely subject-oriented and contained bibliographic information. Some began as experiments supported by government funding. The originators of these data bases were quick to adopt techniques that were facilitating the computerization of the printing industry, recognizing that the magnetic tapes used as part of the photocomposition process could also be used for information storage and retrieval. It was not long before data bases began to be designed with search and retrieval as primary objectives, not merely as secondary benefits. Most of the not-for-profit data bases became available to the

public, but in the 1960s data bases especially designed for public use were started by a number of commercial organizations.

By the late 1970s the majority of publicly available data bases stemmed from the private sector, even though in many cases the basic information came from government sources; government data were often repackaged, embellished, and sold by private-sector entrepreneurs. Significant among them were data bases that were also known as data banks, containing numeric data, especially business and economic information essential to the business world; and data bases in the legal field, providing full texts of cases and statutes. The 1980s saw further important developments in full-text data bases as a number of encyclopedias, journals, and major reference works were put on-line for public use. By this time data bases were in operation in a number of countries, and the industry had an increasingly international aspect. See *ENCYCLOPEDIA*; *LANGUAGE REFERENCE BOOK*.

Availability and use. Both public- and private-sector organizations charge for the use of their data bases and search services. Government data bases generally focus on defense, social services, and biomedicine; commercial data bases lean toward business and economic information.

A number of developments and innovations have made data bases increasingly accessible and "user-friendly." In the 1950s and 1960s data-base use was primarily through so-called batch systems. These permitted multiple users to submit their queries to a central location so that all the queries could be matched against a data base at one time, after which the results were printed out and distributed. In the 1960s interactive on-line systems, providing nearly instantaneous response to user queries, were introduced in the United States. An example was the ELHILL system developed for the National Library of Medicine. A number of on-line search services such as DIALOG of Lockheed, ORBIT of System Development Corporation, and LEXIS of Mead Data Central came into general use, later joined by Bibliographic Retrieval Services, Inc., Westlaw, and others. These systems used a mainframe at a central location with network access from virtually any location in the world. Users needed a terminal or microcomputer and a modem at their local site to connect first to the communications network and then to the host computer.

Outlook. Because a great diversity of on-line systems had come into being, each with its own distinct command language and system of responses and procedures, a movement developed in the 1970s and 1980s to create a system of common command languages and gateways so that users would be able to consult numerous data bases without learning a sep-

arate language for each. The problem was seen as a major challenge but one that would remove what might become an obstacle to maximum growth. The development of increasingly sophisticated equipment, including terminals with some memory and processing capacity (called intelligent terminals), and the fast adoption and spread of personal computers led to the belief that more individuals would do their own searching if the search systems were easy enough to use.

See also ARCHIVES; LIBRARY.

Bibliography. *Annual Review of Information Sciences and Technology* (published for the American Society for Information Science, Washington, D.C.), 1966–; Cuadra Associates, *Directory of Online Databases*, Santa Monica, Calif., 1979–; *Database*, Weston, Conn., 1978–; *Electronic Publishing Review*, Oxford and Marlton, N.J., 1981–; Carol Fenichel and Thomas H. Hogan, *Online Searching: A Primer*, 2d ed., Medford, N.J., 1984; Donald T. Hawkins, *On-line Information Retrieval Bibliography, 1964–1979*, Oxford and Marlton, N.J., 1980 (supplements appear in the April issues of *Online Review*, 1977–); *International Online Meeting, Proceedings*, Oxford and New York, 1977–; *Journal of the American Society for Information Science*, New York, 1974–; *National Online Meeting, Proceedings*, Medford, N.J., 1981–; *Online*, Weston, Conn., 1977–; *Online Review*, Oxford and New York, 1977–; Martha E. Williams, Laurence Larnom, and Carolyn G. Robins, eds., *Computer-Readable Data Bases: A Directory and Data Sourcebook*, 2 vols., Chicago and Amsterdam, 1985.

MARTHA E. WILLIAMS

DAY, BENJAMIN H. (1810–1889)

U.S. journalist and publisher, called “the father of the penny press.” At age twenty-three, working alone as a job printer, Benjamin Henry Day launched the New York *Sun*, priced at one cent per copy although other dailies generally sold for six cents or more. The idea had been tried before in Philadelphia, Boston, and New York but had failed. Succeeding this time, it set off an explosion of journalistic enterprise that revolutionized the U.S. press, brought new thousands into the newspaper-reading population, attracted rising volumes of ADVERTISING, and shifted much of newspaper publishing costs from reader to advertiser—with long-range social and economic implications.

Day had learned PRINTING as apprentice to a Springfield, Massachusetts, printer and publisher. A seasoned craftsman at twenty, he left for New York, and after working as a compositor for several New York newspapers, he used his savings to set up a small printing shop. A cholera epidemic and bank



Figure 1. (Day, Benjamin H.) Newsboy selling papers. Woodcut, ca. 1869. The Bettmann Archive, Inc.

failures drove him close to bankruptcy but brought the turning point that made his career. To keep his idle press busy he started a four-page newspaper, the *Sun*, which made its first appearance on September 3, 1833. He did everything himself except hawk his paper in the streets, which was done for the first time by newsboys (Figure 1). They bought their copies from Day for resale; Day charged them sixty-seven cents per hundred copies if they paid cash, seventy-five cents if they purchased them on a credit basis. Thus Day set in motion a new occupation that would become a part of big-city folklore.

The newsboys had quick success. In six months the *Sun* had a circulation of eight thousand—a response to jaunty content as well as street promotion. Flippantly reported police-court items—domestic quarrels, robberies, brouhahas involving drunkards—became the *Sun*'s feature attractions. When an out-of-work printer, George W. Wisner, joined Day to provide these items, at four dollars a week, he was the *Sun*'s only reporter. The style was strongly assailed (but also emulated) by other newspapers. In 1835 writer Richard Adams Locke replaced Wisner and fashioned a series of reports that became known as the Moon Hoax. This story so excited the public that the *Sun*'s circulation soared, reaching a level claimed as the world's highest. Locke, who received twelve dollars a week, offered a straight-faced account of astonishing astronomical discoveries made through an immense telescope built in South Africa by a British astronomer. In a series that went on for days Locke described life on the moon, including a “glimpse of a strange amphibious creature of a spherical form, which rolled with great velocity across the pebbly beach.” The story was soon exposed as a fake, but this in no way dimmed the popularity of

the *Sun*. Its circulation grew to thirty thousand, its pages increased in number and size, and advertising occupied three-quarters of the space. Its success paved the way for other penny papers. Some, like JAMES GORDON BENNETT'S *New York Herald* (1835), combined elements of Day's style with journalism of broader scope. HORACE GREELEY'S *New York Tribune* (1841) likewise supplied a more solid leadership.

The rise of the penny press did much to change and expand the readership of U.S. newspapers. In earlier periods newspapers had been read mainly by a propertied elite and sold by subscription rather than on city streets. The penny press attracted new segments of the population, including such groups as artisans and mechanics.

Day sold the *Sun* in 1837 and later published *Brother Jonathan*, a story paper considered one of the forerunners of the paperback BOOK. He lived to see the *Sun* rise to new prominence after the Civil War under Charles Anderson Dana's editorship. Day's son Benjamin invented the engraving process known as benday.

See also NEWSPAPER: HISTORY; PUBLISHING—HISTORY OF PUBLISHING.

JOHN TEBBEL

DE FOREST, LEE (1873–1961)

U.S. inventor and broadcasting pioneer. Son of a minister, Lee De Forest was expected to follow him into religious work but veered instead toward science, finding his own life mission in the advent of wireless. At the Sheffield Scientific School of Yale University he earned a Ph.D. in wireless TELEGRAPHY, then plunged into constant research. GUGLIELMO MARCONI had given the world wireless transmission of dots and dashes; De Forest made the wireless transmission of SOUND—voice and music—his special concern. In 1906, building on the work of John Ambrose Fleming of England and the Canadian-born REGINALD FESSENDEN, De Forest reached a dramatic new level of clarity with his triode vacuum tube, the Audion. It ultimately became the basis for the electronics industry and, more immediately, stirred excitement over what some were calling the wireless telephone, although others called it RADIO. De Forest became known as the "father of radio." He formed the De Forest Radio Telephone Company and began to make and sell his Audion tubes (for detection and amplification of radio waves) and other radio components to experimenters of all sorts—military, academic, and amateur.

The U.S. Navy, the most important early backer of radio, looked on it as a means for point-to-point (ship-to-ship, ship-to-shore) communication. De For-

est preached a different message: broadcasting. He felt that there should be stations continually sending music and information to whoever might listen, and he demonstrated the idea with constant transmissions—from the Eiffel Tower in Paris, from the Metropolitan Opera stage in New York, and from his New York laboratory. In 1907 De Forest, in a prose style that seemed to echo his evangelical upbringing, wrote in his diary:

My present task (happy one) is to distribute sweet melody broadcast over the city and sea so that in time even the mariner far out across the silent waves may hear the music of his homeland.

This seemed to most people a quixotic notion. How could it be made to pay? Not until the 1920s was this question answered in ways that set off the broadcasting boom of that decade (see SPONSOR).

De Forest made a number of sales to the U.S. Navy, but such sales were seldom profitable, and he was constantly in financial difficulties. For a time he became associated with a promoter, Abraham White, who persuaded him to stage dramatic demonstrations at fairs and amusement parks for the sale of stock. Providing De Forest with sufficient funds to keep the research going, White himself quickly grew rich—until he went to jail for stock fraud. The messy affair cast a cloud over De Forest's company. During 1913–1915, in dire financial distress, he sold most of his patent rights (in tubes, circuits, and other components) to AT&T for what many considered a pittance. But it saved De Forest from bankruptcy and enabled him to keep his research laboratory going. For AT&T the Audion, used as a line amplifier, proved invaluable in the company's efforts to extend its long-distance operation into a coast-to-coast service, which it achieved in time for the 1915 San Francisco World's Fair.

With the start of World War I lone experimenters like De Forest were ruled off the air, and radio became an activity reserved for the military, which placed huge electronic equipment orders with Western Electric (an AT&T subsidiary), General Electric, and Westinghouse. Serving numerous war needs, this production also created the infrastructure that made possible the postwar broadcasting boom. De Forest had meanwhile moved toward a new challenge: talking pictures. By 1922 he was ready to demonstrate his "phonofilm" process and began producing two-reel sound films featuring musicians, popular entertainers, and public figures like President Calvin Coolidge and playwright George Bernard Shaw. The films were well received at several dozen test theaters, but HOLLYWOOD, enjoying boom times with silent films, had no wish to take a plunge into sound. When the sound transition finally came in 1927–1929 (see MOTION PICTURES—SOUND FILM) the system adopted



Figure 1. (*De Forest, Lee*) Lee De Forest in his laboratory, 1907. State Historical Society of Wisconsin, Erik Barnouw Collection/Smithsonian Institution, Washington, D.C.

was similar to De Forest's. See SOUND RECORDING—HISTORY.

In 1950 De Forest published an autobiography titled *Father of Radio*. But he had become deeply distressed by radio's commercial trends in the United States. Addressing a protest to the 1946 meeting of the National Association of Broadcasters (NAB), he asked:

What have you gentlemen done with my child? . . . You have made of him a laughing stock to intelligence, surely a stench in the nostrils of the gods of the ionosphere; you have cut time into tiny segments called spots (more rightly stains) wherewith the occasional fine program is periodically smeared with impudent insistence to buy and try.

De Forest, always a solitary figure, had become a stranger in a media world he had done much to create.

Bibliography. Lee De Forest, *Father of Radio: The Autobiography of Lee De Forest*, Chicago, 1950.

HARTLEY S. SPATT

DEBATE. See FORENSICS; POLITICAL COMMUNICATION—BROADCAST DEBATES.

DECEPTION

Any action or series of actions intended to manipulate an appearance so that the manipulator—whether individual, group, class, or state—can control what the audience takes to be immutable, real, or truthful. As Alexander Klein says, "Every deception, every imposture is an assumption of power; the person deceived is reduced in stature, symbolically nullified, while the imposter is temporarily powerful. . . ."

Uses and Users

Deception has long been the staple of spies, subversives, and saboteurs and is traditionally associated with hoaxers, tricksters, cheaters, swindlers, and a variety of other double-dealers, but it is in fact used by almost everyone. Its use may be motivated by a desire for money, power, status, prestige, protection, or fun. Deception to conceal nefarious money-making or to perpetrate some subterfuge is paralleled by its use to counter crime and treachery, where it may range from unmarked police cars to covert businesses and "sting" operations. No less deceptive are the masquerades of investigative journalists or the false or exaggerated claims of advertisers and manufacturers (see ADVERTISING; CHILDREN—MEDIA EFFECTS; COMMERCIALS).

More generally, individuals may mislead hostile questioners to preserve their self-identities from moral attack, social stigma, or the exposure of some physical flaw (such as the loss of limbs, teeth, or hair). Governments may protect citizens by lying to an enemy about their defensive capabilities. Also in the interests of protection, parents misinform children, professionals conceal information about clients, and medics deceive the seriously ill about their conditions. Medical experimenters use placebos, and the purpose of many psychological investigations is deliberately misrepresented to the subjects. From Venus's-flytrap, stick insects, and the opossum's faking dead (see ANIMAL COMMUNICATION; ANIMAL SIGNALS) to the tales of liars' clubs and ruling-class IDEOLOGY, deceptive communication is a pervasive feature of life.

Approaches

Deception has been studied by scholars from disciplines with different orientations to the topic. Anthropologists are interested in cultural variations in deception, whereas psychologists study the minutiae of verbal and nonverbal modes of communication (see NONVERBAL COMMUNICATION). Microsociologists document the different strategies and motives for bringing off deceptive performances; macrosociologists are interested in the functions and disfunctions of deception for maintaining or changing the

social structure and deception's ideological role in institutional and class power. Finally, philosophers consider the principles for evaluating whether and on what occasions deceptive communication is ethically justified.

Definitions and Kinds of Deception

Some agreement exists that there are two primary forms of deception. Passive deception—concealment or secrecy—is the omission of information in order to communicate a partial or misleading impression. Active deception—falsification or lying—is the presentation of false information with some claim that it is true. U.S. psychologist Paul Ekman restricts the use of these two types to occasions when “one person intends to mislead another, doing so deliberately, without prior notification of this purpose and without having been explicitly asked to do so by the target.” But this limitation excludes occasions in which control over the decision to deceive is lost, as in pathological lying or self-deception—the paradoxical situation in which a manipulator is taken in by his or her own PERFORMANCE, forfeiting control to the appearance. It also excludes occasions in which people knowingly accept deception and, in ERVING GOFFMAN's terms, conspire to “save the show.”

For Goffman, deception encompasses all face-to-face encounters in which performers “engage in concealed practices which are incompatible with fostered impressions.” He documents the strategies used in everyday interaction for managing impressions of the self as a performed character or dramatic effect. But Goffman's micro focus does not consider the knowing or unknowing acceptance of deception as a result of power differences between the manipulator and the audience. An ideologically sensitive definition of deception such as that of Jürgen Habermas discusses systematically distorted communication or pseudo-communication that “produces a system of misunderstandings which, due to the false assumption of consensus, are not recognized as such.” Habermas considers that the knowledge produced within an economically rational society permeates all interaction and thereby suppresses the communicative prerequisites for self-reflective consciousness.

Strategies

Active or passive deception involves manipulating up to five modes of communication: (1) LANGUAGE, oral or written, (2) images or pictures, (3) FACIAL EXPRESSION, (4) body language (*see* BODY MOVEMENT; KINESICS; PROXEMICS), and (5) dress or outward appearance (*see* CLOTHING). Goffman uses the theatrical METAPHOR to explain how individuals perform “routines” designed to maximize impressions

of the self. He identifies a “front region,” which defines the situation for an audience in terms of a “setting”—such as a doctor's office—and a “personal front.” The latter conveys a performer's social statuses, whereas the “manner” in which the performer appears is the cue for the oncoming role performance. During the routine “a performer tends to conceal or underplay those activities, facts and motives which are incompatible with an idealized version of himself and his products.” Performers can also distance themselves from a structured role in order to leave the audience with the impression that the performer is something other than that which is being performed. In addition, a different impression of the self is conveyed “backstage,” when, for example, the performer is with a team of cooperating conspirators (such as a doctor with other doctors). Goffman says performers also provide ways to help the audience preserve the false impression created.

Language and accounts as deceptive strategies. Ekman argues that language as a communicative medium is more practiced than the other modes because people are held more accountable for their words than for their facial expressions or body movements. Concealing and falsifying what is said can be practiced in advance through thought experiments, and words can be monitored as they are spoken, managing the effects in the light of responses. In giving accounts people may use language as rationalization to protect themselves against recriminations for past acts. Such “remedial work,” says Goffman, functions “to alter the meaning that otherwise might be given to an act, transforming what could be seen as offensive into what could be seen as acceptable.”

Individuals who engage in questionable conduct protect themselves through “normalization” or “deviancy disavowal,” in which their present identity is claimed to be different from the one that committed the act in question. Child molesters, for example, excuse their behavior by saying they were drunk at the time and not able to control their sexual urges. U.S. sociologist David Matza identifies five such excuses and justifications, which he calls “techniques of neutralization.” These either deny responsibility for the act, deny it caused injury, deny the right or existence of the victim, condemn those questioning, or appeal to higher loyalties as influences, such as best friends or God.

When the possibility of using defensive accounts successfully is considered before committing an act, it can allow the act to be committed. An embezzler's internal CONVERSATION about “borrowing” and “paying back” bridges any moral inhibition against trust violation, permitting the embezzlement. If neutralizing moral inhibition occurs through the unwitting duplication, distortion, and extension of

customary beliefs, such as the right of self-defense, and if this occurs before the act is even contemplated, the perpetrator is sent on a "moral holiday" and deceives unintentionally.

Ideology as a deceptive strategy. Ideology as deception can range from selective and presentational bias in news media reports that systematically distort events in favor of class interests to the molding of sexist and racist attitudes during socialization (see MINORITIES IN THE MEDIA; SEXISM). Some Marxists call deceptive ideology "false consciousness" and examine the production and legitimating role of images, such as the view that capitalism in the United States has produced a classless society, that differential incomes are needed to attract top people to top jobs, and that through social mobility anyone can make it to the top. They are concerned with the ways these images mystify and mask the inherent class, sexual, and ethnic divisions that otherwise would result in conflict and radical social change. MICHEL FOUCAULT examines how what becomes accepted as knowledge is managed as truth and is used to exercise power and control. See also FEMINIST THEORIES OF COMMUNICATION; GENDER; MARXIST THEORIES OF COMMUNICATION.

Detecting and Controlling Deception

Catching deceivers has been a major preoccupation of psychologists and crime controllers such as employers, police, and counterintelligence agents. The three principal ways to reveal deception are by systematic questioning, objective measurement, and reading behavioral clues.

Systematic questioning is used to control subjects' responses to questions and to eliminate biased answers. A "lie scale" that includes both relevant and irrelevant questions and a "guilty knowledge test" involving questions referring to past misdeeds are incorporated into surveys. It is assumed that the innocent are able to answer relevant questions truthfully but are disturbed by control questions, whereas the guilty react most strongly to relevant questions, being unperturbed by control questions.

An arguably more objective method of detection is to measure changes in the body's autonomic responses, which are generated involuntarily by emotion. To do this a lie detector, or polygraph, is used, which simultaneously traces changes in pulse, respiration, blood flow, blood pressure, brain waves, and the electrical resistance of the skin (Galvanic Skin Response). A voice stress analyzer can also measure warble. These devices have come under much criticism because scientific studies reveal that polygraphs are only about 80 percent accurate.

Reading behavioral clues rests on the idea that emotions produced during deception are more likely

to be revealed through facial expressions and body language than through the analysis of written language. These emotions are harder to control, conceal, or falsify.

Such devices are of little use in exposing more macrolevel ideological deception. For this the concept of *critique* is used. It involves revealing inconsistencies between what is claimed to be and what is; subverting an existing ideology by substituting another that allegedly does not falsify reality; and, for Foucault, interrupting the smooth passage of "regimes of truth," disrupting forms of knowledge that have assumed a self-evident quality, and engendering uncertainty among those servicing the network of power-knowledge relations.

The Ethics of Deception

The German philosopher Immanuel Kant took the moral-absolutist view that general moral rules must be followed to avoid deception because deception compromises respect for rationality and the integrity of the deceived. Philosopher Sissela Bok, from a more Aristotelian perspective, believes that deception may be justified under special conditions, depending on whether it is of the active or passive kind. She says that any intentionally deceptive message is a *prima facie* wrong; undiscovered lies have a negative effect on the choices and autonomy of both the liar and those duped, and discovered lies taint the institutions of trust and cooperation. Lying requires justification and explanation, but the justifications generally given—such as avoiding harm, producing benefits, correcting injustices, and concern for ultimate truth—are unacceptable. For example, lying to an enemy may seem fair, but it is not always certain who the enemies are, and friends may also be taken in inadvertently. Stanley Milgram's psychological experiments on authority might be justified by the utility of learning that 60 percent of ordinary citizens will harm others if told to do so by an authority figure. But does this finding warrant the distress felt by the unknowing subjects who were recruited to assist in a scientific experiment and asked to administer electric shocks to apparent subjects who were actually actors faking pain? According to Bok a lie is justified only if (1) an alternative course of action will not resolve the difficulty, (2) the lie will accomplish a higher moral outcome, and (3) these considerations are subject to a public of reasonable people.

Passive deception may be more easily justified. Bok argues that secrecy that protects intimacy and PRIVACY is virtuous, whereas public secrecy allied with power, as in the professions or government, is wrong. Critics argue that deception can have positive effects and that ethical judgments do not consider the negative effects of truth.

The End of Deception

Deception of any audience ceases only when its members impose some view of reality on the appearance and no longer respond to further attempts at manipulation. Self-deception ends only when a person stops constructing and investing in images.

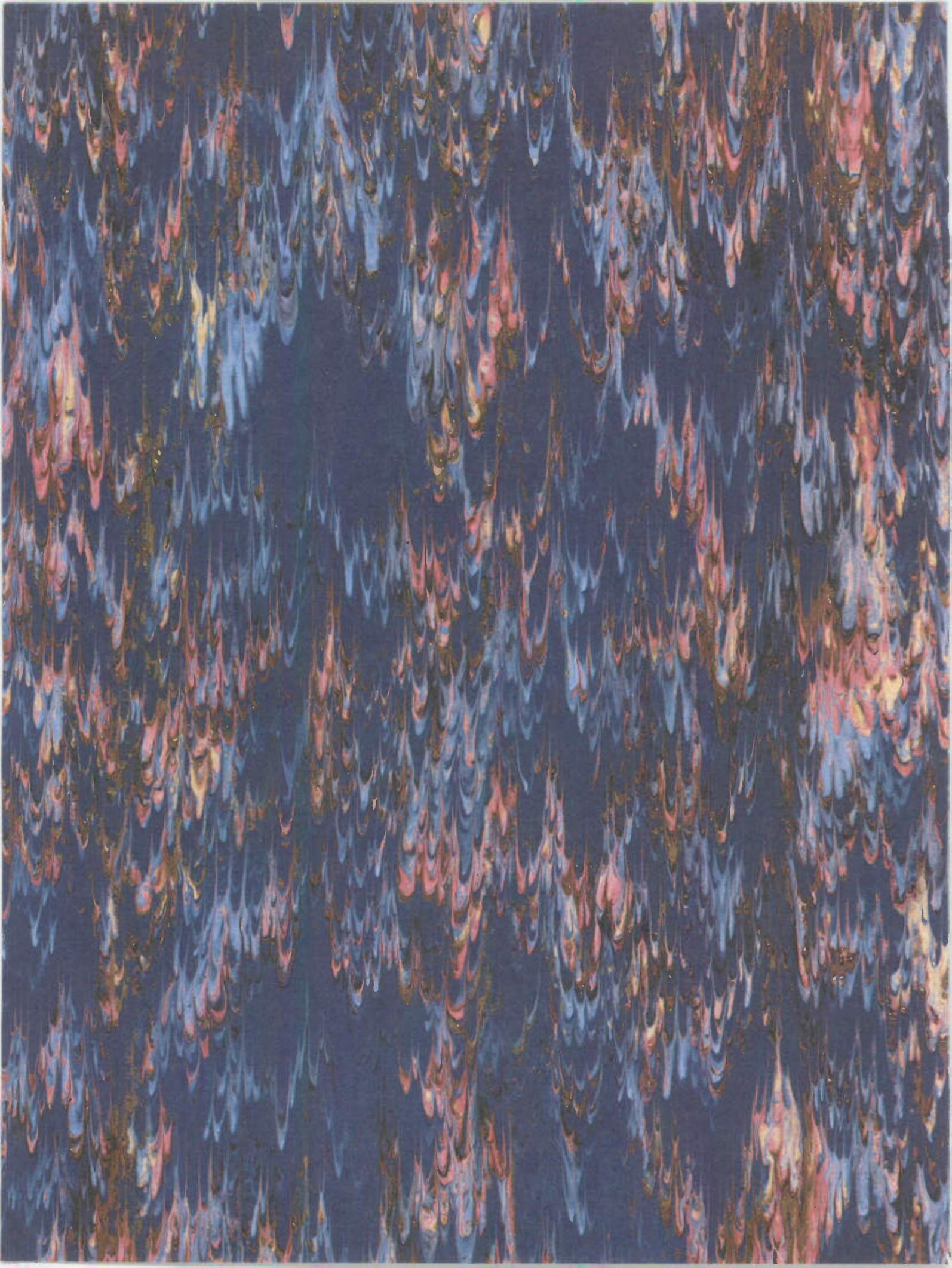
See also CRYPTOLOGY; ESPIONAGE.

Bibliography. Sissela Bok, *Lying: Moral Choice in Public and Private Life*, New York, 1978; idem, *Secrets: On the Ethics of Concealment and Revelation*, New York, 1982; Paul Ekman, *Telling Lies: Clues to Deceit in the Marketplace, Politics, and Marriage*, New York, 1985; Michel Foucault, *Power/Knowledge: Selected Interviews and Other Writings, 1972–1977* (in French), ed. and trans. by Colin

Gordon, Brighton, Eng., and New York, 1980; Erving Goffman, *The Presentation of Self in Everyday Life*, New York, 1959, reprint Woodstock, N.Y., 1973; Jürgen Habermas, *Knowledge and Human Interests* (Erkenntnis und Interesse), trans. by Jeremy J. Shapiro, Boston, 1971; idem, *Legitimation Crisis* (Legitimationsprobleme im Spätkapitalismus), trans. by Thomas McCarthy, Boston, 1975; Alexander Klein, ed., *Grand Deception*, New York, 1955; Arnold M. Ludwig, *The Importance of Lying*, Springfield, Ill., 1965; David Matza, *Delinquency and Drift*, New York, 1964.

STUART HENRY

DECONSTRUCTION. *See* AUTHORSHIP.



International Encyclopedia of Communications

ERIK BARNOUW

Editor in Chief

GEORGE GERBNER

Chair, Editorial Board

WILBUR SCHRAMM

Consulting Editor

TOBIA L. WORTH

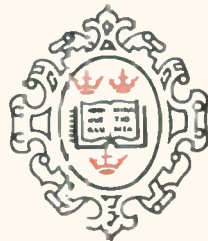
Editorial Director

LARRY GROSS

Associate Editor

Volume 2

Published jointly with
THE ANNENBERG SCHOOL OF COMMUNICATIONS,
University of Pennsylvania



OXFORD UNIVERSITY PRESS

New York Oxford

Oxford University Press

Oxford New York Toronto
Delhi Bombay Calcutta Madras Karachi
Petaling Jaya Singapore Hong Kong Tokyo
Nairobi Dar es Salaam Cape Town
Melbourne Auckland

and associated companies in
Berlin Ibadan

Copyright © 1989 by the Trustees of the University of Pennsylvania

Published jointly by
The Annenberg School of Communications,
University of Pennsylvania,
and Oxford University Press, Inc.,
200 Madison Avenue, New York, New York 10016

Oxford is a registered trademark of Oxford University Press

All rights reserved. No part of this publication may be reproduced,
stored in a retrieval system, or transmitted, in any form or by any means,
electronic, mechanical, photocopying, recording, or otherwise,
without the prior permission of Oxford University Press.

Library of Congress Cataloging-in-Publication Data

International encyclopedia of communications / Erik Barnouw, editor-in-chief . . . [et al].
p. cm.

Bibliography: p.
Includes index.

1. Communication—Dictionaries. I. Barnouw, Erik, 1908– .
P87.5.15 1989 001.51'0321—dc19 88-18132 CIP

ISBN 0-19-504994-2 (set)

ISBN 0-19-505802-X (vol. 1)

ISBN 0-19-505803-8 (vol. 2)

ISBN 0-19-505804-6 (vol. 3)

ISBN 0-19-505805-4 (vol. 4)

Acknowledgments of sources of illustrative materials appear in captions
throughout this work. Conscientious efforts have been made to locate owners
of copyrights on illustrative materials and to secure their permission to use
them herein. If any illustration has been inadvertently used without proper
acknowledgment of its source, the publishers invite notification by copyright
owners so that a correction can be made in future printings.

2 4 6 8 9 7 5 3 1

Printed in the United States of America
on acid-free paper

International
Encyclopedia of
Communications



THE UNIVERSITY OF PENNSYLVANIA

The International Encyclopedia of Communications
was conceived, developed, and edited at
The Annenberg School of Communications,
University of Pennsylvania.

Editorial Board

GEORGE GERBNER, *Chair*

Professor of Communications and Dean, The Annenberg School of Communications,
University of Pennsylvania

DAVID ATTWOOLL

Editorial Director, Reference and General Books,
Oxford University Press, Oxford

ERIK BARNOUW

Professor Emeritus of Dramatic Arts, Columbia University

PETER CLARKE

Professor of Communications and Dean, The Annenberg School of Communications,
University of Southern California

LARRY GROSS

Professor of Communications, The Annenberg School of Communications,
University of Pennsylvania

SHELDON MEYER

Senior Vice-President, Editorial, Oxford University Press, New York

MAURICE B. MITCHELL

Former President and Editorial Director,
Encyclopaedia Britannica, Inc., Chicago

WILBUR SCHRAMM

Director Emeritus, Institute for Communications Research, Stanford University,
and Distinguished Center Researcher Emeritus, East-West Center, Honolulu

TOBIA L. WORTH

Former Editor, Encyclopedia Section, Professional and Reference Book Division,
McGraw-Hill Book Company, New York

D

(continued)

DEMONSTRATION

Public manifestation of grievances and opinions, usually by way of processions or mass meetings. The right to dissent is generally regarded as fundamental to democracy, but the expression of that right and its portrayal by the media present serious problems in democratic societies. Demonstrations represent one form of the expression of dissent.

Demonstrations are not a new form of protest. Historically this form of collective behavior has always been part of the political processes of Western societies. Demonstrations have been used both as signaling and collective BARGAINING devices and have played a part in facilitating social and political change. Demonstrations differ in both purpose and form. They may be peaceful or violent or both. What starts out as peaceful may become violent and even develop into a riot.

The Role of Violence

Throughout history, collective VIOLENCE has been more normal, central, and historically rooted than is often thought. Rioting and violent demonstrations by the poor—both “respectable” and otherwise—in eighteenth- and nineteenth-century Europe have been well documented by historians. Those seeking to seize, hold, or realign the levers of power often have turned to collective violence as part of their struggles.

Terms such as violence are used and applied selectively in different political contexts. During the course of a demonstration, specific actions may be regarded as violent when coming from one group but as the legitimate use of force when carried out by another group. Much of what we now accept is the legitimated outcome of what was once regarded as violent. Official violence is frequently overlooked and the horrific outcomes of institutionalized violence conveniently forgotten.

No matter how demonstrations are portrayed, the evidence suggests that most of them are nonviolent and that when violence does occur it often stems from the frustration brought about by a lack of positive response to years of peaceful protest about deeply felt grievances. Some people join in demonstrations with violence in mind, but there are also examples of violent provocation by the forces of law and order that show both sides to be equally violent. Violence can be a cause as well as a symptom.

The media not only cover demonstrations as they occur; they also attempt to account for them and to advocate courses of action. In doing this they draw on conventional wisdom about the nature of collective behavior, the roots of social problems, the notion of law and order, and the relationships among these. Many people believe that the collective behavior associated with demonstrations marks off the unruly crowd from the respectable public. In this context, collective behavior, violent or peaceful, may be seen as disruptive, degenerate, deviant, irrational, meaningless, and provoked by external forces. Although some social scientists such as the French sociologist Gustave Le Bon offer support for this view, the available evidence does not. *See also* CROWD BEHAVIOR.

Nevertheless, this thinking has been used as an excuse for ignoring the basic causes of the problems that provoke demonstrations, so that attention has been focused on the demonstration or disruption rather than on the problem itself. When this happens, the official response has emphasized control and law and order rather than amelioration and social reform, notwithstanding the escalation of the problem that may ensue from such policies.

Media Coverage of Demonstrations

Despite national differences, media coverage of demonstrations is influenced by such climates of opinion.



Figure 1. (*Demonstration*) Women's suffrage parade in support of U.S. president Woodrow Wilson's campaign for women's votes, 1916. The Bettmann Archive, Inc.

The media are also influenced by other considerations that are internal to their structure and organization.

One of these internal considerations is the fact that the media operate within a system in which readers and viewers have to be won and kept. For the daily news media, persons, events, and happenings (particularly negative ones) are the basic units of news. One reason for the concentration on events is the *publication frequency* of the media. Events are more likely to be reported by the media working within a daily publication cycle if they occur within the space of one day. Thus a demonstration is a news event; the development of a political movement is not, as it lacks the correct "frequency." *See also TELEVISION NEWS.*

The concentration on events makes some aspects of a story more likely to become news than others. Violence may be directly related to the visible forms of events in the streets, but the focus on violence tends to exclude background, explanations, and context.

Research on the media coverage of one political demonstration in England pointed to similarities in presentation of fundamental issues right across the media. Viewers and readers were not presented with various interpretations focusing on different aspects of the same event but with basically the same interpretation of the same limited aspect, namely, violence. Yet in reality violence was not central. The "set" of violence was used because, together with the other implications of underpinning news values, it was the logical outcome of the existing organiza-

tion of the news process and of the assumptions on which this rested.

This form of presentation could lead to labeling and stereotyping, to the association—perhaps unjustifiable—of certain groups with violent behavior, and possibly to the acceptance of violence as a legitimate way of dealing with problems or as a necessary form of retaliation (*see also TERRORISM*). Perceptions derived from these presentations may influence attitudes and behavior, so that they come to match the stereotype, and all sides behave as "expected."

In the aforementioned case, and given the climate of opinion at the time, the largely negative presentation by the media tended to devalue the case of the protesters. In the long run such practices might increase rather than reduce the risk of violence, because a minority group may have to do something violent before its case is presented to the general public.

There are also indications that, irrespective of the theme of the demonstration, the news story will center on violence and confrontation if there is any opportunity to do so. The account most likely will not mention antecedent conditions and will convey little understanding of either root causes or aims. Foreground prevails over background, and the whole presentation is fragmented and oversimplified. Moreover, this decontextualization tends to reinforce the tendency to put control before reform. Another consequence of this type of presentation is that alternative conceptions of social order are minimized or not considered at all; the status quo of power and control is maintained, with conflict and dissent being managed in the interest of whoever is in charge.

Figure 2. (*Demonstration*) A ban-the-bomb rally held during a special session of the UN General Assembly's conference on world disarmament, New York, 1978. UPI/Bettmann Newsphotos.



It is said, particularly by those who favor a law-and-order stance, that the media, especially television, offer support for the demonstrators by providing publicity, and that at times they may encourage disruptive behavior by their very presence and mode of reporting. Copycat behavior cannot be ruled out entirely, but there is no convincing evidence from research to support general claims for its inevitable occurrence. The presence of cameras may even reduce the likelihood of violence.

Staged incidents have occurred, but the relationships among the media (camera crews in particular), the demonstrators, and the police vary. The media have been seen as the enemy of the police, particularly when photographing police violence. But they have also been criticized by the demonstrators for being part of the establishment and for facilitating police identification of demonstrators. In the direct reporting of demonstrations, the position of the camera—more often than not behind police lines—is very important in determining what perspective is created.

Media portrayals of demonstrations have led to the increased visibility of a problem and perhaps to its amelioration in some cases. However, the degree to which a demonstration is an effective method of communication depends on factors other than the media; the media may simply reinforce the contending positions.

The views and criticisms of media coverage from both the right and the left are probably too crude to account for a complex situation adequately. For example, nonnews programs, including nonfiction, are

not subject to the restrictions surrounding the news process. The news and some other programs are relatively closed to any but the “official” perspective, but other programs may be more open, so that alternative and even oppositional views are presented. Consequently, meanings can be negotiated from what is made available at any given time. *See also* FACT AND FICTION.

But this diversity is strictly limited in terms of what is available (quality and quantity) and the restricted use that is made of it. Consequently, although media presentation is not quite as closed as some would claim, the negotiations, the giving of meanings, are inevitably confined within the frameworks determined by available definitions of events and newsworthiness. Currently this tends to focus on the crowd/public approach to collective behavior.

The likelihood is, then, that even allowing for national differences and some degree of openness, the media (television in particular) in most Western societies will reinforce the prevailing simplistic analyses of complex situations in their portrayal of demonstrations. This might lead to an exacerbation of the situation, but it will certainly not lead to an increased understanding of the social conditions that give rise to demonstrations.

See also MASS MEDIA EFFECTS; POLITICAL COMMUNICATION—IMPACT OF NEW MEDIA.

Bibliography. James D. Halloran, Philip Elliot, and Graham Murdock, *Demonstrations and Communication*, London and Baltimore, Md., 1970; Philip Schlesinger, *Putting*

"Reality" Together: *BBC News*, London and Beverly Hills, Calif., 1978; Philip Schlesinger, Graham Murdock, and Philip Elliot, *Televising "Terrorism": Political Violence in Popular Culture*, London, 1983; Jerome H. Skolnick, *The Politics of Protest*, New York, 1969; John Stevenson and Roland Quinault, eds., *Popular Protest and Public Order*, London, 1974; Howard Tumber, *Television and the Riots*, London, 1982; Daniel Walker, ed., *Rights in Conflict*, New York, 1968.

JAMES D. HALLORAN

DESIGN

Design has two meanings: as a verb, it describes the activity of preparing instructions for the production of any physical ARTIFACT; as a noun, it may describe either those instructions or the general form or appearance of the finished article. It is in this latter, looser sense that most attention to design as communication has been directed, though of course the practice of design is itself a means of communication, with its own specific techniques and conventions.

History. The activity of design arose out of the division of labor between those who conceived the form of objects and those who made them. In craftwork this distinction does not arise. Since the object is generally both conceived and made by the same person or group of people, no preliminary set of instructions is required for them to follow, and design is not distinguished from the work of production. The first instances of design as a specialized practice occurred in the fifteenth-century Italian RENAISSANCE, when artists were employed to produce architectural designs for buildings to be executed by others (see ARCHITECTURE). This development also made it possible for buildings to be constructed in the absence of the architect, whose instructions might be conveyed in writing, by word of mouth, or through models or drawings. Drawings were used increasingly to communicate designs, and this development gave rise to special graphic techniques, particularly orthogonal projection, for conveying instructions to workers (see GRAPHICS).

The introduction of design into the production of artifacts occurred somewhat later than in architecture. In successive industries during the eighteenth and nineteenth centuries craftwork was replaced by workshop production, in which manufacture was broken down into separate processes carried out by individuals, and an additional, design stage of production was required to prepare instructions or patterns for workers to follow in their various tasks. Designers were known differently in different industries—in the English pottery industry as modelers, in printed textiles as pattern drawers. The eighteenth-century English pottery manufacturer Josiah Wedgwood relied heavily on modelers and employed artists

from outside the industry to introduce nontraditional forms that would be attractive to fashionable markets.

Mechanization and mass production did not alter the basic nature of design but made it infinitely more valuable, as substantial investment in tools and plant made the variety found in craft industries uneconomical. The more articles produced to a single design, the more valuable that design becomes. Recognition of this fact in the nineteenth century stimulated the introduction of COPYRIGHT to protect ownership of designs. Recognition of the importance of design in commercial competition also led to the establishment of organized (and, in some countries, government-backed) training for designers.

The establishment of design as an activity separate from the rest of production stimulated innovation in product form. Appearance previously had been determined largely by the traditions of the craft, but the freedom to employ designers with different training, from different geographical areas, and often with their own contact with fashionable markets, created

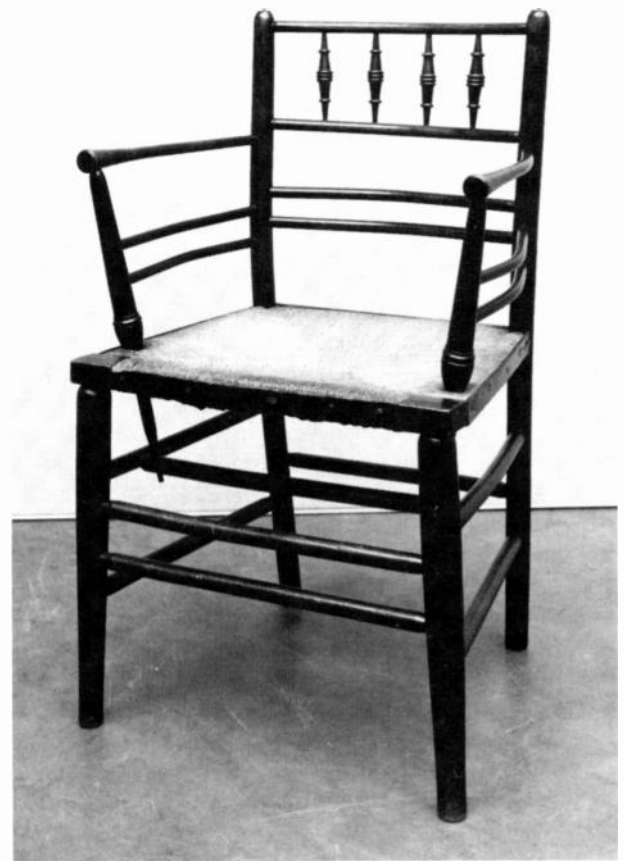


Figure 1. (*Design*) William Morris and Co., Sussex chair, ca. 1865. Ebonized beech with rush seat. Courtesy of the Board of Trustees of the Victoria and Albert, London.

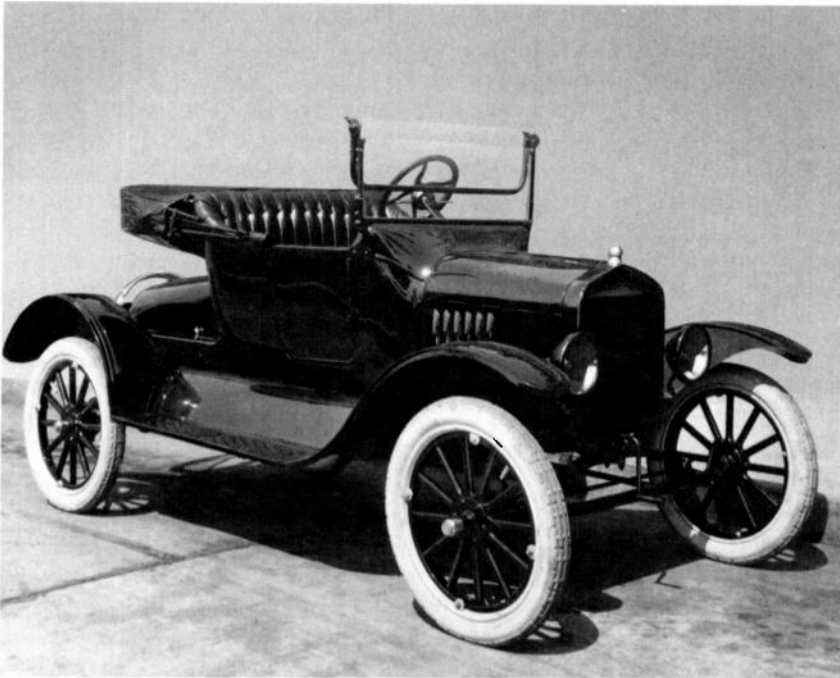


Figure 2. (*Design*) The Model T Ford. Courtesy of Ford Motor Company.

conditions for more rapid and substantial changes in the appearance of goods. *See* ARTIST AND SOCIETY.

Style. Until the early twentieth century most style was derived from the past, reference to particular periods of the past carrying specific associations. In England in the late nineteenth century the Arts and Crafts movement, inspired mainly by John Ruskin and William Morris, promoted a style deriving from the continuity of craft traditions that was nonspecific in its references to the past (*see* TYPOGRAPHY). This style exalted the intuitive, tradition-derived knowledge of the artisan above that of the trained designer and in this way attempted to subvert the entire post-Renaissance development of the specialization of design. Traditional or vernacular forms continue to be used, usually to signify opposition to the dominant CULTURE.

In the early twentieth century a new style that referred neither to the past nor to tradition was developed in Europe, especially in Germany. This kind of design aimed to express efficiency, scientific rationalism, and social utopia (*see* UTOPIAS). Often known as functionalism (from the aphorism “form follows function”), it was claimed to derive from the logic of the manufacturing process and was often presented as a language of design so perfectly rational as to be styleless. The success of Henry Ford’s standardized automobile, the Model T, was widely cited as an example. Functionalism was associated particularly with the Bauhaus, a German school of design operating between 1918 and 1933, but similar ideas were held in other countries and formed a basic premise of modernism in design. Although a histor-

ical critique of functionalism was not offered until 1960, by Reyner Banham, its practical weaknesses had been exposed in the late 1920s when Ford’s main rival, General Motors, began to produce automobiles in various different styles and succeeded in capturing a significant share of the market. Ford was forced to abandon the standard design and in 1927 introduced the Model A, which had styled bodywork. From that time on, the U.S. automobile industry was committed to styling, creating in the process a specific automobile imagery that was to be highly influential and was used for many other, quite unrelated products.

Design and communication. To some people design conveys quite specific things, like the technical expertise of the manufacturer or the aesthetic ideas of the designer; others regard it as an ideological practice that casts into physical, tangible form general and unstated ideas about the social order and social relations, ideas designers themselves may not be conscious of in their work. The construction of MEANING in design arises out of the conjunction of the processes of production, mediation (e.g., ADVERTISING), and reception or consumption. Here again there is disagreement about the relative importance that should be ascribed to each of these processes in the interpretation of design.

Until the early nineteenth century most architecture signified either political power or religious SYMBOLISM. During the nineteenth century growing commercial and industrial concerns, such as banks, stores, and railway companies, started to use architecture as a means of self-advertisement. In the early



Figure 3. (*Design*) Mass-produced chairs by Charles and Ray Eames. (a) Molded plywood chair, revised design, 1946. Wood, metal, and rubber. (b) Stacking shell chair, 1955. Fiberglass-reinforced polyester, metal, and rubber. Courtesy of Herman Miller, Inc., Archives.

twentieth century, following the revolutions at the end of World War I in Germany, Russia, and Austria-Hungary, a new architecture based on functionalism was developed to signify the new political order and was used for buildings serving welfare functions (housing, schools, and hospitals) that had not previously received much architectural attention. The style was subsequently extended to a variety of buildings to signify progress and modernity. The study of architectural meanings originated in *ICONOGRAPHY*, which was concerned mainly with the interpretation of motifs and symbols used in medieval and Renaissance architecture, and focused on the intentions of clients and architects. The development of semiotic criticism in the 1950s and 1960s stimulated a new interest in the communicative aspects of architecture, especially in its reception, which had largely been ignored in iconography (*see SEMIOTICS*).

Another important difference between architecture and consumer goods is that buildings are usually commissioned by their future owners and are not designed for immediate exchange, but with consumer goods the process of exchange is central to their existence and is the principal means through which meaning is constructed. Design plays an important part in selling and marketing; its value was recognized early by entrepreneurs such as Wedgwood, who commented that in his trade “fashion is infinitely superior to merit.” Marketing strategy requires the differentiation of consumers into categories and the production of designs appropriate to each category. When successful, this identifies particular designs with particular groups and gives those designs a social meaning. In the early period of industrial production, in the eighteenth and nineteenth centuries, principal market segmentation was between ex-

ports and domestic consumption, but with the development of domestic markets in Britain, the United States, and Germany, manufacturers looked for differentiation within those markets in terms of factors such as region, social class, GENDER, and age. Mail-order catalogs from the late nineteenth century show an enormous proliferation of designs for many products, as entrepreneurs attempted to produce designs for every conceivable subsection of the market. For example, the Vespa motor scooter was introduced in Italy in the late 1940s for sale to women and teenagers, neither group part of the traditionally male market for larger motorcycles.

Mediation of consumer-goods design occurs mainly through advertising, which usually reinforces the meaning intended by the manufacturer, although it may also create additional ones. Sometimes the desire

to advertise a product has been a reason for attending to its design or its packaging, so as to give it a brand identity distinct from its competitors. For example, soaps and cigarettes depend on brand design to be advertised effectively.

It is in reception and consumption that interpretation becomes most difficult, for often designs are not understood in the way manufacturers or advertisers intend. There have been many notable failures of this kind. Ford's Edsel, an automobile launched in 1958, was designed on the basis of exhaustive market research, but there turned out to be no demand from the projected market. Moreover, designs are often reinterpreted by the market. The Italian motor scooter was adopted in the 1960s by a British youth subculture known as "mods" and became a symbol of youth rebellion, displacing the original

Figure 4. (*Design*) Advertisement for Hille office desk range, designed by Robin Day, 1961. The problem of office management in the 1960s was to preserve an illusion of equality while preserving hierarchies. By permission of Hille Ergonom plc., London.



There's a Status desk for non-stop directors,



... for dedicated young executives



and for pretty typists



Figure 5. (*Design*) Vespa motor scooter, Chicago, 1979. UPI/Bettmann Newsphotos.

meaning intended by the manufacturers. Such changes in meaning occur through fashion, a process manipulated partly by consumers and partly by manufacturers themselves (particularly of automobiles and CLOTHING), who change designs in order to create obsolescence and stimulate new demand.

Consumer behavior and the formation of taste have been approached from a variety of perspectives (*see* CONSUMER RESEARCH; TASTE CULTURES). Thorstein Veblen saw consumption as related to class identity, and taste as a means by which dominant classes maintained their ascendancy. Similarly, Pierre Bourdieu discussed consumption as behavior predicated on existing patterns of social difference. Following Bourdieu, some authors attach considerable importance to consumption within the process of exchange in the construction of meanings; an opposing theoretical view regards consumers as relatively passive and meanings as created primarily through the process of production.

Exchange is not the only context in which design can be understood. Many goods shape or affect other kinds of experience. For example, ideas about the nature of work in offices have been mediated through the design of office furniture and equipment. Similarly, large commercial organizations often attempt to communicate their corporate identity to employees

and to the public through design strategies that unify company buildings, capital equipment, products, and services.

Design is particularly labile; the meanings intended by designers are often interpreted differently by recipients, while designs can change their meanings substantially over time. In certain categories of design, notably clothing, such changes can occur very rapidly. However, design's ambiguous nature has often been used to advantage, for it lends itself to the communication of contradictory or opposing sets of ideas or ideologies.

See also AESTHETICS; ART.

Bibliography. Reyner Banham, *Theory and Design in the First Machine Age*, 2d ed., New York, 1967, reprint 1981; Pierre Bourdieu, *Distinction: A Social Critique of the Judgement of Taste* (*Le distinction: Critique sociale du jugement*), trans. by Richard Nice, London and Cambridge, Mass., 1984; Adrian Forty, *Objects of Desire: Design and Society from Wedgwood to IBM*, London and New York, 1986; Siegfried Giedion, *Mechanization Takes Command*, New York, 1948, reprint 1969; Wolfgang Fritz Haug, *Critique of Commodity Aesthetics*, Minneapolis, Minn., and Cambridge, 1986; Dick Hebdige, *Subculture: The Meaning of Style*, London, 1979; John Heskett, *Industrial Design*, New York and London, 1980; Thorstein

Veblen, *The Theory of the Leisure Class*, New York, 1899, reprint 1965.

ADRIAN FORTY

DETECTIVE FICTION. See MYSTERY AND DETECTIVE FICTION.

DEVELOPMENT COMMUNICATION

This entry includes three articles, each dealing with a different aspect of the subject:

1. History and Theories
2. Alternative Systems
3. Projects

The first and third cover predominantly the Western (especially the U.S.) approach; the second raises some criticisms directed at both the theoretical and the practical limitations of the Western perspective and presents alternative views.

1. HISTORY AND THEORIES

A common way to discuss development is as purposive changes undertaken in a society to achieve what may be regarded generally as a different ("improved") state of social and economic affairs. The concept has been used to describe Western (particularly European) economic growth since the MIDDLE AGES, as well as to explain the process through which all societies are expected to achieve certain economic, political, social, cultural, and other goals. Thus the notion of development is often seen as a derivation of the much older idea of progress, which has roots going back to ancient Greece.

Change in human society is widely considered inevitable. Whether it is (or should be) slow and gradual (evolutionary) or fast and radical (revolutionary) is a matter of dispute. Throughout much of its history humanity did not seem to be overly concerned with the direction of progress, for the most part assuming that all change—and therefore progress—was good. In the Western world the Industrial Revolution, along with major political events that introduced important changes in social organization and life-style (e.g., the French and American revolutions), supported the view that secular development and not just progress (as guaranteed by religious ideas on the perfectibility of humankind) was not only possible but desirable and achievable as well.

The emergence of Europe since the fifteenth century as the major force in the EXPLORATION and COLONIZATION of the globe established patterns of economic relations among nations, or between nations and their colonies, that have had an enduring impact. Economic "development" was seen as emanating from the benefits of trade and the possession

of colonies that provided abundant raw materials, cheap labor, and outlets for the manufacturing industries of the metropolis. Throughout the nineteenth and early twentieth centuries European powers attached great importance to the possession of colonies and the advantages derived from them. Nations without such colonies felt they were at a disadvantage (e.g., by not being able to trade in their own currency) and defined themselves as the "have-nots" in opposition to the "have" countries with colonies. It would not be until well into the twentieth century that Europe would come to realize that the true "have-nots" were the colonies themselves.

The Twentieth Century

If the United States emerged from World War I as the preeminent economic power, the outcome of World War II established the United States as the foremost political power as well. The reconstruction of Europe and the establishment of a functioning world economy became the principal objectives of U.S. foreign policy. At a political level the increasing differences with the Soviet Union, its wartime ally, and the perceived threat to U.S. national security from Soviet intentions toward Europe and the rest of the world led U.S. President Harry S. Truman to redefine his country's foreign policy from an isolationist stance to one of active leadership. Rather than "sit back and do nothing" or respond militarily to the postwar situation, the United States decided on a program of financial and economic assistance to Europe. And rather than implement this program through heavy-handed intervention in the affairs of the recipient countries or channel aid through newly created multilateral organizations—mainly the United Nations and the International Bank for Reconstruction and Development—the United States offered the Marshall Plan, which extended financial and economic assistance in a multilateral framework of consultation and cooperation between donor and recipient countries. See INTERNATIONAL ORGANIZATIONS.

The Marshall Plan was successful both in rebuilding the economies of the participating European countries and in achieving its major political goal: the "containment" of the spread of communism. This goal was first advanced with the declaration of the Truman Doctrine in March 1947 and was reaffirmed in the Point Four Program of 1949, in which Truman offered the world "the benefits of our [U.S.] scientific advance and industrial progress . . . for the improvement and growth of underdeveloped areas."

Whether one chooses to interpret U.S. actions as derived from humanitarian concerns, economic self-interest, or larger political considerations (i.e., confrontation with the Soviets), the offer of technical assistance and economic and financial aid was un-

precedented and raised a series of formidable problems, not the least of which was how to approach the whole enterprise. Because of its very limited experience in (government-sponsored) foreign aid and development administration the U.S. government turned to the academic establishment for help. Contemporary historians and social scientists tried to distill the lessons of Western “development” into a model appropriate to different states and regions. Around the late 1950s the model that began to emerge might be summarized as follows:

- Industry is the prime mover of the economy. Therefore, a major part of investment must go into industry and what is necessary to fuel it, including raw materials, transportation, and training.
- Modern society requires more specialists rather than generalists, with each sector (e.g., industry, health) expected to have its own special skills and responsibilities.
- Public EDUCATION is needed to raise the abilities of the entire work force and of the proportion able to participate in government. Health care and family planning are needed to increase the well-being of the population and curtail demand for jobs, housing, and the like.
- In situations in which rapid development is desired, necessary information can be diffused and PERSUASION can occur through the mass media with the aid of an extension service (see DIFFUSION; INTERPERSONAL COMMUNICATION). Adoption of promising innovations should be encouraged, along with increases in productivity.
- The profits from centrally owned and managed industry, trade, and sale of manufactured goods would be expected to “trickle down” from the center of the system to the periphery, from the industries and central markets to the farms, from the cities to the villages.

This outline represents the core ideas of “development planning.” More specific theories focusing on economic, political, psychological, sociological, and other factors were also advanced.

Economic theories. During the 1950s economic analysts rejected wealth distribution from rich to poor countries as the source of economic progress in favor of the notion of *growth*. Walt Rostow’s *The Stages of Economic Growth* (1960) was very influential through the early 1960s. His approach described development as consisting of five successive stages: (1) traditional society, (2) preconditions for “takeoff,” (3) “takeoff,” (4) “drive toward maturity,” and (5) self-sustained growth, in which it is possible for the country to move on without further help from the outside. Rostow claimed to have derived his scheme from the experience of the West, and he provided guidelines about the time periods

involved in each stage as well as several specific economic measures associated with each (e.g., Gross National Product per capita, rate of savings and investment). Rostow’s scheme provided for the classification of countries according to the stage of development they were judged to be in, thus allowing certain decisions concerning the type and amount of aid to be made on a more “rational” basis.

Rostow’s and other stage theories faced substantial criticisms almost from the start. The traditional/modern dichotomy was challenged on the grounds that “traditional” was only defined negatively as what is not “modern,” the latter taken to be self-evident. Whether the West had actually “developed” by passing through the five stages was also questioned: when had the West (particularly western Europe) been a “traditional” society? The mechanisms or factors moving societies from one stage to the next were not explicit, and the assumption that *all* countries were going to develop as the Western ones had or not develop at all raised many eyebrows. Yet many of these problems were overlooked by people who found the imagery of the theory compelling.

Other economic theories of development were less ambitious and concentrated on purely economic factors, usually to their detriment. Frederick Frey, in a comprehensive review published in 1973, argued that economic theories had paid little or no attention to communication factors even though several were clearly implicit in their assumptions and formulations for action. By emphasizing organization and economies of scale, for example, these theories ignored relevant social, political, cultural, and other non-economic factors that influence development. However flawed, Rostow’s theory included a recognition of those noneconomic elements that can promote or derail efforts at social change. Development was acknowledged to mean more than just economic growth, opening the field to other social sciences.

Psychological theories. Although economists commonly interpreted development to mean broad changes in the social and economic structure of a country, psychologists approached the problem at the level of the individual, taking development to be a problem of “modernization” of the people and not just of abstract macrosocial or macroeconomic structures. The work of two U.S. scholars was very influential in the early 1960s: David C. McClelland’s *The Achieving Society* (1961) and Everett E. Hagen’s *On the Theory of Social Change* (1962). Both emphasized individual characteristics as determinants of social structure and change. Hagen argued that social structure is a function of personality, and he paired traditional society with a “traditional personality” and modern society with a creative, innovative personality. The predominant features of the traditional personality were defined as low self-esteem, author-

itarianism, resistance to innovation, and little or no inclination to perceive the world as subject to human manipulation—characteristics opposite to those of the modern personality. Hagen argued that only fundamental changes in the home environment, tied to wider social changes such as increased urbanization, LITERACY, and modern communication media, are capable of producing enduring changes in the personality of individuals.

McClelland's view elaborated MAX WEBER's treatment of the Protestant ethic. His argument was that Protestantism promotes the need for achievement among its followers, which in turn encourages individual entrepreneurship and socioeconomic development. He described the "need for achievement" as fostering an individual's desire to meet demanding challenges, to surmount tests, and to succeed in the face of difficulties. A society full of such persons is likely to be an achieving—and consequently a "developing"—society.

For both authors contact with the West and the creation and evolution of Western-style social institutions were crucial features of the development process. Although both theories claimed to be supported by empirical evidence, from historical analyses as well as from contemporary survey studies, their conceptual soundness (because of their reliance on the traditional/modern view of societies) and their applicability and usefulness were questioned. Few could deny the importance for development of individual-level changes, but experience was showing that in many cases social structures were much more difficult to change than at first had been imagined, and even willing and able individuals or groups could often make little or no significant changes in their social environment.

Political theories. Political scientists took a different approach, emphasizing the importance of the country's political system as a determinant of the social and economic domains. Because many of the "underdeveloped" countries were, in fact, new nations that had attained their independence after World War II, analysts in the West hypothesized that a major, immediate need was the integration of those countries as viable political and economic entities. Some of these countries could draw on offers of assistance from their former colonial rulers, but others could not or did not want to do so. Whereas many of the new countries were more or less homogeneous with respect to ancestry, LANGUAGE, RELIGION, and so on, many others faced formidable problems trying to integrate into a unified country peoples from different ethnic, linguistic, cultural, religious, and social backgrounds. "Nation-building" was defined as a problem amenable to study by Western scholars, including noted political scientist Karl Deutsch. Throughout the 1950s and 1960s a

common assumption (often based on correlational studies) was that economic and political development were closely related, and this led to suggestions that the "developing" countries should try to establish Western-style political institutions and practices (mainly, a democratic form of government and a free-market economic system). Thus the need to promote national identity was tied to ways of adding legitimacy to existing political institutions and power structures in charge of creating a broad consensus behind a nation's development goals.

Even though political theories of development paid substantial attention to communication issues, they were still mainly political, that is, mostly concerned with the ways in which communication processes and the mass media in particular could affect a nation's process of political development (e.g., instill democratic values in a population or act as tools for social mobilization).

Communication theories of development. Another group of social scientists addressed development from a different perspective. Rather than considering communication as one factor affecting a central process deemed to be social, psychological, political, or of any other nature, they took communication to be at the center of the development process, incorporating all other aspects in one form or another.

Sociologists, anthropologists, communication researchers, and other specialists working from this perspective in the early 1960s also assumed the problem to be one of transforming "traditional" societies and peoples into "modern" ones. Those taking an anthropological view looked at the problem as one of *individual modernization*, a consequence of cultural and social factors and the specific characteristics of the innovations being promoted. Power relations between "donor" and "recipient" cultures, the content of the "message" implicit in the innovations, and the resistance to change at both the cultural and the individual level were analyzed. The common stages of the innovation-adoption process were identified, but it would be up to sociologists to provide a more complete picture.

The details that sociologists filled in identified adopter and nonadopter groups, the patterns of social communication within each (*see NETWORK ANALYSIS*), and elaboration of the "stages" of the adoption process to include the following five: awareness, interest, evaluation of the innovation, trial, and acceptance (or rejection). Groups studied included farmers (e.g., adoption of new attitudes, seed types, or farming practices), women of child-bearing age (e.g., adoption of family planning), and doctors (e.g., adoption of new drugs). Many valuable lessons on the ways in which social groups assimilate (or reject) innovations were learned, but the theoretical and practical limitations of the approach also

became evident, among them a tendency to rely on survey methods even when they were inadequate for the cultural and historical context or for the specific problem under study.

At a more general level, one of the most influential theories that assigned a very important role to communication was proposed by U.S. scholar Daniel Lerner. In *The Passing of Traditional Society* (1958) Lerner identified four critical variables that he said summarized the development process: *urbanization*, leading to increased *literacy*, which in turn affects *mass media exposure*, resulting in greater economic and political *participation* in society. This simple, linear scheme was initially modified by Lerner himself to allow for reciprocal influences between literacy and mass media exposure. Several other researchers tested many other models, using the same four variables on different data sets and later including other variables to create more complex models. At the individual level, Lerner's most important hypothesis has to do with the nature of the "modern individual," characterized by an ability to accommodate to change plus a high degree of empathy—the ability to imagine oneself in the role or with the responsibilities of someone else. Lerner argued that the primary step toward individual modernization was the acquisition of this capacity for empathy as well as the willingness to hold opinions on a wide variety of issues and questions not usually familiar to "traditional" peoples (who may not even have knowledge of those issues owing to lack of access to mass media sources of information). Frey synthesized into two variables, which he labeled "exposure to change" and "cognitive flexibility," what he considered to be the most important features required for the process of individual modernization.

By the mid-1970s the ideas embodied in the "dominant paradigm" of the previous two or three decades were called into question. The role of communication as the central "mover" in the development process was acknowledged to be substantially limited by political, economic, cultural, and other factors, leading practitioners to the recognition that communication was perhaps best conceptualized as a *complement* to development.

This overview has dealt with only a few of the multitude of development theories advanced since the 1950s, namely, those that most often provided the conceptual background for the impressively large number of development assistance projects carried out or sponsored by Western governments and scientists. Some of the projects having to do explicitly with communications are covered in section 3, below; section 2 presents an assessment of that experience from a Third World perspective.

Bibliography. Everett E. Hagen, *On the Theory of Social Change*, Homewood, Ill., 1962; Bert F. Hoselitz and Wil-

bert E. Moore, eds., *Industrialization and Society* (North American Conference on the Social Implications of Industrialization and Technological Change), Paris, 1963, reprint The Hague, 1968; Daniel Lerner, *The Passing of Traditional Society: Modernizing the Middle East*, New York, 1958; David McClelland, *The Achieving Society*, Princeton, N.J., 1961; Robert Nisbet, *History of the Idea of Progress*, New York, 1980; P. W. Preston, *Theories of Development*, London and Boston, 1982; Lucien W. Pye, ed., *Communications and Political Development*, Princeton, N.J., 1963; Everett M. Rogers, *Modernization among Peasants*, New York, 1968; Walt W. Rostow, *The Stages of Economic Growth: A Non-Communist Manifesto*, Cambridge, 1960; Wilbur L. Schramm, *Mass Media and National Development*, Stanford, Calif., 1964.

PEDRO F. HERNÁNDEZ-RAMOS
AND WILBUR SCHRAMM

2. ALTERNATIVE SYSTEMS

The record of economic and social development has been disappointing. In the years since World War II ended and the United Nations (UN) was established, assistance began to flow from developed countries to less developed ones. Thousands of millions of dollars have been spent in support of development, resulting in significant economic growth and material advancement in some underdeveloped countries. But the dreams of widespread economic development have not materialized, and communication in the service of development has hardly accomplished what was expected of it.

Some Results of Two Development Decades

By 1980, after two UN "Development Decades," the developing countries had accumulated a foreign debt of nearly \$440 billion, up from only about \$68 billion in 1971. Between 1971 and 1980 interest rates had increased by more than 800 percent. Three-fourths of the world's population, some 3.2 billion people in 140 developing countries, accounted in 1980 for only 20 percent of the world's gross product. Some 30 of these countries, the least developed, had a yearly per capita income of less than \$300—about eighty cents per day. The annual figure for Bangladesh was \$100, whereas that of some of the developed countries was above \$10,000. Not even the most basic of human needs, food for survival, has been completely satisfied. It is estimated that more than 800 million persons still suffer from malnutrition, and as the 1985 crisis in Ethiopia illustrated, thousands or millions are wiped off the earth by famine. Yet Asia, Latin America, and Africa were all net exporters of grains before World War II.

The recession that struck the industrial nations between 1981 and 1983 was devastating to the economies of developing countries, particularly in Latin America. The (average) growth rate of its gross in-

ternal product collapsed from 5.5 percent during the 1950–1980 period to *minus* 0.9 percent in 1982. This part of the world saw its development aspirations virtually halted. At the beginning of that year Mexico had to commit as much as 85 percent of its export earnings to interest payments and, along with several other countries in a similar situation, was trying to renegotiate the debt itself. In 1985 Peru declared its intention to apply no more than 10 percent of export earnings to servicing the debt. “Banks can wait, hunger cannot,” said its president, Alan García. The Colombian delegate to a general assembly of the UN’s Food and Agriculture Organization (FAO) charged that “the developed countries have unleashed a commercial war against the Third World,” and the World Bank estimated that “dozens of countries have lost ten or more years of development.” See INTERNATIONAL ORGANIZATIONS.

A divided world. The northern (“developed”) and southern (“developing”) nations see their relationship differently. Through northern eyes explosive population growth rates, lack of entrepreneurship, poor planning, poor management, technological incompetence, bureaucratic corruption, and inability to apply foreign aid, among other factors, effectively explain the economic woes. Through southern eyes the central explanation is unfair economic relations between industrial and nonindustrial states. At the end of World War II developing countries were assigned a primitive role in the world economy: to produce raw materials and consume imported manufactured goods. Because the developed nations are able to determine the prices for these transactions, the developing countries have to sell cheap and buy dear. The results are chronic trade imbalances, ever-growing budgetary deficits, and increasing debts to the industrial nations (which charge increasingly higher interest rates). To compound these problems, developed countries have even begun to produce synthetically some of the raw materials exported by the developing countries. Southern countries feel that no amount of aid can compensate for this kind of trade.

At the 1955 Bandung Conference that gave rise to the “Non-Aligned Movement,” the concept of a “Third World” searching for a pattern of development independent of either capitalist or socialist industrialized powers was proposed. The establishment of the UN Conference on Trade and Development (UNCTAD) was urged as a neutral forum for north-south discussion. UNCTAD met for the first time in 1964 and argued for a new international economic order (NIEO) that was eventually embraced by the UN General Assembly in 1974. Third World countries said they wanted “justice, not charity,” and the NIEO was intended to seek a fair balance in north-south trade relations and put an end to exploitative “neo-colonial” practices.

Not all injustice, however, is external to the de-

veloping countries. In a situation that Mexican sociologist Pablo González Casanova calls “internal colonialism,” elite minorities in many developing countries concentrate economic, political, and cultural power in their hands at the expense of deprivation and often oppression of the majorities. Showing at times greater ideological affinity and coincidence of interest with the developed world than with their own people, native oligarchies are also the main beneficiaries of their countries’ development-oriented activities, including those supported from abroad. Just as on the international scene, the abyss between rich and poor is expanding dangerously instead of being bridged. National income is concentrated in the hands of a few rather than being redistributed more evenly. Popular reform-minded movements of social democratic leanings are usually discouraged and often forcibly repressed. In some countries rural guerrilla warfare and urban TERRORISM introduce violent strategies to the struggle for social transformation in search of national (and sometimes international) justice.

A statement by the former prime minister of Jamaica, Michael Manley, perhaps provides the best summary (and the ideal) of what Third World countries desire:

I wish to make clear that we do not speak of the New World International Economic Order as an excuse for shortcomings in our own development process. . . . Nor do we believe that the developed world owes its former colonies a living. Equally, I accept, indeed assert, the obligation of the Third World countries to pursue unflinchingly the objectives of equity and social justice within their own systems.

Western Development Models Revisited

Experiences like these have led to challenges to many of the tenets of “classic” development theory. Latin American economists and social scientists, such as Argentina’s Raúl Prebisch and Brazil’s Celso Furtado, were among the earliest critics. With other scholars they shared a structural view of underdevelopment and contributed to dependency theory, which effectively contends that genuinely democratic development can occur only if crippling intranational and international power relations (political, economic, and cultural) are restructured in the direction of justice and liberation for the majorities.

In the early 1970s a number of meetings in different parts of the world began to take note of the shortcomings of existing development programs and the models behind them. Among these were the Stockholm Conference on Human Environment, the Bucharest World Population Conference, the Rome Food Conference, and the 1974 meeting of the UN General Assembly that approved the proposal for the

NIEO. Academic conferences during the same period argued that existing development models sacrificed human dignity, justice, and freedom in favor of "abundance and prosperity at any price . . . for the privileged minorities." Such noted researchers as Juan Jamías (the Philippines), Andreas Fugelsang (Sweden), Peter Golding (Great Britain), and Juan Díaz Bordenave and José Marques de Melo (Brazil) coincided in their assessment of the classic development models as ethnocentric, unidimensional, deterministic, and lacking a historical perspective.

By the mid-1970s Western scholars, especially in the United States, were aware of the limitations of the models applied so far. WILBUR SCHRAMM and Daniel Lerner acknowledged that such, and other leading figures provided their own assessments. One of the most striking was that of Everett Rogers, who had worked extensively in the area of DIFFUSION of innovations. In 1976 Rogers argued that we were witnessing "the passing of the dominant paradigm" and summarized the errors in the old paradigm as follows:

1. It posits that persons are rational economic actors, and assumes that the profit motive is enough to bring about behavioral changes.
2. It measures development in terms of Gross National Product (GNP) or per capita income, ignoring the need to distribute development benefits equally.
3. It assumes infinite economic growth, ignores problems like population growth, pollution, etc., and does not take into account the "quality of life."
4. It assumes the need for central economic planning, and fails to account for the possibilities of autonomous development, as exemplified by China.
5. It emphasizes technology and capital rather than labor, thus encouraging economic dependence on advanced countries. Low priority is given to agriculture.
6. It blames the developing countries for their failings, ignoring external factors beyond their control.
7. It takes an ethnocentric (Western) bias by emphasizing the modernization of "traditional" individuals.
8. It equates poverty with underdevelopment.

Along the same lines, a 1977 gathering of U.S. and foreign scholars in Houston, Texas, noted other elements in classic development models that lacked validity for developing nations. These included the notion of stages (from Walt Rostow's theory), the "trickle-down" effect for the rewards of development, the priority on heavy industrialization, and the import-substitution strategy to promote the growth of domestic industry. In summary, classic development theories were seen more as hypothetical reconstructions of the material advancement in industrial societies and no longer as valid universal formulations or blueprints for development in the Third World.

Communication and Third World Development
Does the failure of development imply a failure of communication as a factor to encourage development

in the Third World? One important difference between developed and developing countries is that in most Third World countries the availability of press, RADIO, film, and television is one more privilege enjoyed principally by urban minorities. Even radio, the most widespread medium, falls short of reaching every potential audience member.

Very significant increases in the availability of mass media have taken place in recent decades. In the "Decade of the Transistor," between 1963 and 1973, the number of radio receivers in the Third World grew by 100 million units, more than quadrupling the figures for Asia, tripling them for Africa, and doubling them for Latin America. Reviewing those years, Schramm warned:

But let us not forget how far behind the rich countries these poorer countries are. Even the rather spectacular growth in radios must be interpreted in light of the fact that two-thirds of the world's people still have no more than one-fifth of all the world's radios, less than one-fifth of the newspaper circulation, less than one-tenth of the world's television receivers, one-sixteenth of the world's telephones.

Thus the lack of economic resources ran parallel to shortfalls in the availability—and actual control—of media. Beyond this, the content of media programming troubles many observers. Private mass media typically favor SPORTS and ENTERTAINMENT fare and tend not to regard such functions as fostering national unity or teaching the principles, values, and skills of development as a part of their responsibility. They attribute such social duties to the state, but in general the state does not fulfill them either. The most common explanations for these omissions are a failure to perceive the importance of communication for development, lack of funds, and preference for political indoctrination. Another is that public media are few and weak, and government attempts to bolster them are often inhibited by strong opposition from the private (commercial) sector. By the mid-1970s it had become apparent that the mass media have no special power to accelerate changes in society and that communication cannot alter an unfair social and economic structure on its own.

The imbalance seen in intranational mass communication is also typical of international media. It occurs, for example, in such areas as television programs (*see TELEVISION HISTORY—WORLD MARKET STRUGGLES*), foreign news (*see NEWS AGENCIES*), and ADVERTISING, in which the predominance of the developed nations, and of the United States in particular, has become overwhelming. U.S. predominance in the transnational information industry involving satellites, computers, and other highly advanced communications technologies appears to be even more formidable (*see COMPUTER: IMPACT—IMPACT ON THE WORLD ECONOMY; SATELLITE; TELECOMMUNICA-*

TIONS NETWORKS). This situation causes concern in the Third World because many countries feel that their cultural integrity and even their national sovereignty is threatened by such mighty alien influence through technologies that are rapidly widening the gap between developed and developing countries. See also MARXIST THEORIES OF COMMUNICATION—THIRD WORLD APPROACHES.

The concern turned combustible in 1976 after the Non-Aligned Movement proclaimed the need for a NEW INTERNATIONAL INFORMATION ORDER and UNESCO sponsored the Intergovernmental Conference on Communication Policies in Latin America and the Caribbean, in San José, Costa Rica. International controversy erupted, not only between north and south but also between those in developed and developing countries who felt that such a change is essential to achieving development and those who resisted it. Among the latter were the inter-American associations of mass media owners who argued that the establishment of national communication policies would be a threat, for example, to freedom of information. Nevertheless, through the *Declaration of San José* and thirty accompanying recommendations, the meeting did suggest steps toward the implementation of pluralistic national communication policies, improving the use of communication for development, ways to achieve better-balanced circulation of information at both the national and international levels, and the strengthening of community media. Coming from political decision makers, these conclusions broadened the scope of the debate considerably. The debate intensified during discussions concerning a UNESCO "Mass Media Declaration," initially advanced by the Soviet Union and finally approved by consensus in 1978, and around the work of the MacBride Commission, a consultative body of experts representing many nations and ideologies who delivered to UNESCO's General Conference in 1980 the report *Many Voices, One World*. By the mid-1980s the withdrawal of the United States from UNESCO (later followed by Great Britain), brought about mainly by concern over these issues, made the confrontation a serious international episode.

A New Approach?

Old development models and ideas about the role of communication in them could be dismissed as inappropriate, but was there anything to substitute for them? New proposals called for "another development" and "alternative communication." Not surprisingly most of them were based on the premise that structural changes toward more equitable relationships within and between nations are necessary preconditions. Some sought to learn from distinct experiences such as those of China, Tanzania, and Yugoslavia. However, contrary to what is often as-

sumed in developed nations, a movement like this one for democratic communication in the Third World is not the product of Communist revolutionary inspiration. Many proponents of these changes are nonpartisan reformers of social democratic leanings who tend to condemn authoritarianism whether it comes from the right or the left. They know that communication in most Communist countries, dominated by one-party regimes, is no less undemocratic than transnational capitalist communication. Furthermore, the main supporter of these kinds of justice-seeking concerns in Latin America has often been, since the late 1960s, the Catholic church.

A report by the Hammarskjöld Foundation on the movement toward "another development" says that "it is not the absolute scarcity of resources which explains poverty in the Third World, but rather their distribution." Domestic democratization is only one element of the structural modifications required to solve the problem of distribution, the report states firmly. The other is changing the pattern of exploitative economic, political, and cultural relationships between developed and developing nations in terms of both trade and aid so that fairness and balance are attained.

An ambitious study by Argentina's Fundación Bariloche (Bariloche Foundation), supported by Canada's International Development Research Center, published its report in 1976 under the title *Catastrophe or New Society?* It challenged the Club of Rome's conclusion that the main problem facing the world is population growth in the Third World and that, if universal disaster is to be avoided, it is essential that such growth be contained. In opposition the Bariloche study argues that the main problems are not physical but sociopolitical,

based on the uneven distribution of power between nations and within nations. The result is oppression and alienation, largely founded on exploitation. The deterioration of the physical environment is not an inevitable consequence of human progress, but the result of social organizations based on destructive values.

What is proposed is a shift toward a society rooted in equity and widespread participation of the people in decision making, and this is deemed viable "only through radical changes in the world's social and international organization." The study suggested a different measure of development (life expectancy at birth) that truly reflects the general living conditions of a population. A new society instead of catastrophe will not be easy to achieve "because to change the organization and values of society, as history has shown, is much more difficult than overcoming physical limitations."

Satisfying the need for communication—considered basic by several writers—in this kind of changing environment is a major problem. Chilean economist Juan Somavía has argued:

Satisfying the need for communication is as important for a nation and its citizens as ensuring health, food, housing, and employment, together with all the social needs that make it possible for its members to develop fully in justice and autonomy. The social need to inform and be informed is one of the fundamental human rights, since it is an essential component in the improvement of mankind and in society's capacity for development.

Critical questions about commonly accepted notions of communication, chiefly as applied to adult EDUCATION, were raised in the 1960s and 1970s by Paulo Freire. Working among the downtrodden peasants in northeastern Brazil, he conceived and tested a "pedagogy of the oppressed." He condemned traditional LITERACY training as authoritarian "banking education," in which teachers "deposit" the set of values of the rich in the minds of the poor, who can later "cash in" on those "deposits" for material goods given to them as rewards for submission and passivity. Traditional teachers, Freire charged, really never communicate with the people. Genuine communication, he said, is free dialogue aimed at actively sharing experiences and jointly reconstructing experience. Education "as the practice of freedom," he contended, is creative discovery of the world, not transmission of knowledge from the powerful to the powerless.

Freire proposed "conscientization" (*conscientização* in Portuguese) as a democratic method for people to gain collective awareness of natural and social realities so as to overcome oppression. This method is based on nondirected discussion of individual and cultural problems in small "cultural circles," stimulated only by "generative words" selected from the people's "minimum thematic universe." This process of autonomous education will show the exploited and dominated minorities that nature is controllable and society changeable, and it should ultimately lead them to liberation.

The relation of Freire's ideas to the process of development education is evident. For example, he had little or no use for the agricultural extension format transplanted from the United States, which he regarded as opposite to true educational practice because it wrongly assumed that something could be transplanted "from the seat of wisdom to the seat of ignorance" (see section 3, below).

The first attempt at employing in a development communication context the provocative postulates of Freire, along with other related and pioneering ideas, was conducted in Bolivia in the early 1970s by two Catholic communication practitioners—a North American, Frank Gerace, and a Latin American, Hernando Lázaro. Their conclusions were published in 1973 in *Comunicación horizontal* (Horizontal Communication). A study by Francisco Gutiérrez, *Lenguaje total* (Total Language), joined this line by also

arguing that *dialogic* interaction is crucial to democratic communication.

In the early 1970s Belgian Marxist scholar Armand Mattelart wrote, in collaboration with the Chileans Biedma and Funes, a book on mass communication and socialist revolution that also contributed to the rethinking of the nature of development communication and made Mattelart perhaps the best-known critic of communication used for domination.

With Swedish and U.S. support, a Latin American institute for transnational studies (Instituto Latinoamericano de Estudios Transnacionales, ILET) was established in Mexico City in 1976. Headed by Somavía, who became one of the two Latin American members of the MacBride Commission, ILET emphasized communication and rapidly established itself as a leading institution in the campaign for a new international economic order and a new world information and communication order, directed toward building "another development" and "alternative communication." Somavía has argued that information is a *social good*, not a commodity, and therefore cannot be regarded as a business governed by profit motives. Inasmuch as owning, using, and controlling media afford power, in truly democratic societies power should be accountable to the community, and thus media behavior should no longer be left exclusively in the hands of private merchants or public bureaucrats. In order to democratize communication, Somavía said, an evolution must take place "from private social monopoly to majority social representation," perhaps requiring the creation of "social property" (i.e., communal, popular, collective) different from state or private media ownership.

At the end of the 1970s Luis Ramiro Beltrán made an initial attempt at integrating most of the new concepts into a framework for international communication. He took access as a precondition, dialogue as the axis of the process, and participation as the culminating result. This was his summary:

Communication is the process of democratic social interaction, based upon exchange of symbols, by which human beings share experiences under conditions of free and egalitarian access, dialogue, and participation. Everyone has the right to communicate in order to satisfy communication needs by enjoying communication resources. Human beings communicate with multiple purposes. The exertion of influence on the behavior of others is not the main one.

Lively activity has been under way along this line during the 1980s in developing countries. A diversity of approaches has given rise to the use of a great variety of adjectives, among them *dialogic*, *group*, *marginal*, *interactive*, *horizontal*, *liberating*, *popular*, *participatory*, and *alternative*.

Alternative seems to be the most pervasive, despite

some doubts. Proponents consider it the option most nearly opposite the prevailing undemocratic national and transnational systems of communication. Fernando Reyes Matta of ILET points out three crucial tasks in building alternative communication: attaining participation in the process of creating new ways and means, generating the alternative language through popular creativity and egalitarian dialogue, and organizing the communication institutions and processes through direct ties with the social and political system supporting them. The final realization of alternative communication should occur, Reyes Matta concludes, when structural changes make possible "another development."

Overview

More than forty years of development efforts have failed to resolve the major problems they were designed to solve: poverty, hunger, malnutrition, illiteracy, low crop yields, and so on. The dominant paradigm guiding communication for development eventually gave way to alternative views coming from both developed and developing countries. Although some superficial similarities persisted (e.g., in the use of terms like *participation* as a goal for development programs), the distance between old and new views remains substantial. New views have not become entirely prevalent, for the old ideas still have considerable economic and political appeal (especially in some developed countries) and have evolved conceptually as well, with key concepts being redefined and new models proposed. The criticisms exchanged by proponents of old and new have helped each camp to address areas of weakness in its theories, and this process is still unfolding.

The role that communication can or should play in society has also been intensely debated, ranging from how media institutions should be organized (e.g., ownership) to issues of content and cultural impact. As in the larger debate on how "underdeveloped" societies should develop and what form such "development" should take, questions of how media should be incorporated into society and what they can do to promote a certain type of "development" are far from settled. Everyone agrees that much was learned from the myriad projects that either succeeded or failed. What these lessons tell us about how to proceed in the future is another matter.

See also AFRICA, TWENTIETH CENTURY; ASIA, TWENTIETH CENTURY; COMMUNICATIONS, STUDY OF; COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT; LATIN AMERICA, TWENTIETH CENTURY; TELEVISION HISTORY—GLOBAL DEVELOPMENT.

Bibliography. Luis Ramiro Beltrán, *Farewell to Aristotle: Horizontal Communication*, Paris, 1979; Fernando H.

Cardoso and Enzo Faletto, *Dependência e desenvolvimento na América Latina* (Dependency and Development in Latin America, trans. by Marjory M. Urquidí, 1979), Rio de Janeiro, 1969; Dag Hammarskjöld Foundation, *What Now? The 1975 Dag Hammarskjöld Report*, Uppsala, Sweden, 1975; Guy F. Erb and Valerina Kallab, eds., *Beyond Dependency: The Developing World Speaks Out*, New York, 1975; Elizabeth Fox de Cardona and Héctor Schmucler, eds., *Comunicación y democracia en América Latina*, Lima, Peru, 1982; Paulo Freire, *Pedagogy of the Oppressed* (Pedagogía del oprimido), trans. by Myra Bergman Ramos, New York, 1970; Celso Furtado, *Dialética do desenvolvimento*, Rio de Janeiro, 1964; Albert O. Hirschman et al., *Toward a New Strategy for Development* (A Rothko Chapel Colloquium), New York, 1979; International Commission for the Study of Communication Problems (UNESCO), *Many Voices, One World: Communication and Society, Today and Tomorrow*, Paris and New York, 1980; Marc Nerfin, ed., *Another Development: Approaches and Strategies*, Uppsala, Sweden, 1977; Antonio Pasquali, *Comunicación y cultura de masas*, Caracas, 1972; Fernando Reyes Matta, ed., *Comunicación alternativa y búsquedas democráticas*, Mexico, D.F., 1983; Everett M. Rogers, ed., *Communication and Development: Critical Perspectives*, Beverly Hills, Calif., 1976; Karl P. Sauvart and Hajo Hasenpflug, eds., *The New International Economic Order: Confrontation or Cooperation between North and South?* Boulder, Colo., 1977; Vickie A. Sigman, ed., *Development Communications in the Third World*, Urbana-Champaign, Ill., 1984.

LUIS RAMIRO BELTRÁN S.

3. PROJECTS

Advocacy of purposive use of communication, and of the mass media in particular, for national development reflected intellectual currents of the post-World War II years. Some scholars (e.g., David McClelland, Daniel Lerner, Everett Hagen) focused on the supposed deficits in the people who live in poor countries as one explanation for their countries' failure to develop rapidly and along Western lines. To the extent that these personal deficits accounted for slow development rates, they called for solutions stressing more formal EDUCATION, more training for adults, and more information DIFFUSION. However, implementing such solutions in poor countries was difficult because the conventional strategies associated with educational activities in North America and Europe for doing such tasks through face-to-face instruction foundered on the thin supply of teachers and trained field agents and on inadequate budgets to support their work.

Projects through the Mid-1970s

Practical limitations of the sort mentioned above led many to argue for the use of mass media, with their

potential for reaching audiences that were otherwise unreachable, either as a substitute for unavailable teachers and field agents or as a complement to inadequately trained personnel. Enthusiasm for the perceived "power" of mass media resulted in the creation of hundreds of mass media-based projects worldwide.

Formal education. Early uses of RADIO and television (see TELEVISION HISTORY) in the classrooms of developing countries were derived from approaches current in more developed countries. Most often they featured radio as an enrichment to existing CLASSROOM instruction; for example, weekly broadcasts might include a dramatic presentation of some event in the nation's history to enrich the standard social sciences curriculum. This "schools broadcasting" approach, though it made sense in the SCHOOL systems of more developed countries in which teachers were well trained and students were attending and learning, solved none of the major problems typical of school systems in developing countries, such as lack of adequate facilities and resources and high dropout rates. If mass media were to be justified in those educational systems as anything other than a luxury, they would have to address more fundamental problems.

Core instructional uses of mass media designed to address basic problems of schooling quality did emerge starting in the 1960s. The incorporation of television in Colombia, the Ivory Coast, American Samoa, El Salvador, and other places was central to major changes in their school systems. The core instructional model has been successful in achieving short-term pedagogic outcomes. In El Salvador the school system quadrupled its enrollment, increased class size, and, although employing teachers with lesser qualifications, nonetheless produced learning gains superior to the conventional system at a lower cost per student. Most other evaluations of core instructional uses report either improved learning or learning comparable to that in conventional systems, as well as reaching otherwise underserved populations. Three main reasons for their success have been identified. First, they improve the quality of instructional content in subjects in which classroom teachers are weakest. Second, they may serve as catalysts to other needed changes. And third, they are able to build the communication system on an existing schooling infrastructure.

The core instructional model has been less successful as an innovation that has rapidly diffused. In most major school systems that used it, it has been reduced in size or (as in the Ivory Coast) ended, and few new comparable projects have been implemented. The use of television—still too expensive for many countries—and dependence on foreign financial and technical assistance were common features,

so that when assistance agencies shifted their attention the projects languished. The lack of qualified teachers, the problem that mass media were best able to address, was perceived as less urgent as teacher-training levels were raised. Of greater moment, media-based schooling has rarely established a constituency, as William Smith has argued. The enhancement of quality that it promised and often achieved is difficult to rally around: teachers feared loss of their jobs, parents feared its use as a substitute for teachers, and administrators realized that it did not solve their day-to-day problems of system management. Despite its pedagogic successes, core instructional use of media has remained a political orphan.

Basic skills: out-of-school. Only a small portion of those who were seen to need schooling-related skills, like LITERACY and numeric skill, were to be found in school buildings. Consistent with human deficit explanations for slow development, many governments and private organizations considered literacy for adolescents and adults a prerequisite to individual modernization. Mass media instruction was often attractive to sponsors of literacy programs because they could not afford the training and salaries of a rural teaching staff, and the teaching skills of local volunteers were limited. In the church-run radio schools of Latin America—the best known of them is Acción Cultural Popular (ACPO, Popular Cultural Action) of Colombia—radio courses were and are broadcast to rural adults in their homes, and the coursework is reinforced by regular group meetings with local volunteer monitors. In West Africa, notably Senegal, roughly equivalent programs combined a local group leader (the *animateur*) with radio broadcasts to reach rural adults and provide literacy and other types of training. See AUDIOVISUAL EDUCATION.

Other countries, often with UNESCO technical assistance, used mass media as part of national literacy campaigns, conducting instruction by radio and television, providing textual materials through commercially distributed texts or newspaper supplements, sometimes incorporating local volunteer instructors. Some short-term and intensive campaigns, like those in Cuba and Nicaragua, have produced substantial effects and important political outcomes, although skepticism remains about the long-term functionality of the skills thus acquired. By contrast, long-term programs have proved to be difficult operationally. Despite some exceptions, local groups are difficult to organize, volunteer leaders are difficult to recruit and train, and both, once started and recruited, tend to lose momentum. Isolated media learners may lack the incentive to keep going on their own all the way to functional literacy, and available evidence suggests that relatively few nonliterates actually become functionally literate in such programs.

Distance education. For some people basic skills instruction out of school may be sufficient, but others bypassed by conventional schooling have a need for more extended school-equivalent education and credentials. Distance education programs satisfy both the need for substance and the credentials of in-classroom schooling. They typically combine mass media instruction with self-teaching texts, correspondence, and brief periods of face-to-face instruction. Scarce resources for education in the developing world, the increasing demand for secondary and postsecondary education, and the success of the British Open University made distance education attractive. It promised an acceptable quality of schooling at lower costs to governments, which did not have to (or could not) pay for buildings, and to students who could still work while “attending” school.

Distance education programs have been used for adult education from primary to UNIVERSITY levels and for teacher education (*see* TEACHING). As might be expected, some of these projects produced the promised quality and cost reduction, and others did not. Quality depends on the development of excellent instructional materials and the effective coordination of multiple channels of communication with the target audience. This may entail lower capital costs than for conventional schooling only when substantial student enrollment is achieved. In addition, all distance education programs depend on motivation among learners. Factors such as the longer time period required to complete studies, the common need both to work and to study, and personal isolation tend to limit enrollment and to increase dropout rates.

Agriculture

Intellectual skills and academic credentials were not the only targets for deficit theories of development. A simple (and often misleading) comparison between crop yields in poor and wealthy countries suggested how high a price developing countries were paying because of the inefficiencies of their farmers. The task then became the transfer of agricultural technology, and a large literature grew up tracing the diffusion of innovations in agriculture.

One view of U.S. agricultural history credited the extension system and its associated institutions as the key to its success. That argument served as the basis for the implementation of similar systems in much of the developing world. With few exceptions, such systems reached a small proportion of farmers. As a response, many countries used radio as a complement to extension systems. The most common approach was an “open broadcast” strategy, particularly important examples being the “Farm and Home” broadcasts produced by most regional units

of All India Radio. In them, local producers depend on printed agricultural guides and local expert sources for the preparation of daily broadcasts encouraging new practices and presenting other useful information.

A second model, derived from a Canadian service called Farm Forums, was eventually adapted in India, in many African countries, and in Indonesia. Farm forums linked weekly radio broadcasts with meetings of local farmer groups, who would discuss broadcast recommendations and decide whether or not they were locally relevant. Some versions encouraged written questions from listeners that were then answered on the air.

Both major broadcast models and the extension model assumed that there was an available supply of innovations that farmers ought to adopt but that lack of knowledge and a tendency to be closed to change (a feature of the “traditional” personality) kept them from adopting. The remedy was to get information out to farmers and to provide, if possible, a social support structure that would stimulate change. However, hard looks at the range of both extension and broadcast farmer information programs led to questioning these assumptions. With only a few exceptions, such systems reached only a limited portion of target farmers and were particularly likely to miss subsistence farmers. Agricultural technology closely adapted to local growing and soil conditions was often unavailable, and even when it was, there often were capital requirements and risks that were beyond what subsistence farmers could accept. Evidence mounted that farmers were not reluctant innovators, as the first studies had portrayed them, but rational ones, changing practices when the incentives were economically correct. In contrast, information programs including broadcast ones had few mechanisms for ensuring that what they recommended was what farmers needed.

Health, Nutrition, and Family Planning

Curative medical systems reach only part of the population of most developing countries. To overcome system limitations, improvements in health status then had to come from preventive efforts or curative actions that people might take for themselves. Health and nutrition education were possible paths to that end. Person-to-person education, as in agriculture, remained the primary mode although the shortfall in outreach was evident to many observers. Media-based strategies were slowly incorporated into educational programs, and three major models of use evolved. The first was the open broadcast approach, which featured a physician or other “expert” source who talked with audiences about health problems. A second model was the intensive campaign; for

example, Tanzania used ten- to twelve-week mobilizations, like one entitled "Man is Health," that combined weekly radio broadcasts and printed materials directed to locally organized groups recommending a small set of health practices (e.g., latrine building, malarial underbrush clearing). The third model was borrowed directly from commercial ADVERTISING. Sometimes called "social marketing," it used brief, frequently broadcast advertising spots focused on a small set of health practices or on a single one.

Like agriculture programs, health communication programs have been sporadically successful, more often as pilot programs than in full-scale operation, and for similar reasons. Notions that poor health could be explained by health practices within the control of individuals were too often untrue. The quality of education and communication programming was typically quite low, reflecting trivial investment in educational activities on the part of health systems.

Political Mobilization and Socialization

Along with assumptions of deficits in basic skills and in agricultural and health practices, many scholars and national leaders of all political stripes perceived substantial political deficits in their citizens. African leaders sought to unify ethnically and culturally diverse people around nation-states whose boundaries suited only the needs of former colonial empires. China and other countries encouraged their citizens to sacrifice current consumption in order to accumulate savings crucial to development plans. All political leaders running for ELECTION (or seeking popular support without benefit of votes) required acceptance and legitimation for their policies and actions.

There are striking examples of political education using communication technology. Efforts to raise the consciousness of Latin American peasants were linked to some of the literacy programs of the radio school movement previously described. In Brazil and Honduras major programs were based on the consciousness-raising theories of Brazilian educator Paulo Freire, described in one of his early books, *The Pedagogy of the Oppressed* (1970). Cuba and Nicaragua, among other countries, are examples of revolutionary governments that forged mass mobilization efforts to improve national literacy levels. At the same time, by galvanizing popular support and action in favor of one socially desirable policy, they expected broader legitimation.

Although mass mobilization campaigns with political objectives so close to the surface are less frequent in nonsocialist countries, mass communication for political legitimation is just as common. Control over news programming, extensive coverage of govern-

ment leaders, and the intense use of media during political campaigns are nearly universal examples of POLITICAL COMMUNICATION. See also POLITICAL SYMBOLS.

Some mobilization programs work, and some do not. Ethnic, linguistic, religious, and other differences in African nations, in India, and elsewhere, when associated with inequalities in power, clearly cannot be counteracted solely by nation-affirming media-based campaigns. In contrast, short-term mobilizations that incorporate communication campaigns as one element of broader structural change can lead to dramatic social transformations, China offering perhaps the most striking example.

The Mid-1970s Assessment

In the late 1960s and early 1970s the "roll up your sleeves and do" development optimism of the post-World War II period faded. The realization of substantial changes in the quality of life in many countries was less than had been hoped for. Along with increasing skepticism about development models in general came doubts about communication for development; most of the projects had not brought about the expected outcomes.

Two explanations for this state of affairs were most persuasive. First, the "human deficit" model that underpinned so much of communication for development was no longer credible to many. Too often information was being thrown at problems defined by lack of *resources*, not lack of knowledge. Assumptions that if only people knew more they could readily improve their situation were judged by some as a cruel deception. Poverty, it was argued, was not only the result of failures by the poor to change but a reflection of their powerlessness to alter political and economic structures that limited their progress. The image of benevolent national and international elites sharing their progress with the less fortunate to make up their deficits (the "trickle down" notion) was replaced for many by an image of substantial conflict between those parties. Hospital beds, universities, and food subsidies for a nation's urban residents meant fewer resources for rural populations. Determinations that were made in wealthier nations concerning the price of commodities (e.g., oil, coffee), export/import limitations, technology transfer costs, and interest on loans had profound implications for the development of poorer countries but were beyond their control. This explanation has led some to move away from purposive uses of communication altogether, except as a means of political organizing.

An alternative explanation suggested that communication for development often failed because it was badly done, not because it lacked the potential

to affect development outcomes. The problem, it was argued, was not in the theory but in its implementation, and a pattern of difficulties emerged. First, projects too often operated on assumption rather than evidence. It may have been possible to choose practice changes consistent with what people could and would do, but programmers lacked the detailed knowledge of their audiences required to make those choices. There was no money or staff to do research before the initiation of programs or to maintain contact with audiences as programs progressed. Second, inadequate attention was paid to the content of the development process. Governments and private programs that used the mass media for their sheer reach frequently lacked the necessary commitment to the production of effective, high-quality messages.

A third problem was that the isolation of broadcasters from other agencies and from their audiences led to what became usually an ineffectual solution: the incorporation of face-to-face outreach networks to complement broadcasts. However, the funds to pay for such a system, the logistical capacity to manage it, or the skilled agents to serve as part of it were not regularly available on the scale required for its success. As a result, the bland statement that media programs had to have as complement an expert face-to-face network served only to relieve broadcasters of the need to be pedagogically effective since they could claim that the real responsibility for change was in the hands of the field agents.

A fourth problem some media-based projects faced was their anomalous institutional status. If they were placed in a broadcasting bureaucracy (e.g., the national radio system, the ministry of information or communication) they were isolated from the sectoral bureaucracy (e.g., health, education, agriculture) they were meant to serve, with an almost inevitable coordination problem. On the other hand, when they were incorporated directly into a sectoral ministry they often found it difficult to gain a permanent foothold.

A final common problem is derived from the nature of political support that media-based projects may attract. Intense media campaigns appeal to politicians because they are not only doing good but can be *seen* to be doing good. However, the political value is in the public nature of the broadcast, not in its effectiveness at achieving change, and that can skew the way program resources are spent.

Gradually, recognition of these common problems produced a new generation of projects of two contrasting sorts: one addressing political failures, the other technical failures.

The political view. One set of program developers argued that previous projects rarely benefited the poor and explained this failure in political terms: a program controlled by central authorities and not by

its beneficiaries would inevitably serve the needs of the central authorities. As long as the “targets” of development efforts had to depend on the elite’s willingness to spend resources for the benefit of the powerless, little good would be done. The answer was to be found in small-scale efforts, called participatory programs, run for and by the intended beneficiaries. These grass-roots programs were initiated in many development sectors. One application in communication for development involved support of local media production capacity and distribution mechanisms. The materials would sometimes have a pedagogic element, addressing health, agriculture, or literacy, for example, and always included a “popular promotion” function—an attempt to raise political awareness in poor communities. Reviewers of such programs in Latin America generally have praised both the ideology and the courage of their creators but have admitted that in practice their successes were limited.

Like many other development projects, participatory efforts have been initiated mostly by outsiders to the local or specific community and have relied on outside funding. When the external funding ends the projects are incorporated into conventional institutions—often government-controlled—and often lose their participatory character. In addition such participatory programs may enhance community organization, but they do not directly affect material inequalities or the social and political constraints that motivated the participatory efforts. Social organization, if it does not complement or is not allowed a clear path for action, may lead to frustration. In a sense participatory communication programs, although rejecting individual human deficits as an explanation for failure to develop, implicitly pose a parallel community deficit explanation: the poor are poor because their communities lack organization and political consciousness. Just as the failure of the individual deficit assumption is one explanation for the irregular success of an earlier generation of development projects, the short lives and minimal success of participatory projects may reflect the questionable status of the community deficit assumption.

The technical view. The other set of second-generation projects focuses on using communication for development *better*. Whether addressing health, agriculture, or formal education, all these projects share certain characteristics. They invest heavily in the message-development process, they are informed about and responsive to their audiences, and they link media messages to material and educational actions of other institutions.

One group of projects concerned with in-school education is called interactive radio programs. In the pioneer program, teaching mathematics in Nicaragua

by radio in early primary grades, fourteen professionals spent one year producing the materials for a single grade. Meticulous and artful planning of the substance and style of presentations, lessons that actively involved students, and extensive classroom observation all were brought together to produce learning substantially better than that achieved in nonradio classrooms. See EVALUATION RESEARCH.

A second group of projects, common in the health sector, is often called "social marketing." These projects encourage specific changes in behavior, whether in the use of a product (e.g., oral rehydration salts for the treatment of diarrheal disease) or in the adoption of new practices (e.g., increased use of weaning foods). The projects link extensive analyses of current audience ATTITUDES, beliefs, and behavior to study of the capacities of health and communication institutions (see CONSUMER RESEARCH). Together they guide the selection of a target health practice and a program strategy associating communication activities with complementary actions by other institutions. Extensive pretesting and evaluation of materials allow for readjustments of strategy as the project progresses. Egypt, Honduras, and Indonesia, among other countries, have implemented projects of this type, with the Egyptian program claiming a sharp drop in child mortality.

Both the interactive radio education projects and the health social marketing programs have resolved some of the central problems limiting the success of earlier communication for development efforts. In a technical sense the evidence suggests that they do communication for development "better." What they have not done is breach the political boundaries constraining them. In the case of the interactive radio projects, national adoption and continuation have proved elusive. Successful limited programs have not been extended because—perhaps like their predecessor in-school education projects—their success in improving learning did not satisfy the most urgent needs perceived by the constituencies involved in education. The health programs have had some success in achieving national scope, but their long-term continuation—especially after foreign funds are withdrawn—is not yet proved. Social marketing is not a common activity for ministries of health, so regardless of the short-term success of such programs, they must compete successfully with conventional activities that have an established call on sectoral budgets.

Overall Assessment

The history of communication for development contains broad swings in theory and practice. Early programs, with some exceptions, assumed that development was to be readily accelerated by investment in human knowledge and skills and that the use of mass media would, in turn, speed the building

of such knowledge and skills. The rare success of these programs testified sometimes to theory failure—a failure to recognize the limits that economic and political constraints placed on knowledge and skills as the explanation for levels of development—and sometimes to technical failure—the confusion of mass media broadcasts with doing communication for development well.

The second-generation projects recognize these failures and attempt to remedy them. The participatory projects choose the political constraints as their primary target, albeit with limited success. The technically sophisticated programs (like the health social marketing programs) address political and economic constraints by lowering their sights and choosing targets achievable within those limits and then by focusing on reaching those targets with as much skill as can be mustered.

Bibliography. Robert Hornik, *Development Communication: Information, Agriculture, and Nutrition in the Third World*, New York, 1987; Jeremiah O'Sullivan and Mario Kaplun, *Communication Methods to Promote Grass Roots Participation*, Paris, 1978; Hilary Perraton, ed., *Alternative Routes to Formal Education*, Baltimore, Md., 1982; Everett M. Rogers, *Diffusion of Innovations* (1962), 3d ed., New York, 1983; Wilbur L. Schramm, *Big Media, Little Media*, Beverly Hills, Calif., 1977.

ROBERT C. HORNIK

DEWEY, JOHN (1859–1952)

U.S. philosopher, educational reformer, and social critic. During a career spanning seven decades, John Dewey made substantial contributions to nearly every branch of philosophical inquiry, grappling with such issues as the genesis of human society, the emergence of LANGUAGE, and theories of ethics, AESTHETICS, EDUCATION, and government. In all of these the concept of communication played a central role for Dewey. Its centrality in his thinking is implicit in the famous passage from his *Democracy and Education* (1916):

Society not only continues to exist by transmission, by communication, but it may fairly be said to exist in transmission, in communication. Men live in a community in virtue of the things they have in common; and communication is the way in which they come to possess things in common.

For Dewey the communicative process seemed to involve far-reaching moral and metaphysical meanings. In *Experience and Nature* (1925) he claimed that "of all affairs communication is the most wonderful. . . . [T]hat the fruit of communication should be participation, sharing, is a wonder by the side of which transubstantiation pales."

Born on a farm near Burlington, Vermont, Dewey was raised in a small-town milieu. He taught school for several years after graduating from the University of Vermont. His philosophical career began with doctoral studies at Johns Hopkins, which led to periods of teaching at the Universities of Michigan and Chicago, followed by a forty-seven-year stint at Columbia University. Throughout these periods he wrote voluminously, traveled widely, and gained worldwide influence. The changes he witnessed in the United States, which transformed it from an agrarian into an industrial nation, formed a backdrop to much of his thinking. His vision of a society fused and enriched by communication—one in which communication was indeed a communal experience, a sharing and not an imparting—reflected the small-town life of his youth, in which communication and democracy had a very natural linkage.

Dewey saw communication above all as “an activity in which there are partners, and in which the activity of each is modified and regulated by the partnership.” Through symbolic communication an aggregate of individuals becomes something far more, a society with multiple threads of interconnection.

The communication media evolving in the modernization process were seen by Dewey as instruments of potential and danger. He was enthusiastic about the possibility of creating a more “organized intelligence”—combining new media, social science techniques, and ways of artistic presentation to provide a continuous, systematic, and effective exposition of social and political movements. Toward this end Dewey even became involved in an aborted attempt at publishing a new kind of newspaper, to be called “Thought News.” The fullest treatment of these issues came in *The Public and Its Problems* (1927), which was Dewey’s most ambitious statement on the relations among political affairs, modern mass media, and methods of social inquiry. His basic concern, lending a special tension to these discussions, was whether media spanning a nation could fuse it into a “great community” or whether the communal values would be eroded by depersonalized systems under remote and faceless control. He noted that the new media, hypnotizing nationwide audiences, seemed to divert them from political interests, even if not setting out to do so. Here Dewey saw great danger to democracy, an issue he never quite resolved. Yet he clung to a faith that these same media could be used to create the great community he envisioned.

See also COMMUNICATION, PHILOSOPHIES OF.

DANIEL J. CZITROM

DIARY

In common usage “to keep a diary” means to maintain a private record of day-to-day life in a series of

dated installments, chiefly for one’s own use and satisfaction. In this general sense diary keeping has been adopted by many millions of people over a period of at least four centuries, and many thousands of the resulting texts have been published or preserved in public ARCHIVES. These documents display the wide range of uses that have been made of the diary-keeping practice and, correspondingly, the variety of conventions and forms of expression evident in the development of this MODE of communication. As firsthand accounts of every kind of human situation, often replete with the kind of detail that more formal history and AUTOBIOGRAPHY would omit, diaries are an invaluable source for historians and in some cases have achieved the eloquence and density of literature.

The diary form. The term *diary* has been applied quite loosely to a broad array of texts. As the word itself implies, the diary—or journal or *Tagebuch*—is strictly to be conceived of as a BOOK composed of daily entries, and for many diarists this is indeed the governing code of practice. Even when the entries are not in fact composed one day at a time, the text will continue to be structured as a series of daily installments. In this way the diary medium retains its peculiar property of registering the contents, however selected, of a single day as the basic unit of significance. For other diarists, however, the primary characteristic of the medium is not the dated regularity of its record but rather its availability as a vehicle for unpremeditated, informal utterance. Given this emphasis, the diary may become an accumulation of irregular notes and reflections composing, more or less haphazardly, an imprint of the diarist’s life.

A further distinction should be made between the public and the private diary. Although the word tends to suggest a personal or even secret document—the *journal intime*—a diary may well be kept as a public record, conscientiously preserving matters of fact or meditation for future generations of family, community, or nation. In English the choice of the term *journal* sometimes signifies a relatively impersonal record of events or public transactions. Between the private diary and the proceedings of a public body there is also an intermediate species of diary that records an individual’s experience but that is nonetheless intended for eventual publication. Thus, for example, people in public life, witnesses of historic scenes, travelers, scientists, or artists have often recorded their perceptions and insights for posterity in the day-to-day format of the diary.

Most diaries, from the most mundane jottings about the weather to the most intimate searchings of the soul, have not been written with the idea of being published or even read. Yet the very act of writing intelligibly implies a communication of some sort. Many diarists undoubtedly write only for their own



Figure 1. (*Diary*) Jules and Edmond Goncourt. Photograph by Nadar, 1850s. The Bettmann Archive, Inc.

subsequent perusal or for the sheer satisfaction of registering ideas and impressions in words. But many others discover that their mode of expression is conditioned by the relationship with an imagined reader, for whose interest or judgment or sympathy the diary is being maintained. Thus the diary becomes a species of endless LETTER, a form of utterance that can play an important part in the writer's emotional life. For many diarists, communicating their feelings to a silent companion is felt to be an indispensable relief, and the diary text itself becomes a treasured possession, representing the repository of the writer's essential being.

Two other features of the diary mode are the commitment to truthfulness and the informality of style. Not all diarists are scrupulously honest, even with themselves, and many have distorted or suppressed portions of their record. But on the whole it is a convention of diary writing, public and private, that the writer should be as unguarded and as truthful as possible, both in the selection of matter to be reported and in the manner of reporting. For some diarists, indeed, the pursuit of utter truthfulness becomes a major motive for writing and prompts deliberate exercises of style designed to elicit the greatest candor. Although diaries have naturally been written in a wide variety of styles, reflecting the class, culture,

education, and historical epoch of the writer, a frequent feature of the diary text is a deliberately careless and elliptical style, contracting standard syntax and resorting to abbreviations and note forms. Such a stylistic feature stands as a sign that the utterance is unstudied and uncorrected, hence more authentic than a polished text. See STYLE, LITERARY.

History of the form. The origins of the diary may be traced back to a number of unrelated sources. As a conventional practice, diary writing apparently became common in Europe in the seventeenth century. Prior to this time, however, several habits of regular recordkeeping were in use that both contributed to the emergence of the diary proper and have continued in use to the present. First of all, there was the custom of maintaining detailed accounts of the transactions of public bodies—government, church, trading ventures, and so on—and of keeping such registers of events as ships' logs and campaign annals. Private persons, too, have made notes of public happenings. From as early as the fifteenth century, anonymous citizens of Paris can be seen to have recorded over many years items relating to the communal life of the city. Another component of the diary habit was the keeping of travel journals, frequently the raw material for published narratives. Among many other early practitioners, Albrecht Dürer, the German painter, kept a journal of a visit to the Low Countries (1520–1521), and French essayist Michel de Montaigne documented a tour in Italy (1580–1581). Specifically recommended by the seventeenth-century English essayist Francis Bacon ("Of Travel"), the travel journal has never lost its popularity. Another precursor of the personal diary was the practice of making notes of one's reading or of preserving selected passages in a commonplace book. Artists and experimenters likewise kept notebooks of their insights and discoveries. The *Notebooks* of Leonardo da Vinci are an early and prime example; the notebooks of writers such as Fyodor Dostoyevsky, Franz Kafka, Henry James, and Albert Camus show the continuity of the custom. And in the wake of the Protestant Reformation, devout persons sometimes made memorandums of sermons, while English and American Puritans were urged to make a daily examination of their spiritual state—a motive for diary keeping that persisted for centuries in a more secular guise.

Emerging from these various proto-diary forms is the personal chronicle of everyday life, blending NARRATIVE with reflection, kept essentially for its own sake as the document of a person's existence. For English readers *The Diary of Samuel Pepys* is the great original and paradigm of this kind of diary. Kept between 1660 and 1669 by an ambitious public servant in the admiralty, it gives the impression of registering every night just about everything Pepys

Dit is een foto, zoals
 ik me zou wensen,
 altijd zo te zijn.
 Dan had ik nog wel
 een kans om naar
 Hollywood te komen.
 Anne Frank
 10 Oct. 1942



Figure 2. (*Diary*) Photograph of Anne Frank. The inscription reads, "This is a photo as I would wish myself to look all the time. Then I would maybe have a chance to come to Hollywood. Anne Frank, 10 Oct. 1942." The Bettmann Archive, Inc.

could remember and find words for, in a tone of simple and sometimes touching candor. In fact the diary was composed with some care from notes accumulated over several days. Its distinction as a human document is that it combines intimate detail with matters of historic interest, while being neither too self-absorbed nor too external. As an element in his psychic economy, Pepys's diary habit seems not only to exhibit but actually to have promoted an exemplary mode of awareness.

In the centuries that followed, as diary writing became a more widespread practice it also became increasingly self-conscious as a quasi-literary activity. As well as recording their doings or confiding their thoughts and feelings, diarists were increasingly conscious of composing a book. James Boswell, for example, the biographer of SAMUEL JOHNSON, set out in 1762 to make his diary the colorful saga of a young man's adventures, and he proudly showed the growing volumes to his friends. Among romantic artists and writers of the early nineteenth century the *journal intime* became a fashionable vehicle for luxuriating in the convolutions of the soul (see ROMANTICISM). French novelists Benjamin Constant and George Sand may be cited as examples. At the same time, the diary habit as literary exercise became widespread among persons of culture. Whereas some nineteenth-century diaries, such as those of the Danish theologian Søren Kierkegaard, were passionately private expressions of spiritual anguish, many others were written by travelers and intellectuals, monarchs and ladies of leisure, as a kind of civilized accomplishment or duty. If not printed in the writers'

lifetimes, they were often edited for publication by a biographer (see BIOGRAPHY).

In the twentieth century people have continued to write, or in recent years to tape-record, diaries of all kinds, from conventional daily narratives to intense autobiographical quests, as well as experimental exercises in self-documentation. As more diaries have been published, more diarists have written with publication in view. For writers such as W. N. P. Barbellion, Arthur Inman, and the novelist Anaïs Nin it is no exaggeration to say that the diary constituted their literary magnum opus. Less obsessively, many people in public life, or in situations of dramatic interest such as war, REVOLUTION, or a hijacking, have embarked upon journals deliberately for what may be called their journalistic potential. Whether for immediate or delayed publication, the diary format has provided them with the one-day-at-a-time perspective on unfolding events that preserves the immediacy of actual experience. For the same reason, the diary mode has been subtly employed as a vehicle for FICTION and blatantly exploited for forgeries such as the briefly notorious "secret diaries" of Adolf Hitler (1983). At the same time, however, the diary composed unselfconsciously, in response to a personal need to record and communicate everyday experience, continues to be kept by all sorts of people, purely for its own sake.

A number of variables combine to make some diaries stand out from the great mass that have survived. To be historical documents of more than archival value they need to afford a perceptive and advantageous view of intrinsically interesting events

and personalities, whether local or national. Diaries as different as those of John Quincy Adams, with a unique view of U.S. politics in the early nineteenth century, of the Goncourt brothers, observing the Parisian literary scene in the late nineteenth century, and of Harold Nicolson, in the thick of British politics before and during World War II, fulfill this criterion abundantly. The creation of arresting autobiographical documents requires that the diarists be people of some complexity, engaged in an active process of self-encounter. Boswell's mammoth diaries may stand for an example of this type, as may those of the French novelists Stendahl and André Gide and the English novelist Virginia Woolf. And for both types the interest is enhanced by an expressive energy that exploits the available resources of language. Many published diaries derive their primary interest from their illumination of the lives of already celebrated figures—politicians, writers, artists, and the like. In such cases the intrinsic literary qualities of the text may be secondary to its documentary value. On the other hand, some rare diaries are autobiographical masterpieces by people otherwise totally unknown, such as the English curate Francis Kilvert, writing in the 1870s, or the young German-born Jewish victim of Nazism, Anne Frank, writing in hiding in Amsterdam.

See also AUTHORSHIP.

Bibliography. Porter H. Abbott, *Diary Fiction*, Ithaca, N.Y., 1984; Robert A. Fothergill, *Private Chronicles: A Study of English Diaries*, London and New York, 1974; Alain Girard, *Le journal intime*, Paris, 1963; Gustav Hocke, *Das europäische Tagebuch*, Wiesbaden, 1963; Thomas Mallon, *A Book of One's Own: People and Their Diaries*, New York, 1984.

ROBERT A. FOTHERGILL

DIASPORA

The Diaspora (from the Greek, meaning "dispersion"), which has been the characteristic mode of existence of the Jewish people for more than two and a half millennia, has been a pivotal theme in the development of global communications (see MIGRATION). It came into being with the forcible deportation of the Israelites from their Northern Hebrew kingdom in 597 B.C.E. by the Assyrians and of the Judahites from the Southern Hebrew kingdom in 586 B.C.E. by the Babylonians. These two exiles resulted in the establishment of the first Diaspora in Mesopotamia. Also in 586 B.C.E. began the voluntary settlement of Jews from Judah in Egypt. It was from these two primary Diaspora centers that Jewish contingents moved on to the east, to Persia and lands beyond it, and to the west, along the North African coastline. Throughout their subsequent history the forced exile of Jews from one country usually re-

sulted in the voluntary settlement of Jewish groups in other countries, where they came to constitute new Diaspora communities.

Roman rule. Long before the Second Jewish Commonwealth was destroyed by the Romans (70 C.E.), Jews had settled in most parts of the ROMAN EMPIRE and also to the east of it, in the Parthian Empire. The Greek geographer Strabo, writing in the first century B.C.E., stated that it was difficult to find a place in the entire world to which the Jewish nation had not penetrated. The Jewish presence in the Roman Empire prepared the ground for the spread of Christianity. By the second century C.E. Jewish communities were established in the Roman colonies of Spain, Gaul (today France), Germany, Pannonia (today Hungary), Dacia (today Romania), the Balkans, Asia Minor, the Levant coast, and in all lands of North Africa; in Arabia; and in the domains of the Parthian Empire.

From this period dates the polyglotism that was to remain a characteristic of the Jews into the twentieth century. The Jews of Palestine spoke Hebrew, Aramaic, Greek, and Latin, and those of the Diaspora also spoke a similar assortment of languages. During this period Jews translated the Bible into Aramaic and Greek, and they produced important literary works in these two languages (Aramaic: the Babylonian and Palestinian Talmuds, Midrashim; Greek: the writings of the Alexandrian philosopher Philo Judaeus, the histories of Flavius Josephus, etc.). Hebrew became restricted to synagogal use and to international communications.

Although hard-and-fast data are scanty, there can be little doubt that the constituent parts of the Diaspora maintained communication with one another. We know of several leading Talmudic rabbis who traveled between Palestine and Mesopotamia and through Palestine, Greece, and Rome. The Jews engaged in lively seafaring all along the Mediterranean. These chains of communication were the basis of strong emotional ties among the Diaspora communities as well as between them and Palestinian Jewry, so that if an attack were made on Jews or their religion in any part of the Roman Empire it provoked almost instantaneous reaction in the form of revolts in other Jewish communities.

As long as the Jerusalem Temple stood (i.e., until 70 C.E.), the relationship between the Diaspora communities and the Palestinian center found its expression primarily in the payment of the Temple tax of half a shekel. This tax was defrayed equally by Jews who lived in the Roman Empire and those who lived outside its boundaries. The Babylonian Jews sent their half-shekels to Jerusalem in a huge caravan, accompanied by a large contingent of Jews to defend it in case of brigand attack. Perhaps even more important was the fulfillment of the biblical commandment of pilgrimage to Jerusalem, which an-

nally brought large numbers of Jews from all over the Diaspora to the Holy City. Financial support of Palestinian Jewish institutions by wealthy Diaspora Jews continued after the destruction of the Temple. The Diaspora also gave strong political support to the Palestinian Jewish community. Another link between the Diaspora and Palestine was the attendance of Diaspora Jews at the renowned Palestinian Jewish academies of religious learning, which continued, and even intensified, after the destruction of the Temple and secured Palestinian Jews the religious hegemony over the entire Diaspora until the end of the second century C.E. A direct result of this scholarly communication was the spread of religious learning and observance from Palestine to the countries of the Diaspora.

Under Islam and Christendom. Following the Arab conquest of the Near East, North Africa, and Spain, medieval civilization was divided into a northwestern Christian and a southeastern Muslim realm, between which the maintenance of communication was an almost exclusive privilege of Jews (*see ISLAM, CLASSICAL AND MEDIEVAL ERAS; MIDDLE AGES*). Christians could not trade in Muslim countries, nor could Muslims trade in the Christian lands. Yet the source of most of the luxuries demanded in Europe was in the "House of Islam." In this situation the Jews, who were tolerated in both realms as commercial intermediaries, filled a crucial need. In the eighth and ninth centuries, the Rādhānites (or Rāhdānites), as the intercontinental Jewish merchants were called, established three major trade routes between southwestern Europe and East Asia. The Rādhānites spoke French, Spanish, Slavic, and Greek as well as Arabic and Persian. They exported from Europe to the East eunuchs, slave girls and boys, brocade, beaver and marten furs, and swords. On the way back they brought musk, aloeswood, camphor, cinnamon, and other products of the East.

Jewish merchant adventurers. When Charlemagne sent an embassy to Hārūn al-Rashīd (in 797), a Jew, Isaac, accompanied it as an interpreter. The two Christian ambassadors, Sigismond and Landfred, died on the way, but four years later (in 801) Isaac returned with gifts from the caliph, including an elephant.

From the ninth to the eighteenth century dozens of Jewish travelers made their way across Europe and Asia with the prime purpose of finding the Jewish communities of distant lands and bringing back information about them. However, much greater was the number of Jews who engaged in trading between the Mediterranean and South Asia. Maimonides (1135–1204) was engaged in trading in precious stones with India and gave it up only after his brother David perished in a shipwreck in the Indian Ocean, about 1168. In the Cairo genizah numerous documents were found showing that in the Middle Ages

Jews maintained commercial relations between Egypt, India, and Ceylon (today Sri Lanka), with Aden as the point of transshipment. (The genizah, meaning "hideaway," was a storeroom in the Cairo synagogue for saving any piece of paper on which the Holy Name was written, because these could not be destroyed. When discovered in the twentieth century it became a rich source of historical information, largely in the form of letters.)

Jews as cultural mediators. The contacts established by travelers and merchants had, occasionally at least, political implications. Thus it is likely that the conversion to Judaism of the Khazar kingdom (between the Black Sea and the Volga River) in the eighth century was the result of the influence of Jewish merchant adventurers. More significant for the history of global communications is the reference of Abraham ibn Ezra (1089–1164)—himself a great traveler—to a Jewish traveler who, he says, brought from India the so-called Arabic numerals.

This piece of information—if indeed based on fact—supplies but one example of the flow of ideas from the East to the West in which the Jews had a crucial role. From the eleventh century on, Sephardi (Spanish) Jews were the foremost translators from Arabic into Hebrew of the works of Jewish and Muslim philosophers, astrologers and astronomers, geometers, and medical authors. Several of these works were themselves translations or paraphrases of, or commentaries on, classical Greek originals. Many of them were subsequently (especially from the fourteenth century on) retranslated from Hebrew into Latin, again by Jewish translators. This work of cultural transmission made, in the course of the fifteenth and sixteenth centuries, a large number of Greek, Arabic, and Hebrew works available to the Christian world. To this flow of communication was added in the seventeenth century the work of Christian translators from Hebrew into Latin, which broadened the familiarity of European scholars with the rich products of medieval Jewish thought and research as well as with the foremost works of Arab and classical Greek authors.

Also in the fourteenth to sixteenth centuries a large number of Latin works were translated into Hebrew, which made European thought accessible to Jews, and from the seventeenth century on, an increasing number of works were translated from German, French, English, Polish, Russian, and Spanish into Hebrew. In this manner the Jews were able to familiarize themselves with European culture even before the onset of the Haskalah (the Jewish Enlightenment) in the late eighteenth century induced increasing numbers of them to learn the languages of the countries in which they lived.

Mapmaking, navigation, and diplomacy. Following the Arab conquest of North Africa and Spain, the Jews played an important role in transmitting the

knowledge and use of nautical aids such as the compass, the quadrant (predecessor of the sextant), the astrolabe, and astronomical tables from the Arab East to the Christian West. Majorca was the main center of Jewish craftsmen producing nautical instruments, and of Jewish mapmakers, whose charts were indispensable for seafarers (see CARTOGRAPHY). After the Spanish exile (1492) the Marranos (crypto-Jews) became dispersed along the Mediterranean, in northwestern Europe, and later in the New World, and they participated in international and transcontinental maritime trade as entrepreneurs, shipbuilders, merchants, brokers, and insurers.

From the twelfth century on, when European Christian merchants, in the wake of the Crusades (see CRUSADES, THE), began to take an interest in the Levant trade, they had it in their power to curtail the role of the Jews in international commerce, and even to exclude them from it. This, in turn, forced the Jews to turn to moneylending and led to their taking an increasingly important role in the development of the banking business.

Jews also served as diplomatic representatives of Christian states in Muslim countries and vice versa. For a Jewish trader or diplomat it was relatively easy to establish contacts in a foreign country where his coreligionists, with whom he could communicate in Hebrew, were always ready to help him. A Muslim or Christian envoy did not have this advantage.

Contacts between central and eastern Europe. A similar situation developed in the fifteenth century between central and eastern Europe. The expulsions of the Jews from German lands and their settlement in the east of Europe became the basis of commercial and intellectual communications between the two areas. The Ashkenazi ("German") Jews spoke Yiddish whether they lived in Germany, Austria, Poland, the Baltic lands, or the "Pale of Settlement" in Russia, and this, as well as family connections, gave them an advantage over the linguistically and socially more limited Christian merchants.

The phenomenal rise in numbers and in Jewish learning of East European Jews secured them the cultural hegemony of European Jewry from the seventeenth to the nineteenth century. West European Jewry remained numerically small and, after the exhaustion of the Sephardi élan in the seventeenth century, became culturally less significant. However, East European Jewish life and culture were isolated from the non-Jewish environment and became ingrown. From the sixteenth to the nineteenth century most of the Ashkenazi Diaspora was confined to ghettos, and thus whatever international commercial and scholarly communications were maintained by it had little impact on the Christian world. Talmudism and, as a reaction to it, Hasidism became the dominant modes of Jewish existence, accompanied by a rigid rejection of all manifestations of gentile

culture. As for the Middle Eastern Diaspora during the same period, it shared the general cultural decline of the Muslim world; both Jews and Muslims remained largely untouched by the cultural developments of the West.

Enlightenment and emancipation. The rise of the Haskalah in the late eighteenth century and the gradual emancipation of the Jews in one European country after another in the course of the nineteenth century once more introduced Ashkenazi Jewry into the picture of global communications. Jewish participation in the cultures of countries that emancipated their Jewish populations increased at a phenomenal rate. By the end of the nineteenth century Jews could be found among the foremost scholars, scientists, artists, litterateurs, philosophers, and the like in all the countries of western and central Europe, as well as among the leading industrialists, merchants, bankers, and even statesmen. The same process could be observed also in the United States, where the Jews played a leading role especially in the development of the mass media (newspapers, MOTION PICTURES, RADIO, television) and the entertainment industries.

At the same time, the international nature of the Diaspora enabled the Jews to maintain communication with coreligionists in other countries with greater ease than was the case among their gentile counterparts. A case in point is the international character of the Rothschild banking dynasty, with its houses in Germany, Austria, France, Italy, and England. Another is the similarly international character of the political Zionist movement created by Theodor Herzl (1860–1904), owing to which it was able to conduct its struggle for the establishment of a Jewish national home in Palestine simultaneously in the major capitals of Europe.

International Jewish organizations. Intense communication among the Jewish communities all over the world was the basis for global Jewish solidarity, which led to the establishment of international Jewish organizations whose purpose was to represent Jewish interests and to defend Jews wherever and whenever they were threatened, slandered, or attacked. The foremost of these organizations were the French Alliance Israelite Universelle (founded 1860); the British Jewish Colonization Association (ICA; founded 1891), which later (1927) became the Palestine Jewish Colonization Association (PICA) and ceased to function in 1957; the German Hilfsverein der deutschen Juden (1901–1941); and the World Jewish Congress (founded 1936).

The Diaspora and Israel. After the Balfour Declaration (November 2, 1917), in which the British government undertook to facilitate the establishment of a Jewish national home in Palestine, and even more so after the independence of Israel (May 14, 1948), the Jewish community in the ancestral land of the Jews became a vital factor in Jewish life in the

Diaspora, and its most important center of communications. All over the Diaspora Jews were eager to stand by Israel, whenever the need arose to support it financially, diplomatically, culturally, and militarily, and to cooperate among themselves for these purposes. In the first few years after Israel's independence there was large-scale immigration of Jews into the new state from all over the Diaspora, including Jews who had scattered to many lands from Nazi Germany, others who had fled Nazi-occupied lands, others who had survived the Holocaust, and emigrants from various Muslim countries. In a number of these, resentment over the emergence of Israel in what had been a territory with an Arab majority was spilling over into anger against the Jewish communities that had existed in these countries for centuries. As a result of the establishment of Israel and its active encouragement of immigration, central and eastern Europe (with the exception of Soviet Russia, which did not allow large-scale Jewish emigration) as well as the Middle East have remained practically without Diaspora communities. By the 1970s this "ingathering of the exiles" had largely been accomplished, but Israel remained the most important central concern for Diaspora Jewry, attracting annually thousands of visitors, tourists, and participants in conventions.

Although Israel has thus become a focal concern for Jewish communities and their organizations in all parts of the Diaspora, the cultural achievements of Israel, which were transmitted with increasing potency to the Diaspora, became a powerful factor in maintaining Jewish consciousness and strengthening Jewish identification in the Diaspora. Because of this intensive two-way exchange, the general conviction among world Jewry is that its future depends on the continued existence of its two parts—Israel and the Diaspora—and the close interrelationship between them.

Bibliography. Étan Levine, ed., *Diaspora: Exile and the Jewish Condition*, New York, Jerusalem, and Tel Aviv, 1986; Raphael Patai, *Tents of Jacob: The Diaspora Yesterday and Today*, Englewood Cliffs, N.J., 1971; Howard M. Sachar, *Diaspora*, New York, 1985; Tom Segev, 1949: *The First Israelis* (1949, ha-Yiśr' elim ha-rishonim), New York and London, 1986.

RAPHAEL PATAI

DICTIONARY. See LANGUAGE REFERENCE BOOK.

DIDEROT, DENIS (1713–1784)

French writer, encyclopedist, philosopher, and leader of the Enlightenment. Denis Diderot helped set a pattern for the French man of letters that has contin-

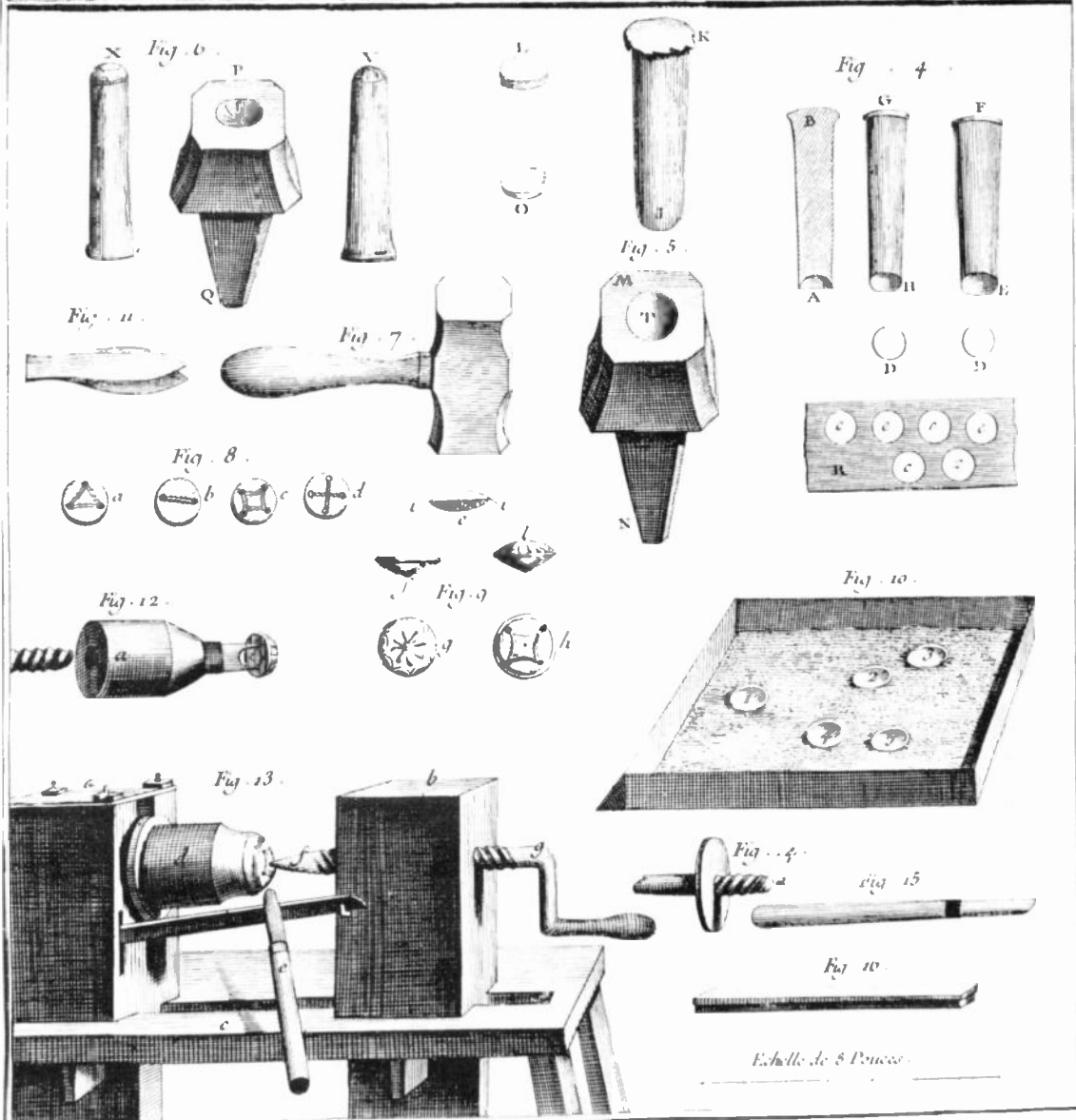
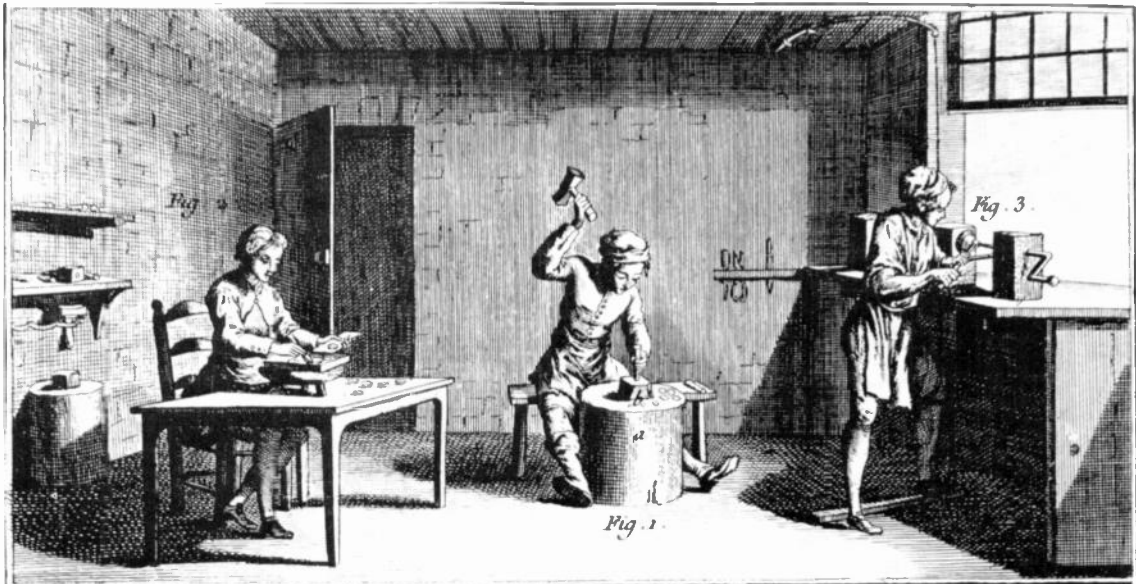
ued through such twentieth-century figures as Jean-Paul Sartre and MICHEL FOUCAULT. Diderot's most influential project by far was the monumental *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers* (1751–1780), of which he was the main editor. Notable in the history of communications for its scale, the resistance it met, and its impact on French—indeed Western—life and thought, the *Encyclopédie* was in effect the scripture of European rationalism.

Born in Langres, Diderot studied there under Jesuit teachers. Later he continued his education in Paris, receiving a Master of Arts degree from the University of Paris in 1732. During the next dozen or so years he apparently lived the hand-to-mouth existence of a bohemian, sometime teacher, and writer-for-hire. At the same time he made his religious migration from Catholicism through deism to atheism. He also became a friend of that other towering figure of the French Enlightenment, philosopher Jean-Jacques Rousseau. They were friends for fifteen years, but petty differences and an underlying philosophical disagreement then led to a split.

In 1743, against the wishes of his family, Diderot married Anne-Toinette Champion, the daughter of a Paris tradesman. The marriage began as a love match but eventually became a mismatch; it endured only because the couple were devoted to their daughter, Angélique. Diderot's relationship with Sophie Volland, begun in 1755 and lasting until her death in 1784, was considerably more affectionate; his letters to Sophie are masterpieces of the GENRE.

In 1745, along with the mathematician Jean Le Rond d'Alembert, Diderot contracted to coedit what was originally conceived of as a French translation of Ephraim Chambers's *Cyclopaedia* (1728). The *Encyclopédie*, finally completed in seventeen volumes of text and eleven volumes of plates (later augmented by a six-volume supplement and a two-volume analytical index), became much more than a translation and reference work. As contributors Diderot and his coeditor enlisted a talented group of scholars, writers, and scientists imbued with a belief in the power of human reason based on knowledge of material facts. Diderot, the son of a craftsman, showed a lifelong respect for work and skills, and the *Encyclopédie* under his editorship was distinguished for being a storehouse of practical and detailed information on the sciences, crafts, and technology. But the more lasting significance of the *Encyclopédie* lay in its advocacy of facts, the scientific method, and critical thought. By helping to "transform men's values" and "make men favorable to change," the *Encyclopédie* "played an extremely important part as one of the disposing causes of the French Revolution," according to Diderot's biographer Arthur M. Wilson (see REVOLUTION).

Each of the *Encyclopédie's* first seven volumes was



published individually when work on it was finished, and each met with a barrage of criticism from the religious and government establishments, especially the Jesuits, who felt that the work's materialism and rationalism posed serious threats to faith and the church. A personal crisis came for Diderot in 1749 after the publication of his *Lettre sur les aveugles* (Letter on the Blind), an innovative work proposing that the blind learn to read by using touch. The logical implications of the work—basing human knowledge on the senses rather than faith or authority—were not lost on the official censors, and Diderot was imprisoned for three months. A crisis for the *Encyclopédie* itself came in 1759 when a royal decree condemned it for damaging RELIGION and morality and forbade further publication. Thereafter Diderot continued as sole editor to prepare the remaining volumes of text and plates surreptitiously for delivery to subscribers who had already contracted for them. The government tacitly acquiesced in their eventual publication, but Diderot was devastated to learn that the publisher, André Le Breton, had deleted what he considered dangerous material after Diderot had approved the final galley proofs. However, the publisher's CENSORSHIP had a greater effect on Diderot than on the *Encyclopédie*.

Diderot apparently learned bitter lessons from his imprisonment and the attempted suppression of the *Encyclopédie*, and most of what he wrote after 1759 was not published until after his death in 1784. These writings included his perceptive ART criticism in the privately circulated, manuscript-format *Correspondance littéraire*; the brilliant dialogues *L'entretien entre d'Alembert et Diderot* and *Le rêve de d'Alembert*; the novels *La religieuse*, *Jacques le fataliste*, and *Le neveu de Rameau*; plays; and numerous essays, including especially influential ones on the theory of DRAMA, *Entretiens sur "Le fils naturel"* and *De la poésie dramatique*.

See also ENCYCLOPEDIA; LETTER; LOCKE, JOHN.

Bibliography. Lester G. Crocker, *Diderot: The Embattled Philosopher*, rev. ed., New York, 1966; Denis Diderot, *Oeuvres complètes*, ed. by Jean Varloot et al., Paris, 1975–; Douglas H. Gordon and Norman L. Torrey, *The Censoring of Diderot's Encyclopédie and the Re-established Text*, New York, 1947, reprint 1966; Jacques Proust, *Diderot et l'Encyclopédie*, Paris, 1962; Arthur M. Wilson, *Diderot: The Testing Years, 1713–1759*, New York and Oxford, 1957; idem, *Diderot: The Appeal to Posterity, 1759–1784*, New York and Oxford, 1972.

SUSAN J. STEINBERG

DIFFUSION

The dispersion or spread of a phenomenon through time and space. The phenomena of interest here are *ideas* (concepts that may or may not be related to tangible entities such as practices or products) and *innovations* (the translation of ideas into new practices, processes, or products). The diffusion of ideas and innovations is a fundamental component of social and economic change, for better (when seen as a source of advancement for society as a whole) or worse (when associated with inequalities in the distribution of resources). Because of its widespread influence the diffusion process has been extensively researched and is well documented. Communication has been found to be a key element in the spread of ideas and innovations, and it is the common link that results in similar spatial and temporal patterns of diffusion.

The Evolution of Diffusion Research

Research on the diffusion of new ideas has its origins primarily in the rural sociology tradition, with case studies focusing on the adoption of new agricultural techniques by farmers in the United States. Subsequently attention was drawn to other types of innovations such as new medical products and new industrial processes, and a more international scope emerged. The early approach also dealt largely with the "problem" of encouraging "desirable" change, particularly in developing countries, and the "solution" was often seen as instilling "progressive" ATTITUDES in a population (see DEVELOPMENT COMMUNICATION). In contemporary research the effects of innovations have been more thoroughly analyzed in terms of both harmful and beneficial consequences, and a more balanced approach has emerged.

Finally, the traditional approach was concerned with social processes and other demand-related factors affecting the diffusion of innovations, and not with the commercial or supply viewpoint. Reflecting this, most research on innovation diffusion concentrated on variables related to the individual or household adoption decision and emphasized the role of social networks, information flows, consumer demographics, and psychological variables such as innovativeness and resistance to adoption. Subsequent research indicates that this perspective alone does not provide sufficient explanation when—as is the case for most contemporary innovations—a diffusion process is orchestrated by those who benefit from

◁ Figure 1. (*Diderot, Denis*) The making of metal buttons: a page from the *Encyclopédie* of Denis Diderot and Jean Le Rond d'Alembert, Paris, 1751–1772, volume 2, plate 3. From A. Mendini, *Encyclopedie di Diderot e d'Alembert* (Parigi 1751–1772), facsimile, Milan: Domus, 1975.

stimulating the rapid and complete acceptance of an idea or innovation (e.g., through ADVERTISING). In these cases the mechanisms through which innovations are made available to potential adopters are of equal if not greater importance.

To fill this gap Lawrence Brown developed a "market and infrastructure" model of innovation diffusion that focuses on supply-oriented rather than demand-oriented factors affecting diffusion. It views the adoption of an innovation as the third of three stages. The first stage is the establishment of public or private firms, organizations, or other entities through which an innovation is distributed or made available to the population at large. The locations of these entities, the temporal sequencing of their establishment, and their operating procedures determine where and when an innovation will be available. This provides the general outline of the *spatial* pattern of diffusion. In the second stage of the diffusion process these entities conceive and implement strategies to promote adoption among the populations in their service or market areas. Frequently this entails establishing infrastructures such as service and delivery systems and water or electric supply networks. It may also involve establishment of a price for the innovation, market selection and segmentation, and the design of information dissemination programs (see CONSUMER RESEARCH). Taken together these stages create differing levels of access to an innovation (depending on an individual's economic, locational, and social characteristics) and hence influence the ultimate adoption or rejection decision.

Experience has shown that developing a new technology to the point at which its purchase is cost-effective to the consumer does not ensure adoption by the public. Thousands of new products are introduced each year, the vast majority of which fail. Failures to gain acceptance and use occur for both private- and public-sector innovations, but the latter are particularly frustrating because of the substantial public resources that are frequently expended on them. Public funds represent a significant portion of the total research and development (R & D) budget of most countries. The federal laboratories of the United States, as one example, employ about one-sixth of the nation's research workers. Only a small fraction of the results of this research is translated into commercial applications. As one indicator of this, only about 2.5 percent of the nearly five thousand inventions newly owned by the U.S. government each year are licensed for commercial use.

Research on a variety of public efforts to bring about life-style changes also indicates slow and limited impact. This is true, for instance, of programs to encourage seat-belt use and family planning. The limited effectiveness of technological and social change

programs has been attributed to the failure of public agencies to employ sophisticated marketing techniques and to the low frequency with which change strategies and tactics are pretested, coordinated, or evaluated (see EVALUATION RESEARCH).

In recognition of the importance of marketing and supply concepts to the success of public-sector efforts to induce social and technological change, a field of research has emerged that focuses on four types of strategies for planned change: (1) *facilitative* (which makes easier the implementation of changes by the target group), (2) *reeducative* (relatively unbiased presentations of facts intended to provide a rational justification for action), (3) *persuasive* (attempts to bring about change partly through biased reasoning, urging, and inducement), and (4) *power* (the use of coercion based on obligatory relationships). These strategies vary in terms of their appropriateness and effectiveness in different situations. See PERSUASION.

Temporal Patterns of Diffusion

A variety of temporal patterns have been associated with diffusion processes. When does an idea or innovation first begin to spread within a country, region, or organization? How quickly does it spread once introduced? What types of people, organizations, or firms tend to be early adopters, and what types of ideas and innovations spread most quickly?

The spread of ideas and innovations generally begins slowly, accelerates as the diffusion process begins to unfold more fully, slows after some turning point is reached, and levels off as saturation is approached. A graph of the cumulative level of adoption over time approximates an S-shaped (sigmoid) curve. Figure 1 shows the basic sigmoid curve and its relationship to the rate of spread of information. This graph reflects the fact that an innovation can be accepted by a person only if he or she is aware of its existence. In other words, the behavior of a population toward an innovation is closely related to the distribution of information regarding the new phenomenon, even though the availability of information does not in itself guarantee acceptance. The graph also portrays the variable adoption decision period, which is shortest among early adopters.

Another concept built into this curve is the *diffusion effect*. When only 5 percent of the individuals in a social system are aware of an innovation, there is little normative pressure to adopt. As the rate of awareness of an innovation among a population increases to 20 or 30 percent, peer pressure begins to develop, and the rate of adoption accelerates. Once this threshold is passed, a diffusion effect begins to trigger substantial influence from peer networks to accept the innovation. This diffusion or

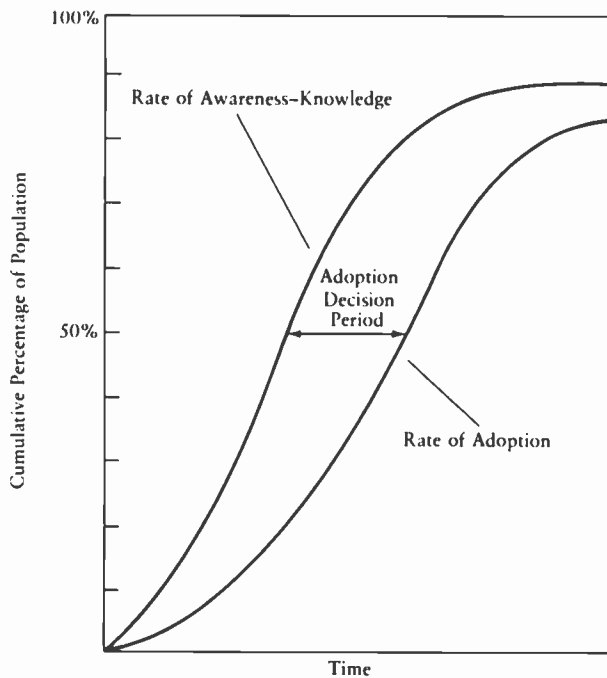


Figure 1. (*Diffusion*) The sigmoid (S-shaped) curve that describes most diffusion processes: rate of awareness-knowledge (uppermost curve), rate of adoption (lower curve), and the adoption decision period (gap between awareness-knowledge and adoption curves). Adapted from Everett M. Rogers, *Diffusion of Innovations* (1962), 3d ed., New York: Free Press, 1983.

snowball effect is particularly important in social systems that are highly connected (see NETWORK ANALYSIS; SOCIAL COGNITIVE THEORY).

Factors affecting diffusion. Different ideas and innovations diffuse at different speeds. Some of the following factors affect the rate of diffusion:

- **Relative advantage.** The degree to which the innovation is perceived to be superior to the product or practice it will replace, or to alternative products. It is a function of the unique benefits that the innovation provides and that other ideas, practices, or things do not. Relative advantage may be considered in terms of cost-effectiveness, a lessening of social conflict, greater comfort or security, and so forth.
- **Compatibility.** The less change a new idea or technology requires in existing sociocultural values, behavioral patterns, facilities, equipment, and procedures, the more likely is its rapid diffusion.
- **Impact on social relations.** Many ideas and innovations lead to alterations in social relationships that may inhibit or promote adoption and further diffusion. For instance, new agricultural technologies accelerated urbanization in some developing countries, and this in turn affected family and community relationships.

- **Complexity.** The degree of difficulty in using and understanding an idea or innovation. Greater complexity inhibits adoption.
- **Communicability and observability.** The more easily information about an innovation or an idea can be obtained by or communicated to the potential adopter, the more quickly it will be disseminated. If use of an innovation is observable, knowledge of its existence is facilitated. Thus the diffusion of many agricultural innovations such as new equipment and crops is facilitated by the fact that they are visible and therefore easily made known to (or difficult to ignore by) the uninformed.
- **Divisibility and reversibility.** The easier it is for an innovation to be tried on a limited and noncommittal basis, the greater the rate of adoption. If an innovation is divisible into smaller parts, then trials are possible and diffusion is promoted. Similarly, if it is possible to return to one's original condition or situation when an innovation is adopted and later rejected, then the diffusion is more rapid (e.g., there is greater resistance to surgical contraception than to birth control pills).

Classifications. The S-shaped curve of cumulative adoption is derived from a bell-shaped curve of noncumulative adoption. Using this bell or normal curve, it is possible to talk about the types of people who tend to adopt an idea or innovation during different stages of the diffusion process (Figure 2). People who adopt an idea or innovation at similar times tend to have similar characteristics. In particular, innovators and early adopters generally are better educated, have higher social status, are more risk-taking and cosmopolitan, and have greater social participation and opinion leadership than later adopters (see OPINION LEADER). They also tend to gain more information from impersonal sources and are less reliant on INTERPERSONAL COMMUNICATION as an influential source of information. Laggards, the last to adopt, tend to have traditional values and low social status, education, and income. Their adoption occurs only after information has "trickled down," when pressures to adopt are strong, and when prices for the new product have dropped.

Organizations. The speed with which innovations and ideas are diffused and adopted by organizations (e.g., private firms and public agencies) depends in part on characteristics of the organization's members, paralleling the trends described above. Also important, however, are characteristics of the organization. Some of these traits reflect patterns of communication, such as the degree of interconnectedness within an organization, the level of integration of the organization with external sources of information, and the extent to which the organization is open to

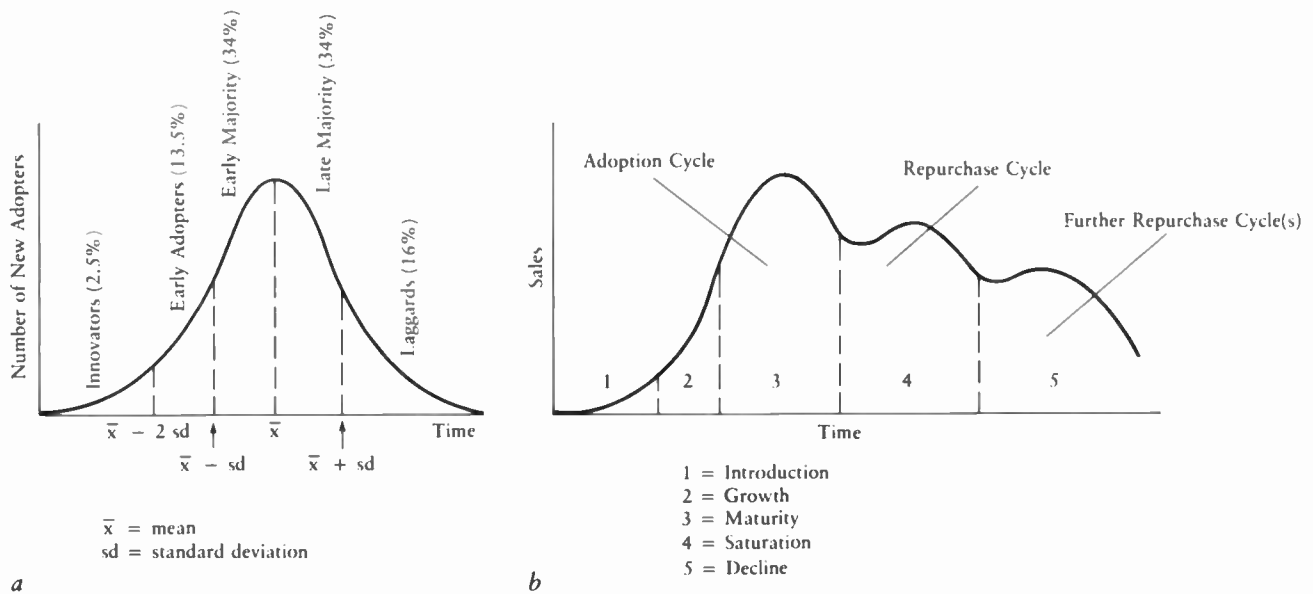


Figure 2. (Diffusion) Adoption and innovation life-cycle curves. (a) Adopter categories. Adapted from Everett M. Rogers, *Diffusion of Innovations*, New York: Free Press, 1962. (b) Innovation life-cycle stages. Adapted from David F. Midgley, *Innovation and New Product Marketing*, London: Croom Helm, 1977.

communication with its surrounding environment (see ORGANIZATIONAL COMMUNICATION). The extent to which an organization is functionally differentiated into many subunits and is specialized in terms of its members' expertise also correlates with innovation. Other critical organizational traits deal with the distribution of resources and power. Organizations in which power is decentralized, rules and procedures are deemphasized, and a considerable amount of uncommitted resources is available also adopt innovations more readily.

Individual adoption. The individual's decision-making process can be divided into time periods. Everett M. Rogers and Floyd F. Shoemaker developed a model describing the stages through which an individual passes from first knowledge of an innovation to a decision to adopt or reject it:

- **Awareness.** The individual learns of the existence of a new idea or innovation.
- **Interest.** The individual recognizes that he or she may have a need for this new idea or innovation and seeks more information about it.
- **Evaluation.** The individual assesses the idea or innovation in terms of its benefits and costs and decides whether or not to try it.
- **Trial.** Further evaluation of the idea or innovation occurs through small-scale or limited use. This trial reduces the uncertainties associated with the innovation.
- **Adoption.** The individual uses the new idea or innovation on a continuous, full-scale basis. Problems associated with use of the innovation or idea

may emerge at this stage, particularly when the individuals involved in the adoption decision are different from those involved in or affected by the actual implementation.

Subsequent elaborations of this A-I-E-T-A model have recognized that the adoption stage can be further analyzed in terms of different levels of use and incorporation. Postadoption steps include confirmation (through which the individual seeks reinforcement for the adoption decision) and routinization (when use of the idea or innovation has become a standard procedure).

The A-I-E-T-A model of decision making can be used to describe the role of different sources and channels of information. In general, mass media and other impersonal sources of information create awareness and interest, but later stages in the process require more personal, specific, and local sources of information. See MASS COMMUNICATIONS RESEARCH.

Spatial Patterns of Diffusion

Two distinct spatial patterns of diffusion have been identified: the *neighborhood effect* and the *hierarchical effect*. The neighborhood, or contagion, effect refers to the fact that the time elapsing between introduction and adoption of an idea or innovation tends to increase with distance from the nearest source of information or access. The source in question may be a nearby adopter, the distributor of an innovation, or some other propagator of information or resources. Distance to a source affects rates of

diffusion for a variety of reasons. Personal communications occur more frequently across shorter than longer distances. MIGRATION is more common over shorter than longer distances, and many diffusions are the result of relocations of a population. Finally, costs of adoption generally increase with distance from the source of an innovation owing to transport costs associated with delivery, service, and repair.

Viewing the neighborhood effect over time suggests that diffusion occurs in a wavelike fashion (Figure 3). At first adoption is restricted to a compact area in which the distance decay effect is strong. As the diffusion process continues, the circle of acceptance and use expands, and distance increases between the points of origin and the ring (area) of most rapid adoption. Through time the innovation waves gradually weaken, incorporating more distant but dampened rings of adoption.

The hierarchy, or cascade, effect refers to the tendency of large urban places to adopt before smaller urban places do so. If an innovation is adopted by individuals, and any one person is as likely to adopt as another, then the most probable location for the first adopter is the largest city. Yet the per capita rate of adoption is also greater in larger cities. There are several reasons for the hierarchy effect. Inventions tend to occur in large cities, which also have the largest market areas and therefore are best able to support an innovation when demand is minimal. Large corporations tend to be located in large metropolitan areas, and they have the capital to introduce innovations. Also, as the density of the population increases, so does the amount of information (*see INFORMATION THEORY*).

The neighborhood and hierarchical effects frequently occur in concert, and this is portrayed by a schema developed by Torsten Hägerstrand in 1967 (Figure 4). The schema depicts diffusion as occurring through a hierarchy of social communication networks. The national, regional, and local levels of spatial aggregation each contain a network within which neighborhood effect principles of contact operate. Further, a node on one level will have contact with nodes on another level, providing mechanisms for the filtering of contacts down the urban hierarchy. Finally, if only the national scale is considered, a neighborhood effect pattern would be observed, but if the nodes on all three levels were considered together, the pattern could seem hierarchical.

Future Research Trends

Despite the recurring temporal and spatial patterns that have been found to characterize the diffusion of ideas and innovations, much remains to be learned about the processes underlying these patterns. Several

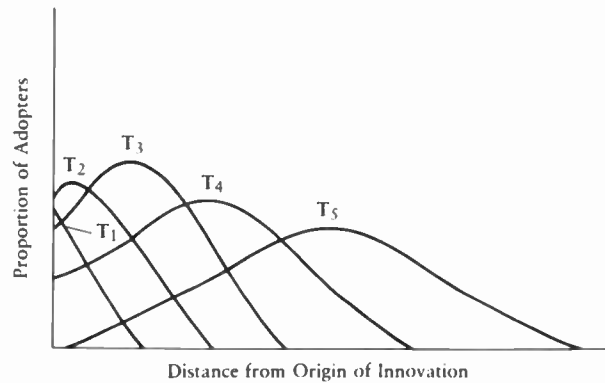


Figure 3. (*Diffusion*) The shape of diffusion in space and time: proportion of adopters at successive time periods as a function of distance from origin of the innovation. Adapted from Richard L. Morrill, "The Shape of Diffusion in Space and Time," *Economic Geography* 46 (1970): 259–268.

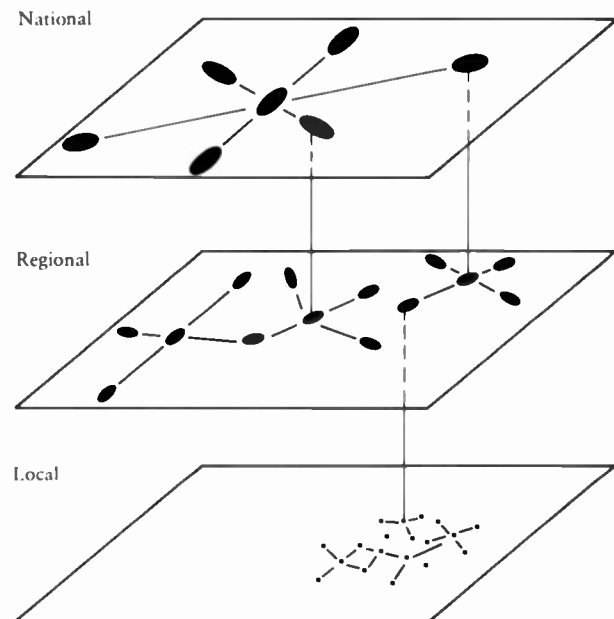


Figure 4. (*Diffusion*) Schematic portrayal of diffusion networks viewed at three different spatial scales. Adapted from Torsten Hägerstrand, *Innovation Diffusion as a Spatial Process*, Chicago: University of Chicago Press, 1967.

lines of inquiry would appear to be particularly fruitful.

First, it is becoming clear that the rapid and complete diffusion of ideas and innovations depends on performance of a set of key roles. These include

- the gatekeeper, who brings essential technical and market information into organizations and social systems;
- the idea or innovation champion, who pushes the technical idea or innovation forward in an organization or social system;

- the innovator, whose willingness to change provides an initial market for the idea or innovation; and
- the opinion leader, who is a source of advice and information about an idea or innovation.

Little is known about who the gatekeepers and champions are and how organizations and social systems can ensure that their roles are effectively played. Profiles of innovators and opinion leaders have been developed, but further research is needed to determine how they can be effectively targeted to fulfill their roles.

Transferring products from producers to consumers, the realm of market research, is fairly well understood, but moving ideas from the laboratory bench to the producer is a different matter entirely, relatively ignored as a general research question. Innovation diffusion or technology transfer from the public to the private sector has been especially neglected and should be a high priority for future research, given the sizable amount of publicly sponsored research and its potential to improve national and international standards of living.

Bibliography. Lawrence A. Brown, *Innovation Diffusion: A New Perspective*, New York and London, 1981; Torsten Hägerstrand, *Innovation Diffusion as a Spatial Process* (Innovationsforloppet ur Korologisk synpunkt), trans. with assist. of Greta Haag, Chicago, 1967; David F. Midgley, *Innovation and New Product Marketing*, New York and London, 1977; Richard L. Morrill, "The Shape of Diffusion in Space and Time," *Economic Geography* 46 (1970): 259–268; Everett M. Rogers, *Diffusion of Innovations* (1962), 3d ed., New York, 1983.

MARILYN A. BROWN

DIPLOMACY

The process and method, the means and mechanism, by which national governments conduct relations and communicate with one another, normally through their agents and representatives. The term *diplomacy* has been used in several ways, but to broaden its meaning unnecessarily, to make diplomacy synonymous with foreign policy, is unwise. As process, means, and method, diplomacy is an instrument of state policy. It involves representation, negotiation, PERSUASION, and BARGAINING as the external life of a state is conducted in pursuit of its interests, power, and order. The goals of diplomacy are understanding, compromise, and agreement. It is a generic form of state behavior, distinct from war, ESPIONAGE, and covert operations. Diplomatic activity can lead to war and play a role in war; it does not cease to operate even when war and other forms of state conduct are practiced.

Diplomacy's processes can be both formal and informal, but its agents and diplomats must be official, in residence, and accredited even if they are drawn—as they often are—from outside the ranks of the diplomatic corps and are sometimes itinerant. Diplomacy can be practiced directly by heads of government and ministers responsible for the state's external affairs rather than through special representatives. It is conducted, therefore, at several levels, from diplomatic summits down to conversations between embassy officials. Diplomacy, which can be practiced independently or in alliances, is conducted in many orthodox ways: openly and secretly, bilaterally, in blocs, multilaterally, in conferences, and at congresses (see INTERNATIONAL ORGANIZATIONS). Its agenda traditionally was dominated by political and strategic issues.

History

The use of diplomatic agents is as old as politics. Its modern features began to emerge clearly in the late fifteenth century in the Italian city-states, with Venice providing the lead, but the diplomatic arts had been practiced in Asia, the Middle East, Africa, and Latin America in recognizably modern forms. Diplomacy flourished most perceptibly and fully, however, as the European state system reached its mature form in the nineteenth century. Hierarchical ranks of diplomats were recognized; formal diplomatic instruments, customs, and vocabulary were fashioned; French became the official language; training of diplomats was developed; aristocrats and gentlemen created a monopoly of appointments; ARCHIVES were filled with their records; and little occurred technologically to disturb accepted practices. Ambassadors enjoyed wide latitude to conduct diplomacy and even to shape policy. The volume of transactions was manageable, the number of states active in the international system was relatively small (about twenty before 1914), and there were few international organizations and nonstate actors of significance. Ambassadors served the interest of the state exclusively.

In the twentieth century, particularly after World War I, significant changes occurred. Governments dealt increasingly not only with other governments but also with international organizations and nonstate actors such as corporations and groups operating transnationally. The agenda of diplomacy has broadened, and its balance has changed. Economic, commercial, technological, and cultural questions share the agenda. Governments have means of communicating and signaling one another beyond diplomacy, particularly the electronic mass media. The number of states active in the system increased dramatically (115 by the end of World War II), and so did the

level of transactions and the flows of information. New states (many of them former European colonies) had diverse goals. The political space between the boundaries of society and the apparatus of government was reduced, partly because of the presence of organized groups and an increasingly attentive public and partly because the press and newer means of social communication such as RADIO and then television began to assert greater influence on governments (see NEWSPAPER: HISTORY; TELEVISION HISTORY). Elites lost their exclusive control but soon found ways to manipulate and co-opt these fresh sources of authority so that governments were rarely dominated by them (see GOVERNMENT-MEDIA RELATIONS). The influence of governments increased to the extent that use of the media enabled them to spread PROPAGANDA and to create and manipulate PUBLIC OPINION both within and beyond the boundaries of their states. The patterns of influence on foreign policy differed among states, but the new elements in the equation (an attentive and organized public, the new communications media) prevented a return to the relative simplicity of the nineteenth century. A form of total diplomacy has emerged, the hallmark of which is complexity.

The Influence of Technology

At the same time, advances in communications technology, changing the means and speed at which information is transmitted, decisively affected the conduct of diplomacy. The creation of a global telegraph communications system was the most significant development of the second half of the nineteenth century and the first decade of the twentieth (see TELEGRAPHY). Between 1850 and 1914, paralleling the development of a railway and shipping network, an international submarine cable system was laid down and put into operation. England was joined to France, national telegraph systems in Europe were linked together, and the European system spread eastward to the Middle East and India via the Mediterranean and westward to North America. Europe became tied to Asia and Australasia via Siberia and India, Hong Kong and Singapore, and then reached to Japan. Similarly, North America established a network across the Pacific islands to Japan and then to the Asian mainland. European and American telegraph and cable companies joined in Asia. London remained the hub in the sense that the British or British-owned share of the submarine cable system approached 80 percent before World War I, although Copenhagen, The Hague, Paris, and New York headquartered major communications companies. See NEWS AGENCIES.

Even before World War I the wireless telegraph

began to challenge the monopoly of the submarine cable system. Between 1914 and 1945 wireless telegraphy and the development of the international TELEPHONE system had the greatest impact on the conduct of diplomacy and international affairs. Adolf Hitler could conduct his political coup against Austria in the spring of 1938 from his office; it was a case of *Anschluss* by phone. Winston Churchill and Franklin D. Roosevelt could direct much of their business during World War II on the transatlantic phone system. After World War II the invention of the transistor and then the microprocessor (computer "chips"), the development of computers and SATELLITE systems, and the expansion of radio and television enabled the United States to lead the world toward integrated communications systems (see TELECOMMUNICATIONS POLICY).

Every step in this technological evolution has directly affected the conduct of diplomacy. In the nineteenth century the hand-delivered LETTER or dispatch gave way—though never entirely—to the telegram and cable traffic. Face-to-face discussions, protracted meetings, and formal conferences were—with significant exceptions, as when the need for major peace settlements arose—deemed less vital, although they could be more easily and rapidly convened. Ambassadors abroad lost much of the autonomy that distance and inaccessibility had given them, though they in turn gained greater ability to influence their home governments. As the new technologies increased the volume, speed, and complexity of the message traffic, the pace of diplomacy constantly quickened, for governments were in more direct and immediate contact on a global scale. Thus both routine business and crisis management took on new features and greater urgency. Optimal decision making became a function of efficient information processing as never before. The awareness of hostile values, the probable reactions of both friends and adversaries, and the uncertainty of outcome heightened. The conduct of diplomacy and grand strategy thus challenged governments even as technological innovation lubricated the process and facilitated transactions on a global scale.

Bibliography. Jorma Ahvenainen, *The Far Eastern Telegraphs*, Helsinki, 1981; Diane B. Bendahmane and David W. McClintock, eds., *Science, Technology, and Foreign Affairs*, Vols. 4 and 5, Washington, D.C., 1984; Anne W. Branscomb, ed., *Toward a Law of Global Communications Networks*, White Plains, N.Y., 1986; Harold Nicolson, *The Evolution of Diplomatic Method*, London, 1954; Richard Rosencrance, "Diplomacy," *International Encyclopedia of the Social Sciences*, Vol. 4, New York, 1968 ed.; Ernest Satow, *Guide to Diplomatic Practice* (1917), 4th ed., ed. by Nevile Bland, London, 1957.

MICHAEL G. FRY

DIRECT RESPONSE MARKETING

Direct response marketing has been the fastest-growing form of marketing and ADVERTISING in the decades of the 1960s, 1970s, and 1980s. Its fundamental premise is the development of a direct communication and sales dialogue between a prime supplier of goods or services and the consumer.

This two-way dialogue grew as a powerful force in marketing as it became more precisely targeted, more relevant, and more service-oriented than mass distribution and general advertising. Direct marketing has been the beneficiary of all the new information processing and storage technologies. The development of the computer, the microprocessor, and personalized communication technologies such as laser printing and telemarketing has made it possible and inexpensive for advertisers to use DATA BASE marketing techniques to locate and communicate with prime new prospects and existing customers (see COMPUTER: HISTORY).

The Direct Marketing Association in the United States defines direct marketing as "an interactive system of marketing which uses one or more adver-

tising media to effect a measurable response and/or transaction." This definition is sufficiently broad to encompass the many and varied forms of direct marketing that are increasingly being practiced worldwide.

Direct marketing differs from mass distribution and general advertising in its means as well as its ends. Whereas mass distribution attempts to make goods available to the broadest mass of the public by selling in bulk to wholesale and retail resellers who own the products at the point of purchase, direct marketers sell directly to the end consumer. General advertising attempts to create favorable ATTITUDES and high awareness of products owned by resellers, while direct marketing advertising tries to modify the behavior of the ultimate consumer by creating sales transactions for goods owned by the advertiser. Because responses to advertising, whether orders or inquiries, are returned to the advertiser, the results of such advertising become accurately measurable and totally accountable.

Techniques. Direct marketing has assumed many different forms and has helped to sell an increasing number of product categories and services worldwide. Perhaps the oldest form of direct marketing is the salesperson or distributor who sells door to door. Avon Products and others have used this technique worldwide to sell cosmetics and costume jewelry. Vacuum cleaners and other small appliances are sold this way as well. Encyclopedias and sets of books have been marketed door to door for the last two centuries, as have household supplies and services. The salesperson, using the technique of a personal demonstration in the home, is the medium of door-to-door, or direct-selling. Advertising is frequently used to support, target, or reinforce the salesperson's efforts.

Catalogs are another direct marketing medium that has also been used for centuries. Sears, Roebuck and Company, Montgomery Ward, and Spiegel in the United States; La Redoute and Les Trois Suisses in France; and Quelle and Neckermann in Germany, Belgium, and Holland are typical of catalogs that have acted as retail stores for people who prefer to shop at home. Specialty catalogs selling fashions, electronic appliances, horticultural products, outdoor equipment for hunting and fishing, specialty foods, and so on, have been growing at a rapid rate around the world. The growing use of catalogs for in-home shopping has been adopted by leading retailers such as Bloomingdale's and Neiman Marcus in the United States, Printemps in France, and the Seibu stores in Japan. In Great Britain mail-order sales from catalogs exceed sales made in department stores.

Another form of direct marketing is the negative-option club, which developed in the late 1920s in



Figure 1. (Direct Response Marketing) Sears Roebuck catalog cover, 1894. Courtesy of Sears, Roebuck and Co.

the United States and Germany. The “negative option” refers to a book-club marketing method that provides that a book club notify each member every month of the selection it proposes to send the member. If the member does nothing—the negative option—the book is sent. The member may elect to receive no book that month or select other books or products, but is expected to do so by a certain date. Today companies using the name and technique of the Book-of-the-Month Club exist in the United States, Great Britain, and Sweden.

Since 1955, with the advent of the Columbia Record Club in the United States, records have also been sold by negative-option clubs. Record clubs owned by Philips and Bertelsmann exist in Europe, and the Sony CBS Family Club sells audio products in Japan. The products offered by such clubs have expanded to include videotaped films, VIDEO games, and computer software. Specialized clubs selling books on cooking, crafts, the outdoors, history, psychology, and so on have also developed.

In many countries direct marketing has become the major medium for the sale of MAGAZINE subscriptions. In the United States almost all magazines sell mainly by subscription. *Geo* and *Capital* in Germany, *L'expansion* in France, and many magazines elsewhere have also been sold by subscription.

Direct marketing has helped to build an international industry in collectibles. Series of Olympic coins have been sold by the governments of Canada, the United States, Mexico, and the USSR. Philatelic products are marketed directly by almost every postal system in the world. Companies such as the Franklin Mint in the United States have sold gold and silver medallions, porcelain objects, books, and records in continuity programs worldwide. Continuity programs, in which a specific series of products or books is sold one at a time to subscribers, have been used by publishers such as Time-Life Books and others worldwide.

American Express, Diners Club, Visa, MasterCard, Carte Bleue, Eurocard, and Barclaycard have used direct marketing to sell credit cards worldwide. They have also used the data base of cardholders to build substantial mail-order businesses. More recently banks, insurance companies, building societies, brokers, and real estate companies have used direct marketing to sell billions of dollars of financial services.

Car rental companies such as Avis and Hertz; airlines such as American, Pan American, United, and many European carriers; and hotel chains such as Hyatt, Sheraton, Holiday Inn, Hilton, and Marriott have used direct marketing techniques to offer discounts to frequent users whose names and transaction histories are maintained in computer data bases.

Corporations such as IBM, Rank Xerox, Hewlett

SEARS, ROEBUCK & CO., Inc., Cheapest Supply House on Earth, Chicago. CATALOGUE No. 106. 11

OUR NEW 1899 WALKER MODEL FOR \$9.95
FOR \$9.95 WE OFFER THIS GENUINE WALKER MODEL AS ONE OF THE HARDEST CARRIAGES THAT WILL BE SHOWN IN ANY 1899 LINE.
... \$9.95 BUYS A CARRIAGE ...
THE EQUAL OF ANY CARRIAGE YOU CAN BUY ELSEWHERE AT 50 PER CENT MORE MONEY.

MAKE YOUR SELECTION FROM THE FOUR COLORED CARRIAGES.

OUR BIDDING GUARANTEE

HOW THESE COLORED ILLUSTRATIONS ARE MADE

AT \$9.95 WE FURNISH

LIBERAL OFFER

GENERAL DESCRIPTION...

Figure 2. (Direct Response Marketing) Advertisement for a baby buggy, from a Sears Roebuck catalog, 1899. Courtesy of Sears, Roebuck and Co.

Packard, and Honeywell have used direct marketing techniques to generate leads for salespersons and to sell supplies to current customers. In 1983 it was estimated that a business sales call by a salesperson cost more than two hundred dollars. Business-to-business direct marketing was used to generate leads that made sales calls more productive and to sell inexpensive equipment and supplies directly.

Targeting. Targeting of media and messages makes it possible to sell the right thing to the right person at the right time. It is not surprising, then, that direct marketing has also influenced POLITICAL COMMUNICATION, particularly in the United States. The national, state, and local candidates of the Republican and Democratic political parties have made intensive use of the data bases of actual or potential voters for fund-raising purposes.

The explosive growth of direct marketing has been based on its ability to use and create data bases that help direct relevant messages to the most appropriate prospects.

Bibliography. Martin Baier, *Elements of Direct Marketing*, New York, 1985; DMA Fact Book/1984 on Direct Marketing, New York, 1984; Edward L. Nash, *Direct Mar-*

keting: *Strategy, Planning, Execution*, New York, 1982; Bob Stone, *Successful Direct Marketing Methods*, 2d ed., Chicago, 1979.

LESTER WUNDERMAN

DISINFORMATION

A term that came into use in the period after World War II to designate false materials produced with an intent to deceive foreign military and intelligence agents (see DECEPTION). Its meaning was gradually extended to include false information intended to influence broader target populations. Disinformation also has come to be widely used as a catchall designation for views with which one disagrees. *Misinformation* is a word with broader connotations, encompassing information that is unintentionally as well as knowingly false.

Main features. Disinformation is a form of PROPAGANDA. When disinformation was confined to attempts to mislead foreign intelligence and military services, it was a special form of "black propaganda" (unacknowledged, purposeful, and false). But in the broader sense of the term, disinformation may be passed along quite openly, although known by its sponsors to be false. Disinformation may be disseminated in the form of forged documents, false quotations, misleading rumors (see RUMOR), fabricated statistics, or other false claims of events, policies, or relationships. The false information is often embedded in a body of accurate fact as a means of adding credibility to the falsified evidence (see PERSUASION). Disinformation designed for an enemy audience may mislead people at home (a phenomenon called blowback) and is for this reason occasionally criticized as incompatible with a democratic order. But the bulk of disinformation is designed for the domestic market, not a foreign audience, although in every country the specialists focus on the disinformation activities of foreign enemies.

Sometimes disinformation corresponds to a reality that the creator of the fabricated evidence cannot document from valid sources. For example, in 1961 Richard Helms, then head of the U.S. Central Intelligence Agency (CIA), briefed a U.S. Senate committee on two forgeries allegedly showing that the United States, despite claims to the contrary, was secretly supplying rebels trying to overthrow the Sukarno government of Indonesia. Former CIA officials Victor Marchetti and John D. Marks note that "they were indeed rather crude forgeries, but their message was accurate. Not only did the CIA in 1958 support efforts to overthrow the Sukarno government, but Helms himself, as second-ranking official in *Clandestine Services*, knew it well." Thus, paradoxically, the forgeries were disinformation that conveyed a

valid message; the exposures and disclaimers were themselves a form of disinformation.

Origins of the term. Some Western specialists trace the word *disinformation* to the Russian *dezinformatsia*. They cite the claim that a Soviet Department D (for *dezinformatsia*) was organized within the Soviet KGB (Komitet Gosudarstvennoi Bezopasnosti, or State Security Committee) in the 1950s, thus suggesting a special Soviet role in disinformation both in etymology and fact. James Watson and Anne Hill in *A Dictionary of Communications and Media Studies* (1984) assert that disinformation "derives from the Russian *dezinformatsia*, a term especially associated with the Soviet Union's secret service, the KGB." However, *dezinformatsia* is not a word with Russian roots, and it appears in Soviet dictionaries and encyclopedias only after World War II. All give the term French roots (*dés* and *information*), and into the 1970s Soviet writings translated the word as "misinformation." Thus the original Russian word has Western roots, and the translation from *dezinformatsia* to *disinformation* appears to have been a Western initiative.

The practice. Disinformation as fact has an ancient lineage. The Indian classic *Arthaśāstra*, dating from 321 to 296 B.C.E., advises a prince desirous of winning battles to circulate secret agents among the enemy spreading rumors of their certain defeat. While the use of disinformation has been a long-standing feature of war and politics, it is possible that its importance has increased in modern times as a function of greater wealth and technical improvements. These factors have led to a proliferation of weapons and may also have allowed a larger scope to the manipulation of both enemy intelligence and foreign and domestic populations. There is some empirical evidence for the increased use of disinformation in military strategies, but claims of its increased application in political warfare and domestic politics are only a plausible guess.

A classic case of disinformation in military use is the series of operations organized by the British in World War II to deceive the Germans about Allied intentions. According to one official, the disinformation program Operation Fortitude

was responsible for containing a minimum of 20 enemy divisions during the first crucial months of the [Normandy] invasion. The enemy was led to believe—and reacted to—a long inventory of opportune untruths, the largest, most effective, and decisive of which was that Neptune [the code name for the invasion plan] itself was only the prelude to a major invasion in the Pas de Calais area. . . .

Anthony Cave Brown notes that

the British had been extremely careful to reveal to the Russians only as much of their deception machinery as was necessary to ensure their cooperation in Bodyguard

[the name for the overall disinformation program]. But the Russians were quick to adopt and apply this unique method of modern warfare.

The use of disinformation in domestic politics and to engineer public consent is massive and has assumed many forms (see PUBLIC OPINION). In one famous case U.S. Senator Millard Tydings of Maryland was shown in a picture (forged) standing together with Earl Browder, head of the U.S. Communist party, a tactic that helped defeat Tydings in 1952. The U.S. Federal Bureau of Investigation's use of forged letters, cartoons, photos, and other documents to discredit, harass, and disrupt radical and other oppositional civil rights and peace groups—under the FBI program code-named “Cointelpro”—was a large-scale and well-documented disinformation effort carried out for a decade or more but officially terminated in 1971.

It has been a long-standing tradition to mobilize populations by fabricated enemy threats. During the last months of 1981, for example, U.S. officials claimed that a Libyan hit squad had been dispatched to assassinate the U.S. president. None of the varying accounts of this hit squad was ever confirmed, and the head of the FBI eventually acknowledged the absence of any such evidence. The original claim was nevertheless effective as propaganda.

See also ESPIONAGE; RADIO, INTERNATIONAL.

Bibliography. Philip Agee, *Inside the Company: CIA Diary*, New York, 1976; Nelson Blackstock, *Cointelpro: The FBI's Secret War on Political Freedom*, New York, 1975; Anthony Cave Brown, *Bodyguard of Lies*, New York, 1975; *The Etymological Dictionary of the Russian Language* (Etimologicheskii slovar' russkogo iazyka), Vol. 1, Book 5, Moscow, 1910–1916, reprint Moscow, 1958, and New York, 1978; *The Great Soviet Encyclopedia* (Bol'shaia sovetskaia éntsiklopediia), 3d ed., Moscow, 1970–1975, New York and London, 1973–; Victor Marchetti and John D. Marks, *The CIA and the Cult of Intelligence*, New York, 1974; Harry Rositzke, *The CIA's Secret Operations: Espionage, Counterespionage, and Covert Action*, New York, 1977; Richard H. Shultz and Roy Godson, *Dezinformatsia: Active Measures in Soviet Strategy*, Washington, D.C., 1984.

EDWARD S. HERMAN

DISNEY, WALT (1901–1966)

U.S. film animator, producer, and businessman. The name Walt Disney has become almost synonymous with family entertainment. For more than forty years Disney created cartoons, films, television shows, and even giant theme parks designed to appeal to “the child in everyone.” Born in Chicago, Walter Elias Disney worked as an artist and animator in Kansas

City, where he met Ub Iwerks, a fellow artist who was to be his lifelong collaborator. They began an ANIMATION studio, which went bankrupt, but their second attempt, in Los Angeles, became the industry powerhouse known as the Disney Studios. In 1928 they produced the first sound cartoon, *Steamboat Willie*, featuring a character called Mickey Mouse drawn by Iwerks with voice by Disney. It was an instant success and became one of the cultural phenomena of the era. The next year Disney introduced the “Silly Symphonies” cartoons, in which the animation was precisely coordinated with a soundtrack dominated by musical effects. Best known of these are the initial *The Skeleton Dance* (1929) and *The Three Little Pigs* (1933).

During the 1930s the small studio grew into a huge enterprise under Disney's leadership. Other cartoon characters joined Mickey Mouse, including Minnie Mouse, Donald Duck, Goofy, and Pluto, all turned out by a vast assembly line of artists and technicians called designers, in-betweeners, inkers, and opaquers. The Disney organization pioneered many technical advances, such as multiplane animation, which allowed for greater complexity and sense of perspective. Disney became a leader in the use of color, obtaining exclusive rights in 1935 to employ Technicolor's three-color process in cartoons. Through merchandising agreements Disney characters turned into armies of dolls, toys, books, and premiums.

Disney had long wanted to produce full-length animated features. In 1937 he stretched his company's resources to the limit to make *Snow White and the Seven Dwarfs*, which proved a major success and was followed by *Pinocchio* (1940), *Dumbo* (1941), *Bambi* (1942), *Cinderella* (1950), and *Sleeping Beauty* (1959). Unusual among these projects was the early *Fantasia* (1940), in which cartoon ART was used to animate various classical music pieces. Though not immediately popular and scorned by some critics as a lowbrow exploitation of fine music, the film eventually found a large audience during rerelease in later years.

For many years Disney totally dominated animation in the United States, and his studio became a training school for a generation of animators. Some, on going elsewhere, carried on Disney's assembly-line methods and hyperactive style; others reacted against it, veering toward simpler, more personal, and often more sophisticated films.

During World War II the Disney organization produced innumerable training and PROPAGANDA films for government agencies, such as *Saludos amigos*, aimed at Latin America. During and after the war Disney also made a number of films combining live action and cartoon, such as *Song of the South* (1946),



Figure 1. (*Disney, Walt*) Walt Disney with Mickey Mouse. © 1954 The Walt Disney Company.

and in 1950 he made his first completely live-action film, *Treasure Island*. Other notable live-action pictures include *20,000 Leagues under the Sea* (1954) and *Mary Poppins* (1964). Disney also issued a series of documentaries on nature entitled "True-Life Adventures," starting with the short *Seal Island* (1948) and including the feature-length *The Living Desert* (1953), drawing on the work of specialists in nature photography. Though sometimes criticized for their "mickey-mousing" musical accompaniments, the films are nonetheless a fascinating look at natural phenomena. *See also* DOCUMENTARY.

Disney saw the potential of television early on. Using it as a new market for his entire backlog, he also began to produce special series for Sunday-night family viewing, including the enormously popular "Zorro" and "Davy Crockett."

In 1955 Disney realized a long-held dream by opening Disneyland, a 160-acre amusement park in Anaheim, California. A second, even larger park called Disney World was under construction in Florida at the time of Disney's death, with still others in the planning stage. In Disney's theme parks all his familiar characters were featured anew and recycled in countless forms, but the parks also gave his taste for the amazing, the whimsical, and the fantastical a

monumental form that had a major impact on TOURISM in the postwar decades.

See also CARICATURE; CHILDREN—MEDIA EFFECTS; COMICS; HUMOR; MOTION PICTURES; VIOLENCE.

Bibliography. Leonard Maltin, *The Disney Films*, New York, 1973; Richard Schickel, *The Disney Version: The Life, Times, Art, and Commerce of Walt Disney*, rev. and updated, New York, 1985.

RICHARD PILCHER

DOCUMENTARY

The term *documentary*, used as a noun, is generally equated with nonfiction work in film, RADIO, television, or VIDEO. But the boundaries of nonfiction are never clear. Some works claiming documentary authenticity use actors in dialogue invented by writers and staged by directors—elements more properly belonging to FICTION, since the aura of characters and events becomes almost wholly the creation of the artists. For such works the term *docudrama* has come into use, and it should be regarded as a branch of historical fiction rather than documentary. *See* FACT AND FICTION.

Documentarists are dedicated to *not* inventing. They prefer images and sounds found in the world around them to anything they can invent. They express themselves largely by the way they combine and juxtapose these images and sounds and, in many documentaries, by adding commentary and music.

Early History

The documentary had its beginnings in the prehistory of MOTION PICTURES. Some of the experimenters who contributed to the evolution of MOTION PHOTOGRAPHY were devising equipment to "document" some phenomenon or event—in the case of Eadweard Muybridge (1830–1904) in the United States, the motion of racehorses and, later, of other animals and of humans; in the case of the Frenchman Étienne-Jules Marey (1830–1904), the flight of birds. The recording of such actions for study and analysis has remained an important role for documentarists.

The ingenious device of the brothers LOUIS AND AUGUSTE LUMIÈRE, the cinematograph, which debuted with resounding success in Paris in 1895 (the event that launched commercial cinema), tended to propel the new medium in a documentary direction. The cinematograph was a compact, hand-cranked instrument that could, with adjustments, serve as

camera, projector, or printing machine. Its small size and light weight encouraged “cinematographers” to go forth and record the world in action. In contrast THOMAS ALVA EDISON’s first camera, devised to make films for his Kinetoscope (the peepshow device that had its commercial debut the year before the cinematograph), was a ponderous instrument firmly rooted in the Edison studio, where performers were brought before it to juggle, dance, box, or do rope tricks. The contrast between the cinematograph and the Kinetoscope had other historic ramifications. A Lumière-trained emissary with a cinematograph could be sent anywhere in the world to demonstrate the invention with films made by the Lumières, and could then, using the same equipment, astonish audiences anew with items shot and developed locally: in Spain, the climax of a bullfight; in Russia, the coronation of the new czar; in Australia, a glimpse of the Melbourne races. Within two years they had introduced the cinematograph in major cities in every part of the world, made more than 750 short films, and planted the word *cinema* in many of the world’s languages. Diverse other entrepreneurs were by then racing the Lumière envoys far and wide and inspiring the beginnings of local filming, generally on a documentary note.

The Lumières established another media word. They called their short travel films *documentaires*. Films of this sort dominated film programs for some years, but their emphasis changed. The earliest films, shot mainly by Louis Lumière—who was also the chief cinematograph inventor—favored genre glimpses of middle-class life: men sawing and selling firewood in a city street, the arrival of a train, workers leaving a factory, a bicycle lesson—aspects of daily life seen in an astonishing new way (see Figure 1). But the touring cinematographers, for promotional reasons and to win needed access permissions, enlisted the sponsorship of king, kaiser, czar, maharajah, and their retinues. All proved eager to help introduce the new wonder—and came to expect its attentions. Royal and military panoply became standard film ritual.

The first Lumière films were less than a minute long, but the length of films increased rapidly; by 1905 ten-minute films were common. By this time fiction films were thrusting the documentary aside. Beauteous men and women, seen in unprecedented close-ups, were becoming new-age idols. And it was in the fiction film that filmmakers were expanding film techniques, particularly the wonders of FILM EDITING. The documentarists, holding too long to a successful formula, became victims of it. The world glimpses continued, but in 1909 entrepreneurs began combining them into the composite NEWSREEL. The innovation was welcomed, but it marked the decline of the early documentary.

Thenceforth fiction films, growing into multireel

wonders, would dominate film history. Yet occasionally the documentary would have moments of surprising rebirth and would even—especially in times of crisis—seize the center of attention.

Between the Two World Wars

The first such resurgence came in the 1920s and revolved around two remarkable figures, ROBERT FLAHERTY of the United States and DZIGA VERTOV of the Soviet Union. In spite of differences, they showed striking parallels. Both were lone operators, embattled independents often at odds with the film industries in which they worked. Both avoided large film operations; each generally worked with his wife and was assisted by a brother. Each had a fleeting time of glory.

Robert Flaherty. Robert Flaherty (1884–1951) began his working life as a prospector. Employed by Sir William Mackenzie, Canadian industrialist and railroad builder, he explored northern wilderness areas in search of mineral deposits, serving as advance man for an industrial tomorrow. But as he pushed northward, Flaherty’s interests shifted from the buried ore to the Eskimos inhabiting the land. In 1913 he began making a film about them. The process involved endless difficulties, but the result was a milestone in the history of documentary film. Flaherty had absorbed the syntax of film communication as it had evolved in the fiction film, and he applied this to real-life material. The result was *Nanook of the North* (1922; see Figure 2). It seemed so unorthodox to distributors that most of them rejected it, yet it won worldwide success, set the pattern for later Flaherty projects, and remained a film landmark.

In *Nanook of the North*—as in the later *Moana*, shot in Samoa—Flaherty was not showing indigenous peoples as he found them. He said, “I am not going to make a film about what the white man has made of primitive peoples.” He involved Nanook and his people, the Inuit of Canada’s Hudson Bay area, in an adventure of remembering. They would show for the camera, and for posterity, how they *used* to do things before the white man came—how they hunted, fished, built igloos, dressed, ate, slept. In a sense, Flaherty was repudiating his own industrial role. The clock was turned back. An anthropologist might call his work salvage ethnography. Flaherty was creating a sort of living museum, startling in its aliveness and intimacy.

Dziga Vertov. The work of Dziga Vertov (1896–1954) occupied a similar time span in very different circumstances. He was born Denis Arkadyvich Kaufman in the Polish city of Białystok, then within the czarist realm. His father was a librarian. As World War I began, the family moved to what seemed the comparative safety of Petrograd. When the 1917



Figure 1. (Documentary) Louis Lumière, *La sortie des ouvriers de l'usine Lumière à Lyon* (Workers Leaving the Lumière Factory at Lyon). National Film Archive, London.



Figure 2. (Documentary) Robert Flaherty, *Nanook and son*, *Nanook of the North*, 1922. The Museum of Modern Art/Film Stills Archive.

Revolution began, Kaufman became involved. Volunteering for the cinema committee, he became a film editor. As the Bolsheviks fought back internal opposition and foreign intervention from U.S., British, French, and Japanese expeditionary forces, he edited footage of the fighting into reels that were dispatched to agitprop units. When the fighting ended late in 1920, he began proclaiming in spirited manifestos the role he felt film should play in the new socialist society. He was now Dziga Vertov, a pseudonym suggesting a spinning top, or perpetual motion.

He looked on fiction films as a dangerous new religion, an opiate. Seeing its "ikons" commanding the "prayerful emotions of millions," he urged filmmakers to "come to life." They should become "organizers of visible life," documenting the birth of a new reality. His attacks won him enemies, but also support in high places. V. I. Lenin was reported to feel that all cinema programs should include, along with fiction, items of "Soviet actuality." In 1922 Vertov received a go-ahead to create *Kinopravda* (Film Truth), a monthly collection of actuality items that continued until 1925 (see Figure 3). Vertov's wife, Elizaveta Svilova, served as its film editor; his brother Mikhail Kaufman was chief cameraman. Each day he and other cameramen sallied forth to record such moments as seemed to them historic: a Moscow trolley line, long out of operation in torn-up streets, finally back in repair and resuming its runs; an army

tank leveling an area for an airport; a hospital assisting war-starved children. In the editing process, meaningful juxtapositions and superimposures were especially favored. Valued footage was reused in feature-length compilation films such as the prideful *Shestaya chast mira* (One-Sixth of the World, 1926). The work inspired similar films from others, including the admired *Turksib* (1929), by Victor Turin, on the construction of the Turkestan-Siberian railway (see Figure 4); and the historical compilation films of Esfir Shub, in which pre-Revolution newsreel shots of bread lines, munitions assembly lines, and arrests of troublemakers were juxtaposed with newly discovered home movies of life at the czar's court. Shub's films, especially *Padeniye dinasti Romanovikh* (The Fall of the Romanov Dynasty, 1927), had a great impact on Soviet audiences.

The documentary occupied a prominent role in the early years of the Soviet Union but soon lost momentum. Under Joseph Stalin the emphasis was on articulation of officially proclaimed themes rather than on the reporting of actualities. Film projects could be undertaken only on the basis of detailed proposals specifying content and message. Vertov, who looked on his work as film journalism, resisted this process and came to be regarded as "antiplanning." He worked in increasing isolation and was able to complete few major films. The work for which he would eventually become best known at home and abroad, *Chelovek s kinoapparatom* (The

Figure 3. (Documentary)
Kinopravda cameraman. National Film
Archive, London.





Figure 4. (Documentary) Victor Turin, *Turksib*, 1929. National Film Archive, London/Sovexport.

Man with the Movie Camera, 1929), met with Soviet disfavor when released. Presenting a dazzling inventory of the techniques of film reportage, it was unclear in its implications. Was Vertov proclaiming the power and significance of the medium or warning against its capacities for deception?

Spread of the movement. The films of Flaherty and Vertov were among factors attracting artists in many lands—painters, sculptors, architects, musicians—to film. Viewing and discussing films in the cineclubs and film societies formed in many cities, some artists felt the urge to experiment, and many of them leaned to documentary. Even artists associated with abstractionism found delight in maneuvering “fragments of actuality” into visual patterns in motion. The French artist Fernand Léger fused footage of gears, pendulums, eggbeaters, and other familiar objects into his *Ballet mécanique* (1925). Similarly the German Hans Richter, member of a Zurich AVANT-GARDE group, parlayed racetrack footage into a *Rennsymphonie* (Racing Symphony, 1928). Walther Ruttmann, a German POSTER designer who had studied music and architecture, orchestrated images of Berlin into *Berlin: Die Sinfonie der Grossstadt* (Berlin: The Symphony of the City, 1927). All these films, documentary in their basic material, reflected a fascination with the expressive potentialities of film editing.

This trend, coming as silent film was giving way to sound film, was short-lived. Sound pushed the documentary in other directions. Documentarists, acquiring a voice, found their medium could argue, protest, plead, sell, evangelize. Spurred by the advent

of a world depression and rising political tensions, the documentary of the 1930s became above all a medium of exhortation.

John Grierson. The documentary movement organized in Britain by JOHN GRIERSON, son of a Scottish schoolmaster, was dedicated to social enlightenment. Launched in 1930, it had government underwriting and occasional industry sponsorship. Grierson, influenced by WALTER LIPPMANN in the United States, felt that the problems of society had become too complex for the public to grasp, but he felt the documentary film could lead the way through the wilderness. He was not afraid of the word PROPAGANDA. He could say, “I look on cinema as a pulpit.”

Praising Flaherty’s *Moana* for “documentary value,” Grierson brought the term *documentary* back into use. But Grierson’s views on documentary diverged from those of Flaherty. He scorned Flaherty’s focus on the remote and primitive and demanded attention to “the drama of the doorstep.” Films made under Grierson seldom revolved around individuals. A Grierson documentary tended to be an essaylike survey of a current activity or problem, with the audience being guided through the footage by a narrator or commentator. This became a standard documentary feature in many countries. Government film units tended to favor it because it exerted a leadership role. It was also economical. Narration could be combined with footage shot silently, at a time when sound shooting was cumbersome and expensive. In many countries the word *documentary* came to con-

note a film in the Grierson pattern, although many artists resisted what they considered its paternalistic character.

British and U.S. documentarists. Whereas the sponsorship of the British movement was conservative, looking to foster empire unity and industrial productivity and harmony, many of the young cineasts recruited by Grierson had liberal and even dissident social views, which found their way into the films, especially in the strong focus on workers and their problems. This mixture of viewpoints had its virtues: the films were seldom simplistic. Production, begun slowly in 1930, hit full stride in 1935 with the release of diverse impressive films: *Song of Ceylon*, directed by Basil Wright; *Shipyard*, by Paul Rotha; *BBC: The Voice of Britain*, by Stuart Legg; *Housing Problems*, by Edgar Anstey and Arthur Elton (see Figure 5). They were followed closely by the most admired of the unit's productions, *Nightmail* (1938), by Harry Watt and Basil Wright, showing action on a train rushing the mails from London to the towns of northern England and Scotland. The narration included passages of rapidly tripping verse by W. H. Auden accompanied by a Benjamin Britten musical score. Major composers were constantly drawn into social documentary projects of this period.

Social concerns and internal tensions likewise marked documentary activity in the United States. Its leading figure was Pare Lorentz, who began his film career by making, under the auspices of government agencies, *The Plow That Broke the Plains* (1936)

(see Figure 6) and *The River* (1937). Both had musical scores by Virgil Thomson and narration that, in its rolling cadences, reminded people of Walt Whitman. Both had a powerful public impact—which eventually became a political danger to Lorentz's work. The films provided such persuasive rationales for the policies of President Franklin D. Roosevelt's New Deal—soil conservation, flood control, public power—that conservatives in Congress grew alarmed. Roosevelt had established a central U.S. Film Service for further projects of this sort, and Lorentz was in the field preparing them—rural electrification and unemployment were on the agenda—when Congress scrapped the budget. The U.S. Film Service came to a sudden halt.

But the U.S. documentary movement had achieved momentum, and private groups carried on with similar works. The American Institute of City Planners underwrote *The City* (1939), by Ralph Steiner and Willard Van Dyke, with an Aaron Copland score and a narration written by Lewis Mumford. It offered a vivid panorama of urban decay, along with a program for action. Parallel activities of a more militant sort were emerging from other groups, such as the Workers Film and Photo League and Frontier Films. Frontier Films, focusing some of its projects on foreign issues, released *China Strikes Back* (1937), giving U.S. audiences their first glimpse of Mao Zedong in his Yanan stronghold, resisting the U.S. ally Chiang Kai-shek.

Leni Riefenstahl. Social concerns and conflicts characterized film activities in many countries, in-

Figure 5. (Documentary) Edgar Anstey and Arthur Elton, *Housing Problems*, 1935. National Film Archive, London.





Figure 6. (Documentary) Pare Lorentz, *The Plow That Broke the Plains*, 1936. The Museum of Modern Art/Film Stills Archive.

cluding France, the Netherlands, Poland, and Japan. In Germany, however, social and political conflicts had been forced underground. Such activities as liberal cineclubs had been eliminated, and total coordination was the order of the day. Adolf Hitler, while planning the 1934 Nazi party rally, summoned Leni Riefenstahl. He had long admired her as the heroine of a series of mythic “mountain films,” one of which she had also directed. He told her she was to produce a film record of a history-making rally to be held in Nuremberg that would signal to the whole world the rebirth of Germany. All necessary means would be at her disposal.

Riefenstahl, given sweeping authority, went to work. In Nuremberg she ordered a flagpole to be equipped with an elevator, able to carry a cameraman to the top in seconds while shooting. From fire department and utilities she commandeered trucks with extension ladders, so that cameramen would be able to soar over the historic buildings of Nuremberg while surveying massed crowds below. She ordered a ramp built along a major parade route to enable traveling cameras to move with the marchers while shooting from bird’s-eye vantage. Ritual and film were planned together.

Riefenstahl did the editing. She left articulation of the message to speeches by Hitler and others. But she backed these with an overwhelming choreography of images and sounds: marching men, throngs, adoring women, children, banners, swastikas, eagles, oratory, German monuments, folksongs, clouds, uniforms, grandiose music—and amid it all, dramatic

appearances by the führer. The result, *Triumph des Willens* (Triumph of the Will, 1935), seemed to many the most brilliant and certainly the most frightening of the era’s films of exhortation (see Figure 7). It seemed an announcement of inevitable war.

Some years later, with the war a global reality, film director Frank Capra was summoned to the Pentagon and asked to make clear to U.S. troops, through a series of documentary films, why they were fighting. He decided to include in the *Why We Fight* films extensive passages from *Triumph des Willens*. As in many compilation films, footage lived on to play a role not intended for it.

World War II

The exhortation films gave way to war films, which were dominated by battle reports. For almost a decade they came in a relentless barrage, chronicling the crisis events. Reenactments were often used, but spectacular combat photography was the central element. Many cameramen died in action. During this period the documentary took center stage. In every warring nation people flocked to theaters to get some sense of the distant events.

Among documentarists who won honors for their war films were the Dutch filmmaker JORIS IVENS, whose *The Spanish Earth* (1937) and *The Four Hundred Million* (1939) helped propel him into an international career of filmmaking; the Russian Roman Karmen, producer of the spectacular *Leningrad v borbe* (Leningrad at War, 1942) and many other

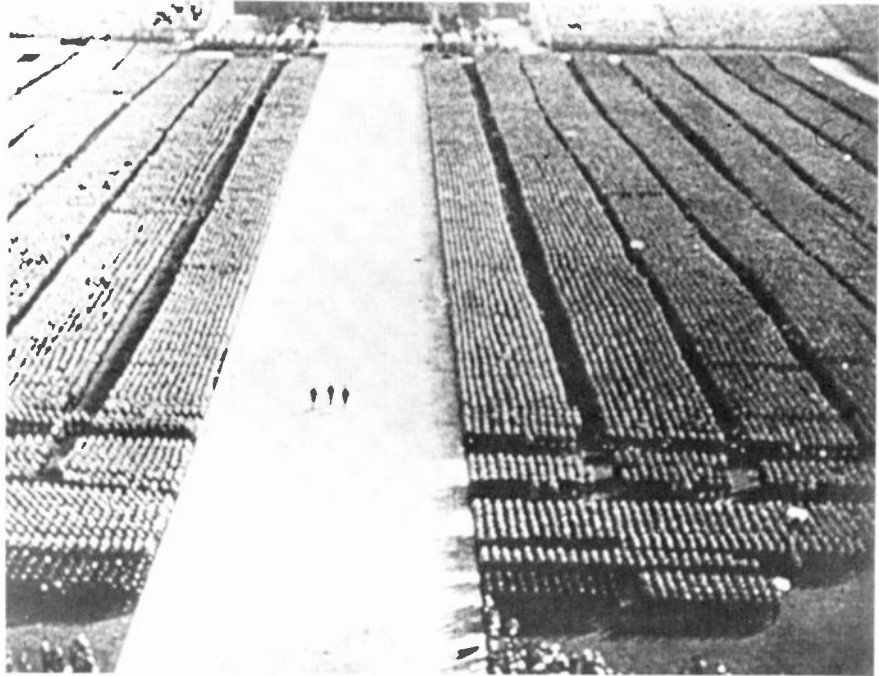


Figure 7. (Documentary) Leni Riefenstahl, *Triumph des Willens* (Triumph of the Will), 1935. The Museum of Modern Art/Film Stills Archive.

crisis reports; the English filmmaker Humphrey Jennings, whose *Listen to Britain* (1942) and *Fires Were Started* (1943) were probably the least chauvinistic of war films; and the U.S. filmmaker John Huston, whose *The Battle of San Pietro* (1944) depicted the experience of battle so vividly that it was felt best not to release it until the war was almost over.

Some parts of the film record long remained hidden. Eventually, through such films as *Nuit et bruyard* (Night and Fog, 1955), by Alain Resnais, and *Requiem dla 500,000* (Requiem for 500,000, 1963), a compilation of Nazi archive footage exhumed by Polish documentarists Jerzy Bossak and Waclaw Kazimierzak, audiences gradually gained some conception of the holocaust. First footage of the havoc at Hiroshima and Nagasaki, shot by Japanese cameramen under Akira Iwasaki but classified by occupation authorities, did not reach audiences until a quarter of a century later in *Hiroshima-Nagasaki, August 1945* (1970), compiled in the United States after the footage was declassified.

Postwar Rise of Television

During the war documentarists had dwelt near the center of power. The end of war seemed to leave them without a major mission. In many countries documentaries were vanishing from theaters. But a new arena opened up. Television, which had had a brief start before the war, was halted by it. But war-related developments in electronics enabled television to reappear and grow with startling suddenness after

the war. By the 1950s it seemed on its way to winning the big audiences away from radio and cinema. Experimenting with diverse programming, it became the main habitat of the documentary. See TELEVISION HISTORY.

Several genres of television documentary emerged. One was the film-illustrated newscast. As the theater newsreel vanished, its technicians and commentators migrated into television newscasting. Grierson-style surveys of current topics, guided by commentary, likewise became a television form. Commentators became frequent on-camera instead of "voice-over" presences, which turned some into national celebrities. See also TELEVISION NEWS.

Another genre looked to the past. Film ARCHIVES were being formed in many countries to store the vast amounts of film that had accumulated over the decades (see ARCHIVES, FILM). A country's film archive generally focused on its national heritage. Reassessment of twentieth-century experience through programs based on the archival material became a widespread television genre. The idea was also applied to historic still photos, paintings, and other art works, often shown with camera motion via ANIMATION photography. The Canadian film *City of Gold* (1957), based on nineteenth-century photographs and made by Colin Low and Wolf Koenig, had brilliantly pioneered this technique.

Still another genre, reflecting new environmental concerns stimulated by war, focused on nature. Prominent in this category were the television films of Jacques-Yves Cousteau, about life on and under

the ocean, and the encyclopedic BBC series by David Attenborough, *Life on Earth* (1979), which scrutinized ancient and modern species with exceptional camera wizardry. Technical advances were setting the stage for explorations undreamed of in earlier decades, including photography in outer space and within the human body, as in the National Geographic special *The Incredible Machine* (1977).

Technical developments played a part in another genre, which acquired the name CINÉMA VÉRITÉ, after Vertov's *Kinopravda*. Its adherents wanted to immerse audiences in ongoing events, as *Kinopravda* had sought to do. The sound elements had not been available to the Vertov group but were now a relatively easy matter, thanks to wireless microphones and other devices that facilitated synchronized coverage of characters on the move. *Cinéma vérité*—or *direct cinema*, as some preferred to call it—won an early vogue in the United States with *Primary* (1960), by Robert Drew and Richard Leacock; in Canada with *Lonely Boy* (1961), by Wolf Koenig and Ralph Kroitor; and in France with *Chronique d'un été* (*Chronicle of a Summer*, 1961), by Jean Rouch and Edgar Morin. *Cinéma vérité* won intermittent access to television, but television executives were generally wary of commissioning unpredictable projects.

Television documentary moved in still other directions. Every major special-event telecast was, in effect, an instant documentary, edited while in progress. Preserved on film or tape, it became a part of the documentary heritage, bequeathing historic footage to film archives. This was true of all kinds of events, including SPORTS events. The term *documentary* was not often linked with sports, yet sports were a concern of documentarists from the start. They

were the motive behind the first experiments of Muybridge. In later years two major documentaries, Riefenstahl's *Olympia* (1938) and Kon Ichikawa's *Tokyo Olympiad* (1965), brought documentary technology and production virtuosity to extraordinary heights (see Figures 8 and 9). Yet the television sportscast, when it acquired isolation cameras, instant replays, slow-motion analyses, and the freeze-frame, became an even more dazzling achievement. It held audiences spellbound throughout the world.

Whether viewed as a documentary triumph or a social-psychological phenomenon, all this was remote from the expectations of a Flaherty or a Vertov. Its meaning was variously assessed. Some saw the phenomenon as abetting violent drives; others as a new social opiate, beguiling and pacifying whole population strata. Still others saw it as the essence of the civilizing process—human combat reduced to order, to accepted rules, to ritual.

Further ramifications. A factor that had facilitated the postwar rise of *cinéma vérité* had been the advent of magnetic SOUND RECORDING and its diverse blessings: freedom from laboratory processing, instant review of items recorded, easy editing, and portability. These advantages fostered many other media developments. In radio they led immediately after the war to a new documentary movement. Previous radio documentaries were primarily radio equivalents of docudrama, relying heavily on studio reenactments, as in the *March of Time* radio series launched in 1931. After the war, radio documentaries based on the wire recorder and then on the tape recorder became an established genre. Once freed from studio confinement, the documentary has remained a worldwide feature of radio journalism.



Figure 8. (Documentary) Kon Ichikawa, *Tokyo Orinpikku* (*Tokyo Olympiad*), released 1965. National Film Archive, London.

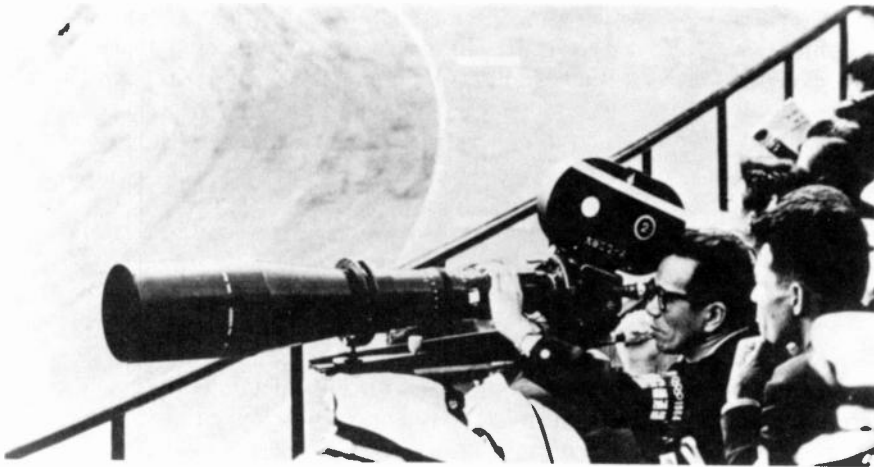


Figure 9. (Documentary) The filming of *Tokyo Orinpikku* (Tokyo Olympiad). National Film Archive, London.

Another ramification, following the rapid evolution of magnetic picture recording, was the rise in the 1970s of video as a distinct production medium. Developing in many directions, it offered diverse advantages to documentarists. Portability made it valuable for journalistic documentaries and work in ETHNOGRAPHIC FILM. The instant-review aspect gave it special values in dance training and many other kinds of training. In education, psychiatry, and mediation the medium proved valuable in fostering self-observation. Its relatively low cost made it invaluable to independent producers. In many situations it could give an individual producer capabilities that had once required a crew. Independent filmmakers and producers proliferated in the video field. Their work had an early impact on television programming, but the ferment also stimulated exhibition in libraries, universities, schools, churches, political groups, union halls, museums, film societies, clubs, community centers, and homes. Video brought a new diffusion of production and distribution to the documentary field.

Bibliography. Erik Barnouw, *Documentary: A History of the Non-Fiction Film*, rev. ed., New York, 1983; Forsyth Hardy, ed., *Grierson on Documentary*, rev. ed., London, 1966; Lewis Jacobs, ed., *The Documentary Tradition*, 2d ed., New York, 1979; Erwin Leiser, *Om Dokumentarfilm*, Stockholm, 1967; Georges Sadoul, *Louis Lumière*, Paris, 1964.

ERIK BARNOUW

DRAMA

This entry is composed of two articles:

1. History
2. Performance

1. HISTORY

The word *drama*, like drama itself, originated with the Greeks: *dran*, meaning “to do,” “to act.” In fact,

while drama is considered as literature, it is essentially a popular ART, written to be seen and heard. Published drama (scripts) is not unlike published music (scores): both are meaningful only when read with the ability to imagine the PERFORMANCE. Thus read, however, they furnish the instruction as well as the pleasure that have from the start been the functions of drama. See section 2, below.

Greek and Roman Drama

The earliest extant drama, which developed from religious rites, assumed a highly stylized form. Most of the speeches are choral lyrics, chanted and sung as well as choreographed. Dramatic scenes are few and brief, consisting of short emotional speeches called *stichomythia*. The tragedies (see TRAGEDY) feature gods and goddesses, but the protagonists are usually the mortal heroes of Greek legend and history. Their dramas communicate classic moral, spiritual, and intellectual values, which are interpreted by the chorus.

Greek drama employed formal patterns. Tragedies started with a *prologos*, followed by a choral entrance lyric (*parados*), a dramatic scene (*episode*), a choral ode (*stasimon*), and a finale (*exodos*). Each tragedy had five dramatic scenes separated by choral odes. Accompanied by instrumental music, the chorus danced, sang, chanted, and spoke its lines. The last scene ended the conflict, with either a messenger’s account of the catastrophe or a god’s arbitrary resolution (*deus ex machina*).

Only a few plays of the classical era have survived. Aeschylus (525–456 B.C.E.), who invented the second actor and thus “fathered” Western drama, wrote the *Oresteia* (the only extant trilogy), *The Suppliant Women*, *Prometheus Bound*, and *The Persians*. Characterized by the beauty of the choral lyrics and by spectacular theatrical effects, these and his other plays express Aeschylus’s belief in human responsi-



Figure 1. (*Drama—History*) Comic mask from Minturnae. Roman Imperial period. The University Museum, Philadelphia. Neg. no. 23276.



Figure 2. (*Drama—History*) Tragic mask from Pompeii. Roman, first century C.E. Naples Museum. Art Resource, New York.

bility despite the operation of divine fate and in wisdom emerging from human suffering.

Sophocles (496–406 B.C.E.), who invented the third actor, increased the subtlety of characterization and complexity of plots. His plays, especially *Oedipus Rex*, are the basis of many of the critical dicta in ARISTOTLE'S *Poetics*. Sophocles depicts human suffering, evil and weakness, and the parlousness of life—but also the human potential for nobility. Euripides (484–406 B.C.E.) is notable for his religious skepticism and subtle depiction of psychology, most strikingly in his portrayal of mass hysteria in *The Bacchae*. Many of his works feature women, often in desperate situations: *Medea* (infanticide), *Hippolytus* (incest), *Electra* (matricide), and *The Trojan Women* (bereavement).

Greek COMEDY, which had its origin in Dionysian fertility rites, is erotic, ribald, and sometimes scatological; in addition, it often ridicules contemporary notables who were present during the performance. Comedies opened with a dramatic scene in which a character came up with a novel course of action, followed by the entrance of a fantastically garbed chorus that remained onstage throughout the play and took part in the action, the high point of which

was a contest (*agon*) between two opposing characters. In a harangue (*parabasis*) the chorus then presented the playwright's views. This was followed by a number of short scenes, and the comedy concluded with the resolution of the *agon*. The only surviving comedies are those of Aristophanes (448?–385? B.C.E.), best known for his *Lysistrata*, which portrays women conducting a sex strike to force their men to end the war between Athens and Sparta. Aside from the broad farce, a progenitor of vaudeville and burlesque, this “old comedy” excelled in the wit associated with the later comedy of manners.

Menander, Plautus, and Terence are the principal “new comedy” writers of the Greek and Roman theaters. Menander (343?–292 B.C.E.), an Athenian, wrote polished and highly praised comedies of which only a few fragments have survived. Plautus (254?–184 B.C.E.) adapted Greek plots to a Roman milieu, adding topical events and characterizations to broad and immensely popular comedy involving disguises and mistaken identities. Many of his plots were adapted by later playwrights, from William Shakespeare and Molière to Jean Giraudoux. Terence (190?–159 B.C.E.) wrote less broadly farcical adaptations from the Greek.

Roman tragedy is best represented by Seneca (4? B.C.E.—65 C.E.). His drama is presumed to have been written to be read rather than performed, is highly rhetorical (see RHETORIC), and stresses the brutal. Based on Greek legends, his *Medea*, *Agamemnon*, and other tragedies were widely studied in the RENAISSANCE.

Classic Asian Drama

The earliest Asian drama activity was in India, reaching its golden age in the fourth century C.E. It too had its origin in religious RITUAL and featured much stylized DANCE and music (see MUSIC THEATER—ASIAN TRADITIONS). Indian drama is based on sacred epics such as the Mahabharata and Ramayana. Kālidāsa, the greatest Sanskrit dramatist, is believed to have lived in the fifth century. He wrote highly poetic romantic comedies, his masterpiece being *Śakuntalā*, in which the royal marriage of the title character undergoes great trials before the happy resolution. The other well-known Indian drama is *Mṛcchakatikā* (The Little Clay Cart), reputed to have been written by King Śūdraka around the fourth century, a romantic comedy about a ruined merchant in love with a courtesan; it became popular in late-eighteenth-century Europe and influenced Johann Wolfgang von Goethe and other writers.

Chinese drama, although also highly stylized, is less dependent on dance and less inspired by sacred texts. The thirteenth- and fourteenth-century *k'un ch'u* is a type of music drama derived from the Peking OPERA; other plays were dramatizations of popular romances (see ROMANCE, THE), such as *Ki-pa-ki* (The Story of the Lute) and *Hoei-lan-kin* (The Chalk Circle),



Figure 3. (Drama—History) Toshusai Sharaku, *Kabuki Actors*, 1794. The Metropolitan Museum of Art, New York, The Elisha Whittelsey Collection, The Elisha Whittelsey Fund. (JP 3118)

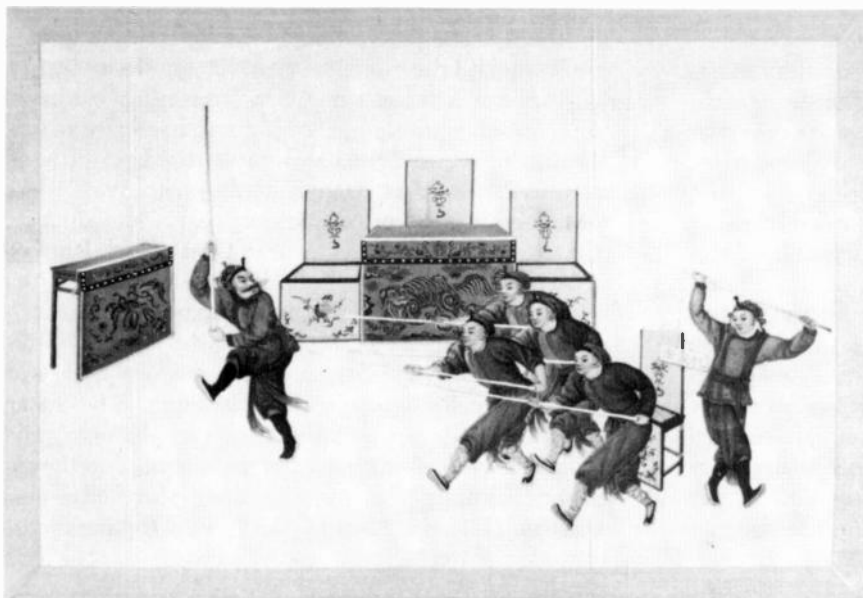


Figure 4. (Drama—History) Chinese theatrical scene, ca. 1860. Reproduced by courtesy of the Trustees of The British Museum.



Figure 5. (Drama—History) Henry Peachum, drawing on a page of manuscript, in *Titus Andronicus*, 1595: believed to be the only known contemporary representation of Elizabethan actors in costume. Reproduced by permission of the Marquess of Bath, Longleat House, Warminster, Wiltshire; and the Conway Library, Courtauld Institute of Art, London.

best known in the West because of its later adaptation by Bertolt Brecht.

Japanese drama, stemming from a period roughly paralleling the MIDDLE AGES, includes No and Kabuki. The former is Buddhist-inspired and highly stylized, performed for elite audiences, chanted and danced by masked actors, and about seven hours long. Although No dramas are informed by the Buddhist spirit, they often deal with feudal battles. One of the finest No plays is *Sobota komachi*, by Kwanaami Kiyotsugo (1333–1384), the dramatization of an arrogant noblewoman's expiation of her youthful sins. Kabuki, an offshoot of No, is popular episodic drama often adapting No plots. Its most prominent practitioner was Chikamatsu Monzaemon (1653–1724), and its best-known drama is Takeda Izumo's *Chusingura* (1748), dealing with forty-seven legendary outlaws.

Medieval Drama

Medieval Europe was a religious rather than a national community, its drama consisting of church-inspired, anonymous spectacles (see SPECTACLE) that were extensions of religious services and sermons. Tropes, brief Latin dramatic sketches, developed into the mystery, cycle, and morality plays characterizing this period. The mystery (or miracle) plays dealt with biblical subjects and included farcical interludes. Eventually these became cycles performed by guilds (labor unions) in town marketplaces. One of the finest of these is the Wakefield cycle, whose *Second Shepherds' Play* (early fifteenth century) follows three shepherds in their devout journey to the manger amid farcical episodes of the theft of a sheep. Morality plays were allegories personifying vices and virtues struggling for the possession of the human soul, as in the anonymous fifteenth-century *Castle of Perseverance* and *Everyman*.

Renaissance Drama

Drama flourished in the sixteenth and seventeenth centuries, culminating in what are still the masterworks of Western civilization: the plays of Shakespeare and his contemporaries, including the Spanish dramatists Lope de Vega and Pedro Calderón de la Barca. The perspective changed from theological preaching to humanistic explorations as the subject changed from the biblical and legendary to the psychology of complex individuals. Subtlety increasingly marked not only tragedy but also comedy.

The preeminent genius of the Renaissance theater was Shakespeare, whose tragedies, histories, and comedies have been performed throughout the world and translated into almost all languages. His *Hamlet*, *King Lear*, *Macbeth*, *Othello*, and other plays are so well known that poems, novels, and plays have been written about them: Tom Stoppard's *Rosencrantz and Guildenstern Are Dead* (1966), for example, is predicated on the audience's familiarity with *Hamlet*. Christopher Marlowe and Ben Jonson are the most notable of Shakespeare's English contemporaries; Marlowe first used the blank verse that became standard in Elizabethan drama, while Jonson wrote distinguished "comedies of humour," plays like *Volpone* (1607) and *The Alchemist* (1612) that caricatured personal vices.

The chief Spanish dramatists were the immensely prolific Lope de Vega, most of whose two thousand plays are cloak-and-dagger tragicomedies—although his best-known work, *Fuenteovejuna* (The Sheep Well, 1612), is a tragedy with a peasant hero; and Calderón de la Barca, who often wrote on religious themes, although his most popular play is *La vida es sueño* (Life Is a Dream, 1635), which portrayed a romantic search for the ideal and was adapted by a number of modern poets.

Neoclassical Drama

The seventeenth and eighteenth centuries, sometimes called the neoclassic age, are characterized by increasing dramatic variety. The order and unity associated with CLASSICISM and its reemergence are exemplified by the work of Jean Racine and Molière in France, but the equally distinguished Pierre Corneille and the English playwrights of the period typify a very different kind of drama.

Racine's work represents the high point of the revival of the Greek tragic spirit and the rigorous, simple structure of classic drama. His verse tragedy—*Britannicus* (1669), *Mithridate* (1673), and *Phèdre* (1677), among others—portrays destructive passions such as jealousy. Molière accomplished something similar with his “character comedies”: in the guise of simple, farcical plots without resolution of serious

underlying issues, his protagonists in plays like *Tartuffe* (1664), *Le malade imaginaire* (The Imaginary Invalid, 1673), *L'avare* (The Miser, 1668), and *Le misanthrope* (1666) are destroyed by passions whose comic portrayals closely skirt tragedy. Corneille subordinated classical doctrine to original and often romantic portrayals of heroes who seek glory and achieve their ideals—as in *Le Cid* (1637), his best-known drama.

In England, Restoration comedy—especially the plays of George Etherege (*The Man of Mode*, 1676), John Vanbrugh (*The Relapse*, 1696), William Wycherley (*The Country Wife*, 1675), and William Congreve (*The Way of the World*, 1700)—is characterized by sophisticated drawing-room wit in an artificial, ambience of the pursuit of riches and sensual pleasure. Despite its aberrant morality, this is possibly the finest high comedy ever written. The reaction



Figure 6. (*Drama—History*) John Barrymore as Richard III, New York, 1925. The New York Public Library at Lincoln Center, Astor, Lenox and Tilden Foundations. Billy Rose Theatre/Vandamm Collection.



Figure 7. (Drama—History) Molière as Sganarelle. After an engraving by Simonin. From Émile Dacier, *Le Musée de la Comédie-Française 1680–1905*, Paris: Librairie de l'Art Ancien et Moderne, 1905, p. 27.

following the outrage of succeeding generations produced only pale imitations in the sentimental comedies of Oliver Goldsmith (*She Stoops to Conquer*, 1773) and Richard Brinsley Sheridan (*The School for Scandal*, 1777) in the next century. In France the same period saw the biting satiric comedy of Pierre-Augustin Caron de Beaumarchais, whose *Le mariage de Figaro* (The Marriage of Figaro, 1784; more popular as the libretto of Wolfgang Amadeus Mozart's opera) anticipated coming political upheavals; his *Le barbier de Seville* (The Barber of Seville, 1775; also the libretto for an opera, this one by Rossini) similarly ridiculed the aristocracy.

Early Nineteenth-Century Drama

The end of the eighteenth and the start of the nineteenth century ushered in literary and artistic ROMANTICISM. In England, William Wordsworth and Samuel Taylor Coleridge's *Lyrical Ballads* (1798) marked the start of the movement that was to flourish with poets who also wrote closet and stillborn drama such as Percy Bysshe Shelley's *The Cenci* (1819) and Lord Byron's *Manfred* (1817), meant to be read rather than produced. It was in Germany that romantic drama was most successful, however. Goethe in *Götz von Berlichingen* (1773) and in the two-part *Faust* (1808–1832; the second part being a poetic drama that almost defies stage production) and Friedrich von Schiller in *The Robbers* (1782), *Wilhelm Tell* (1804), and other plays exemplified the Sturm und Drang (Storm and Stress) movement unleashed by Friedrich Maximilian von Klinger's 1776



Figure 8. (Drama—History) A scene from the commedia dell'arte. Reproduced from the *Recueil Fossard*, 1577. From Cesare Molinari, *La commedia dell'arte*, Milan: Mondadori, 1985, p. 102.

Je te tiens, le te tiens, ô traître, ô inhumain,
Tu as pris mon habit, pour aller par fauconné
Violer vne Dame, ou mon amour c'est mal:
Ses fust, c'est à ce coup q' mourras de ma main.

Pardonnez moy, Monsieur, he ne me ruez pas,
Je vous ren vostre habit, ne foyez fanguinaire,
Ou si de mes boyaux du bouillon voulez faire,
Attendez il vous plait, que fous va peu plus gras.

Hola, Seigneur Horace, appaisez la rancœur
Que portez à bon droit contre ce misérable. Inj.
Vous voyez qu'il vous fust vne arde de honteable,
Et qu'à genoux pardon il requiert de bon cœur.



Figure 9. (*Drama—History*) John Gielgud, Cyril Ritchard, and George Hays in William Congreve's *Love for Love*, New York, 1947. The New York Public Library at Lincoln Center, Astor, Lenox and Tilden Foundations. Billy Rose Theatre/Vandamm Collection.

play of that name. This movement's drama, often based on medieval characters and events and reflecting the gothic atmosphere of popular fiction, gloried in wild and untamed natural expression (see LITERATURE, POPULAR). In France the romantic call to arms was Victor Hugo's preface to his *Cromwell* (1827) and *Hernani*, which repeated the call in the poetic outbursts of the outlaw hero three years later, culminating in a hundred nights of riots championing the new freedom against the classicists.

Modern Drama: Ibsen to World War II

Modern drama started in the mid-nineteenth century with naturalism, REALISM, "well-made plays," problem plays, and various AVANT-GARDE movements that in time entered the mainstream. Well-made plays were the farces and intrigue plays of boulevard playwrights using standard formula plots predicated on a withheld secret, focused on a trivial object, and

climaxing with an "obligatory scene" in which the secret is revealed and resolved happily for the main character. Another popular type of drama was Grand Guignol, short sensational plays that titillated and terrified audiences with blood-curdling scenes of ghostly horror or frightening VIOLENCE.

Realism refers to staging as well as subject, character, and dialogue that seeks to convey the illusion of ordinary life. Naturalism is realism carried to extremes: graphic portrayals of seamy environments, poverty, misery, and sordidness. Problem plays subordinate timeless, universal issues to contemporary social ones. Such realistic types of drama should be distinguished from Soviet "socialist realism," which is optimistic, reflects political concepts, anticipates a socialist future, and depicts Soviet heroes. Avant-garde drama includes a number of types. EXPRESSIONISM characterizes drama that distorts external reality in order to express subjective inner reality. Surrealism depicts yet transcends reality by present-

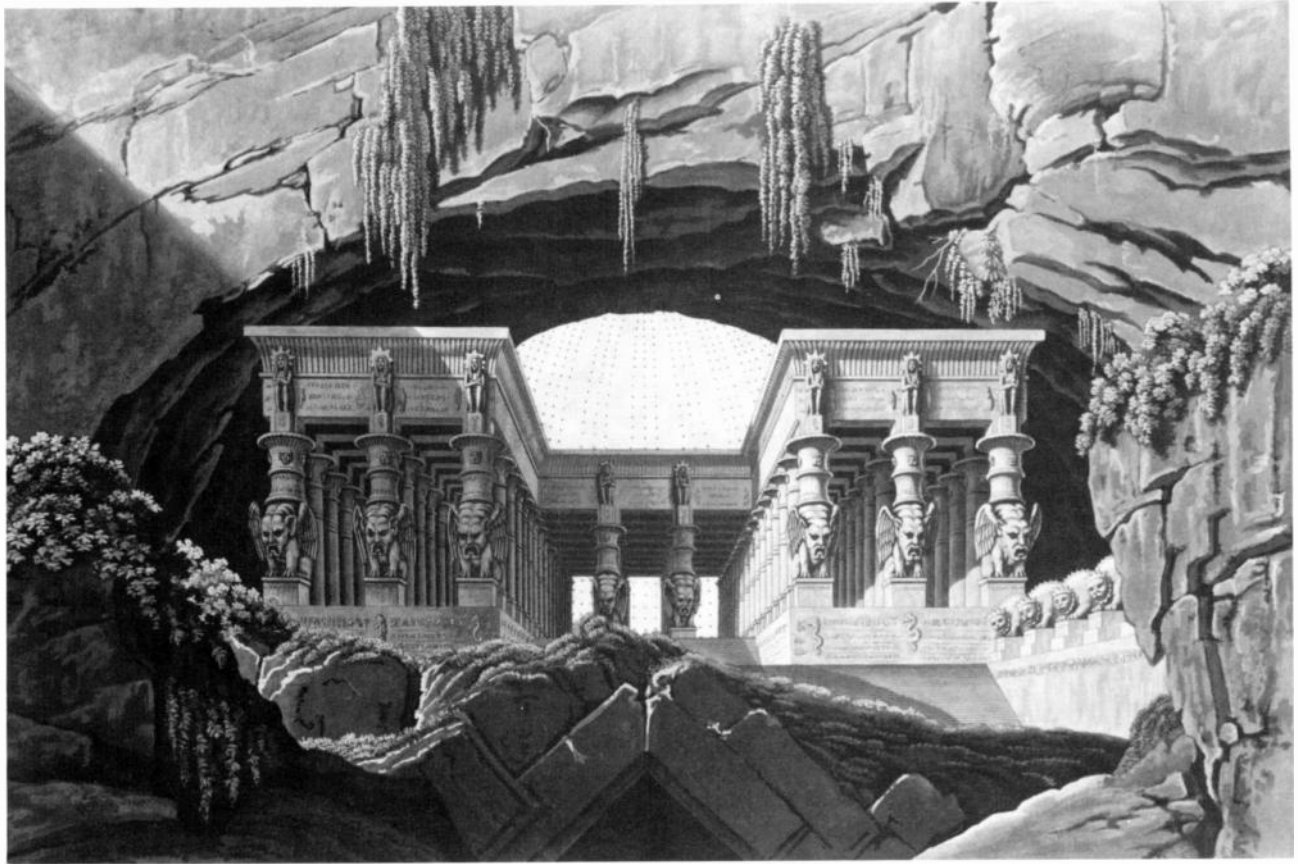


Figure 10. (Drama—History) Karl F. Schinkel, *Decoration for Mozart's Magic Flute, Act 1, Scene 1*, Berlin, 1816. The Metropolitan Museum of Art, New York, Whittelsey Fund, 1954. (54.602.1 [13])

ing the irrational and the unconscious. And dadaism, an extreme nihilist antiwar movement originating in 1916, attempted to match the horrors of war with the meaninglessness of modern values—just as futurism had done a few years earlier with the opposite aim of repudiating human values and glorifying ruthless power and the machine age.

The Norwegian Henrik Ibsen is the acknowledged founder of modern drama. *En dukkehjem* (A Doll's House, 1879), *En folkefiende* (An Enemy of the People, 1882), *Gengangere* (Ghosts, 1881), and *Hedda Gabler* (1890) are foremost among the plays introducing realism and publicizing contemporary social problems caused by archaic laws and beliefs. Ibsen's rival, the Swedish playwright August Strindberg, an even more prolific and innovative Scandinavian, has almost equal claim to be called the founder of modern drama; naturalistic plays like *Fröken Julie* (Miss Julie, 1888) and *Fraden* (The Father, 1887) also ushered in the realism of twentieth-century drama, while *Till Damascus* (To Damascus, 1898–1904), *Spöksonaten* (Ghost Sonata, 1907), and *Drömspelet* (A Dream Play, 1902) were innovative not only for

their own time but also for later decades. A third giant is [George] Bernard Shaw, who championed and helped establish Ibsen's work and in his many plays—*Pygmalion* (1913), *Saint Joan* (1923), *Heartbreak House* (1919), *Man and Superman* (1903), and more than fifty others—wittily dealt with all areas of human endeavor, attempting always to instill fresh insights into contemporary as well as timeless problems. Still other architects of modern drama are the Russian Anton Chekhov, whose *Vishnyovy sad* (The Cherry Orchard, 1904) and other plays successfully dramatized the humdrum and nonsequential speech characteristic of everyday life, and the Italian Luigi Pirandello, whose preoccupation with the relativity of reality is powerfully dramatized in *Sei personaggi in cerca d'autore* (Six Characters in Search of an Author, 1921) and other plays notable for their mixture of celebration and melodrama. Chekhov's and Pirandello's plays, even more than those of the other early moderns, are fusions of comedy and tragedy—the modern drama that can no longer be classified in either category.

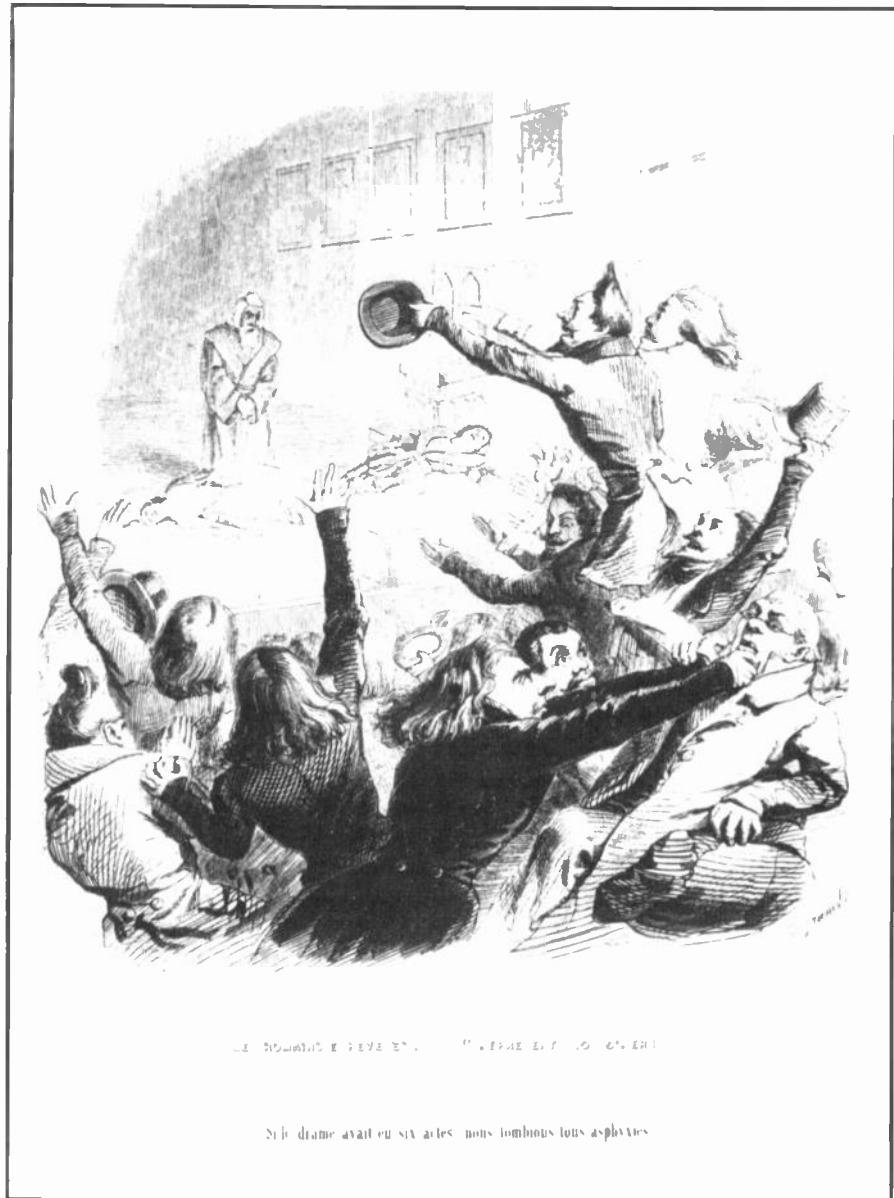
The countless other dramas of this period include

some excellent poetic plays, such as the tragedies of Federico García Lorca (*Bodas de sangre* [Blood Wedding, 1933]; *Yerma*, 1934; and *La casa de Bernarda Alba* [The House of Bernarda Alba, 1945]) and the tragicomedies of the Irish playwrights J. M. Synge (*Playboy of the Western World*, 1907) and Sean O'Casey (*Juno and the Paycock*, 1924); the "epic" plays of Brecht (*Mutter Courage und ihre Kinder* [Mother Courage and Her Children, 1941]; *Leben des Galilei* [Galileo, 1943]; *Der kaukasische Kreidekreis* [The Caucasian Chalk Circle, 1948]; and others), whose attempts at didacticism are constantly overshadowed by his artistry; and the plays of U.S. dramatist Eugene O'Neill, whose mordant masterpieces are *The Iceman Cometh* (1946) and *Long Day's Journey into Night* (1956).

Drama since World War II

Contemporary drama takes many directions. In the United States the first important playwrights were Arthur Miller and Tennessee Williams. In *Death of a Salesman* (1949) Miller fused realism with cinematic cross-cutting that jumbles time as it portrays the thought processes of a failing businessman in a society that extols immoral values. Williams, in plays like *The Glass Menagerie* (1945) and *A Streetcar Named Desire* (1947), combined lyricism and symbolism in depicting the decline of gentility and the growth of urban savagery. In England, John Osborne's *Look Back in Anger* (1956) articulated post-war frustrations and launched a middle- and lower-class naturalistic drama.

Figure 11. (*Drama—History*) The opening night of *Hernani*, by Victor Hugo, 1830. Etching by J. J. Granville. The caption reads: "Disheveled Romans at the first performance of *Hernani*. A sixth act would have suffocated us all." Musées de la Ville de Paris © by Spadem 1987.



LE ROMAIN ET LE VEVE EN "EPHELE" O. G. ENI

Si le drame avait eu six actes nous tombions tous asphyxiés



Figure 12. (*Drama—History*) Lotte Lenya in Bertolt Brecht's *Mutter Courage und ihre Kinder* (*Mother Courage and Her Children*). Courtesy of the German Information Center.

But it was absurdism that produced the most notable postwar drama, matching an atmosphere of existential despair with an apparent lack of form and absence of MEANING in plot and dialogue that reflect the portrayed meaninglessness of existence. The first and most purely absurdist plays were *La cantatrice chauve* (*The Bald Soprano*, 1950) and *La leçon* (*The Lesson*, 1951), by Eugène Ionesco. But elements of this dramaturgy are important aspects in the work of the playwrights Samuel Beckett and Harold Pinter. Beckett's *Waiting for Godot* (1953) became the most influential play of the century, expressing the entropy that is even more devastating in his *Endgame* (1957). Pinter's "comedy of menace," beginning with *The Birthday Party* (1958) and *The Caretaker* (1960), combined farce with terror.

Avant-garde drama has found modern expression in multimedia productions such as Robert Wilson's *Einstein on the Beach* (1976), while the social upheavals of the 1960s and 1970s are reflected in the Artaud-inspired "drama of cruelty," such as Jean

Genet's *Le balcon* (*The Balcony*, 1956). Throughout, the commercial THEATER has continued to produce musicals and romantic comedies, yet even these have absorbed innovations that have entered the mainstream of popular drama. See MUSIC THEATER—WESTERN TRADITIONS.

These innovations have also entered the mainstream of other drama. Alongside the classic oriental drama, for example, the influence of modern Western drama has been felt in Asia and in Africa. It was introduced in India by the British in the nineteenth century, with the Hindu poet and philosopher Rabindranath Tagore becoming the first world-renowned modern playwright in Asia. He fused indigenous Indian folk drama and literary Western drama in some forty plays, most of them short, lyrical works like *Visarjan* (1890) and *Chandalika* (1933). Some decades later the left-wing writer Khwaja Ahmed Abbas depicted Muslim peasant life in popular drama that resembles the tendentious "Living Newspaper" theater of the 1930s and advocates harmony with Pakistan.

In Japan the first departure from classic drama occurred at the start of the twentieth century with *Shimpa*, a type of sentimental melodrama. The most distinguished modern Japanese drama is that of Yukio Mishima, the charismatic, militant patriot whose novels and plays received worldwide prominence; he rewrote No plays into lyrical and erotically charged dramas such as *Sotoba komachi* (1952) and *Hanjo* (1955), providing them with modern settings and a merging of oriental and occidental themes.

Modern Chinese drama began in 1907 with *hua chu* (talking drama), consisting of adaptations of popular Western plays such as *Uncle Tom's Cabin* and *La dame aux camélias*. Subsequent drama consisted principally of state-subsidized left-wing revolutionary drama. The doyen of Communist Chinese playwrights is T'ien Han, a prolific translator as well as author of many didactic plays such as *Hsieh yao-huan* (1961). Hsiung Fo-hsi was a leading popular dramatist whose plays were written to educate the peasantry. Much modern Chinese drama tends to confine itself to polemics.

African drama is relatively new and reflects centuries of COLONIZATION by various European countries. It is European in form but distinctly native in setting, atmosphere, and theme, and it often reflects the violence of national liberations as well as inter-racial struggles. The leading African playwrights, mainly Nigerian, have written in English. The plays of John Pepper Clark, such as *Song of a Goat* (1961) and *Ozidi* (1965), are heavily symbolic, with classical choruses and declamatory verse. Wole Soyinka is equally prominent as a poet and novelist; his works—notably *The Lion and the Jewel* (1963) and *The Trials of Brother Jero* (1964)—have reinvigorated

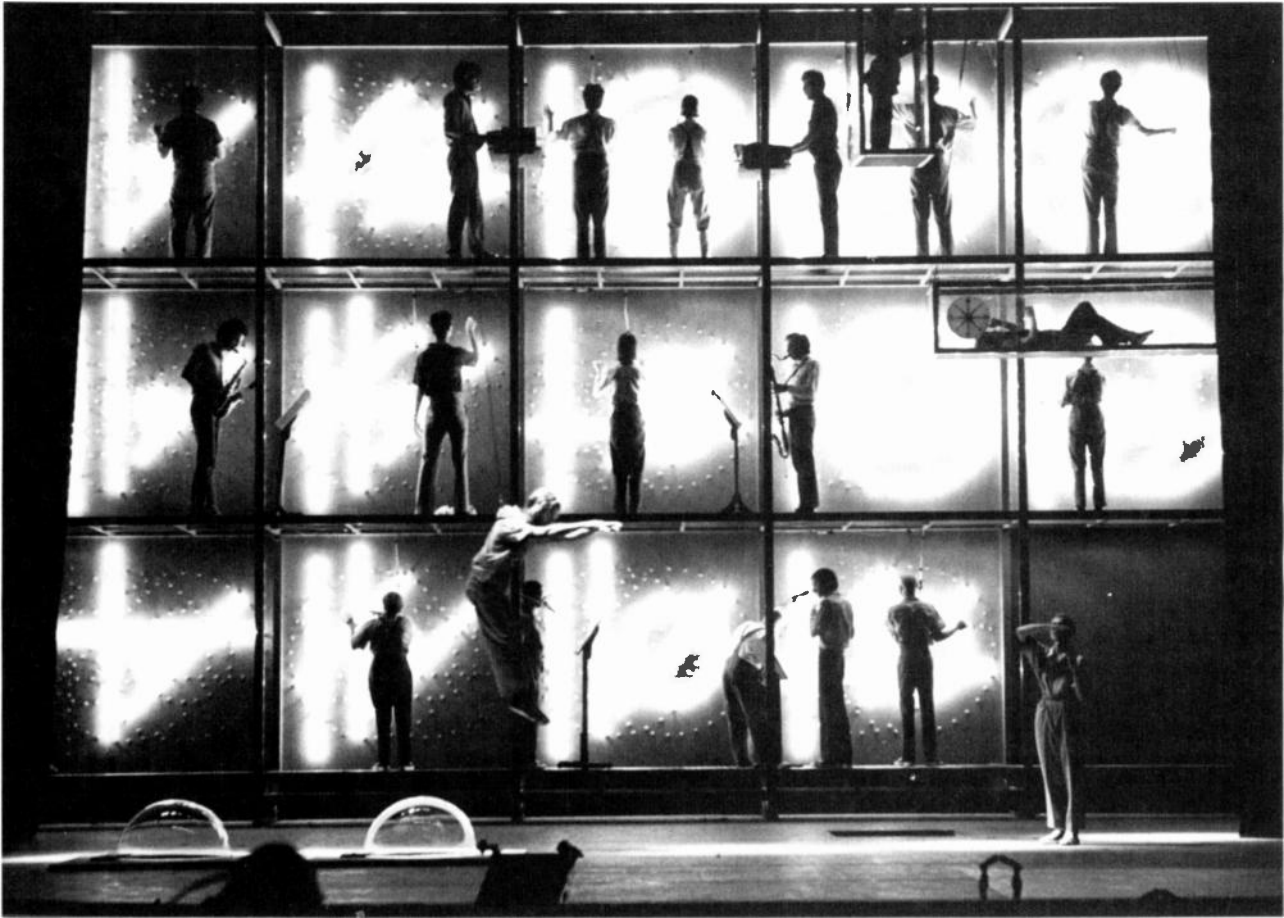


Figure 13. (*Drama—History*) Robert Wilson, *Einstein on the Beach*, Act IV, Scene 3C (Spaceship), 1976. Photograph copyright Babette Mangolte. All rights reserved.

English-language drama in which tribal customs and people appear in a dramaturgical mixture of the indigenous and the European.

See also FICTION; FICTION, PORTRAYAL OF CHARACTER IN. For drama forms in new media, see RADIO; TELEVISION HISTORY; VIDEO.

Bibliography. Margarete Bieber, *The History of the Greek and Roman Theater*, 2d ed., Princeton, N.J., 1961; Faubion Bowers, *Theatre in the East: A Survey of Asian Dance and Drama*, New York, 1956, reprint 1969; M. C. Bradbrook, *History of Elizabethan Drama*, 6 vols., Cambridge, 1979; E. K. Chambers, *The Medieval Stage*, 2 vols., Oxford, 1903; Barrett H. Clark and George Freedley, eds., *A History of Modern Drama*, New York, 1947; *Enciclopedia dello spettacolo*, 9 vols., Rome, 1954–1964, *Aggiornamento*, 1955–1965 (1966), and *Indice—Repertorio* (1968); Martin Esslin, *The Theatre of the Absurd*, 3d ed., Harmondsworth, Eng., and New York, 1980; John Gassner, *Masters of the Drama*, 3d ed., New York, 1954.

MYRON MATLAW

2. PERFORMANCE

When asked to define THEATER, John Cage answered, “I would simply say that theater is something which engages both the eye and the ear. . . . The reason I want to make my definition of theater that simple is so one could view everyday life itself as theater.” Cage says the one who looks is the one who “sees theater.” But the theatrical frame could also be defined by the maker of the event: anything I do that I call theater is theater. This is the attitude of many performance artists.

Both these definitional stances are extremely inclusive. By contrast the most conservative definitions apply rigorous aesthetic/structural criteria to events, as ARISTOTLE does when defining TRAGEDY: “A tragedy is the imitation of an action with enough magnitude to be complete in itself; in language pleausurably embellished . . . ; performed, not merely recited; with incidents arousing pity and fear in order to effect a catharsis of such emotions.” Elegant as these kinds of definitions are, they cause trouble when

frozen into rules that artists must comply with. From the late MIDDLE AGES until the nineteenth century, Western dramaturgy was hobbled by restrictive interpretations of Aristotle's description of Attic theater.

Issues in the Study of Theater

Theater is a subcategory of PERFORMANCE, a wide-spectrum term covering diverse arts, activities, and behaviors. These performative activities could be arranged on any of several continua:

- according to the relative "artificiality" of the activity of GENRE—from photo-realism and naturalism to the most fantastic representations of kathakali or Papua New Guinea masked theater (see MASK);
- according to the amount of formal training needed in order to perform;
- according to the presence or absence of a well-defined audience separate from the performers and the concomitant liking for or aversion to audience participation: a black church service in the United States fails if the audience does not participate, whereas a ballet fails if the audience does;
- according to the relationship between theater space and theatrical event—ranging from differences between the behavior of table servers in a diner and those in a fancy restaurant to differences between the impromptu shows of street performers in the marketplace and performers in giant performing arts centers, formal OPERA houses, and domed stadiums;
- according to the social and ontological status of who is performing and who is being performed—from sacred beings ritually summoned into the here and now by priests or other masters of sacred ceremonies to the most banal characters of a SOAP OPERA played by professional actors.

The taxonomical problem is further complicated because frequently a single performance mixes several categories.

Theater is transformative and transgressive. Its fundamental impulse is to create living beings or to summon into the here and now beings who otherwise exist only in nonordinary spheres usually inaccessible to humans. This fetching from beyond is a dangerous business, godlike in its audacity, and mischievous. That is why in so many genres around the world (and as early as the fifth century B.C.E. in Greece) tragedy was closely linked to farce. A set of three Greek tragedies was followed by a satyr play, one of which—Euripides' *Cyclops*—survives. In the Indian Sanskrit theater of the fourth to eighth centuries the stage manager (surrogate for the author/director) was also the clown who made the plot go, arranging or misarranging things. U.S. playwright Thornton Wilder used such a stage manager in *Our Town*. Of

course, Shakespeare well understood "fools," whose stupidity is cleverness and whose innocence guile. In Japan, in a full day's program, five serious No alternate with four farcical Kyogen. African DANCE-theater likewise mixes the serious with the satiric and farcical. In the Arctic and elsewhere the jokes and tricks of shamans are integral parts of their healing performances.

Theater demands trained, costumed, and often masked performers enacting narratives. Some theaters—especially modern Western drama—emphasize spoken dialogue. But dialogue is not essential to theater. What counts is the systematic interplay among a complex set of behaved performance texts. The kathakali of Kerala in southwestern India combines sung poetic narration, robust dancing, and facial displays of emotion with a fully developed language of hand gestures called mudras. As the musicians drum, clang cymbals, and sing, the ornately made-up and costumed actors dance out the stories, signing dialogue and emotions with their hands, eye gestures, and expertly controlled footwork. The kathakali performer is rigorously trained in dancing, eye and facial gesturing, and mudras. Through constant practice beginning at about age eight and continuing for six to eight years, the actor's body is literally reformed to suit this demanding art. The intentions of kathakali are entirely different from those of naturalistic drama, which attempts to simulate ordinary reality. Speaking at the start of the twentieth century, Russian actor and director Konstantin Stanislavsky said he wanted spectators to feel not that they were at the theater but that they were visitors to households, looking through invisible fourth walls. Kathakali, on the other hand, creates its own worlds fabulously separate from ordinary reality. See also EYES; FACE; FACIAL EXPRESSION; GESTURE; SIGN LANGUAGE—ALTERNATE SIGN LANGUAGES.

In theatrical naturalism it is presumed that the roles played are being skillfully pretended by the actors. In other genres, such as Balinese Sanghyang or Yoruba Egungun, the performers are not playing roles: they are possessed. Beings—gods, demons, ancestors—take over the performers. Theater by means of spirit possession is probably very ancient, connected as it is with ancestor worship, death cults, and various other religious and shamanic rituals.

In the Ramlila—a great cycle play of Hindi-speaking northern India depicting the life of Rama—barely adolescent boys enact the deeds of Rama; his wife, Sita; and his brothers, Lakshman, Bharat, and Shatrughna. They are joined by adult actors playing such roles as Hanuman, the monkey-general, and Ravana, the ten-headed demon king of Lanka. The adults, some of whom have performed their roles for decades, are presumed to be performing in the ordinary sense. But the boys playing the gods are different.



Figure 1. (*Drama—Performance*) A kathakali performer. From Clifford R. Jones and Betty True Jones, *Kathakali: An Introduction to the Dance-Drama of Kerala*, San Francisco: The American Society for Eastern Arts, 1970, p. 100.

They are called *swarups*—literally “temple images”—and they are thought to be as sacred as any temple icon. Once the *swarups* are costumed and the headpieces signifying their divinity are in place, spectators press in to glimpse the boys-icons-gods. The *swarups*’ adventures and the texts they recite form a key part of the ethical, religious, literary, and artistic education of most North Indian Hindus.

From its development in Japan in the thirteenth century No masked theater has stood between the extremes of pretending and actualization. As No actor Takabyashi Koji said, “If I know six months ahead of time that I am going to perform a given mask I can look at it everyday—I can see what the mask is, what it gives me. Or, on the other hand, if I receive a mask but don’t know what to use it in, I will study the mask every day till it suggests a play

for me to use it in. The mask influences my state of mind, my body.” Immediately before entering the stage the No actor looks in the mirror at himself fully costumed and masked. What he sees is not himself and not his character, but a being in between, an incompletely transformed being and therefore one still restlessly “in life.”

Theater employs a variety of texts, only one of which is verbal. In addition to what is spoken or sung there is the *mise-en-scène*—exactly how the actions of a performance are staged. In many parts of the world *mise-en-scènes* are more or less fixed. The meaning of the performance is expressed more in the staging of events than in what the performers say. This is certainly true of many RITUAL performances. In aesthetic theater the *mise-en-scène* is frequently treated with extreme respect. It is unthinkable

for a young No or Kabuki actor to revise the actions of a play. Only the most respected senior members of a company are entitled to make revisions in staging. The German playwright-director Bertolt Brecht— Influenced greatly by Chinese theater— assembled *Modellbücher*, photographically detailed accounts of his mise-en-scènes. The mainstream modern Western way—wherever it is practiced, in New York, New Delhi, São Paulo, Nairobi, or Tokyo—is to invent new mise-en-scènes suiting either new or old verbal texts.

Modern Western theater emphasizes verbal texts because these persist in time and can be used as the basis for making new mise-en-scènes, which can be studied separately long after a given performance is over. But in nonmodern, premodern, and postmodern genres—street performance, popular ENTERTAINMENT, circus, performance art, and many of the performing arts of Africa, Asia, and Native America—the main weight of meaning and affect is borne by mise-en-scène, scenography, NARRATIVE, costume, mask, music, dance, and audience-performer interaction—the interplay of multiplex performance texts. Scholars are paying increased attention to this INTERTEXTUALITY.

Theater and Other Performative Genres

The performative genres—from theater to ritual, SPORTS, PLAY, and performance in everyday life—are always mixing and feeding one another. Artists even

in the most traditional cultures are frequently heedless of boundaries. Furthermore there is a continuous interplay among genres and between the so-called high arts (codified, classical, elitist) and the popular arts (improvised, widespread). Theater, like music, constantly absorbs into its classical repertory items transcribed from folk and popular culture (see also FOLKLORE). And, conversely, what is happening in the centers of classicism (however defined) is later reflected in the outlands. In India there is the age-old relationship between the Sanskrit and the *adavasi* (aboriginal) cultures; in late-twentieth-century theater in the United States painting, dance, music, and theater have various points of contact, as do these high arts and television (see TELEVISION HISTORY), movies (see MOTION PICTURES), sports, and questionable entertainments like PORNOGRAPHY.

Ritual and theater mix well. The Yaqui of Mexico and Arizona celebrate a Lenten cycle they call Waehma. Beginning the first Friday after Ash Wednesday and culminating with the redemption of the whole Yaqui community on the Saturday before Easter, Waehma combines Native American ritual clowns and deer dancers with early RENAISSANCE Spanish staging conventions and narratives introduced to the Yaqui by Jesuit missionaries in the seventeenth and eighteenth centuries. Waehma employs both outdoor processions around the way of the cross and more private ceremonies inside individual homes. Strictly Catholic ritual imported from Europe is balanced against the drama of pre-



Figure 2. (*Drama—Performance*) *Oedipus Rex*, directed by Tyrone Guthrie, at the Stratford (Ontario) Shakespearean Festival Theatre, 1954. The New York Public Library at Lincoln Center, Astor, Lenox and Tilden Foundations. Billy Rose Theatre Collection. Copyright by McKague, Toronto.



Figure 3. (*Drama—Performance*) Japanese Gigaku masks, Muromachi period. Tokyo National Museum. Photographs courtesy of the International Society for Educational Information, Tokyo, Inc.

Columbian Native American masked characters called *Chapayekas* who are enlisted in the pursuit and crucifixion of Jesus.

On Good Friday night the *Chapayekas*, led by Judas, their saint, celebrate the crucifixion by dancing drunkenly around a crèche/bier containing a small figure of Jesus on the cross. But sometime during this mock fiesta Jesus is taken away (he is resurrected) and a teddy bear is substituted. By the time the *Chapayekas* discover the trick, their anger is rendered helpless by drunkenness. But both anger and inebriation are acted: during the holy weeks of Lent no Yaqui, especially ones dedicated to the sacred role of *Chapayeka*, tastes alcohol. Defeated, the *Chapayekas* slink away. But on Saturday morning, joining with their allies, the soldiers of Rome, they storm the church three times in an attempt to recapture Christ, never suspecting that he is already resurrected. This time the forces of evil are transformed by the blood of Jesus—represented by leaves and flowers—showered on the *Chapayekas* and soldiers by pascolas (dancers), deer dancers, matachini, and a great crowd of spectators. The *Chapayekas* finally

enter the church, not as enemies of Christ but as Yaqui men desirous of redemption. Kneeling, they receive blessings. Then begins the year's biggest fiesta, featuring deer dancers, pascolas, and the life-giving matachini dancers. The deer dancers and pascolas are pre-Columbian; the matachini derive from Europe.

Categories slip. Underneath all performative genres—or, better, permeating all performative behavior—is play. Play is the essence of what anthropologist Victor Turner called the “subjunctive mood,” the provisional, the open, the antistructural. What human rigidity proposes as law, settled opinion, and fixed tradition, play undermines, transforms, and recreates. Play is a manifold and subversive set of strategies, including trickery, parody, satire, and irony, that confers ontological status to lying. In the state of fecund DECEPTION humans invent unreal (as yet uncreated) worlds. Performance is the way these worlds take concrete shape in time and space, expressed as gestures, dances, words, masks, music, and narratives. Even in the Western theatrical tradition some characters and stories—Oedipus, Hamlet,

Willy Loman, Blanche Dubois, Godot—achieve a kind of archetypal/mythic status. These narratives/characters persist over time; they are re-created by generations of actors, each of whom stamps them with a particular meaning. In addition to these characters, certain roles—the Mother, the Soldier, the Artist, the Judge, the Priest, the Wife, the Farmer, plus many others—achieve concrete shapes and rhythms.

Of course, different cultures handle their own stories/characters/archetypes differently. Specifying those differences is a way of comprehending divergent cultural processes. For example, artists, critics, and spectators of modern Western theater demand “new” and individuated versions of characters/narratives, whereas Japanese Kabuki actors happily give up their born names for the names of great actors of past generations. Kabuki performers submerge much of their individual creativity in the collective. Among the Kwakiutl of the U.S.-Canadian Pacific, masks, dances, and stories are valuable inheritable properties. The owner of a mask/dance can perform it himself or invite someone else to perform it for him, in which case the main honor of the performance goes not to the dancer but to the owner.

Developmental Phases

Although there are no universals of theater or theatricality, there is a seven-phase developmental sequence of activities that can be used interculturally to place various genres and styles. The seven phases are training, workshop, rehearsal, warm-up, performance, cool-down, and aftermath. The first four phases are preparatory; the last two follow a performance. Not every genre in all cultures uses all of these in making, displaying, and evaluating performances. What is emphasized or omitted can reveal a great deal. In *No* there are years of training and careful preparations before a performance but little or no rehearsal. Experimental theater emphasizes workshops during which details of the performance texts are painstakingly deconstructed and reconstructed. Stanislavsky and Brecht took up to two years to rehearse particular performances. Balinese Sanghyang is neither rehearsed nor trained for, but many preparations are made beginning several weeks before a trance dance. Western and Indian scholarship from their very inceptions have emphasized aftermath: detailed postperformance discussions, analysis, and theorizing. Whole books—like the Sanskrit *Natyasastra* (second century B.C.E.—second century C.E.) and Aristotle’s *Poetics* (fourth century B.C.E.)—are devoted to specifying the exact nature of theater.

What all theatrical performances share—their underlying unity despite the tremendous diversity of

styles, intentions, audiences, and occasions—is a quality of “twice-behaved behavior”: “restored behavior.” Such behavior—whether in a theater or in a life role, as part of a popular entertainment or a ritual, as a way to tell the truth or as a con game—is practiced, rule-governed behavior, trained for, rehearsed, previously known, or learned by osmosis (as Balinese or Pentecostals learn how to go into trance). Because performance behavior is not free and easy it never wholly belongs to the performer; it is always “other.” As such it is well suited to represent or call into being nonordinary and non-human figures and worlds of experience; and it can be effectively codified, manipulated, reified, rearranged, and transmitted across time and space.

See also MUSIC HISTORY; MUSIC PERFORMANCE; MUSIC THEATER.

Bibliography. Keir Elam, *Semiotics of Theater and Drama*, London and New York, 1980; *High Performance* (magazine), Los Angeles, 1978–; Kunio Komparu, *The Nob Theater* (*No e no izanai*), New York, Tokyo, and Kyoto, 1983; Patrice Pavis, *The Languages of the Stage*, New York, 1982; Richard Schechner, *Between Theater and Anthropology*, Philadelphia, 1985; Edward H. Spicer, *The Yaquis*, Tucson, Ariz., 1980; Victor Turner, *From Ritual to Theater: The Human Seriousness of Play*, New York, 1982; idem, *The Ritual Process*, Chicago, 1969, reprint Ithaca, N.Y., 1977; Phillip Zarrilli, *The Kathakali Complex*, New Delhi, 1984.

RICHARD SCHECHNER

DURKHEIM, ÉMILE (1858–1917)

French sociologist. Émile Durkheim, whose concept of social reality assigns a central role to communication processes, had a wide influence on methods and theories of modern social science. Born in the Lorraine area of France near Strasbourg, Durkheim studied philosophy at the University of Paris, where he obtained his Ph.D. in 1893. His interest in political and social thought led him into the newly emerging field of sociology. In 1887 Durkheim had begun teaching sociology and education at the University of Bordeaux, and in 1902 he moved on to the Sorbonne. He became a follower of Auguste Comte and pressed for a recognition of sociology as a science, stating that sociology’s main goal was to show that social forces are “real.” Social reality is not the same as psychological or biological reality. A social system generates a reality *sui generis*.

Durkheim’s contributions to communication lie in his argument that people imbue a wide variety of objects, places, events, signs, and symbols with special qualities and meanings. (see ARTIFACT; SIGN; SYMBOLISM). These qualities transform otherwise ordinary

objects or events into something extraordinary. More specifically, the object is transformed from something without social implications (a profane object) into something that has social implications. Durkheim argued that such objects, which he referred to as "collective representations," acquire their significance through collective social processes and, in turn, are significant insofar as they are relevant to collective interests. One particularly interesting form of collective representation is the sacred event or sacred literature (see RITUAL; SCRIPTURE). The very sacredness of such literature removes it from individual criticism and grants it special collective powers that ordinary people or conditions cannot transcend. Collective representations are communicated and facilitate communication. They have the ability to generate massive collective actions. See also MEANING.

How this process works can be illustrated by society's definition of crime, which results from what Durkheim postulated as the "collective conscience." He observed that punishments often far exceed any kind of balanced response to possible physical or personal injuries suffered from the crime. In fact, some crimes do not appear to create any physical damage and yet may be punished with astonishing ferocity. Durkheim claimed that the intensity of the punishment was a consequence of the extent to which the criminal action violated the collective conscience. Crime does not violate the collective conscience because it is inherently bad; instead it is seen as bad because it violates the collective conscience.

Durkheim also argued that crime is normal to any society. Just as a psychologist might struggle with the idea of what constitutes a normal personality or normal behavior, Durkheim struggled with the problem of what constitutes a normal society. One of the qualities of any normal society is that crime will be a part of the system. In effect, there have to be some "wicked" people in order for there to be a group that can identify itself as "good." This was a novel argument for the late nineteenth century and remains so for the present time. It suggests that crime is a structural element of all societies and is a sociological condition as much as a psychological one.

However much social reality is merely a fabrication or construct, its effects on the individual and society are profound. For example, Durkheim's *Le suicide* (1897) was a brilliant attempt to demonstrate that individualistic actions are associated with complex social forces. One form of suicide, which Durkheim referred to as "anomic suicide," is a result, he argued, of the individual's disengagement from social constraints. Communities in which individualism is an important part of life will more likely have higher suicide rates than those in which individualistic philosophies are muted. Drawing on statistics available at the time, Durkheim noted higher suicide rates



Figure 1. (Durkheim, Émile) Émile Durkheim. The Bettmann Archive, Inc.

among Protestants (an individualistic religion) than among Catholics. A methodological tour de force for its time, Durkheim's study of suicide was among the earliest endeavors to bring a systematic, sophisticated use of statistical data to bear on a social issue.

In *Les formes élémentaires de la vie religieuse* (The Elementary Forms of the Religious Life, 1912) Durkheim examined the effects of social constructs on society. Here he argued that religious beliefs are associated with the forms of social organization adopted by any given people. For example, in societies organized in terms of simple clans the idea of a dominant God figure struggling to maintain equilibrium between the forces of good and evil is not likely to occur. In societies organized in terms of competing major units (e.g., the city-state) religious IDEOLOGY creates an anthropomorphized form of God in which the deity struggles with competing spiritual or otherworldly units. In other words, Durkheim claimed that religious belief is a kind of primitive sociology. It is a mythical representation of the abstract and powerful forces of social integration and disintegration. See also RELIGION.

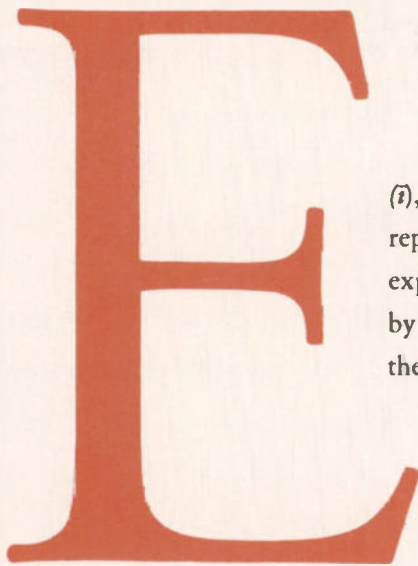
The effects of social constructs, Durkheim observed, can become quite complex, with some social events the product of other social events. For example, war is a social occurrence best understood by examining other social conditions that bring it into being rather than by relying on simplistic psychological or biological factors to account for it. (The elemental argument here is that psychological and biological factors are essentially constant in large populations over time; therefore they cannot be relied on as explanations of the fluctuations between peace and war in social systems.) Durkheimian sociology was intended as an antidote to the trend in the late nineteenth century to seek biological and psychological explanations for complex social occurrences—a trend that has continued into the present time.

Thus a Durkheimian perspective makes us aware of the extent to which social reality is a “communicated” form of reality. Any kind of social observation is completely dependent on what we are told the social situation is. We cannot, for example, even observe a “professor” until we are informed in some

manner that we are in the presence of a person of this status. Because social character—as opposed to purely physical qualities—is derived from complex forms of symbolic communication and resides within these communication systems, the validity of social reality can be no greater than the validity of the communication on which it rests. It is important that social reality be presented as authentically as possible if appropriate social interactions are to take place.

Bibliography. Émile Durkheim, *The Division of Labor in Society* (De la division du travail social), trans. by George Simpson, New York, 1933, reprint (new trans. by W. D. Halls) New York, 1984; idem, *The Elementary Forms of Religious Life* (Les formes élémentaires de la vie religieuse), trans. by J. W. Swain, London and New York, 1926, reprint London, 1976; idem, *The Rules of the Sociological Method*, 8th ed. (in French), ed. by George E. A. Catlin, trans. by S. Solovay and J. Mueller, Chicago, 1938, reprint New York, 1964; William D. Perdue, *Sociological Theory: Explanation, Paradigm, and Ideology*, Palo Alto, Calif., 1986.

EDITH W. KING AND R. P. CUZZORT

A large, bold, red capital letter 'E' in a classic serif font, positioned on the left side of the page.

(*ē*), the fifth letter of the Roman alphabet, represents historically the Semitic \aleph , which originally expressed a sound resembling that of *h*, but was adopted by the Greeks (and from them by the Romans) as a vowel, the pronunciation of which probably varied from the 'mid-front' (*e*) to the 'low front' (*ɛ*) vowels of Bell's system. In the Roman as in the earliest Greek alphabet, the letter represented the long as well as the short quantity of the vowel.

EAST ASIA, ANCIENT

We know a great deal about how information, ideas, and attitudes were communicated in ancient East Asia—more than we know about Europe in various comparable periods. There are several reasons for the richness of the record. The relative social stability of China, which was the dominant power in the region, made possible an uninterrupted record, throwing light on administrative, educational, and other matters. Chinese, Japanese, and Korean elites all valued LITERACY and WRITING. In addition, they aspired to serve in the central government bureaucracies, which kept exhaustive records and sponsored publication. Another factor was the written LANGUAGE—literary Chinese—which was employed throughout East Asia. Finally, for nearly a thousand years widespread PRINTING ensured the survival of books and a common stock of knowledge among those who could read.

Education. EDUCATION throughout East Asia for the last two thousand years has stressed formation of character on classical models. The overt purpose of TEACHING was not to disseminate knowledge, to socialize, or to develop individuality, but to pass on a “way” (*dao*) of living, of seeing, of doing something as it should be done. A “way” united knowledge, understanding, skill, and norm.

Children who had the opportunity to be educated spent years chanting the written classics. Only when the words of the teachings were firmly in memory did the teacher expound them. The result was profound internalization of values. This process created an elite that shared a broad and deep CULTURE and could transmit subtle meanings through allusion. Their knowledge filtered down to the illiterate, binding together a community of values that even rebels rarely challenged.

Education began in the family (although fathers did not normally teach their children) and in 500 B.C.E. still covered a variety of practical arts. By 200 B.C.E. it had become largely bookish. The state had appointed “professors” to ensure that texts of the several competing philosophic schools were kept intact and taught. By 100 B.C.E. an imperial “university” had been formed, its teachers entirely Confucian. It is said to have had three thousand students by the late first century B.C.E. *See also* UNIVERSITY.

Each new direction in ART or learning derived in principle not from the one before it, but from the canons that were required to be the source of every innovation. Chinese traditions were cumulative in the sense that writers were aware of their precursors and were expected to master earlier contributions before going beyond them. But novelty did not replace the old—least of all the oldest classics, to which the mind of the reader usually went first of all. The surest proof that one’s work was valuable was to

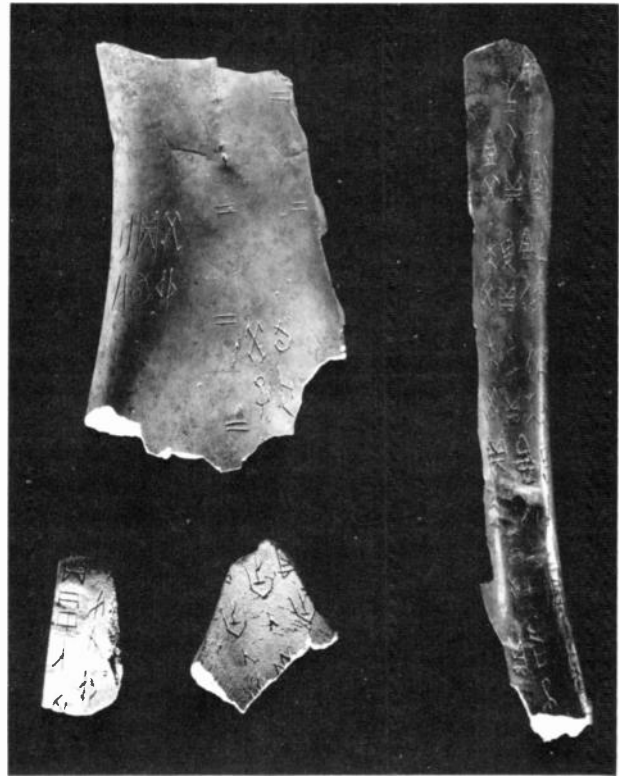


Figure 1. (*East Asia, Ancient*) Inscribed oracle bones, Shang dynasty, China. Peabody Museum, Harvard University, Cambridge, Mass. Photograph by Hillel Burger. Photograph no. N28172.

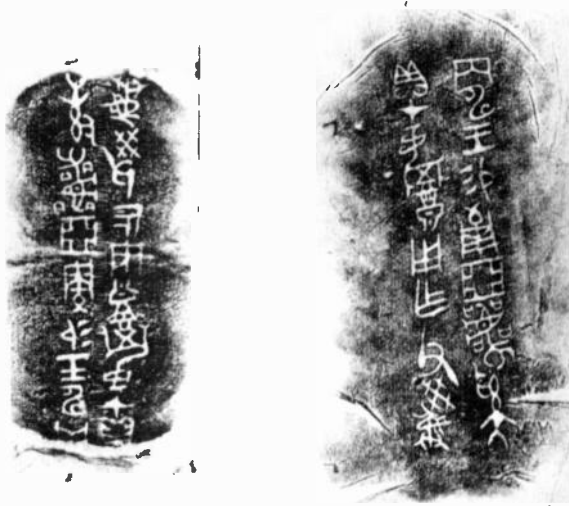
connect it with the “way” of the ancients. Thus officials sponsoring translations of European scientific books early in the seventeenth century claimed they incorporated Chinese traditions that had died out early but had been preserved abroad. Their aim was not to disparage Western ideas but to convince readers that foreign writings could be taken seriously.

Language. Ancient East Asia was racially more diverse than today, and linguistically at least as diverse as Europe. Fifteen hundred years ago many inhabitants of what is now Xinjiang (Chinese Turkestan) were blond and spoke languages related to Persian and Latin. The predominant languages of East Asia in historical times have belonged to two families: the Sino-Tibetan (including Chinese) and, farther to the north, the Altaic. Both Japanese and Korean, which had little in common with Chinese until they borrowed lavishly from it, somewhat resemble Altaic languages such as Turkish and Manchu. Chinese differs from other widespread languages in its lack of inflection and its use of tones and in the limited role of phonetic elements in its written symbols. These characteristics complicated the highly inflected Japanese and Korean languages as they incorporated Chinese influence. *See* LINGUISTICS.

Like Latin in Europe, classical Chinese was used



a



b

Figure 2. (*East Asia, Ancient*) (a) Ritual bronze vessel, Shang dynasty. Eleventh century B.C.E. (b) Rubbings of the inscription of sixteen characters on the vessel. Courtesy of the Freer Gallery of Art, Smithsonian Institution, Washington, D.C. (Acc. no. 53.83).

by all educated people over a large, linguistically and culturally diverse area, from Japan to Vietnam and on into Southeast Asia for many centuries. Even within China many so-called dialects are mutually unintelligible languages, and many non-Chinese languages survive, especially among groups descended from the indigenous peoples of the south. The classical written language that unified these variant cultures was in principle a dead language, perpetuated by memorization of classics. In practice it was continually invigorated and stylistically reshaped by its interaction with living speech, while preserving basic differences from the vernacular in structure and choice of words.

Mastery of the written language was probably restricted to 1 or 2 percent of the Chinese population in 100 B.C.E. and may not have exceeded 10 percent in 1800. But mastery in this context required staggering feats of memorization. As Evelyn Rawski and others have shown, a large proportion of the Chinese merchant and artisan classes could for centuries read and write well enough for everyday purposes, although in the eyes of their betters they remained "word-blind."

The limits of expression in classical Chinese were primarily cultural, not linguistic. Any language preserves established boundaries of thought and, when necessary, stretches to encompass new ones. It has long been recognized that classical Chinese was an adequate medium for expressive POETRY and powerful critical scholarship. As in any other language, literature balances precision about some things against vagueness about others. Over the last generation studies of early East Asian scientific, technological, and medical works have revealed traditions as diverse as those of premodern Europe, with theory and practice fully recorded. Ancient Chinese was as adaptable to the design of bureaucratic forms as modern English—because such forms were needed. Argumentation relied more often on analogy and historical allusion than on systematic proof, but the latter is often found in scientific writings. The Chinese translators of Euclid's *Elements* in 1607 had no difficulty creating classical Chinese equivalents. The alacrity with which geometry was then studied in China suggests that the language posed no inherent barriers to this least Chinese of thought patterns.

Two factors are sometimes said to give communication in classical Chinese a unique character: (1) the pictographic and ideographic origins of Chinese graphs and (2) the fact that the graphs cannot be inflected by changing the arrangement of the strokes that compose them. Both points involve misconceptions. Regarding the first point, by 200 B.C.E. only a small fraction of graphs were pictures (or combinations of pictures to signal abstract ideas), and a government reform had standardized the writing sys-

tem to the point that even these were largely unrecognizable as pictures. Chinese were no more apt to see pictures while reading than English speakers are likely while reading the word *beer* to visualize an insect in its first three letters.

As for the second point, although classical Chinese does not modify graphs to express tense, gender, number, and so on, authors routinely expressed these aspects by specific words. This may add to the number of words, but it is unnecessary to inflect every verb in a text, as must be done in Indo-European languages even when all express the same tense. In Japanese and Korean, based on different linguistic strategies, phonetic elements were used between Chinese graphs to add grammatical endings.

Throughout East Asia, what could not be expressed reflected the norms and the habits of institutions. Historical change has again and again made it expressible.

Records. The earliest surviving written documents, from an archive of about 1450 B.C.E., record on tortoise shells and animal bones divinations carried out on behalf of the king. Precursors of this "oracle-bone" writing, graphs or groups of graphs incised on pottery, have been dated as early as the mid-fifth millennium. The archive has been a central function of government since its beginning. The legitimacy of a dynasty was demonstrated in part by maintaining systematic, dated records, which included diaries setting out the words and acts of the ruler, documents supporting administrative decisions, biographies of officials and other eminent persons, information on taxation, commodities, rituals, celestial events, natural disasters, and many other matters. For the last two thousand years new dynasties compiled official histories of their predecessors as evidence of legitimate succession. Activities of the central government provided a model for many kinds of private writing. Early forms of NARRATIVE fiction, poetry, and mathematical astronomy can be found in official compilations. See also ARCHIVES.

Divinatory documents on shell and bone were not the only ones that used specialized media. Inscriptions cast into RITUAL bronzes of the same period recorded their making, giving, and use in an ancestral cult. Carved jade tablets served for contracts and treaties.

Archival documents and books in general were written on silk rolls and bamboo or wooden slips held together with cord and rolled to make books. The earliest known specimen of paper, a lighter and more durable material than its predecessors, is dated 49 B.C.E. It too was stored in rolls until about twelve hundred years ago, when folded leaves began an evolution that yielded sewn bindings. Brush and carbon ink (india ink) were used at least as early as 1300 B.C.E. The flexibility of the former and the ease



Figure 3. (East Asia, Ancient) Buddhist sutra, Tang dynasty. A paper scroll found in the Caves of the Thousand Buddhas, Dunhuang, Kanzu province, China. Courtesy of the Library of Congress.

with which the flow of the latter can be controlled gave Chinese calligraphy since the fourth century C.E. an expressiveness equal to that of pictorial art. See WRITING MATERIALS.

Over centuries of memorization and hand copying, the Confucian classics were transmitted with astonishing fidelity, but writings of lesser status were often corrupted, and the attrition was great. Woodblock printing, used at least since the eighth century in China, became standard for reproduction of books not long after 1000. Viscous water-base ink was applied to the block and transferred to the paper with no need for a press. Illustrations could be incorporated when the blocks were cut. Multicolor printing, an obvious outgrowth, appeared as early as 1340.

Because labor, wood, and storage were cheap, and any book needed thousands of different characters, there was no economic incentive to perfect movable-type printing, invented by 1050. Even if only a few impressions were taken at a time, the margin of profit was high. Protracted royal support in Korea, where wood was scarce, led to the perfection of metal movable type early in the fifteenth century. But movable type became economically important in China only with the beginnings in the nineteenth century of a mass book market, with its incentives for smaller

print than could be quickly carved in blocks. Intense competition among publishers long antedated that time. Pirating was common enough that a claim to COPYRIGHT under government protection appeared as early as the 1190s.

Literature. The transition from classical to vernacular literature did not take place in China until the twentieth century, but the roots of the latter go back a thousand years. Among the few archaic books that survived to become classics of the Confucian school are precursors of history, fiction, and poetry. The *Zhou yi* or *Yi jing*, the Book of Changes of the late ninth century B.C.E., contains snatches of songs and stories alongside prognostications and divinatory proverbs. The *Shi jing*, the Book of Poetry, most of which probably originated in the next century or so, combines popular songs collected throughout the Chou domains and adapted to the language of the royal court, songs performed on ceremonial occasions in the palace, and ritual hymns used in its ancestral shrine. Nature, love, grief, spiritual awe, the resentment of the oppressed, sensual exuberance—many key themes of later poetry appear in this collection. It also prefigures a central characteristic of Chinese poetic symbolism: the poet's inner state is expressed by describing a correlate in the outside world, as when devastated chestnut and plum

trees on a mountainside stand for a gentleman far from home, fallen upon bad times.

In ancient China, as in the early Occident, the boundary between historic narrative and story remained fuzzy. The earliest chronicles contain anecdotes of high adventure and divine intervention. The Standard Histories (*zhengshi*), beginning with that by Sima Qian (between 100 and 90 B.C.E.), systematically recorded every aspect of political and social life from the legendary beginnings of culture. They seldom contained an assertion not drawn from a written document. The result is a remarkably accurate account of the emperors' words and acts, of the lives of statesmen, of economic affairs and institutions. But documents also contained reports of marvels, speeches, and thoughts to which their authors were not privy, and accounts of superhuman virtue and bravery. Sima Qian's biographies of jokesters and assassins, and later accounts of magicians and immortals, provided exemplars for genres devoted to wit, knight-errantry, and prodigies. Buddhist and Taoist stories of encounters of gods and mortals and testimonies to miracles inspired secular counterparts. The boundaries of literature continued to expand beyond the orthodox preoccupation with encouraging proper attitudes and behavior.

The seventh-century *chuanqi* tales, written to entertain, can reasonably be considered prose romances. The association of their classical language with bookishness was so strong that their scholarly authors often designed them as showcases for a specimen of fine writing—a love letter or a didactic essay. The most vital development of fiction came in the freer forms invented further down the social scale, in the urban culture of merchants and artisans.

Although some Sinologists see traces of speech forms and rhythms in the classics of the first millennium B.C.E., actual writing in the vernacular began with the efforts of early Buddhist proselytizers fifteen hundred years ago to reach common people and was quickly adapted for a variety of narrative aims. Such documents depended on the immediate appeal of everyday language heightened by art. Normally alternating prose and song, they were accessible only in one dialect region at one time.

City culture put money into the purses of people who did not belong to the educated elite but who wanted entertainment. Public storytellers were an organized presence early in the eleventh century. By 1550 a great diversity of written stories drew on the classical tradition, on professional oral fiction, and on DRAMA. They include tales of detection, of suspense, of love in marriage and amorous intoxication outside it, comparable in sophistication and invention with the best of seventeenth-century European writings.

Although the literary traditions of Korea and Ja-



Figure 4. (*East Asia, Ancient*) Buddhist woodblock print from Dunhuang, tenth century. Reproduced by courtesy of the Trustees of The British Museum.

pan were heavily influenced by China—the Korean more than the Japanese—basic differences in culture and language are reflected in the literature, notably in poetry. For instance, the first great collection of Japanese verse, the aristocratic *Manyōshū*, written in the century before 760, includes mostly verse restricted to thirty-one syllables. This is more daunting than the contemporary twenty-eight-character Chinese form, for Japanese is polysyllabic. The *GENRE* succeeds by fully exploiting multiple meaning and indirection. The haiku form, cultivated by sixteenth- and seventeenth-century townsmen, was only seventeen syllables long. Equally given to controlled ambiguity, it demanded a wit and verbal dexterity probably unequalled elsewhere.

Visual arts. Pictures and diagrams were incorporated in books practically since their inception. Domestic scenes, visualizations of the afterlife, and cosmic diagrams (especially star charts) have been painted



Figure 5. (*East Asia, Ancient*) Shen Chou (1427–1509), *Chang-li yuan-t'iao* (Poet on a Mountain Top). From a Chinese landscape album with six leaves. Ink on paper. The Nelson-Atkins Museum of Art, Kansas City, Mo. (Nelson Fund).

and carved to decorate tombs for more than two thousand years. Certain aspects of Chinese art—**PORTRAITURE**, **SCULPTURE**, and **ARCHITECTURE**—remained the province of artisans. For much of the last millennium, however, calligraphy, painting, and related arts such as carving of seals have been considered the province of the scholarly, cultivated amateur, though often pursued for money. The arts for which Japan is best known were created in the milieu of urban merchants and artisans. The multi-color Japanese woodblock prints, especially pictures of entertainers, that reached their peak in the eighteenth century are the most famous. Japanese considered these prints vulgar decorations until the nineteenth century, when they were avidly collected by foreigners and exerted an important influence on European modernist painters.

Travel. Because of China's size and geographic diversity, the problems posed by internal and international travel were comparable. People and goods have passed back and forth between China and other parts of the world with few interruptions since the Neolithic period. Japan and Korea were by comparison isolated. Korean isolation was furthered by dread

of being culturally overwhelmed by China. Insular Japan has tended for fifteen centuries to alternate periods of intense Chinese influence with periods in which it turned inward and assimilated them (*see TOKUGAWA ERA: SECLUSION POLICY*).

The Chinese imperial highway system by the third century B.C.E. totaled more than four thousand miles. The custom of conscripting labor for road building and other public projects during the agricultural off-season made this the best-constructed part of a road network for vehicles drawn by oxen or horses. Major highways in the third century C.E. have been estimated at twenty-two thousand miles. A government system of post stations, which by the eighth century provided accommodations, food, and fresh horses for official travelers, made possible sustained travel at a rate of about one hundred fifty miles per day. Within five hundred years, couriers could carry messages from outlying parts of the empire considerably faster than that. Camels, which can survive by foraging at considerable intervals, not only extended communications across deserts but greatly reduced the cost of long-distance shipping. *See* **POSTAL SERVICE**.

Large canal systems date from the Zhengguo Canal (mid-third century B.C.E.), which irrigated two-thirds of a million acres. Canals with spillways and locks connecting watercourses across mountain ranges date from the same period. This experience was applied in South China to connect an extensive system of waterways, making possible cheap long-distance transport in high volume.

The large administrative centers in the capital subsisted on tax grain. As the capital moved farther from the rich Lower Yangtze Valley, artificial waterways were needed where rivers were lacking. The Grand Canal was built for this purpose around 600 C.E. and extended northward to reach later capitals. China's long seacoast made ocean shipping practicable for domestic trade and, at certain periods such as around 1400, for forwarding of tax grain to the capital.

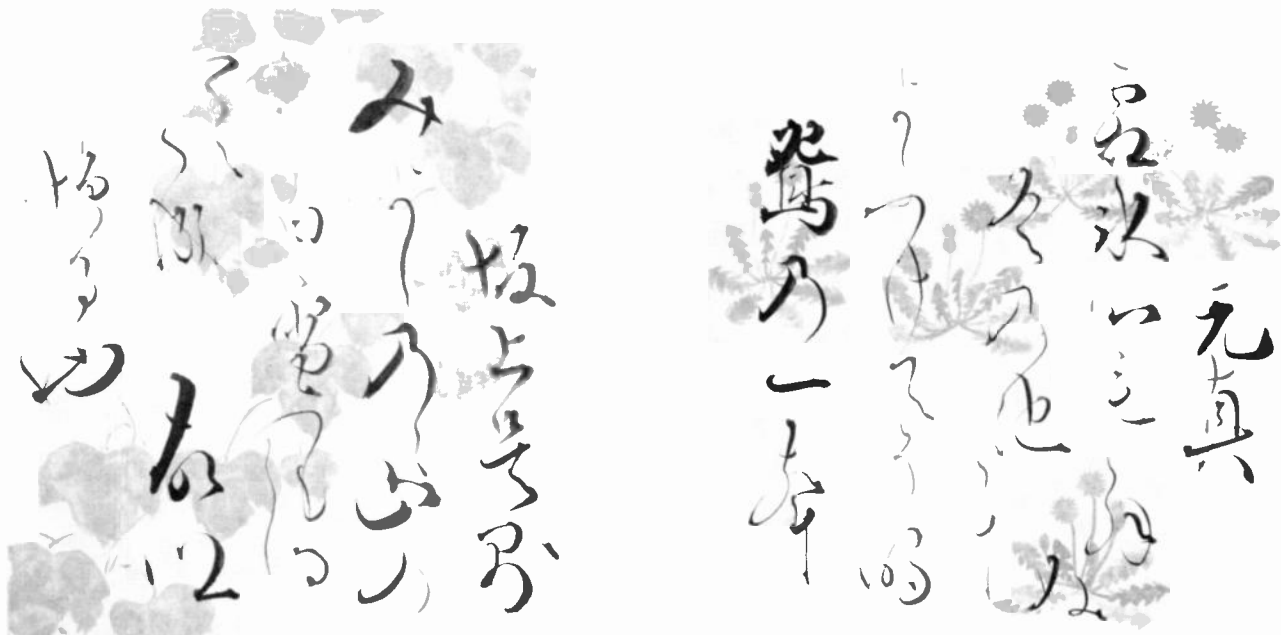
International trade. International trade between China and other countries predates historic times. Jade, which was needed for ritual implements, was not produced in China; expeditions in the late second century B.C.E. quickly bore fruit in trade with India and across Central Asia with Iran. The massive trade in silk that soon followed probably helped drain the finances of the ROMAN EMPIRE. Overland transport, often interrupted by political change in the many small states en route, took on major importance again in the thirteenth and fourteenth centuries, when

the Mongols imposed peace in the regions between the Pacific and eastern Europe.

Chinese long-distance navigation became prominent after the third century C.E. Endless movement of cargos in native ships and those of Islamic and Southeast Asian merchants made southern coastal cities such as Guangzhou (Canton) cosmopolitan trade centers by 800. Accounts of East African coastal kingdoms appear in Chinese shortly after this time. From about 1300 on, the advanced technology of Chinese ships—the true rudder, a sail that enabled tacking to windward, bulkhead compartments, navigation with the magnetic compass—made them briefly paramount in highly competitive ocean transport.

Trade was not the only motive for navigation. Although Chinese regimes were seldom expansionist outside traditional borders, the Mongol Yuan mounted aggressive seaborne forces in the thirteenth century. In more pacific times the imperial charisma could be augmented by the tribute of foreign states. Most official EXPLORATION was carried out to establish such relationships, made attractive to the tributaries by gifts and the prospect of unofficial trade. The peoples loosely bound in this extensive system were either culturally or technologically inferior neighbors, or so distant that they could not challenge Chinese convictions about the centrality of China's civilization and the necessity for hierarchy in foreign affairs. As late as the eighteenth century China had

Figure 6. (*East Asia, Ancient*) Japanese calligraphy: Edo period, Rimpa school. Hon'ami Koetsu (1558–1637), *Poems of Thirty-six Master Poets*. Ink on gold paper. Courtesy of the Freer Gallery of Art, Smithsonian Institution, Washington, D.C. (Acc. nos. 75.20–29 and 75.20–30).



had no experience with peoples who, while posing no military threat, had to be treated as equals. Attempts by modern European powers to establish diplomatic relations were greatly confused because Chinese expected them to conform to the tributary system. It was only after China lost a series of wars and was forced to accept unequal treaties that this clash of views about the character of international communications was resolved.

See also ASIA, TWENTIETH CENTURY; SILK ROAD; SOUTH ASIA, ANCIENT.

Bibliography. G. F. Hudson, *Europe and China*, London, 1931, reprint Boston, 1961; David Johnson, Andrew J. Nathan, and Evelyn S. Rawski, eds., *Popular Culture in Late Imperial China*, Berkeley, Calif., 1985; Joseph Needham, *Science and Civilization in China*, 6 vols., Cambridge, 1954–, esp. Vol. 1, *Introductory Orientations* (travel between civilizations), Vol. 4, part 3, *Civil Engineering and Nautics* (roads and waterways), Vol. 5, part 1, *Chemistry and Chemical Technology* (T. H. Tsien on paper and printing); Evelyn S. Rawski, *Education and Popular Literacy in Ch'ing China*, Ann Arbor, Mich., 1979; Edward H. Schafer, *The Golden Peaches of Samarkand*, Berkeley, Calif., 1963; Masayoshi Sugimoto and David L. Swain, *Science and Culture in Traditional Japan, A.D. 600–1854*, Cambridge, Mass., 1978.

NATHAN SIVIN

EASTMAN, GEORGE (1854–1932)

U.S. photographic pioneer and inventor of the Kodak system. George Eastman was in large part responsible for bringing PHOTOGRAPHY to the millions. His linked development of the paper-backed film roll, the box camera, and the centralized developing service made it possible for all, whatever their age or economic status, to take photographs recording, commemorating, and adorning the world around them. See also PHOTOGRAPHY, AMATEUR.

When Eastman was born, the world of photography had just been revolutionized by the introduction of the wet-collodion process; in 1877, when Eastman decided to take up photography, this was still the predominant photographic process. During this period few hobbyists remained interested in photography for long, because its complexity made picture taking a chore rather than a pleasure. Eastman was mechanically inclined, however, and began experimenting with the dry-collodion process, which had recently been described in the *British Journal of Photography*. Within a year he had devised automatic equipment to make dry plates, obtaining patents both in England and the United States. In 1881 he formed the Eastman Dry Plate Company, which, after becoming the Eastman Dry Plate and Film



Figure 1. (Eastman, George) Frederick Church, *George Eastman with a Kodak on the S.S. Gallia*, 1890. International Museum of Photography at George Eastman House.

Company in 1884, was reorganized as the Eastman Kodak Company in 1892. It was this business that would make Eastman one of U.S. technology's greatest success stories and the city of Rochester, New York, a center of the photographic industry.

Though an improvement on wet plates, dry plates were still cumbersome. In 1884 Eastman developed flexible film, which consisted of a dry emulsion attached to a paper backing instead of the fragile and bulky glass plate; he also designed a holder for these paper-backed film rolls that would fit on any existing camera. Soon he created a completely transparent film, backed by celluloid instead of paper; it was this celluloid film, arranged in fifty-four-foot-long strips, that made possible the moving pictures shown in Edison's Kinetoscopes (*see* EDISON, THOMAS ALVA; MOTION PICTURES—PREHISTORY).

The second component of Eastman's success was a camera especially designed to use his new film, the Kodak, invented by Eastman in 1888. It was a camera reduced to its essentials: a lens at one end, a film holder at the other, and a shutter mechanism in between. Over the next fifteen years Kodaks became cheaper and easier to use, until in 1900 Eastman introduced the Brownie, a camera even a child could use, at a cost of one dollar.

Arguably the most important of Eastman's innovations was his factory service for processing film. The complexity of developing and printing film had been perhaps the greatest obstacle to amateur photography, and the processing service completely removed this obstacle.

The Kodak system thus incorporated three basic elements: the flexible film roll; an inexpensive, compact, easy-to-use camera; and a convenient central developing service. The aspiring photographer needed only to buy a camera, shoot some pictures, and send the camera back to the Eastman Kodak Company, which would develop the film, reload the camera with fresh film, and mail the camera and finished pictures back within the week. The system has remained much the same, although now the photographer sends only the exposed film, not the entire camera, to the developer.

Eastman, who never married, gave away nearly his entire fortune to educational institutions in Rochester and across the country. The University of Rochester's Eastman School of Music, and George Eastman House, a major film and photography archive (*see* ARCHIVES, FILM), are two of his best-known legacies. In 1932, weakened by illness, he left a message saying, "My work is done," and shot himself.

Bibliography. Brian Coe, *George Eastman and the Early Photographers*, London, 1973.

EDISON, THOMAS ALVA (1847–1931)

U.S. inventor known for his work with the electric light, the telegraph, the TELEPHONE, the phonograph, and MOTION PICTURES. Thomas Alva Edison was more than an inventor. Through his imagination and capacity for endless experimentation he contributed to nearly every electrical advance of his lifetime. In addition, he devised a system of large-scale industrial experimentation that became the model for the modern corporate laboratory.

Edison's inventions all followed a pattern: identify a need, then invent the solution. Telegraph companies lacked enough operators to relay messages over long distances, so Edison invented an automatic repeater. Brokers could not obtain news of stock and commodity transactions quickly enough to respond to changing market conditions, so Edison invented the Universal Stock Printer. TELEGRAPHY consumed inordinate amounts of expensive copper wire, so Edison invented a quadruplex system that cut costs by three-quarters. The telephone suffered from inadequate transmitting instruments, so Edison invented a microphone diaphragm with a carbon button, still employed in modern telephones.

Edison's researches often led to peripheral inventions that proved of greater value than his intended accomplishments. While working on an "autograph telegraph" for transmitting handwritten messages, Edison invented an "electric pen" that left a chemical track on special paper—the mimeograph stencil. Another spin-off from the autograph telegraph proved even more important than the electric pen and the mimeograph stencil. Edison was working on a way to transform his mechanical marks into electrical impulses and was simultaneously working on the problem of the telephone transmitter, which transformed mechanical movement into sound. He combined the two lines of research, and on July 18, 1877, shouted into a microphone that was attached to the stylus of his autograph telegraph, then ran the embossed paper back through a speaker. The shout was played back to him; it was faint but distinct. Edison had invented the phonograph (*see* SOUND RECORDING—HISTORY). After this burst of invention he became known to the public as the Wizard of Menlo Park.

For Edison invention was a never-ending process of discovery, and rather than develop all his inventions to commercial perfection, he often moved to new fields of endeavor. He invented the carbon-filament lamp—which later became known as the electric light bulb—then invented an entire system of electrical generation and power distribution to make it available to potential users. Between 1881 and 1883 Edison obtained an astonishing two hundred



Figure 1. (*Edison, Thomas Alva*) Thomas Alva Edison in his laboratory. The Bettmann Archive, Inc.

patents, nearly all for electrical generation and lighting.

A minor problem with Edison's light bulb led to another important invention. Edison noted that his bulbs became unusable long before they blew out, because a black coating appeared on the inside of the glass. This came to be called "the Edison effect." Edison lost interest in it, but the phenomenon was investigated by two British scientists, J. Ambrose Fleming and Joseph J. Thomson, who correctly attributed the blackening to a flow of electrons (previously unknown) within the bulb. As a result the bulb was transformed from an illuminator to a rectifier in 1904 and, in the three-wire arrangement of LEE DE FOREST, to an amplifier in 1907. Thus the RADIO tube was born.

Edison's work on moving pictures was stimulated by the serial photographs of Eadweard Muybridge (see MOTION PHOTOGRAPHY). Edison at first conceived of such sequences of photographs being mounted on a cylinder similar to the revolving cylinder used in his phonograph, creating a device that might be used as a supplement to the phonograph. He assigned the moving-image problem to his laboratory assistant William Kennedy Laurie Dickson. Dickson, prompted by GEORGE EASTMAN's invention of photographic film on long celluloid strips, took the experiments in a different direction. Adding

sprocket holes along one edge of the film to control its movement, he developed the historic Kinetoscope (the peepshow viewing machine) and the Kinetograph, the huge camera that would provide its entertainment items. The peepshow machine and accompanying films were placed on the market in 1894; by the end of that year Kinetoscope parlors were operating profitably from Chicago to Copenhagen.

Despite the advice of Dickson, Edison resisted the idea of projecting the films onto a screen, reasoning that if many paying customers were allowed to view simultaneously what they viewed individually on a Kinetoscope, the market would soon be exhausted. But the resounding success of the 1895 Paris debut of the cinematograph of LOUIS AND AUGUSTE LUMIÈRE clearly doomed the Kinetoscope. Edison hastily arranged to take over a projector developed by U.S. inventors C. Francis Jenkins and Thomas Armat; it had its debut in 1896 as the Edison Vitascope.

The Edison company remained in film production for many years, and Edison became a leader of the Motion Picture Patents Company—"the Trust"—a group of companies that sought to control the infant industry through restrictions on the use of their patents. The effort proved unsuccessful (see HOLLYWOOD).

Edison was an inventor whose innovations generally reached their principal success in forms determined by others. Edison's phonograph cylinder gave way to the disc, his DC electric power to AC, his peepshow films to projection in cinemas. When he died in 1931 he did not leave behind a thriving business corporation but a legacy of visions that have changed the entire character of modern life.

Bibliography. Robert E. Conot, *A Streak of Luck: The Life and Legend of Thomas Alva Edison*, New York, 1979; Lawrence A. Frost, *The Edison Album: A Pictorial Biography*, Seattle, Wash., 1969; Gordon Hendricks, *The Edison Motion Picture Myth*, Berkeley, Calif., 1961, reprint New York, 1972.

HARTLEY S. SPATT

EDUCATION

Education may be understood as an activity, a possession, or an institution. As an activity it can be undertaken purposefully or may simply occur as a person experiences and processes the external world. As a possession education may be acquired purposefully by attending SCHOOL. As an institution education may consist of specific places with specially trained personnel, or it may consist in purposeful instruction in settings other than those designated as schools or colleges.

In its broadest sense education is nearly synonymous with socialization, the process of acquiring the norms, values, and patterns of behavior of the CULTURE and the particular social groups to which we belong. Socialization is one of the central reasons for education. That is, we educate to socialize, to equip individuals with those identities and characteristics that enable them to take membership in the culture and the social group. ÉMILE DURKHEIM referred to education as “methodical socialization” and described it as “the influence exercised by adult generations on those that are not yet ready for social life.” Durkheim contended that the object of education is “to arouse and to develop in the child a certain number of physical, intellectual, and moral states that are demanded of him by both the political society as a whole and the special milieu for which he is specifically destined.”

A distinction is often made between education that is purposeful and education that is not. If we set out specifically to teach someone something about the world he or she inhabits, it is clear that we are educating. It is not so clear that we are educating when that same individual “picks up” information about the world from persons who did not plan to teach this information and had no intention that someone would learn it. It is often said that travel is educational, although no one may specifically try to educate us as we move from place to place. The same notion is applicable to the mass media. Exposure to the media may be instructive even though it is not education in a purposeful sense.

The notion that education can take place when no one plans or intends it is implicit in such locutions as “Experience is the best teacher” and “The only place he ever got an education was in the school of life.” On the other hand, an education can be intended and offered but not received, as when a child’s teachers are said to have tried every possible way to teach him or her, but to no avail (*see also* TEACHING).

Informal, Nonformal, and Formal Education

Education can also be categorized as *informal*, *nonformal*, or *formal*. Informal education is what is picked up as we go through life—at work, in travel, at play, and from the mass media. It is largely unplanned and generally does not result from any intention to acquire or impart specific knowledge or skills. It is, in short, the everyday process of learning one’s culture. Nonformal education is somewhat more systematic. It is planned educational activity but without the structures and organizations associated with such institutions as schools and colleges. Examples of nonformal education include the Boy Scouts and Girl Scouts, adult LITERACY and community

center programs, agricultural extension, and some forms of religious education. Formal education, in contrast to informal and nonformal, is the system of schooling put in place precisely to gain greater and more systematic control over the socialization processes, as well as to instruct in the content fields.

These three categories of education may overlap. Informal and nonformal education may occur within the formal context of schools. Nonformal education can occur in the normally informal setting of the home, as when parents set out specifically to educate their children (*see* FAMILY). Television generally offers ENTERTAINMENT but may educate even while serving this purpose. In addition it may present programs designed specifically to teach children to count and to read and programs aimed at teaching adults about philosophy, gardening, astronomy, and home repair that are properly understood as instances of nonformal education. *See* AUDIOVISUAL EDUCATION; EDUCATIONAL TELEVISION.

In most industrialized nations formal, informal, and nonformal education occur as parallel processes and may interact quite harmoniously. Or they may be in conflict with one another, as when one set of values and behavioral codes is learned at school; another in home, church, and club; and still another from the mass media. In most nations and cultures formal education is conducted by one or another level of government, often to secure the participation of youth in the economic and political structures supported by it. Nonformal education may be planned to supplement formal systems of education or may be offered as an alternative to formal education. For example, some religious groups may believe that government schools, as formal systems, do not teach desired values. These groups may then attempt to provide their own formal schools or may counter the influence of government-run schools by offering separate religious classes for young people. These same religious groups may also seek to form clubs and to offer radio and television programs (*see* RELIGIOUS BROADCASTING) either to supplement what is learned at school or to provide alternative conceptions to what is taught at school.

However, dividing education into the three categories here alludes only to their structural characteristics. These are critical to an understanding of education, but a more important dimension concerns the aims of education. What ends are served? With what purpose do we undertake methodical socialization?

The Outcomes of Education

When education is thought about as an intentional endeavor, a variety of philosophical issues arise: Why

educate? What is an educated person? What knowledge is of most worth? Do we have the right or the obligation to educate in particular ways or to particular ends? One useful strategy in trying to answer these and similar questions is to distinguish among education for membership, education for enlightenment, and education for emancipation.

Education for membership refers to nonformal and formal education undertaken to secure the allegiance of students to the agency or institution sponsoring the educational activity. Education for enlightenment instructs students in how they may transcend everyday experience and self-interest through rigorous study of classical and modern ideas. Finally, education for emancipation attempts to achieve a measure of liberation from potentially oppressive and exploitative political economies. Each of these perspectives requires further consideration.

Education for membership. There are several forms of membership that education is generally thought to prepare persons for, among them religious, social, political, and economic. When education is undertaken intentionally (nonformally or formally), it is frequently for the purpose of preparing persons for membership in the group or entity that sponsors that education. Education may be formalized precisely because a political, social, or religious entity wants to unite a specific population in support of certain ideals and aspirations. A church, for example, may establish a formal system of education in order to ensure and strengthen the bonds of membership within it, even though the schools it establishes may also attend to matters of social, political, and economic membership. States or nations may establish formal systems of education in order to ensure the preparation of citizens for life in the state.

The desire to establish and solidify membership is often a primary objective in the formalization of education. In his *Politics*, ARISTOTLE argued that "the citizen should be molded to suit the form of government under which he lives." Modern systems of public education are frequently espoused on the basis of John Stuart Mill's rationale (in *Considerations on Representative Government*, 1861) that "the first element of good government, therefore, being the virtue and intelligence of the human beings composing the community, the most important point of excellence which any form of government can possess is to promote the virtue and intelligence of the people themselves."

This reasoning is frequently presumed to justify government-sponsored schools for the young. Yet Mill, along with many other political theorists of his time, had considerable difficulty with the idea of formal education in the hands of the state. In his essay "On Liberty" (1859) Mill argues that "a gen-

eral state of education is a mere contrivance for moulding people to be exactly like one another: and as the mould in which it casts them is that which pleases the predominant power in the government, . . . it establishes a despotism over the mind, leading by natural tendency to one over the body."

Herein lies one of the major difficulties of education for membership: Is there an obligation in formal education for something more than forging bonds among its members on behalf of whatever agency or institution sponsors the schooling? In nations in which formal education is pervasive, social membership is an important aim of the early elementary grades. The emphasis in these grades is on learning how to become a member of groups, how to associate with peers, and how to respond to adults. As the learner matures, the basic skills of literacy and computation receive the major emphasis. Usually beginning when the learner is age eleven or twelve, the stress on generic skills diminishes, and the learner is introduced to the subject matter fields or disciplines. This content or disciplinary emphasis continues through all subsequent grades and into higher education.

Although these emphases may appear unobjectionable, indeed even laudable, it may be argued that they are pursued primarily to induct the learner into some political or social niche. Those who sponsor the schools are doing it for some purpose, and that purpose may not be so noble as to include the unfettered independence, freedom, and autonomy of the student. Does the formal system help the student to understand how membership may be declined, how the conditions of membership may be altered, or how the character of the sponsor may be changed to make membership appealing? Options and choices of this kind may not be present in formal systems of schooling.

It is perhaps not unusual that many cultures and societies enforce various forms of membership on the very young, for they are not able to reason for themselves and may need to adopt rules and norms of membership for simple reasons of safety. The problem arises near the time of emerging adolescence when a tribe, subculture, or political unit decides whether to forgo indoctrinary forms of education for membership and begins to introduce methods and content that permit the learner to reexamine his or her membership for the purpose of choosing it.

Education for enlightenment. The possibility of choice and the manner of making that choice involve consideration of education as a means to enlightenment. There are two primary reasons for conceiving of education as enlightenment. The first, already mentioned, is that the self-interests of the sponsors of schooling may preclude the possibility of the learner's deciding not to join the sponsor or prevent the

learner from seeking membership with another sponsor. Thus education as enlightenment has as one of its purposes informing the learner of the possibilities and potentials of his or her existence, beyond the usual interests of the sponsor of the schools. Enlightenment theorists believe that personal freedom and choice are virtually defining conditions of human existence; if neither is exercised, then one defaults—from their perspective—on what may be the most precious possession one may ever have.

The second major argument for enlightenment is that no one should simply accept experience as it is presented, even if that experience is explicitly educational. Education is much too important to be left to the vicissitudes or the planned interventions of daily life. Persons must learn to think for themselves; to make independent observations, analyses, and judgments; to act from their own sets of reasonable beliefs and grounded principles. If left only to life's experiences, the person risks being trapped in the rigid and stultifying confines of convention and stereotype. This fear of being trapped within one's own limited experience was apparent in early Greek notions of human existence, leading the Greeks to place a heavy emphasis on education. As H. I. Marrou states in *A History of Education in Antiquity* (1956), "For Hellenistic man the sole aim of human existence was the achievement of the fullest and most perfect development of the personality." This notion is frequently expressed as *paideia*, the perfection of the person as an individual entity.

In *The Paideia Proposal* (1982) U.S. philosopher Mortimer Adler sets forth a program of studies not unlike—in form at least—the Hellenic curriculum rooted in the concept of *paideia*. This curriculum demands the same course of study for every student and is designed to terminate in the attainment of three primary objectives: (1) the acquisition of organized knowledge (e.g., literature, language, mathematics, natural science, and history); (2) the development of intellectual skills (e.g., calculating, problem solving, measuring, and exercising critical judgment); and (3) an enlarged understanding of ideas and values (e.g., permitting the thoughtful discussion of great ideas, enjoyment of works of art, and involvement in music and drama). The intent of this line of thought is to emphasize not only the acquisition of common basic skills and knowledge but also an understanding of central concepts and theories in the major disciplines of knowledge and the taking on of such critical traits of character as autonomy, a sense of fairness, intellectual curiosity, and a proper regard for evidence and truth. These noble educational ideals have captured the imagination of many powerful figures in human history, among them Immanuel Kant, JOHN MILTON, Leo

Tolstoy, JOHN LOCKE, and JOHN DEWEY. Recently, however, the work of the enlightenment theorists has been attacked by scholars whose work has a more emancipationist foundation.

Education as emancipation. Despite the uplifting rhetoric of the enlightenment position, contemporary theorists have found ample reason to critique it. The critics begin by objecting that the enlightenment theorists, once they have made the case that the point of enlightenment is to handle the indoctrination difficulties associated with membership, go on to ignore the social, political, and economic foundations of education. These ties between systems of schooling and economic and political institutions are, the emancipationist critics contend, all too often destructive of educational ends.

Michael W. Apple addresses the point directly when he argues that "institutions of cultural preservation and distribution like schools create and recreate forms of consciousness that enable social control to be maintained without the necessity of dominant groups having to resort to overt mechanisms of domination." Everett Reimer, one of the most trenchant critics of formal systems of schooling (and a major influence on the ideas of Ivan Illich), echoes Apple's sentiments when he states that schools have been successful because "to the masses and their leaders, they have held out unprecedented hope of social justice. To the elite they have been an unparalleled instrument, appearing to give what they do not, while convincing all that they get what they deserve."

Ivan Illich, perhaps the best known of the emancipationists, laments the state of formal education in advanced societies and has suggested that developing nations should not try to imitate the educational systems of the industrialized nations. Illich argues that compulsory schools divide a society into two parts, that which is educational or academic and that which is not. This bifurcation leads to a divided social reality, in which whatever is defined as educational has little to do with whatever else is in the world, and the world outside the school possesses little that is explicitly educational. In Illich's words, "education becomes unworldly and the world becomes uneducational."

These concerns (i.e., that formal schooling simply reproduces the culture in which it occurs) have led a number of educational theorists to call for more explicit forms of nonformal education, for specifically educative events and activities without the enormous investment in formal, obligatory systems of education. The self-help (*harambe*) schools in Kenya and Nigeria and the consciousness-raising and popular-education movements in Latin America are examples of efforts to educate the masses without large-scale commitments of national resources to formal systems

of schooling (see DEVELOPMENT COMMUNICATION).

In the mid-1980s Thomas J. La Belle examined many of the nonformal programs in Latin America and the Caribbean, reaching the conclusion that a considerable distance remains between the rhetoric and the reality. Though he supports the aims and objectives of many of the nonformal programs, he argues that they have not been successful in establishing a participatory base in local communities and in breaking away from the powerful influences of governing elites. To the emancipationist, political and economic elites control formal systems of schooling and will try to use these schools to ensure a smooth transition into appropriate levels of membership on the part of all social classes. The enlightenment theorist understands the necessity for membership but also recognizes how education for membership can be misused by those in power. The advocate of enlightenment responds to this threat by stressing attention to knowledge, understanding, and the critical traits of character needed to rise above the elemental attempts of educational systems to socialize and stratify their students. However, enlightenment theory is usually grounded in views that subordinate power to reason and wealth to morality. Thus the enlightenment theorist typically views change as rational, orderly, and subject to compromise based on evidence and etiquette. Emancipationists tend to focus more on the realities than on the hopes for human attainment. They are attentive to a history of the human species that is rooted in conflict, upheaval, and the ascendancy of power over reason and wealth over morality. See also IDEOLOGY.

From this survey of perspectives it becomes clear that our conceptions of what education is and should be are driven by our experiences, our values, and our theories of knowledge, culture, and history. It is taken for granted that education, at least in its formal and nonformal modes, is charged with giving each of us command of the basic skills of language, literacy, computation, and citizenship. The controversial questions are what more beyond the basics is to be attained and to what end are these skills and understandings to be acquired. These questions will not soon recede in the importance they possess or the controversy they generate.

Bibliography. Mortimer J. Adler, *The Paideia Proposal*, New York, 1982; Michael W. Apple, *Ideology and Curriculum*, London and Boston, 1979; R. F. Dearden, P. H. Hirst, and R. S. Peters, eds., *Education and the Development of Reason*, Vol. 3, *Education and Reason*, London, 1975; Émile Durkheim, *Education and Sociology* (in French), trans. by Sherwood D. Fox, Glencoe, Ill., 1956; Ivan Illich, *Deschooling Society*, New York, 1970, reprint 1983; Thomas J. La Belle, *Nonformal Education in Latin America and the Caribbean: Stability, Reform, or Revolution?*

New York, 1986; Henri I. Marrou, *A History of Education in Antiquity* (*Histoire de l'éducation dans l'antiquité*), trans. by George Lamb, New York, 1956, reprint 1982; R. S. Peters, ed., *The Philosophy of Education*, London, 1973; Everett Reimer, *School Is Dead*, Garden City, N.Y., 1971.

GARY D. FENSTERMACHER AND
ALEXANDER CUTHBERT

EDUCATIONAL TELEVISION

Educational television (ETV) is broadly defined as all efforts to impart planned educational benefits through television. It employs either broadcast or nonbroadcast methods of distribution and is designed for use in settings as different as SCHOOL, home, hospital, and workplace. Its methods are derived from a variety of sources, including CLASSROOM teaching techniques, the behavioral sciences, drama, and the informational and entertainment patterns of noneducational television (see TELEVISION HISTORY).

This article is concerned mainly with the cognitive effects of educational television. For additional material on the history, organization, and broader effects of ETV, see also AUDIOVISUAL EDUCATION; CHILDREN; EDUCATION; MASS MEDIA EFFECTS; TEACHING; and, for its implications for national development, DEVELOPMENT COMMUNICATION.

Research Trends

A review of social science research on the uses and effects of television reveals several important trends. One is a movement away from a nearly exclusive focus on aggression and the effect of television's negative role models to an emphasis on how the medium may be used to model positively valued ATTITUDES and behaviors. Research in this changing tradition has concerned itself with the effectiveness of positive role models in helping to counteract stereotypes associated with races, cultures, occupations, sex roles, age groups, and disabilities. It has also given a great deal of attention to motivating a desire to learn.

A second trend has been an increasing emphasis on understanding the use of television's formal features (i.e., the elements of its presentational structure and design) in accomplishing its learning goals. This line of research attempts, for example, to determine the role ETV formats and special visual effects can play in directing and encouraging viewers' attention, comprehension, imitation, and active mental participation through such processes as rehearsing, comparing, guessing and checking, evaluating, and inferring.

Developments in use of CABLE TELEVISION, video-disc, teletext, VIDEOTEX, videocassettes, and related devices are altering in fundamental ways the nature

of the transaction between the television screen and the learner. This is because these devices allow the learner's choices or responses to help shape the direction of the presentation. Consequently an important line of research explores the educational use and value of active learner participation in learning from television (for example, the usefulness of rehearsing what is to be learned, making choices among options opened by branching study, and making guesses and checking their accuracy through feedback).

Another important trend is the incorporation of empirical research into the process of creating ETV presentations. A result has been the emergence of a professional specialty in *formative research* that tests prototypic program materials on an audience to validate their educational effectiveness or to suggest needed revisions in their design. The more general implications of formative research are often derived from case studies of educational series. See EVALUATION RESEARCH.

Perhaps the most fundamental research trend, however, is one that spans both behavioral science research and applied ETV research by exploring the meanings associated with television's formal features. To practitioners the concern is to understand how television's forms and technical effects function as codes for MEANING and how this special "language" of television may be used to enhance the design of the ETV presentation.

The language of television. The interest in television's visual codes, or language, has inspired several distinct lines of research. One of these begins with the concept that the act of extracting meaning from a medium is a defining characteristic of intelligence. This view is explicated by Jerome Bruner and David Olson, who have defined intelligence in part as "skill in a medium," implying that different media engage different aspects of intellectual functioning. Research by Robert L. Thorndike in renorming the Stanford-Binet Intelligence Tests in the United States bears further on the hypothesis that extraction of meaning from television is a defining function of intelligence. He found that in 1972 U.S. children six to twelve years of age scored up to ten IQ points higher than comparable children who made up the 1930 norming sample. Thorndike points to television as the most likely source of this gain, inasmuch as it is the only substantial and widely available source of intellectual stimulation that appeared in U.S. culture during the approximately forty years in question. His student, Robin Garfinkel, reasoned that if television is in fact responsible for producing this gain, then the visually dependent items on the IQ test ought to account for more of the increase than do the items not dependent on visual stimuli. Her research bore out this hypothesis.

Another line of research, initiated by Israeli researcher Gavriel Salomon, supports the view that television's technical effects and devices are interiorized by individuals and become part of the perceptual and intellectual processes that they often use to acquire, transform, and represent real-world (as well as media) stimuli. Salomon calls this process of interiorizing the language of the media "supplantation." See PERCEPTION—STILL AND MOVING PICTURES.

A third line of research is concerned with developing a taxonomy of television's visual codes and with empirical studies on the role of these codes in children's development and learning. One study of this type found that children as young as three years of age could tell which of several visual effects of television are more likely to be found in advertisements directed to girls than in those directed to boys. The children in this study tended to observe correctly that boy-oriented (versus girl-oriented) advertisements are more likely to use hard and clear (rather than soft) focus, sharp and angular (rather than curved) forms, loud and fast (rather than soft and slow) music, quick (rather than slow) camera zooms, and many (rather than few) edited intercuts from scene to scene.

Another line of research is concerned with teaching children about television's visually coded meanings. The aim is to understand the extent to which training in what is often called "media literacy" enables children to understand more of what the presentation is attempting to convey and to perceive more accurately the motivation behind the producer's choice of special forms and features (see LITERACY).

Still another area of research consists of experimental attempts to improve on the educational effectiveness of ETV presentations by communicating with learners through the use of television's unique visual conventions. "The Electric Company," a beginning READING series produced in the United States, illustrates this line of research. This program makes extensive use of ANIMATION to portray several of the dynamic visual processes required for reading in English: scanning of letters and words from left to right; blending of successive letters to form intelligible sound sequences; fixing of attention on an ambiguous word while trying to determine its meaning from context; processing of meaningful letter groups as information "chunks," as in the case of morphemes and digraphs; and sight-reading of vocabulary. Another example is the frequent use of unusual camera angles to provide the viewer with new physical perspectives on situations and events. In general these approaches relate to the supplantation process described by Salomon.

Significance of the research. Research into the educational significance of television's unique visual codes represents a fundamental departure from the direction of most studies carried out in earlier years

of ETV. Literally scores of studies were done in schools and colleges comparing television teaching with live instruction. Only rarely was the television presentation in these studies embellished in such a way as to take advantage of the medium's special visual effects. ETV was looked upon simply as a potentially more cost-effective means of presenting classroom demonstrations or lectures. Most of the earlier studies involved learners of high school age or older, and most showed no difference in learning resulting from the televised and the live teaching. ETV's advocates looked on this result as decisive evidence of television's valid role in instruction. However, apparently only a few of the broadcasters and scholars who took this viewpoint had reckoned with the extent to which classroom teachers would see television as a usurper of their function and therefore a threat, and how many would find the central scheduling of classroom ETV a hindrance to its best use in the classroom. These early studies and projects proceeded largely on the implicit premise that television's useful educational role was in replicating classroom instruction as practiced in the days before television. ETV practitioners touted the capacity of the medium to put a master teacher in every classroom.

But the result was often less than had been hoped. American Samoa, for example, after installing a very elaborate ETV system, with imported teachers broadcasting over six stations every subject offered in grades one through twelve, had to remove television from all high school and some upper elementary school grades. This happened when classroom teachers acquired more skill and began to view ETV's master teacher approach and the rigidity of central scheduling as a hindrance rather than a help. Three of the six channels were turned off, and one of the remaining three came to be used entirely for evening entertainment. Similarly one of the most carefully designed ETV operations in the United States—the Washington County, Maryland, school system centered in Hagerstown—abruptly changed its plans after ten years. It had been using cable interconnection to deliver 148 classroom programs a week. Then the school system decided to abandon the cable, record the programs on cassettes, store them in schools for use at teachers' convenience, and cut back new production to a few series per year. It was reported that the amount of use of the recorded programs increased noticeably after the classroom teachers took over responsibility for deciding when to schedule them.

As the field matured, therefore, emphasis turned away from trying to broadcast the equivalent of classroom instruction toward finding television's unique, complementary role in classroom instruction. The increasing interest in research on television's visual language is part of this trend.

The Japanese Experience

A national model of full television use in schools is to be found in Japan, where by 1983 22,500 primary schools, representing 90 percent of all Japanese primary schools, made use of programs supplied by NHK (Japan Broadcasting Corporation). NHK provided 122 television programs each week (including fifty-seven rebroadcasts) totaling thirty-three hours and thirty minutes. Programs covered all basic subjects at all grade levels. Color television sets were found in 99.7 percent of Japanese primary schools, and 88 percent of them had a color television receiver in every classroom. The outstanding popularity of natural science, social studies, and moral education programs has not changed since school broadcasting started.

Research on Japanese school television takes two forms. One seeks to document patterns of use, and the other elicits the reactions of teachers and pupils to the content and approach of individual programs, to guide revisions. In striking contrast to the situation in many other countries, the Japanese give almost no attention to summative evaluation to establish television's tested teaching effectiveness under controlled experimental conditions. Instead instructional television is looked on as a matured field with a secure role, whose value is seen in the high levels of voluntary use by teachers.

Japan's extensive school television offerings, now a tradition of more than thirty-five years, owe much to that country's extraordinary national investment in public service applications of television, perhaps greater than in any other country in the world. Total NHK revenues for 1985 reached the equivalent of \$2.2 billion to support a wide range of telecommunications services, television accounting for the largest share. But substantial and stable funding accounts for only a small part of television's near universal acceptance and use in Japanese schools. Another key factor is the homogeneity of Japanese society, which allows for high uniformity nationwide in the content, sequence, and pace of school instruction. These conditions are highly favorable to central ETV programming and scheduling.

Worldwide Applications

Educational television has been called on to serve as a tool of national development in a number of countries. In many Third World nations in particular the supply of teachers is inadequate, and ETV can speed up educational reform without the country first having to build up a full quota of well-trained teachers. The incorporation of SATELLITE systems into existing TELECOMMUNICATIONS NETWORKS has enabled countries like Indonesia, Mexico, and India to increase greatly the availability of television and radio signals

throughout their territories, particularly to distant or rural populations that were difficult or impossible to reach before. Some of these efforts, like the program of educational reform in El Salvador and the use of satellite television in Indonesia, have been both massive in scale and well documented by research. Some of the most impressive numbers are reported by China, which introduced a Television College and received in the first year of operation ten million applications for entrance. They could accept only half a million students, but that made a sensational difference in the number of Chinese to whom higher education was available.

And not only in the Third World has ETV been pressed into service as an extension of the school and the UNIVERSITY. For people who have to study at home because classroom attendance is for one reason or other difficult or impossible for them, ETV has come very widely into use in industrialized countries like Britain, France, the Federal Republic of Germany, the German Democratic Republic, Sweden, Italy, the Netherlands, Poland, Canada, and others. The Open University of Great Britain, which is built around television, reading, written assignments, and other study activities, is not only one of the largest universities in the country but also one that is widely admired and imitated. Japan has a national high school—the NHK Gakuen—that uses ETV, radio, and correspondence study.

The Children's Television Workshop (CTW), a privately supported institution in the United States, makes a series of ETV programs largely for children at preschool and early elementary grade levels. These are broadcast for home viewing but are also used in many school systems. ("The Electric Company," mentioned earlier, comes from this source, as does the series "Sesame Street.") CTW programs reach viewers throughout the United States and in many foreign countries, sometimes in foreign-language productions or translations.

Governments and broadcasters have become increasingly aware that the complex problems of education, interrelated as they are with political, economic, and other social factors, cannot be solved merely by solving the technological problems of delivering ETV programs. They have therefore turned increasingly to the problems of the effective use of television. Thus the problems of research on out-of-school and nonformal television move ever closer to those discussed earlier in this article.

Bibliography. Takashiro Akiyama and Sachiko I. Kodaira, *The Role of Educational Broadcasts in Japanese Schools*, Tokyo, 1984; Jennings Bryant and Daniel R. Anderson, eds., *Children's Understanding of Television*, New York, 1983; Godwin C. Chu and Wilbur L. Schramm, *Learning from Television: What the Research Says*, Washington, D.C., 1967; George C. Comstock and Marilyn Fisher,

Television and Human Behavior: A Guide to the Pertinent Scientific Literature, Santa Monica, Calif., 1975; David Hargreaves, *Adult Literacy and Broadcasting: The BBC's Experience*, London and New York, 1980; David Hawkrig and John Robinson, *Organizing Educational Broadcasting*, London and Paris, 1982; Jerome Johnston and James S. Ettema, *Positive Images: Breaking Stereotypes with Children's Television*, Beverly Hills, Calif., 1982; Norman MacKenzie, Richmond Postgate, and John Scupham, *Open Learning: Systems and Problems in Post-Secondary Education*, Paris, 1975; John Maddison, *Radio and Television in Literacy: A Survey of the Use of Broadcasting Media in Combatting Illiteracy among Adults*, Paris, 1971; John K. Mayo, Robert C. Hornik, and Emile McAnany, *Educational Reform with Television: The El Salvador Experience*, Stanford, Calif., 1976; Manfred Meyer, ed., *Children and the Formal Features of Television: Approaches and Findings of Experimental and Formative Research*, Munich, 1983; David R. Olson, ed., *Media and Symbols: The Forms of Expression, Communications, and Education* (Yearbook of the National Society for the Study of Education, Vol. 73), Chicago, 1974; Gavriel Salomon, *Interaction of Media, Cognition, and Learning*, San Francisco, 1979.

EDWARD L. PALMER

EGYPTIAN HIEROGLYPHS

Pictorial system of WRITING that appeared in Egypt about 3000 B.C.E., just before the Dynastic period and roughly at the same time as writing developed in Mesopotamia. Very little is known about the origins of this writing system, although comparison with the CUNEIFORM system that appeared in Mesopotamia does not support the hypothesis that one system influenced the other. In its earliest form the small pictorial hieroglyphic signs were used to designate objects of everyday life, animals, people, and gods (see Figure 1). Eventually, however, the writing system became differentiated into separate scripts with fairly distinct functions. Cursive versions (called hieratic and demotic scripts) were developed for specific tasks of recordkeeping or mundane communication (see Figures 2 and 3). While hieroglyphic script is the forerunner of the other two, its function became limited increasingly to inscriptions of a sacred, religious character.

The earliest evidence of writing in Egypt shows that the basic principles known from later hieroglyphic texts were already present. Hieroglyphic script represented from the start an elaborate, pictorial, iconographic system (see ICONOGRAPHY). The main changes in the script from its origins to its latest use in the fourth century C.E. were an increase in the number of signs, from about seven hundred in the classical Egyptian period to more than three thousand in the Greco-Roman period; an increase in the number of meanings that could be expressed by each SIGN; and, accordingly, an increase in the number of

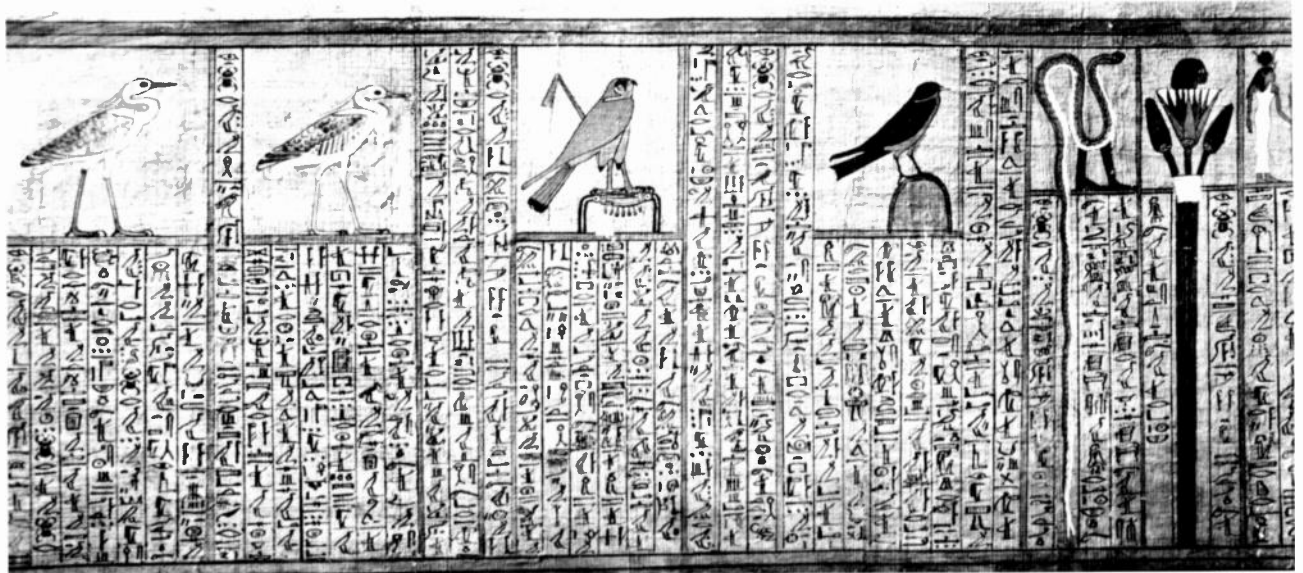


Figure 1. (*Egyptian Hieroglyphs*) Hieroglyphic script. From the papyrus “Ritual of the Transformations of the Soul.” Bibliothèque Nationale, Paris. Giraudon/Art Resource, New York.



Figure 2. (*Egyptian Hieroglyphs*) Hieratic script. From “The Great Harris Papyrus.” Reproduced by courtesy of the Trustees of The British Museum.

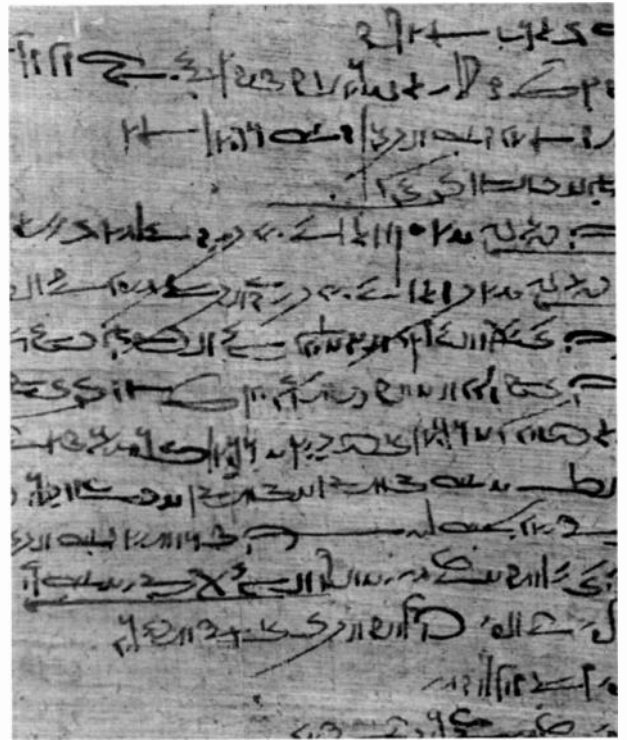


Figure 3. (*Egyptian Hieroglyphs*) Demotic script. From the papyrus “The Teaching of Onkhsheshonqy.” Reproduced by courtesy of the Trustees of The British Museum.

homophones (words that sound alike but have different meanings).

Decipherment. During the RENAISSANCE, hieroglyphs were rediscovered through the classical authors who had written about them. As a result they were considered purely as pictorial symbols, with no linguistic meaning. On this ground, for instance, while the German Athanasius Kircher (1602–1680) correctly asserted that Coptic was the last stage of the ancient Egyptian LANGUAGE, he denied that this language might be conveyed by the hieroglyphs. Another theory that failed to recognize the linguistic function of hieroglyphs was propounded by such scholars as German mathematician and philosopher Gottfried Wilhelm Leibniz (1646–1716). This theory asserted that because hieroglyphic script was pictorial, it probably represented an early stage of what was termed “universal writing,” a later stage of which was exemplified by Chinese script and which was thought to depict ideas in a universal form that was accessible to everyone.

Substantial progress in decipherment occurred only in the eighteenth century, when scholars guessed that demotic and hieratic were not separate scripts, but cursives of hieroglyphic writing, and began to conclude that hieroglyphs did in fact write a language. The Frenchman Jean-Jacques Barthélemy (1716–1795) surmised that the cartouches (small, usually oblong sections of an inscription, each of which encloses a name) contained the names of kings and queens, an important discovery that made it possible to locate meaningful sequences within a script that did not have clearly marked divisions between words. Next, the French orientalist Antoine-Isaac Silvestre de Sacy (1758–1838) established the method for the forthcoming decipherment with his studies of the recently discovered trilingual decree (in hieroglyphic, demotic, and Greek), the famous Rosetta stone (see Figure 4). Important progress was made by Swedish diplomat Johann David Akerblad (1760–1819) and English scientist Thomas Young (1773–1829), who pointed out the phonetic value of signs enclosed in some of the cartouches. However, their valuable efforts did not extend beyond reading alphabetically written late (Ptolemaic Greek) names.

The discovery that the script was both phonetic and ideographic and the subsequent decipherment were accomplished by French Egyptologist Jean-François Champollion (1790–1832). His basic insight arose from the exact interpretation of two cartouches enclosing the names of kings Thutmose and Ramses. The success of the decipherment rested on some of his predecessors' contributions, his wide knowledge of the classical history of ancient Egypt, and his mastery of Coptic, which suggested to him the correct reading of sign sequences that occurred in more than one word or name.

Types of signs. Hieroglyphic script involves three classes of signs, each of which performs a distinct function: ideograms (picture signs), phonograms (pictorial signs that represent consonants), and determinatives. Ideograms, or logograms, are pictorial signs that mean what the picture represents, whether an object or an action. For example, as shown in Figures 5a and 5b, a sign depicting a bull means “bull,” and a sign depicting a man building a wall means “build.” The relationship between representation and meaning may be metonymic (i.e., a pictorial sign may represent something that is associated with the depicted object). For example, a sign depicting a scribe's palette means “scribe” (see Figure 5c).

Phonograms are signs that employ the rebus principle: they convey the sound of what they depict, but not its meaning. This phonetic value is always consonantal, since hieroglyphic writing does not indicate vowels. Phonograms may be uniliteral (the so-called alphabetical signs), representing one consonant; biliteral, representing two consonants; or trilateral, representing three consonants.

Determinatives are signs that express no phonetic value. Used as suffixes, they clarify the meaning of signs that would be ambiguous otherwise by indicating the family of meanings to which the word belongs. For example, the determinative depicting a sealed roll of papyrus indicates that the word to which it is added refers in some way to writing or abstract notions (see Figure 5d).

In practice signs could fulfill two or three of these functions in different contexts. The way in which spellings combined ideograms, phonograms, and determinatives was not fixed, but rather fluctuated according to the date and type of the inscription. Many words were written only with phonograms, even when they could have been expressed pictorially and/or they contained more than one linguistic unit (morpheme). There are examples of writing that employed ideograms exclusively, but what they could express was necessarily very limited. Signs that functioned solely as ideograms were indicated by the addition of a small stroke. See Figure 5e for an ideogram representing the word *FeNeDj* (nose).

More often, ideograms were combined with other signs, particularly redundant phonograms (also referred to as phonetic complements), which partially or fully conveyed the phonetic reading of the sign. See Figure 5f for a mixed phonetic and ideographic spelling of *FeNeDj*. Biliteral and trilateral phonograms could also be accompanied by redundant phonograms that provided further clarification of the word. See Figure 5g for an example of *FeNeDj* with redundant phonograms that convey both the reading of the ideogram and the phonetic value of the more complex phonograms. Regardless of the spelling, a

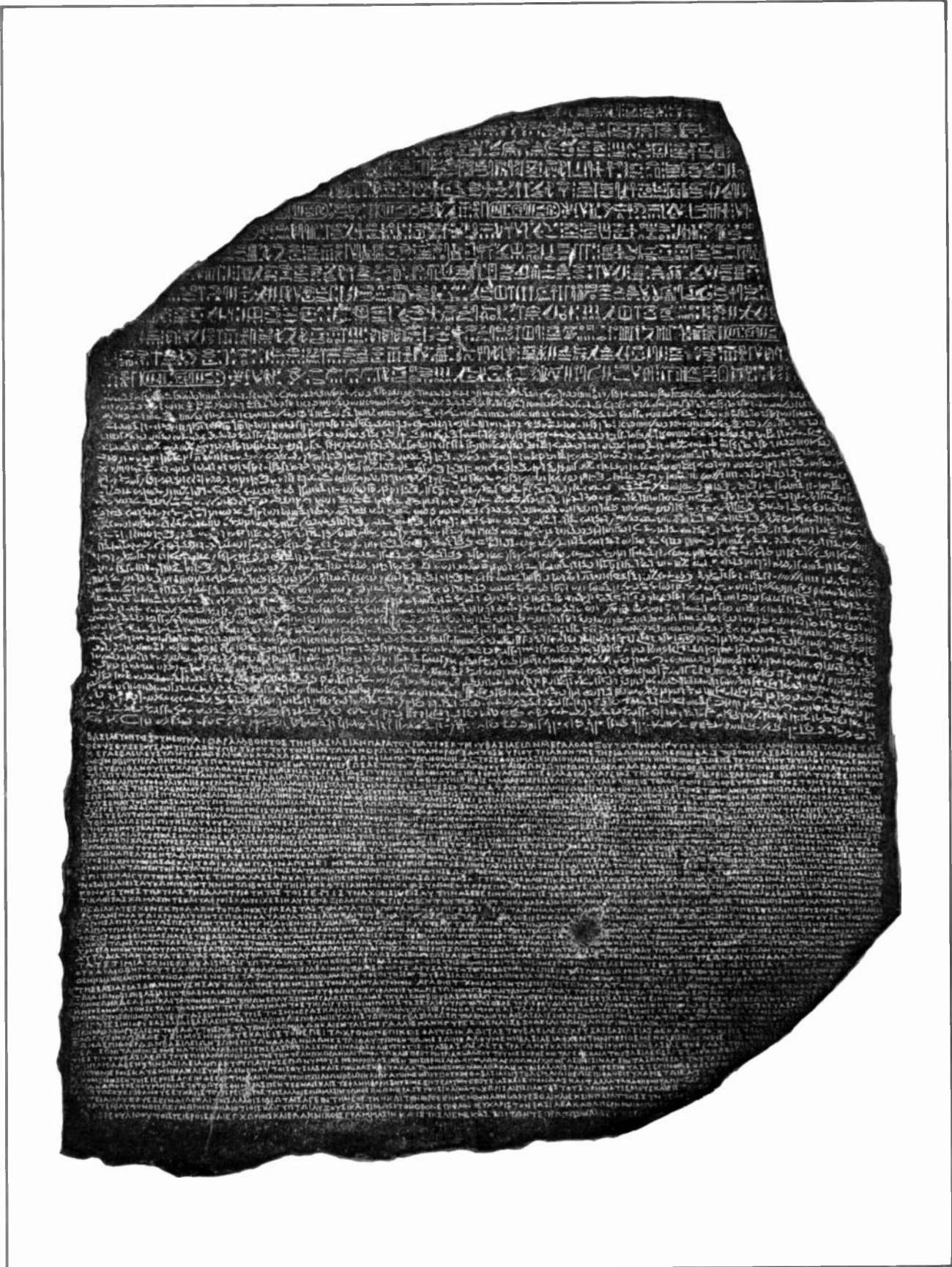


Figure 4. (Egyptian Hieroglyphs) The Rosetta stone. Reproduced by courtesy of the Trustees of The British Museum.

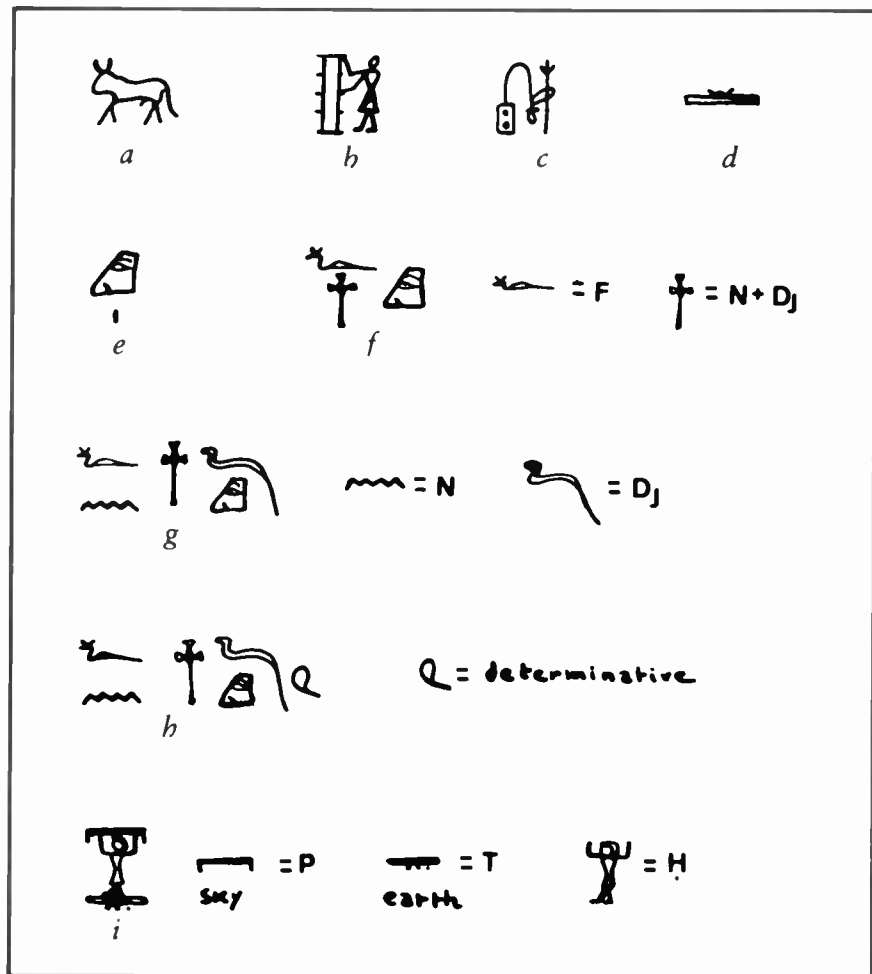


Figure 5. (*Egyptian Hieroglyphs*)
Working drawing by the author:
types of hieroglyphic signs.

determinative could be placed after the word to clarify the meaning even further. See Figure 5*h*, in which the determinative for words representing parts of the body follows the mixed spelling of *FeNeDj*.

It is clear, therefore, that writers had a great deal of discretion when spelling words. They exploited this flexibility to develop the specific semiotic capabilities of hieroglyphic writing, based largely on its unique combination of writing and art.

Relation to iconography. The most striking feature of hieroglyphic script is its pictoriality. The signs were drawn from the realities of Egyptian life; most of them may be identified at first glance, even by an uninitiated person. They were liable to the same conventions that otherwise governed pictorial records. For instance, like pictorial representations (but even more strictly), hieroglyphs were subject to rules of orientation. Asymmetric signs, such as human beings and animals, had to face the same direction, usually toward the starting point of the reading. Reading of horizontal lines or vertical columns moved in either direction, but usually signs faced right and were read from right to left.

However, two characteristics identify hieroglyphs as signs and not merely as pictures: (1) calibration and (2) complete use of space. Calibration refers to the size and placement of the signs relative to each other. The proportions of the signs depend on their arrangement in imaginary square frames within inscriptions, not on the actual size of what they depict, as is the case in Egyptian art. Complete use of space refers to the distribution of signs within the available space. Those imaginary square frames, which may be divided in half or into quarters, are arranged inside narrow strips of lines or columns so as to avoid large blank spaces. No such *horror vacui* prevails in artistic presentations.

In general, however, hieroglyphic writing shared many of the characteristics of iconography, and the border between script and representation was often blurred. The interplay between texts and representations was consciously manipulated to achieve a twofold semiotic function. Writing could function as a code transposing a linguistic message unit by unit, while at the same time it could convey meanings on a specific nonlinguistic level. For example, a picture

of a man could function as a determinative for the caption that spelled his name. Conversely, a sign within an inscription could be significantly enlarged and stand outside the calibration to function as an autonomous picture—serving as both the picture and part of its own caption.

The nonlinguistic meanings may be independent of the message (for instance, purely playful or aesthetic), they may restate the message, or they may even function as its ideological exegesis. For instance, one can write *Ptah* (a god) in such a way that the three consonants are graphically transposed to depict the mythological duty of Ptah, namely, to lift up the sky upon the earth (see Figure 5i).

These semiotic resources of hieroglyphic writing were exploited more or less sporadically from ancient times. During the Greco-Roman period, however, they were systematically employed in religious texts, especially temple inscriptions. Not merely an exercise in virtuosity for its own sake, these manipulations of the linguistic/pictorial ambiguity of hieroglyphs were a direct consequence of Egyptian religious beliefs. Egyptians believed that the signs were closely interrelated with their meanings, and Egyptian priests pursued scribal studies as part of their philosophical studies. The Greeks were so struck by this that they overestimated the pictorial functions of hieroglyphs and disassociated them from their linguistic function. For the Egyptians, however, investigating the expressive possibilities of hieroglyphic writing was no less than a study of the complex network of relationships that connected the elements of the world.

See also WRITING MATERIALS.

Bibliography. *Actes du colloque international de l'Université de Paris VII: Écritures, systèmes idéographiques et pratiques expressives*, compl. by Anne-Marie Christin, Paris, 1982; Madeleine V. David, *Le débat sur les écritures et l'hieroglyphe aux XVIIe et XVIIIe siècles et l'application de la notion de déchiffrement aux écritures mortes*, Paris, 1965; *Écritures II*, compl. by Anne-Marie Christin, Paris, 1985; Henry George Fischer, *Reversals*, Part 1, *The Orientation of Hieroglyphs (Egyptian Studies II)*, New York, 1977; Sir Alan Gardiner, *Egyptian Grammar, Being an Introduction to the Study of Hieroglyphs*, 3d ed., Oxford and London, 1957; *Naissance de l'écriture: Cunéiformes et hiéroglyphes*, Paris, 1982.

PASCAL VERNUS

EISENSTEIN, SERGEI (1898–1948)

Soviet pioneer film director and influential film theorist and teacher. Sergei Mikhailovich Eisenstein based his work and thought on the principle that the film medium is a synthesis of ART and science. His own early training in engineering, architecture, and THEATER gave a broad base to his filmmaking career; he

saw in each new subject a need to use different parts of the worlds of science and art. Each film required its own style, composition, and invention, and in all his films he had the constant collaboration of cinematographer Eduard Tisse (see CINEMATOGRAPHY).

There is no single monolithic Eisenstein FILM THEORY. The pragmatist-inventor found precedents and stimulation in unfamiliar corners of art history and scientific experiment. His constantly changing film theories cannot be taught separately from his films, and vice versa. He enjoyed teaching and often declared that his time would be better spent in writing rather than in making films. Even during the wartime evacuation of the Soviet filmmaking community to Alma-Ata, his classes were as disciplined as was the filming of *Ivan Grozny* (Ivan the Terrible, Part I, 1944). Eisenstein's lectures to his students were planned along an outline intended for a series of books titled "On Direction." Although he was ill, his last two years were spent largely in trying to complete this work.

He read widely and was similarly catholic in his filmgoing. His eagerness to work with sound and color brought new ramifications to his ceaseless research. Study of the seven complete films—*Stachka* (Strike, 1925), *Bronenosets Potyomkin* (Battleship Potemkin, 1925), *Oktiabr* (October, 1928; released in the United States as *Ten Days That Shook the World*), *Staroie i novoie* (Old and New, 1929), *Alexandr Nevskii* (Alexander Nevsky, 1938), and *Ivan Grozny*, Parts I and II (the two completed portions of *Ivan the Terrible*, 1944, 1946)—should be supplemented with an examination of his detailed notes and published treatments of *Benia Krik*, *Capital*, *The Glass House*, *Sutter's Gold*, *An American Tragedy*, *Que Viva Mexico!*, *Black Majesty*, *Moscow*, *Perekop*, *Bezhin Lug* (Bezhin Meadow), *Great Ferghana Canal*, *Love of a Poet* (Pushkin), and *Ivan Grozny III*, and of the staging of Émile Zola's *Thérèse Raquin* and Richard Wagner's *Die Walküre*.

The influence of Eisenstein's films, especially after *Potemkin*'s phenomenal success in Berlin, can be traced through subsequent German and European production methods from the wider use of non-professional actors and real settings to the integration of montage into the whole creative process (see FILM EDITING). One of the many puzzles he has left with us is, where are the great works of the students of this acknowledged great teacher? His proudest moment may have been the positive reception of *Chapayev*, written and directed by the "brothers" Sergei and Georgi Vasiliev (actually unrelated), who were in Eisenstein's first formal film course in 1928. Part of the answer is surely the assignment of some of his most promising later students to the Ukrainian studios; they died in the defense of Kiev in World War II. Another factor may be that Eisenstein's goals and



Figure 1. (Eisenstein, Sergei) Eisenstein directing *Oktiabr* (October, 1928). The Museum of Modern Art/Film Stills Archive.

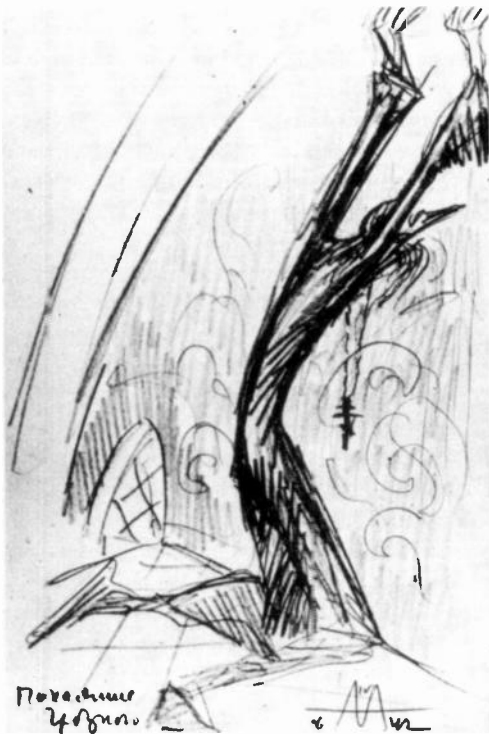


Figure 2. (Eisenstein, Sergei) A drawing by Eisenstein for Nikolai Cherkasov's role in *Ivan Grozny, Part 3*. From Jay Leyda and Zina Voynow, *Eisenstein at Work*, New York: Pantheon Books, 1982, p. 138.

ideals for his own works seemed unattainable by students without his cultural background. Was he too great a teacher? His effect on film spectators was apparently more lasting than the effect on his own students. Yet other students through the years have

continued to read his *Film Form* and *Film Sense* while studying his films.

See also MOTION PICTURES—SILENT ERA; MOTION PICTURES—SOUND FILM.

Bibliography. Sergei Eisenstein, *Film Form: Essays in Film Theory* and *The Film Sense*, ed. and trans. by Jay Leyda, New York, 1957; idem, *Immoral Memories: An Autobiography*, trans. by Herbert Marshall, Boston, 1983; idem, *Notes of a Film Director* (*Zametki kinorezhissera*), trans. by X. Danko, New York, 1970; Vladimir B. Nizhnii, *Lessons with Eisenstein*, trans. and ed. by Ivor Montagu and Jay Leyda, New York, 1962.

JAY LEYDA

ELECTION

The idea of elections is closely tied to the Western ideal of “informed choice” by an “enlightened electorate”—and is thus linked to communication in several ways. In democratic societies, communication institutions may be evaluated for their contributions to wise collective decisions. But elections do not necessarily involve choice; their more universal feature is that of legitimation. In many political systems elections are used to demonstrate who holds power (“demonstration elections”). In either case an election contributes to maintenance of the polity and to the capacity to govern it.

Choice implies that leaders or policies other than those in force might be possible. This intertwines elections with communication institutions that are free from control by the government in power, a norm to which elected governments subscribe in prin-

ciple but which in practice may be contrary to their interest in maintaining power. There is, then, an inherent tension between the communication sector and the governing sector of a political system. The press's responsibility for presenting political alternatives, implicit in exchange for its special freedoms, is put to the test most clearly in the context of an election campaign (*see* GOVERNMENT-MEDIA RELATIONS).

Campaigning, an organized set of communication activities directed toward a specific social goal, is not necessary to democratic choice, but pragmatically it is common in all but the most trivial elections. Occasionally a small polity might choose its leaders randomly (by lot) or by rotation, for a fixed period. But the usual election involves voting by the members, preceded by a campaign on behalf of alternative candidates. Not only the vote itself but the quality of the campaign that precedes and informs it will affect the eventual legitimacy accorded the chosen leaders and policies. Campaigns are communication institutions themselves; their interactions with media organizations and voters have important consequences for democratic governance.

To cast a vote can be considered an act of communication. But voting for a candidate is at best an uncertain means of expressing policy preferences; voting in elections that do not involve candidates delivers a clearer message (*see* PLEBISCITE). A ballot initiative (which establishes a law by popular vote) or referendum (by which an electorate can repeal a law) makes special demands on communication media because voters cannot rely on personalities or political parties to guide their choices. Voters' need for understanding of policy alternatives on the ballot typically exceeds the realization many times over.

Information Needs

Most research on elections focuses on votes for partisan candidates for major administrative offices, such as a nation's president, or choices between leading political parties that might form a governing coalition in a parliamentary system. Voters tend to be much better informed on these choices, owing to the intensive campaigning by competing sides via mass media, than they are regarding elections for lesser offices. But often voters are invited to make many choices regardless of their ignorance. In the United States, an extreme example, a voter might in a single year cast ballots for candidates for three national offices, half a dozen or more state offices, another dozen county and municipal offices, plus "yes" or "no" votes on various initiative and referendum propositions. Surveys repeatedly show that such votes are mostly cast in the absence of the strong infor-

mation base that the ideal of the "enlightened electorate" would assume.

Uninformed voters represent a chronic problem for democratic systems that prize both a free press and the goal of electoral decisions "in the public interest." One approach to this dilemma is to place greater normative burdens on the press to provide information and on voters to use it to inform themselves. In some systems voting is strongly encouraged; evidence of having voted may, for example, be required before issuing the citizen a travel permit. But in other systems voting is discouraged, as by onerous registration requirements or LITERACY tests that favor the majority linguistic group. In a more positive vein a degree of voter literacy may be fostered by printing multilingual ballots.

Norms may operate either for or against informed voting. For example, people may be encouraged to vote out of their duty as citizens; this encourages ritual voting, in contrast to the positive norm that one ought to be "informed about issues" before voting. Surveys that compare nonvoters to voters indicate that it is the less informed sector of the population that tends not to vote. This could be viewed as functional from an informed-electorate standpoint. It is, however, often dysfunctional for the nonvoters—who as a rule also tend to be less educated, less affluent, and less likely to share in the benefits and resources being allocated through the electoral process.

Election campaigns provide a wide array of possible sources from which voters can collect information of various kinds in making their decisions. Chief among these sources are the news media, notably the newspaper (*see* NEWSPAPER: HISTORY). People who get most of their news from RADIO or television—the majority in most surveys—are typically more casual voters, neither as partisan nor as informed as are regular readers of print media. But panel surveys that follow the same people over long periods of time indicate that many voters learn nearly as much about political issues and candidates from radio or TELEVISION NEWS as others learn from newspapers.

Issue, party, and image voting. Elected officials often assert that the votes they have received provide a mandate for their policies. The validity of this claim depends on the basis of voting. Relatively few voters give as a major reason for their choices specific policy differences between candidates. Many elections take place in the virtual absence of issue disputes or policy challenges; voters remain unaware of these considerations unless they are prominent in the campaign. Issue-oriented elections are the exception rather than the rule, representing a special achievement on the part of the media. More often votes are based on

such factors as simple name recognition in the case of an incumbent candidate, mere acquiescence to existing policies without serious consideration of alternatives, casual judgments of candidates' personalities from one or two indicators, recommendations from other voters, heavy and clever ADVERTISING, or endorsement by a prominent source such as a newspaper.

The lightly determined character of many votes should not be taken as undermining the validity of two commonly criticized but rather complex forms of political choice. One is the traditional political act of basing vote choices primarily on *party* affiliation; the other, prominent in the era of television, is commonly called *image* voting. Issue-based voting is often viewed as a tradeoff against these other general categories of voter decision making. But both party and image voting, although they may seem quite simple on the surface, can represent communication and information collation at least as extensive as that involved in issue voting.

Political parties arise, at least informally, in almost any electoral system. Even in one-party systems there are "wings" or factions that represent interest aggregations and coalitions. An enduring party is both the product and the producer of a wide range of political communication. Revolutionary parties create their own press systems, and once in power they often convert the major media to their own perpetuation in power. This has been most obvious in Communist systems, in which the revolutionary movement incorporates a rationale for operation of the means of political mass communication by the state.

New communication media in Western democracies have partially replaced the party as a channel for distributing messages and for gaining political contributions (*see* POLITICAL COMMUNICATION—IMPACT OF NEW MEDIA). But parties, sometimes informal ones, continue to represent constellations of issues and interests in most political systems. To the extent that these interests are interrelated or at least mutually compatible, voting for a party's candidate is a surer method of issue voting than is attempting to pore over the many claims and promises of competing candidates for all offices.

The popular literature critical of television lays heavy emphasis on the charge that votes are mainly determined by candidates' personalities or "images." But research suggests that much more than presentation of candidates' superficial attributes is involved. The character of a candidate in terms of honesty, intellect, and leadership qualities is often evaluated by voters as part of a highly complex judgment. These attributes are difficult to assess even at first hand, and the more so via the media. There remains no clear-cut evidence of a systematic tendency among

citizens or media to be seduced by a photogenic fraud.

Media Coverage

The press is sometimes criticized for organizing its political reporting in terms of predictable themes. In a long campaign voting decisions are interpreted in terms of which candidate is "leading the race" and who is "the underdog," as if politics were analogous to professional sports. This means that voters, who by their choices determine who is ahead, are in turn the target of information that might influence future voter choices.

Despite considerable research no clear pattern of BANDWAGON EFFECTS (i.e., people wanting to vote for the anticipated winner) has been documented. For some voters, learning that their candidate is "trailing" may be discouraging; to others it can be a stimulus to redoubling campaign efforts. Nonetheless, restrictions on media reports of preelection polls are often proposed (*see* POLL). There has been a special concern in the United States regarding media "computer projections" of presidential election outcomes based on partial returns that are broadcast while voting is still in progress. In many countries the scope of media coverage is limited by law to avoid these journalistic influences on those who have not yet decided how to vote.

The high cost of campaigning, particularly in countries where broadcast time is sold, operates to keep the number of candidacies low. But there is a loss in the variety of political perspectives presented to the electorate when only well-established parties and leaders can afford an effective campaign. The media, because of their limited resources, may also have a stake in thinning down the list of candidates, although they also constantly need the "news" those candidates make. In multiparty systems such as those commonly found in western Europe, news media are sometimes required by law to provide coverage or equal access to *all* official entrants in an election race, not just to those they judge to have a "serious" chance of winning.

Although the press and politicians represent quite separate interests and often assume adversarial roles in an election campaign, they also share a common stake in communication. The press needs news to report, and a candidate needs publicity; successful candidates manage to generate publicity for themselves that is also news for the reporters. Much of the money raised for a campaign goes into paid advertising, which is in turn the basic economic support for a "free"—that is, commercial—press. The media and the politicians, then, combine symbiotically to inundate the public with both advertise-

ments and publicity-news during a campaign. Much of the "campaign news" focuses on candidates' names, faces, and personalities.

Paid political advertisements, although they are often criticized as misleading, sometimes provide voters with knowledge regarding policy differences between candidates. Dependence on advertisements extends even to volunteer campaign workers, who may find out more about their own candidate from television commercials than from the local campaign office. In European democracies party broadcasts and party-aligned newspapers, which are the rule, often serve this issue-information function. In many countries elections have increasingly featured televised debates between candidates (*see* POLITICAL COMMUNICATION—BROADCAST DEBATES). Multicandidate presentations greatly reduce opportunity for selective exposure of an individual voter to a single party. The partisan European media probably leave greater opportunity for selective exposure in a campaign, but they also maintain wider latitude for exposition of noncentrist political positions (*see* SELECTIVE RECEPTION).

Incumbency. Biases in coverage based on incumbency in office are less well controlled than are partisan biases, both because officeholders have no interest in reducing the preponderant advantage they gain from heavy press coverage and because an incumbent provides the press with a convenient peg on which to hang a news article. U.S. studies show much more coverage in the media, and much more information in voters' minds, about incumbents than about the candidates challenging them for their seats. Not surprisingly, incumbents regardless of party tend strongly to be reelected.

Interpersonal channels. Interpersonal influence during an election campaign has been thought to be quite strong but has not been directly assessed. It was emphasized in the earliest studies as an alternative explanation to media influence—by researchers who could not find strong evidence of the latter. They suggested that influence proceeds in a "two-step flow" from the media to opinion leaders and then on to other voters (*see* OPINION LEADER). Subsequent studies, however, indicate that people as a rule get news directly from the media and attribute more influence on their opinions to the press than to personal acquaintances.

Systemic functions. Functions of an election for the political system extend beyond the manifest purposes of electing leaders and choosing among policy alternatives. By emphasizing the political community as a whole, an election—even when it offers no real choice—serves an integrative function, which can be particularly important in nations composed of diverse or dispersed populations. This is perhaps most no-

ticeable in India, a huge multilingual and multiethnic nation where elections have become a celebration of nationhood even when they are divisive on particular issues (*see* POLITICAL SYMBOLS). Elections have re-emerged in many Latin American countries following years of military rule.

The raising of campaign issues also serves an AGENDA-SETTING function, in that the election focuses public and governmental attention on high-priority problems. Election campaigns intensify the process of socialization of new members to the political system, both young people coming of age and immigrants from other societies (*see* POLITICAL SOCIALIZATION).

At the most macroscopic level of analysis elections serve to legitimize all institutions associated with them. This legitimation function is not simply a matter of acquiescence by members of the system to the choice they make. In international politics a "duly elected government" has a particularly strong claim to diplomatic recognition by other nations. (In some local situations citizens refuse to vote rather than confer this legitimacy via the election.) The democratic electoral system and the political community as a whole are also reaffirmed and strengthened by an election. So too is the communication system that serves this process.

See also MASS COMMUNICATIONS RESEARCH; MASS MEDIA EFFECTS; POLITICAL COMMUNICATION—HISTORY; PUBLIC OPINION.

Bibliography. Bernard Berelson, Paul F. Lazarsfeld, and William N. McPhee, *Voting: A Study of Opinion Formation in a Presidential Campaign*, Chicago, 1954; Jay G. Blumler and Denis McQuail, *Television in Politics*, Chicago, 1969; Steven H. Chaffee, ed., *Political Communication: Issues and Strategies for Research*, Beverly Hills, Calif., 1975; Peter Clarke and Susan H. Evans, *Covering Campaigns*, Stanford, Calif., 1983; Kathleen Hall Jamieson, *Packaging the Presidency: A History and Criticism of Presidential Campaign Advertising*, New York, 1984; Sidney Kraus and Dennis Davis, *The Effects of Mass Communication on Political Behavior*, University Park, Pa., 1976; Paul F. Lazarsfeld, Bernard Berelson, and Hazel Gaudet, *The People's Choice* (1948), 3d ed., New York, 1968; Michael B. MacKuen and Steven L. Coombs, *More Than News: Media Power in Public Affairs*, Beverly Hills, Calif., 1981; Dan D. Nimmo and Keith R. Sanders, eds., *Handbook of Political Communication*, Beverly Hills, Calif., 1981; Thomas E. Patterson, *The Mass Media Election*, New York, 1980; Percy H. Tannenbaum and Leslie J. Kostrich, *Turned-on TV/Turned-off Voters*, Beverly Hills, Calif., 1983; David Weaver, Doris Graber, Maxwell McCombs, and Chaim Eyal, *Media Agenda-setting in a Presidential Election*, New York, 1981.

STEVEN H. CHAFFEE

ELECTRONIC MUSIC

The development of electronic music stemmed largely from a desire on the part of composers to extend the sounds available to them, to go beyond the reaches of the traditional orchestra to a point at which they could even work with sounds never heard before. The development belongs by definition to the age of electronics, which began with the invention of the electron tube in the first decade of the twentieth century, but electronic music had its precursors in the previous century.

Early history. In 1837 Dr. C. G. Page of Salem, Massachusetts, reported that one could produce a ringing SOUND by toying with horseshoe magnets, a coil of copper wire, and a zinc-lead battery. Although he was at a loss to explain the phenomenon, he called the result "galvanic music" and shared his findings with others. In 1874 Elisha Gray, an early telephone experimenter, invented a one-octave keyboard instrument that was battery powered and produced sound through the use of single-tone telegraph transmitters. In 1899 English physicist William Duddell produced circuitry that could control and modulate the whining sound of carbon-arc streetlights. He attached a keyboard to this primitive voltage-controlling device and demonstrated it in numerous public performances.

The early experiments, little more than toys, were succeeded by performance instruments—that is, instruments designed to be played live before an audience, sometimes with other, more traditional instruments. The most ambitious instrument of this sort before the availability of the vacuum tube was the telharmonium of Thaddeus Cahill. He patented it in 1896, although his first operating model was not completed until 1900. His grand plan was to synthesize the sound of the orchestra—*synthesize* was the word he used. In 1906 he installed a two-hundred-ton instrument in Manhattan, with which he intended to send live music by wire to nightclubs in the city. The business was a failure, but elements of his design were applied by Laurens Hammond years later in the development of the popular Hammond organ.

The subsequent evolution of such instruments was closely related to the development of electronics. Early vacuum-tube radios sometimes squealed when a hand was brought near them. In 1920 Russian scientist Leon Theremin built a simple performance instrument that made use of this phenomenon (beat-frequency modulation). Called the theremin, the instrument was performed by waving one's hand in the air between two antennae, which caused interference between two radio-frequency signals and generated a third "beat" frequency that could be heard

by the human ear. The manner in which it was played enhanced the mysterious nature of the device. The instrument produced continuous tones and was monophonic (producing one note at a time). It was used for the production of movie soundtracks through the 1960s. A transistorized version of the theremin was invented in the early 1960s by U.S. engineer Robert Moog. The principle of the theremin was also used in the sphärophon, invented in 1924 by Jörg Mager of Germany. It had a keyboard so that notes could be played more accurately. It could play quarter tones, was monophonic, and was not restricted to producing sweeping glissandi sounds like the theremin.

Another monophonic instrument similar to the theremin was the ondes martenot, invented by Maurice Martenot of France in 1928. It was designed more like a traditional keyboard instrument and therefore enjoyed popularity as a special instrument in the classical mold. The right hand changed the tone by moving a sliding metal ring up and down over a pattern of a normal keyboard. The left hand controlled volume with a pressure-sensitive key; when fully released, it would produce the silence needed to make a transition from one note to the next. A small bank of buttons controlled the filtering of the sound. Composers such as Darius Milhaud, Arthur Honegger, and Olivier Messiaen wrote music for the ondes martenot.

Among other instruments developed for the performance of electronic musical sounds were the trautonium of Dr. Frederick Trautwein (1930), the mixtur-trautonium of Oskar Sala (1950), the Hellertion of Bruno Helberger and Peter Lertes, and numerous other devices such as the emicon, the melodium, the oscillion, the croix sonore, the magneton, the mellertion, the dynaphone, and the photophone. The electronic organ, the electric piano, and the electric guitar were other developments during this period.

Electronic music studios. The invention of the tape recorder freed electronic music from the restrictions of live performances. In the electronic music studio one could meticulously record and rerecord individual electronically generated tones to construct music from its component parts. Although the early performance instruments found a place in the early electronic music studios of the 1950s, a new breed of instrument was clearly needed that could take advantage of the studio. The early studios themselves set the pace for the field by providing examples of the kind of serious electronic music that could be produced. Three major studios dominated the field in the 1950s: the French National Radio in Paris, the Northwest German Radio (NWDR) in Cologne, and the Columbia-Princeton Electronic Music Center in New York.

Digital Synthesis	Analog Synthesis	Electronic Organs
<p>Current Manufacturers: Casio, New England Digital, Fairlight, Ensoniq, E-MU, Roland, Kurzweil, Korg, Buchla, and others.</p> <p>1985: Yamaha Computer Assisted Music System 1984: Kurzweil 250, Ensoniq Mirage 1983: EMU Emulator 1982: Buchla Digital 1980: alphaSyntauri 1979: Fairlight CMI, Casiotone 1975: Synclavier</p> <p>1957: Bell Labs experiments begin</p>	<p>Current Manufacturers: Korg, Roland, Yamaha, Casio, Moog, and others.</p> <p>1983: Korg Poly 60</p> <p>1980: Yamaha DX-7</p> <p>1978: Prophet-5 1975: Moog Polymoog 1973: Oberheim 1971: Arp 2600 1970: Arp 2500 1969: EMS Putney, Moog Minimoog 1966: Synket, Buchla 1965: Electronium 1964: Moog 1960: Clavinet 1959: RCA Mark II 1956: Electronic Sackbut 1955: RCA Mark I 1952: Monochord 1950: Mixtur-Trautonium 1947: Melochord 1945: Ondioline, Hanert Electrical Orchestra 1944: Grainger-Cross Free Music Machine</p> <p>1934: La Croix Sonore</p> <p>1930: Trautonium, Vierling-Koch organ, Partiturophone 1929: Hellertion, Coupleaux-Givelet Automatic Musical Instrument 1928: Ondes Martenot 1924: Sphärophon 1920: Theremin 1900: Telharmonium 1899: Singing Arc 1874: Musical Telegraph</p>	<p>Current Manufacturers: Hammond, Baldwin, and others.</p> <p>1940 to present: Continued development of analog and digital electronic organs. 1939: Hammond Solovox 1935: Coupleaux-Givelet organ, Hammond Novachord, Warbo Format Organ</p> <p>1929: Hammond Organ</p>

Figure 1. (*Electronic Music*) Electronic music instruments time line. © 1986, Thomas B. Holmes.

In 1948 Pierre Schaeffer of French National Radio began to tinker with the composition of music using “found” sounds in the station’s library of music discs. He was joined by Pierre Henry in 1949. Equipped by 1951 with tape recorders, filters, and other equipment, they established a genre of elec-

tronic music called *musique concrète*. *Musique concrète* employed only sounds that could be recorded from the real world: voices, trains, traffic, noise, and so forth. The composers then rearranged and edited the material for effect, creating massive collages of pulsating, melodramatic sounds that were on the

leading edge of experimental music. The style persists today in the use of sounds from the real world in all forms of music. *Musique concrète* was broadened in scope by the mid-1950s to incorporate electronically generated sounds with found sounds. Further impetus for the development and dissemination of electroacoustic and computer music in France came about as a result of the establishment of IRCAM (Institut de Recherche et Coordination Acoustique Musique) at the Pompidou Center in the late 1970s.

While the French were experimenting with *musique concrète*, the Germans developed a style based on the use of purely electronic tone generation. Under the tutelage of musicologist Herbert Eimert, young German composers like Karlheinz Stockhausen (later director of the Cologne studio) were given the opportunity to explore the uncharted territory of electronic music. The early works of the studio used only pure electronic sounds, but later work branched out into combinations of natural sounds with electronic sounds. The result was an extension of serial (twelve-tone) music in which the composer manipulated every dynamic aspect of the sound to produce the desired effects. The German studio had some of the most elaborate equipment of the day, including a monochord (an updated version of the *trautonium*), sine and sawtooth wave oscillators, a variable-speed tape recorder, a four-track tape recorder, audio filters, a mixing panel, and a *melochord* that featured two monophonic tone generators that could be played simultaneously using two keyboards.

Although formal studio activity in the United States followed a little later than in France and Germany, its participants succeeded in constructing the most sophisticated synthesizer of the day. The Columbia-Princeton Electronic Music Center was established in 1957 and was designed to house the Olson-Belar synthesizer produced by RCA and later known as the Mark I. Employing vacuum-tube electronics and amplified tuning-fork oscillators, the instrument was very large and occupied most of one studio room. It was not actually a computer, although a paper-tape system (more like that of a player piano) was devised to feed the machine instructions. It could be programmed to control the pitch, volume, duration, and timbre of sounds, and because of this it became one of the most versatile instruments of its day. Composers from around the world came to the studio to use the machine. Some of the more familiar composers to have worked there were Edgard Varèse, Otto Luening (cofounder of the studio), Vladimir Ussachevsky (cofounder of the studio), Milton Babbitt, Charles Wuorinen, Luciano Berio, Wendy Carlos, and Pauline Oliveros.

Later synthesizers. The next significant leap forward in the development of electronic music instruments came with the invention of the Moog synthesizer

in 1964. Based on the principle of voltage control, this monophonic instrument provided the composer with unusual versatility in the combination and manipulation of electronic sounds. This was followed by a wide variety of voltage-controlled synthesizers made by other companies, including the Buchla Modular Electronic Music System (1966), the Arp 2500 (1970), and scores of additional units by companies like Roland, Korg, Oberheim, and EMS. Through those developmental years many new approaches to the design and control of instruments were employed, resulting in the production of polyphonic synthesizers capable of playing more than one note at a time, portable keyboards that could be held like a guitar, and models ranging in size from large studio machines to small performance keyboards for use on-stage.

Until 1975 all the commercially available electronic music synthesizers were analog in design. Although the computer or digital generation of sound had been the subject of experiments for many years, it was not until 1975 that the first commercially available digital synthesizer was produced. Called the *Synclavier*, it featured multitracking of sounds and a wide variety of preset and programmable sound choices for the composer or performer. This was followed by the introduction of low-priced, consumer-oriented digital keyboards by the Casio Corporation in 1979 and a continuing interest in the use of digital synthesis techniques. By the late 1980s more than one hundred companies were engaged in the manufacture of electronic music instruments, software, and peripherals for making music with synthesizers and personal computers.

See also MUSIC MACHINES; MUSICAL INSTRUMENTS; SOUND EFFECTS; SOUND RECORDING.

Bibliography. Michel Chion and Guy Riebel, *Les musiques électroacoustiques*, Bry-Sur-Marne, France, 1976; Herbert Deutsch, *Synthesis: An Introduction to the History, Theory and Practice of Electronic Music*, Port Washington, N.Y., 1976; Thomas B. Holmes, *Electronic and Experimental Music*, New York, 1985.

THOMAS B. HOLMES

ELECTRONIC PUBLISHING

The term *electronic publishing*, though popular, is nevertheless ambiguous, alluding to different kinds of activities and products. It may be used to describe the production of books, magazines, newspapers, and other printed products that do not differ in general appearance from those of the past but are produced through the application of a variety of new technologies. These innovations include computers and computer programs used in conjunction with

high-speed photocomposition machines or such devices as laser scanners and imaging engines (see FIBER OPTICS). They also include the capture of original input from writers by means of optical character recognition, on-line input and editing terminals, off-line diskettes (floppy disks) from personal computers, or remote transmission of text and GRAPHICS by TELEPHONE line, microwave, or SATELLITE.

The same term may also be used to imply production from a given DATA BASE of digital information. The use of a data base makes it possible to update, reorganize, and rearrange textual (or even graphic) information and to publish selected parts of such data for different uses or markets or at different times.

Yet another common use of the term refers to alternative PUBLISHING ventures in which the material published does not resemble the conventional BOOK or MAGAZINE. In this sense publishing consists of providing a data base of information that can be accessed by telecommunications or supplying digital data for research or referral purposes in the form of a transportable magnetic medium such as a digital computer disk. A variety of services of this character have developed, some of which not only provide information retrieval capability but may also afford a mechanism for the handling of transactions, the monitoring of equipment, access to computational facilities, and electronic messaging services. Companies have emerged with names such as Videotex, Pentel, Oracle, Ceefax, Tèlètel, Telidon, CompuServe, and The Source, as well as QL (law research and newspaper retrieval services), Vu/Text, Nexis, and Unidas. In specialized fields, various on-line services are available; for instance, Bibliographic Retrieval Services (BRS) offers BRS-MD for medical information retrieval, and the American Chemical Society provides on-line access to the data bases of many of its publications. See VIDEOTEX.

It may be seen that some uses of the term *electronic publishing* arise from consideration of the *technology* of publishing, while other references address the *product* itself. There is obviously a relationship between these two concepts—production technology and the nature of the product—since production technology makes possible the digital storage of textual data and even graphics. Access to this store of data can be made available in nonprint format, and its contents can also be manipulated in electronic format.

The application of computers and electronics to the publication process has caused significant changes in the way people work, the structure of the graphic arts industry, and especially the responsiveness of the publication process. For example, national newsmagazines work with input typed into the system directly by writers and reporters; editing takes place on-line,

and page layout and makeup are performed on WYSIWYG (“what you see is what you get”) work stations; photographs are cropped, rotated, enhanced, or sharpened; and complete pages (including text and graphics) are then transmitted via satellite to a remote printing plant. These activities can be accomplished more effectively, within a much shorter time span, and often with an editorial quality surpassing that which had previously been possible.

With the advent of microcomputers and inexpensive laser imaging devices, a form of electronic publishing known as desktop publishing can be carried on by persons who have had no formal experience or training in the graphic arts industry. They can apply computer programs that justify text with even right and left margins and hyphenate words, can check definitions and spellings with an on-line dictionary, and can even use a program capable of checking grammar. Artwork can be created in both raster (dot-for-dot) and vector (line) format, and other art can be scanned and recorded, thus affording creative opportunities for combining text and graphics. Page makeup decisions may be effected interactively by the user or by a computer-run procedure (see INTERACTIVE MEDIA).

With the ability to store text and graphics in digital form, *demand publishing* becomes possible. Researchers and readers may be able to command the PRINTING of selected materials for their own use, derived from an electronically stored source, rather than having to photocopy existing printed matter.

Electronic publishing is thus a ferment of processes, relationships, and opportunities for the interchange of information and the dissemination of knowledge. Publishing—only one of the forms of communication—grows and becomes ever more closely intertwined with other communications media such as radio, telephone, and television, all of which are being enhanced and extended by the achievements of modern electronics (see MICROELECTRONICS).

See also COMPUTER: HISTORY; COMPUTER: IMPACT; STANDARDS; TELECOMMUNICATIONS NETWORKS; TYPOGRAPHY.

Bibliography. Caroline Chauncey, “The Art of Typography in the Information Age,” *Technology Review* 89 (Mar. 1986): 26–31, 79; Jean Crichton, “Turnkey Systems for Book People,” *Publishers Weekly* 228 (Aug. 16, 1985): 37–41; Jerome P. Frank, “First Major Publisher to Install Computer-Assisted System (J. B. Lippincott),” *Publishers Weekly* 228 (Oct. 4, 1985): 52, 53; Steve Roth, “Turnkey Systems Revisited,” *Publishers Weekly* 228 (Dec. 13, 1985): 43; *The Seybold Report on Publishing Systems*, Media, Pa., 1971–; John W. Seybold, *The World of Digital Typesetting*, Media, Pa., 1984; Allene Symons, “Technology in the Bookstore,” *Publishers Weekly* 228 (Sept. 6, 1985): 36, 42; Michael Wallace, “Technological Changes in Print-

ing: Union Response in Three Countries," *Monthly Labor Review* 108 (July 1985): 41–43.

JOHN W. SEYBOLD

ENCYCLOPEDIA

One of the world's foremost instruments for collecting and disseminating knowledge. This has been true especially since about 1500, because gradual changes in the encyclopedia's form after that time encouraged even more its use as a communicator of information. The invention of PRINTING, the growth of wealth, increasing LITERACY, and many other factors have reshaped the encyclopedia while enlarging its readership.

Etymology. The word was first used in Renaissance Latin and spelled *encyclopaedia*. Derived from a misreading of Greek manuscripts, *enkyklopaideia* was thought to be *enkyklios paideia*, meaning the "circle of knowledge," that is, the learning that the Greeks believed was essential for a general education. Then *encyclopaedia* took on a second meaning, that of a work containing information on many diverse topics. In the sixteenth century the word started to appear in various forms in BOOK titles, such as *Margarita Philosophica Encyclopaediam Exhibens* (Strasbourg edition, 1508), J. S. van Ringelbergh's *Lucubrationes, vel potius Absolutissima Kyklopaideia* (1541), and Paul Scalich's *Encyclopaediae, seu Orbis Disciplinarum, tam Sacrarum quam Prophanarum, Epistemon* (1559). The word continued to appear in titles of Latin and other works during the seventeenth century. Finally, *encyclopaedia* and its varied spellings in different vernacular languages came to be adopted more frequently than the words *dictionary* or *lexicon* for the description of a book containing extensive learning. This happened after Ephraim Chambers employed the term, in modified form, for his English *Cyclopaedia: Or, an Universal Dictionary of Arts and Sciences* (1728), and the French men of letters DENIS DIDEROT and Jean Le Rond d'Alembert used it for their *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers* (1751–1772).

Three civilizations—Chinese, Arab, and European—produced most of the world's encyclopedias until well into the nineteenth century. The Chinese and Arab traditions differed markedly from the European; Chinese encyclopedias were mostly compendiums of documents, and the Arab encyclopedias were strongly influenced by Muhammadanism.

Early history. Ancient and medieval European encyclopedias cover many of the same topics as later ones, although certainly not in so much depth. Knowledge has expanded enormously and has been subdivided into numerous disciplines. Science, med-

icine, RELIGION, and the humanities are discussed in such influential early encyclopedias as Pliny the Elder's *Historia naturalis* (77 C.E.), Isidore of Seville's *Originum seu etymologiarum libri XX* (ca. 636), Hugh of Saint Victor's *Didascalicon: De Studio Legendi* (late 1120s), and Vincent of Beauvais's *Speculum Maius* (1244). In addition, Theophilus's *De Diversis Artibus* (probably between 1110 and 1140) describes the mechanical arts, and Gulielmus Pastregricus's *De Originibus Rerum Libellus* (ca. 1350) does the same for biographical topics. One important innovation in the contents of encyclopedias since 1350 has been the inclusion of individual biographical articles on living people. These first appear in Johann Heinrich Zedler's sixty-four-volume *Universal Lexicon* (1732–1750).

Later developments. Since 1500 encyclopedias have become even more strikingly different from their predecessors. To make the encyclopedia more ordered, intelligible, and usable, alphabetical arrangement, cross-references, indexes, and other devices gradually appeared. The first encyclopedias had been organized topically and were usually designed to be read from cover to cover, but occasional works in ancient and medieval times adopted either in part or completely an alphabetical arrangement. Then, in the sixteenth century, various Latin-language dictionaries employed an alphabetical arrangement, and in the seventeenth century the practice spread to such vernacular encyclopedias as Louis Moréri's *Grand dictionnaire historique* (1674). Since that time the alphabetical arrangement has been more common than the topical.

Domenico Bandini, in his *Fons Memorabilium Universi* (ca. 1410), used cross-references. They started to become much more effective no later than Chambers's eighteenth-century *Cyclopaedia*, in which he carefully cross-referenced over half of his articles.

Rudimentary contemporary indexes are found for various medieval, sixteenth-century, and seventeenth-century works. Pierre Mouchon added a separate two-volume index to Diderot and d'Alembert's *Encyclopédie* in 1780. However, only in the nineteenth century did systematic indexing start to become standard in encyclopedias.

Compilers of encyclopedias have also introduced various techniques in order to keep abreast of new learning. Revised editions had been a characteristic of encyclopedias before 1500, but yearbooks did not appear until the nineteenth century. From 1857 to 1864 Brockhaus published one in monthly installments, and from 1861 to 1902 *Appleton's Annual Cyclopaedia and Register of Important Events* supplemented *The American Cyclopaedia*. In addition, around 1920 several encyclopedias began the practice of continuous revisions with the hiring of permanent staffs.

The composition of the staff of an encyclopedia has also been transformed. Before the eighteenth century most, if not all, encyclopedias were compilations written by one or a few jacks-of-all-trades. The *Encyclopédie* of Diderot and d'Alembert changed all that. The work enlisted more than a hundred contributors, many of them experts on the subjects they wrote about. Then, during the nineteenth century, the *Encyclopaedia Britannica*, *Brockhaus*, and other large-scale encyclopedias introduced a further refinement: an editor in chief, assistant editors, and hundreds of contributors.

During the nineteenth and twentieth centuries the number of encyclopedias has grown phenomenally. Not only have the *Britannica* and *Brockhaus* continued to be published since their founding in 1768 and 1796, respectively, but many others have appeared. In fact, the creation of an encyclopedia has even become a matter of national prestige, and one European country after another has produced one. Just a few are *Encyklopedia powszechna* (Poland, 1858–1868), *Egyetemes magyar encyclopaedia* (Hungary, 1861–1876), *Enciclopedia universal ilustrada europeo-americana* (Spain, 1905–1933), *Bol'shaya sovet'skaya entsiklopediya* (USSR, first edition, 1927–1947), *Enciclopedia italiana* (Italy, 1929–1939), and *Encyclopédie française* (France, 1935–1966).

The making of encyclopedias has become one of the biggest enterprises of the book trade. In the MIDDLE AGES Isidore of Seville's and Hugh of Saint Victor's encyclopedias circulated in not more than two thousand copies combined. Two of the most controversial encyclopedias ever written, Pierre Bayle's *Dictionnaire historique et critique* (1697) and Diderot and d'Alembert's *Encyclopédie*, had printing runs of little more than two thousand and forty-two hundred sets, respectively, for their first editions. On the other hand, the fifth edition of Brockhaus's *Allgemeine deutsche Real-Enzyklopädie für die gebildeten Stände* (1819–1820) printed over thirty thousand sets in the years 1819–1823 alone; the *Britannica* during the early 1960s was selling more than one hundred fifty thousand sets worldwide annually and sending its yearbook to eight hundred thousand subscribers.

Encyclopedias not only remain one of the best sources for comprehending a civilization but also are an important influence in shaping it.

See also CLASSIFICATION; LANGUAGE REFERENCE BOOK.

Bibliography. Robert Lewis Collison, *Encyclopaedias: Their History throughout the Ages*, 2d ed., New York, 1966; "Encyclopaedias and Dictionaries," *The New Encyclopaedia Britannica*, Vol. 18, Chicago, 1985 ed.; "Encyclopédie," *Trésor de la langue française: Dictionnaire de la langue du XIXe et du XXe siècle (1789–1960)*, Paris,

1971 ed.; "Encyclopédies et civilisations," *Cahiers d'histoire mondiale* 9 (1966): 449–851; Frank A. Kafker, ed., *Notable Encyclopedias of the Seventeenth and Eighteenth Centuries: Nine Predecessors of the Encyclopédie* (Studies on Voltaire and the Eighteenth Century, T. 194), Oxford, 1981; Alain Rey, *Encyclopédies et dictionnaires*, Paris, 1982; Gert A. Zischka, *Index Lexicorum: Bibliographie der lexikalischen Nachschlagewerke*, Vienna, 1959.

FRANK A. KAFKER

ENTERTAINMENT

Entertainment, entertaining guests, and entertaining an idea have in common the root word *entertain* (from the Latin *tenēre*), meaning to hold or to keep steady, busy, or amused. The modern definition of entertainment is any NARRATIVE, PERFORMANCE, or other experience that can be sold to and enjoyed by large and heterogeneous groups of people. It is usually sought for its own sake rather than for informational, educational, therapeutic, or other instrumental purposes. Thus the term is useful for commercial purposes in selling cultural commodities of broad general appeal. However, the term obscures the fact that entertainment also has informational content that usually cultivates conventional themes, outlooks, and perspectives (see CULTIVATION ANALYSIS). This is why some analysts have called entertainment "information for those who seek no information" and consider it a powerful ideological force in any society (see IDEOLOGY).

The modern concept of entertainment began to evolve with the transition in societies from ORAL CULTURE to WRITING. For the first time storytelling could transcend barriers of time and distance, reaching audiences not known to or even conceived of by the teller. With the emergence of PRINTING and, later, of other mass media—PHOTOGRAPHY, SOUND RECORDING, MOTION PICTURES, RADIO, and television (see TELEVISION HISTORY)—increasingly larger and more diverse audiences were able to share the same entertainment experience. These developments led by the mid-twentieth century to the creation of international audiences for media artifacts (see ARTIFACT) considered to be marketable commodities in world trade. Entertainment has become the business of a vast and highly differentiated industry encompassing PUBLISHING, film and television production, and performance genres (see GENRE) of various kinds, including popular music (see MUSIC, POPULAR) and SPORTS (see also SPECTACLE). Under such circumstances entertainment has acquired new shades of meaning. It is a trade term designating a particular category of marketed product and as such has administrative and legal ramifications.

When a film or television program is classified as entertainment, the label implies that it is intended

primarily to absorb the attention and to leave agreeable feelings. Any weightier roles of communication, such as EDUCATION OR PERSUASION, are assumed to take a back seat, in contrast to other types of content such as news (*see* TELEVISION NEWS), POLITICAL COMMUNICATION, OR ADVERTISING. Entertainment may indeed inform or persuade, but it is generally presumed that these effects are secondary or incidental and will not interfere with the real function of pleasant diversion. This assumption is embedded in such phrases as “mere entertainment” and “pure entertainment” and in the idea of entertainment as an escape from reality.

Entertainment has thus become a crucial industry term that in the process of demarcating subject matter and approach also functions as a disclaimer of intent or effect. In HOLLYWOOD's big-studio era, for example, it was used to describe the studio product and went with the traditional dictum to writers, “If we want a message, we'll send for Western Union.” The word and its implications served as a strategic defense in the 1930s and 1940s in industry struggles against CENSORSHIP boards and proposals for such boards on local and national levels in the United States and elsewhere. In the 1950s television inherited the problem as well as the strategy.

At the same time that this concept of entertainment was achieving international currency, the mass media were themselves the increasing focus of important systematic research (*see* COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT). Early research helped to define the terms of the debate inasmuch as the use of entertainment as a disclaimer of intent or effect is based largely on its accepted distinction from PROPAGANDA. Propaganda is usually associated with formats that, like the DOCUMENTARY OR COMMERCIALS, announce and confront their topics, and for that reason such formats may confound their purpose by alerting the audience's critical faculties and generally enmeshing it in “on the other hand” considerations. Yet the study of media messages and their effects has made clear that despite—and perhaps because of—the innocuous associations of the label, entertainment plays a significant role in the cultivation of values and beliefs and the socialization of CHILDREN. Entertainment's impact is embedded in premises that are not debated and may not even be clearly articulated but are accepted by audiences in order for the experience to have meaning. Its influence is pervasive and cumulative. In effect, entertainment in all its forms constitutes a storytelling environment that operates by principles at once implicit and widely shared to help form expectations and interpretations of the social world.

The power and appeal of this storytelling environment can be seen by examining the most widely distributed entertainment commodities. Genres that

stress action and good-bad conflicts have been particularly successful in transcending time periods and national boundaries (*see* MYSTERY AND DETECTIVE FICTION; SPY FICTION; WESTERN, THE). These genres rely on essentially the same formula, inherited and adapted from numerous early forms: a community, nation, or the world can be saved if a certain evil person or group is tracked down, caught, or killed. The dramatic resolution often involves VIOLENCE, as the hero or a group of heroes prevails through superior strength, strategy, technology, or supernatural powers.

Some critics see ideological implications in almost every aspect of such a formula. Does its continuous use cultivate the view that the world's problems stem from evil people rather than from intractable social issues? Or that the law cannot effectively protect society from criminals, making necessary—even laudatory—violent action by individuals? Entertainment producers tend to dismiss such questions and to supply practical and economic reasons for all aspects of the formula. Good-evil conflicts win large audiences and lend themselves to clear-cut resolutions within limited time periods. The emphasis on resolute individual action helps to enlist STARS, who in turn attract SPONSOR support. The focus on contemporary concerns and issues allows fictional violence to be explained as simply reflecting a violent world. Finally, the producers of entertainment reject as unproved many assumptions and beliefs about entertainment's effects on ATTITUDES and behavior, and they are able to cite research results supporting a range of conclusions (*see* MASS MEDIA EFFECTS).

Members of the entertainment industry also are held responsible for the more easily visible aspects of the entertainment product. The identification of a stereotyped character or unsavory deed with a particular national, ethnic, religious, or other group often results in protests from civic groups, government officials, legal representatives, and others (*see* PRESSURE GROUP), attesting to the influence popularly attributed to fictional representation. Producers have therefore found it expedient to give much care to the selection of characters' backgrounds and occupations (*see* MINORITIES IN THE MEDIA). Choices are likely to involve a defensive web of editorial policies, which often prompts a reliance on the safety of tried and true elements of plot, theme, and treatment. Writers often have little autonomy, and series formulas may be spelled out in written guidelines. Story lines and concepts often emerge as the result of mediation and consultation among a number of different functionaries essential to the production of the entertainment commodity (*see* ARTIST AND SOCIETY).

Thus the structure of the entertainment industry itself determines to a large extent the nature of the

product. In this way the “deniability” of intent or effect associated with the use of the term *entertainment* can be seen to be a structural feature of the industry. Those who see entertainment as a for-profit commodity—the result of decisions made on many levels about content, packaging, marketing, and distribution—find it easy enough to deny that the ensuing product advocates a particular position or perspective and, accordingly, to disavow responsibility for its potential reception by an audience. At the same time, however, the industry’s concern with maintaining an audience mandates attention and responsiveness to what is and is not acceptable in the larger society. Formulas change as society is perceived to change, as themes and portrayals once condoned are subject to criticism and plot elements once taboo become permissible. Examining the evolution of entertainment formulas over time enables one to chart the development of a society’s attitudes toward particular groups and issues as well as the relative importance attributed to them (see CULTURAL INDICATORS).

Entertainment, the telling and passing on of stories, is thus one of the primary ways in which cultures speak to their members and thereby maintain a sense of coherence, indeed of history. Entertainment is attentive to the norms, myths, and fears of its audiences but also serves to shape and reshape them; it reflects social trends but also nudges them into being and reinforces and furthers them. It provides a social repertoire of characters, relationships, and outcomes that is used in the ongoing attempt to make sense of the world.

See also FACT AND FICTION; FICTION; LITERATURE, POPULAR; TASTE CULTURES.

Bibliography. Heinz-Dietrich Fischer and Stefan Reinhard Melnik, eds., *Entertainment: A Cross-Cultural Examination*, New York, 1979.

ERIK BARNOUW AND CATHERINE E. KIRKLAND

ESPIONAGE

The clandestine acquisition usually of enemy or rival intentions and capabilities, often at the international level. Virtually all nations seek foreknowledge of threatening actions by attempting to break into the communication links of others. Preserving secure channels, or counterintelligence, is an inevitable concomitant.

Collected data are useless until received by authorities who can evaluate them, and intelligence operations demand rapid transmission. Through the ages spies possessed important information that could not be communicated or that arrived too late. Until the development of TELEGRAPHY and RADIO most

intelligence information was carried by hand. In ancient times this often meant exposing the bearers of bad news to the murderous whims of distraught rulers. Messengers on horses represented the swiftest and most common means of communication for centuries. Other means were also employed in the dispatch of sensitive material, including trained swallows and pigeons. Carrier birds were used by the Chinese for the transmission of intelligence three thousand years ago and still served the same purpose for many military units during World War II.

Early history. Surreptitious intelligence gathering has ancient antecedents. According to the biblical account, Moses, at the command of Jehovah, ordered a dozen followers to spy on the promised land of Canaan before it was occupied by the Israelites. One of the spies was Joshua, who himself later instructed two agents, “Go view the land, even Jericho.” Ancient writings abound with examples of espionage and deceptive communication devices. According to Herodotus, the Persian king Xerxes was thwarted in a planned surprise attack on the Spartans when a spy’s message of alarm was sent secretly on a wax-covered wooden tablet. The Chinese military philosopher Sun-tzu wrote in *The Art of War*, “If I am able to determine the enemy’s dispositions while at the same time I conceal my own, then I can concentrate and he must divide.” Ancient China’s political leaders made extensive use of message concealment, called *steganography*. In its crudest form, wax-covered dispatches written on silk were carried in the body orifices of couriers. To capture a courier and uncover his secreted message was the simplest form of counterintelligence, and remains so today.

The earliest CODE breaking for political purposes can be traced to early India. A book written before 300 B.C.E. urged court ambassadors in other jurisdictions to observe “signs made in places of pilgrimage and temples, or by deciphering paintings or secret writings.” Codes, elementary but sometimes complex, apparently existed in all early civilizations, giving CRYPTOLOGY a universality that was further extended to cryptanalysis, or code breaking. All were developed independently and responded to the perceived requirements of security at the time.

David Kahn, in his comprehensive history of secret communications, *The Codebreakers*, states, “Cryptology was born among the Arabs. They were the first to discover and write down methods of cryptanalysis.” As Islam spread across three continents, codes and ciphers were considered essential for communicating. Even the use of invisible inks was widespread. Muslim plenipotentiaries were provided with personal codes. A fourteenth-century Arab teacher, Ali ibn ad-Duraim, provided a step-by-step method for breaking codes based on alphabetic frequency that could serve as an instruction manual in cryptanalysis today.

While Islam flourished in all disciplines, in the Western world during the MIDDLE AGES the crafts of espionage fell moribund, either for lack of need or as a reflection of the relative decline in intellectual creativity and innovation during those years. Soon, however, the West's interest in matters of espionage was reawakened. Leon Battista Alberti (1404–1472), called the “father of Western cryptology,” invented a movable cipher disk in the late fifteenth century. Inspired by the inventions of JOHANNES GUTENBERG, Alberti used two copper wheels, which became the first polyalphabetic coding device and the forerunner of most modern cryptographic methods with their innumerable substitution combinations.

The publication in 1518 of *Polygraphia*, written by the German Benedictine abbot Johannes Trithemius (1462–1516), further broadened cryptographic activity. Hundreds of codes were invented for secret communications, including the famous Ave Maria cipher. This system of word substitution permitted seemingly religious material to mask hidden messages.

Code breaking. More is known about the means of communicating secretly than about code breaking successes. One of the earliest cryptanalysts of note was Thomas Phelippes, an agent in the employ of Sir Francis Walsingham. When Walsingham established the forerunner of the British Secret Service in the reign of Elizabeth I, Phelippes provided invaluable service by breaking codes in Latin, French, Italian, and Spanish as well as in English. Combined intelligence intercepts and decoding by Walsingham's group led to precise knowledge of when the Spanish Armada would sail and the discovery of incriminating plans by Mary, Queen of Scots, to overthrow Elizabeth.

It is essential that coded transmissions not be overly complicated. A misunderstood or misread ciphered message from Napoléon contributed to the defeat of the French at Leipzig in 1813. It was all the more remarkable because Napoléon relied less on cryptology than most great military commanders. His *petit chiffre* (“little cipher”) was regarded as too simple, as was illustrated by the ease with which the Russians decoded French messages during the Moscow campaign.

When the telegraph was introduced in the nineteenth century, interceptions were inevitable. The earliest instance of tapping telegraphic traffic is attributed to J. O. Kerbey, a Union railroad telegrapher caught behind Confederate lines during the United States Civil War. Although a prisoner in Richmond, Virginia, he was able to break into lines of his captors and relay military data by coded mail to the Union.

Cryptanalysis achieved full growth in World War I. With radio and telegraphy in full play, coding and code breaking were to play vital roles during the conflict and even helped to determine its outcome.

Great Britain's first act of war in 1914 was to cut the German transatlantic cable off Emden, forcing Berlin to rely for diplomatic communication on interceptible wireless messages or cables controlled by neutrals. British intelligence painstakingly broke the German codes, leading to one of the most dramatic intercepts of all time, the Zimmermann telegram. The German foreign minister, for whom it is named, sent a message urging Mexico to enter the war in return for annexation of parts of the United States. Knowledge of these negotiations helped to bring the United States into the war against Germany and to crystallize anti-German sentiment.

Russia suffered a crushing blow in the Battle of Tannenberg in 1914 when field commanders dispensed with encoded messages and sent orders in plain language. The Germans monitored them and used the intelligence to inflict one of the greatest military defeats in history.

Technological innovations. Commercial use of codes progressed with twentieth-century advances in technology. International companies purchased complex electromechanical devices for secret communications during the 1930s. An adjunct of business operations, these machines were adopted by Japan and Germany as their basic diplomatic and military coded transmission vehicles during World War II. The Allied forces broke these codes, winning an incalculable advantage throughout the war. Polish intelligence duplicated the German Enigma machine, and the British completed the code breaking. Intercepted messages (distributed under the supersecret classification of ULTRA) included Adolf Hitler's communications and daily reports on German military movements. At the same time, U.S. cryptanalysts, notably William Friedman, duplicated the Japanese machine, designated PURPLE. The deciphered intercepts, known as MAGIC, gave the Allied forces an indisputable edge in the Pacific war. Germany, to a less publicized extent, was also proficient in code breaking, cracking the codes of thirty-four enemy and neutral nations.

Most agents of World War II relied on what were standard though improved covert communication methods such as concealed radio transceivers and microphotography. The cold war that followed ushered in a new dimension in communications intelligence that emphasized interceptions. The computer and other electronic advances provided new ways to unlock codes and made possible more secure channels.

The vast reaches of space became the next arenas of counterintelligence and espionage. The United States and the USSR maintain space vehicles to intercept radio communications and visually track naval and military movements.

Beyond question, the largest electronic intelligence organization in the world is the National Security

Agency of the United States. NSA was at one time believed to have operated more than half the computers that existed worldwide.

Advanced technology involves ever-increasing numbers of people in the planning, production, and use of highly secret material related to national security. Access to classified data is more widespread than ever, and easily compromised. All nations forbid unauthorized possession of restricted information, but it is during transmission of classified information that counterintelligence efforts are most likely to succeed. Most modern covert operations were uncovered by a breakdown or penetration of the spy ring's communications apparatus. Monitoring of suspects entails sophisticated eavesdropping or visual observation. For democracies, such clandestine intrusion can lead to abuses of civil liberties and invasions of PRIVACY for the innocent.

Despite scientific and technological advances, transmitting intelligence and espionage itself have remained relatively constant in technique. Codes, ciphers, and cryptanalysis originated centuries ago. Steganography has progressed little from retrievable messages swallowed by couriers to modern-day microdots. Though satellites go vastly higher than the observation balloon first used by the French in 1794 during the wars of the French Revolution, they serve essentially the same purpose. What did change was the international climate of SECRECY, which led to an escalating battle between those who wished to perfect impenetrable communications and those who sought wide access to information.

See also DECEPTION; DISINFORMATION; SPY FICTION.

Bibliography. James Bamford, *The Puzzle Palace*, Boston, 1982; Richard Deacon, *A History of the British Secret Service*, New York and London, 1969; Allen W. Dulles, *The Craft of Intelligence*, New York, 1963, reprint Greenwood, Conn., 1977; Ladislav Farago, *The Broken Seal*, New York, 1967; Jock [Chetnynd John Drake] Haswell, *Spies and Spymasters*, London, 1977; Allison Ind, *A Short History of Espionage*, New York, 1963; David Kahn, *The Codebreakers*, New York, 1967; Richard W. Rowan and Robert G. Deindorfer, *Secret Service: Thirty-three Centuries of Espionage*, new and rev. ed., New York, 1967; Barbara W. Tuchman, *The Zimmermann Telegram*, New York, 1958; F. W. Winterbotham, *The Ultra Secret*, New York and London, 1974.

ROBERT GORALSKI

ETHICS, MEDIA

Media ethics is a new but important branch of professional ethics. Recognizing the power of mass com-

munications in modern life, the Hastings Center and the Carnegie Foundation of New York included media ethics in their 1980 study of ethics teaching in higher education in the United States. Consequently occupations in the mass media were grouped with such professions as medicine, law, business, and engineering; these come under the purview of applied ethics, a burgeoning component of moral philosophy. Meanwhile, debate over the NEW INTERNATIONAL INFORMATION ORDER made SATELLITE ownership, journalistic fairness, broadcast sensationalism, and other ethical issues matters of global concern.

Media ethics as a subset of applied or professional ethics combines description and theory. The most sophisticated media ethics retains an interest in concrete moral judgments, in the way ethical decision making functions in media practice. But the concern for principle, for general ethical theory, is retained as well. Ideally the two sides are dialectically unified. Work in the larger world of applied ethics demonstrates that if description of actual morality among practitioners becomes the exclusive aim, the result is minimalist ethics. If metaethics dominates, it becomes a self-contained circle out of touch with reality.

Although concerned observers and practitioners have for three centuries leveled criticism against the media and raised moral awareness about them, the exponential growth in media ethics began in the 1980s. The ongoing challenge has been to integrate the results of case studies with moral reasoning. For the foreseeable future the question is whether media ethics can be developed with such competence that it contributes to applied ethics generally.

For the sake of convenience, media ethics can be divided into three main branches according to the typical functions of most information systems: reporting news, promoting products or services, and entertaining. In capitalist societies, however, practitioners of journalism, ADVERTISING, and entertainment often belong to the same corporation and encounter all three media areas directly or indirectly in their work. Some problems cut across all three areas. Stereotyping, for instance, is deep-seated and pervasive in every form of mass communication; sensationalism also is common to reporting, PERSUASION, and entertainment.

From that mix of interests across media functions, five substantive issues dominate the agenda: invasion of PRIVACY, truth telling, exploitation, VIOLENCE, and democratic participation. Each of these moral problems occurs to some degree in other occupations as well. Exploitation, for example, is central to business ethics and debated throughout the professional world. Media violence attracts social scientists and theorists from several disciplines. However, the media ethics component is irreducible and cannot be traded away without trivializing the problem.

Invasion of Privacy

Professors in journalism schools and PUBLIC OPINION polls agree that invasion of privacy is the premier issue in media ethics, at least in Western cultures. Intruding on privacy creates enormous resentment and damages press credibility. Privacy matters are among the most painful that humane reporters ever encounter. For all of privacy's technical gains in case law and tort law, ethicists consider legal definitions an inadequate foundation. How can the legally crucial difference between newsworthy material and GOSSIP or voyeurism be reasonably determined?

Therefore, while acknowledging legal distinctions and boundaries, the ethics of privacy is constructed from such moral principles as the dignity of persons and the redeeming social value of the information disclosed. Louis Hodges, an ethicist at Washington and Lee University, contends that privacy is a moral good because controlling intimate information about ourselves is essential to a healthy sense of personhood. However, privacy cannot be made absolute because we are cultural beings with responsibility in the social and political arena. We are individual beings, therefore we need privacy; we are social beings, therefore we need public information about one another. Since we are individuals, eliminating privacy would eliminate human existence as we know it; since we are social, elevating privacy to absolute status would likewise render human existence impossible. These considerations lead to the formal criterion that the intimate life space of individuals cannot be invaded without permission unless the revelation averts a public crisis or is of overriding public significance and all other means have been exhausted.

From an ethical perspective, legal definitions of privacy beg several questions about the relationship between self and society. A legal right to privacy presumes a sharp line dividing an individual's zone from the collective. An ethics of privacy prefers the richer connections between public and private advocated by social theorists since Alexis de Tocqueville who have centered their analysis on a viable public life. While participating in the theoretical debates over the nature of community, media ethicists have been applying moral principles to three areas: reporting personal data on various social classes from innocent victims of tragedy to criminals, confidential information stored in computer data banks, and ubiquitous advertising that intrudes on our everyday activities.

Truthfulness

The journalist's obligation to truth is a standard part of the rhetoric. In fact, communicators recognize that

the credibility of words is somehow central to the communication enterprise. Many who dispense information would agree with the existentialist philosopher Karl Jaspers, who claimed that the moment of communication is simultaneously the preservation of and search for truth. See MEANING; SEMANTICS.

However, except for a focus on the obligation to accuracy in reporting, mass media education and practice do little to clarify such concepts as truthfulness and its antonym, DECEPTION. Just as advertising scholars have provided little enlightenment on the nature of persuasion, so newspeople have not developed the role of truthfulness in a way that its centrality would seem to require. With facticity discredited by the philosophy of science, media ethics is searching for a holistic version of truth-in-context similar to that advocated by the German theologian Dietrich Bonhoeffer in his *Ethics*.

Meanwhile, various dimensions of the issue are crowding in from every direction. The issue tends to be posed most frequently by specific events, such as the presentation of a "docudrama," the selective quotation of a newsmaker, or the omission of relevant information from an advertisement. But far more significant are the larger patterns of misrepresentation involved in such problems as SEXISM, racism, and hype.

Ethicist Sissela Bok correctly argues that when regard for truth is weakened, a society's well-being is threatened. But she refuses to reject all lies unconditionally. If some lies are not morally reprehensible, what are the criteria for justifiable exceptions? To media ethicists it is apparent at this stage that the current IDEOLOGY stresses the rights and privileges of the press and downplays the press's responsibilities to its audience. Someone once defined journalism as history in a hurry, and providing an accurate, representative account rarely occurs under those conditions. Bok has outlined the framework that still must be spelled out for all phases of media practice—tilting it toward the principle of veracity, toward ARISTOTLE's assumption that lies are mean and culpable.

Exploitation

Advertising, by its nature, is self-interested communication. Advertisers finance media programs in the expectation of substantial returns on their investment. They associate the good life with the acquisition of products and services in order to reap financial benefits.

Similarly self-interested, but more extreme in its methods and aims, is the PROPAGANDA emanating from media controlled by dictators and authoritarian governments. Viewers, listeners, and readers—whole

populations—are exploited and truth obscured in the bureaucrats' interests. Because of its drastic effects, political propaganda has preoccupied media scholars since World War I. With totalitarianism a dominant issue after World War II, media researchers critiqued not only the work of JOSEPH GOEBBELS's war ministry for Adolf Hitler but political propaganda of all forms.

This preoccupation eventually led to a broader definition of the problem of propaganda, including theories of indirect, pervasive propaganda. French scholar Jacques Ellul advanced the notion of sociological propaganda—the mass media's propensity to socialize industrial cultures into uniform wholes. Ellul centered his analysis on technology as the determining factor, as did Jürgen Habermas in Germany. The Frankfurt school—Max Horkheimer, THEODOR ADORNO, Herbert Marcuse—also made the role of the media a central variable in its social theories. Meanwhile, Latin American scholars Ivan Illich and Paulo Freire contributed their analyses of symbol formation under conditions of oppression (*see* SCHOOL), and in the United States George Gerbner developed the theory of “cultivation”—television's long-term effect on people's view of reality (*see* CULTIVATION ANALYSIS). Finally, Stuart Hall of Britain's Center of Cultural Studies saw ideology as the heart of modern cultural life. *See also* MARXIST THEORIES OF COMMUNICATION.

The problem in ethics is establishing the boundaries between legitimate persuasive intent and exploitation, between rational appeals and demagoguery. What kinds of communication, institutional and personal, are coercive, harmful manipulation whose intent and practice are oppressive rather than liberating? Several topics are attracting the greatest interest as windows through which to clarify the ethics of exploitation:

- political advertising, particularly the thirty- or sixty-second commercials designed for emotional influence;
- market illiterates, whose meager education and submarginal incomes make them naive consumers, easily manipulated;
- sins of omission, in which audiences are uninformed because vital economic or political information is withheld in the story or advertisement; and
- the power of media monopolies to control the market and capital while decimating alternative or independent producers and writers (*see* MONOPOLY).

Ethicists, in other words, are attempting to fix legitimate responsibility in concrete cases and thereby advance the problem of exploitation from mere rhetoric to possible solution.

Violence

Few issues command as much attention from media reformers as violence in books, magazines, comics, television, and film. In the United States, for example, studies have shown that by high school graduation the average seventeen-year-old will have seen eighteen thousand murders on television. Critics vociferously protest programs that glorify brawling for its own sake, war stories that purvey frivolous militarism, and police shows that offer hyped-up violence without even a hint of normative reflection.

Media ethicists find it almost impossible to get beyond such hot-tempered moralism to systematic reflection. An ethics of violence rather than moral preachments is especially important because the specter of CENSORSHIP always shadows the debate. Against the moralists are combative libertarians who fear that any curtailment of speech heralds a retreat from democracy.

Violence is a serious ethical issue because it violates the persons-as-ends principle. In Immanuel Kant's standard formulation, we must treat all rational beings as ends in themselves and never as means only. In Kant's ethics this categorical imperative is a universal law no less binding than such laws of nature as gravity. Gratuitous cheapening of human life to expand ratings, from this perspective, is a reprehensible misuse of human beings as means to base ends. Media ethics has shown a special interest in the sexual violence so common in music VIDEO, horror movies (especially slasher films), pornographic literature, videocassettes, and the commercials promoting them. Sadistic, bloodthirsty torture in a sexual context is a particularly offensive form of dehumanization. *See also* PORNOGRAPHY.

While avoiding doctrinaire moralism, an ethics of media violence has rarely gotten beyond the arguments from AESTHETICS. In fact, media ethics typically repeats the crucial distinction between artistic realism and mindless violence, between the violence in a film like *Gandhi* and that in the “Dukes of Hazzard” television series, for example. In addition, it supports psychiatrists who broaden our definitions of violence to include not just physical damage but also psychological injury.

But a unique contribution from ethics to understanding media violence still must be made. The most likely arena lies in delineating responsibility. Applied ethics always takes seriously the matter of who should be held accountable. The important question then becomes whether producers of violent entertainment can dismiss their responsibility for quality programming by claiming to give the public what it wants. Are only parents to be held accountable for the television programs their children watch, or do advertisers and networks carry obligations also? If so,

in what proportions? Does the person with greatest technical expertise have the greatest moral liability? How can paternalism that downgrades laypeople and informal social networks in the decision-making process be avoided? When is the state or the courts the final adjudicator? In professional ethics in general and media ethics specifically, clarifying accountability is an important safeguard against the human penchant for evading culpability. The ongoing challenge for media ethics, then, is establishing the appropriate levels of responsibility among the principal players in media violence: producers and writers, actors, network executives, the public, and politicians.

Democratic Participation

The spectacular progress of satellite technology has attracted media ethicists into a provocative debate over cultural imperialism and democratic participation. As the number of prime geostationary positions filled up in the late 1970s, the implications for the principle of distributive justice became inescapable. The 1979 meeting of the World Administrative Radio Conference in Geneva reaffirmed the sovereign right of member nations to their prime frequencies and satellite requirements. Instead of the first-come, first-served principle, the MacBride Commission formed by UNESCO also recommended the country-by-country concept of equal access in its 1980 report *Many Voices, One World*. Media ethics has generally supported the thesis that information is a vital resource of the future for all nations and, therefore, orbital positions ought to be reserved on the basis of land mass and population rather than the current demand of industrialized societies. The Dutch scholar Cees Hamelink, for example, has argued convincingly that new technologies such as satellites are not merely efficient machines that send international messages at one-thousandth the previous cost. Media ethics views satellites, for all their benefits, as weapons of possible control over space in the interests of technologically powerful nations. The issues, in fact, are typically construed in historical terms. That is, since World War II the smaller nations have demanded political independence from colonial powers and economic independence from transnational corporations. In the 1980s they legitimately demanded cultural independence—freedom from the films, data, television, and news of dominant nations that prevented them from achieving their own identities. See INTERNATIONAL ORGANIZATIONS.

While combating cultural imperialism on the international level, media ethics argues for democratic participation intranationally. The same equal access principle is applied in both cases. Media structures within a nation-state are considered ethically legiti-

mate to the extent that they achieve maximum distribution and ownership based on the principle of essential needs. Freire and Illich in Latin America and Saul Alinsky in the United States all defend a model of participatory democracy grounded in a dialogic theory of communication. With the old liberal and socialist paradigms of national development both discredited, the Iranian internationalist Majid Tehranian argues for the dialogic paradigm as a revolutionary alternative to these two monologic, *I-It*, mechanized versions. See also CITIZEN ACCESS; CITIZENS BAND RADIO.

Overview

These five issues and their cognates dominate the agenda in media ethics, but they do not encompass it. Random samples of textbooks and journals yield a list of numerous other topics involving media ethics, such as PHOTOJOURNALISM, minority hiring, promoting nutritionless products, conflict of interest, stealing corporate money, pornography, PUBLIC RELATIONS, confidentiality, fair trial, credibility, ethics codes, professionalism, municipal ownership of cable, fabrication, checkbook journalism, TERRORISM coverage, bias, plagiarism, the adversary relationship, and lawyer advertising.

Those in the process of systematically constructing a theory of media ethics must deal with such conceptual problems in applied ethics as accountability, normativeness, individual autonomy, collective responsibility, and the logic of corporate morality. But even defining these sophisticated notions is a complicated task. Within a profession that prizes independence, for instance, accountability is a hostile idea; in order to apply it properly, one must distinguish among the public, professional colleagues, and the government without mixing categories. Norms carefully developed at the outset prevent decision makers from rationalization, but media ethics often slides from cultural pluralism into a metaphysical relativity suspicious of norms. And individual autonomy, bequeathed to the West by the eighteenth-century Enlightenment, seems unquestioned to mass media CULTURE. Or collective responsibility: on what grounds can the public as a whole legitimately be held responsible for anything not consciously chosen? Yet the communication enterprise is inherently audience- and reader-oriented, depending for its lifeblood on the supposed reality of a duty-bound public. Finally, granted that a focus on individual decision making must be replaced in media ethics by an emphasis on institutional structures, what intellectual defense, if any, can be made for an intelligible notion of corporate morality?

The earliest efforts in media ethics centered the analysis on the media system itself—codes, ombuds-

persons, customs of the trade, management policies, GOVERNMENT REGULATION, journals of criticism. The more advanced form of media ethics that emerged in the 1980s revolves around professional ethics generally. The inability of scholarship in media ethics to solve all the analytical difficulties involved is not just a problem with abstractions but a testimony to the fertility and complexity of the field.

See also COPYRIGHT; DISINFORMATION; FACT AND FICTION; LIBEL; MINORITIES IN THE MEDIA; PROFESSION; TELEVISION NEWS.

Bibliography. Hermann Boverter, *Ethik des Journalismus*, Konstanz, FRG, 1984; Clifford G. Christians and Catherine L. Covert, *Teaching Ethics in Journalism Education*, Hastings-on-Hudson, N.Y., 1980; Clifford G. Christians, Kim B. Rotzoll, and Mark Fackler, *Media Ethics: Cases and Moral Reasoning*, 2d ed., New York, 1987; Deni T. Eliot, ed., *Responsible Journalism*, Beverly Hills, Calif., 1986; Jacques Ellul, *Propaganda: The Formation of Men's Attitudes*, trans. by Konrad Kellen and Jean Lerner, New York, 1965; Paulo Freire, *The Politics of Education: Culture, Power, and Liberation*, trans. by Donaldo Macedo, South Hadley, Mass., 1985; H. Eugene Goodwin, *Groping for Ethics in Journalism*, Ames, Iowa, 1983; Edmund Lambeth, *Committed Journalism: An Ethic for the Profession*, Bloomington, Ind., 1986; John C. Merrill and S. Jack O'Dell, *Philosophy and Journalism*, New York, 1983; Anne Vander Meiden, ed., *Ethics and Mass Communication*, Utrecht, The Netherlands, 1980.

CLIFFORD G. CHRISTIANS

ETHNOGRAPHIC FILM

Anthropology is related to film in three ways: (1) movies can be studied as cultural artifacts; (2) motion picture footage of human behavior can be produced for research; and (3) films can be made to communicate ethnographic descriptions of a culture.

No standard definitions of ethnographic film exist. The popular assumption is that an ethnographic film is a DOCUMENTARY about "exotic" peoples. Some scholars suggest all film is ethnographic, while others wish to restrict the term to films produced by anthropologists. Scholarly literature in the field is concerned with assumed tensions between science and art; questions of accuracy, fairness, and objectivity; the appropriateness of documentary conventions to ethnography; the relationship between a written and a visual anthropology; and problems involved in collaborations between filmmakers and anthropologists.

The earliest ethnographic films were indistinguishable from theatrical "actualities"—one-reel, single-take episodes of human behavior (see NEWSREEL). Anthropologists, like everyone else, were fascinated with the technology of film and its promise to provide

us with an unimpeachable witness. Among the first anthropologists to produce researchable footage was the Frenchman Félix-Louis Regnault, who proposed, in 1900, that all museums should collect "moving artifacts" of human behavior for study and exhibit. Scholars, explorers, and even colonial administrators made footage for research and public display. However, the crude technology, the lack of familiarity with the equipment, and the vagueness of the filmmakers' intentions greatly limited the use of these films. In the course of time filmmaking conventions evolved that tended to conflict with scholarly needs for acceptable research data. For example, filmmakers tend to fragment and reconstitute action into synthetic sequences that suggest time relationships sometimes at variance with the photographed action. Such strategies, appropriate to fiction, created barriers between anthropologists and film professionals. See FACT AND FICTION.

In the 1930s MARGARET MEAD and GREGORY BATESON extended Regnault's ideas. The results of their fieldwork were "published" films like *Bathing Babies in Three Cultures* (1941), designed to make their data available for other scholars. The tradition of group research of filmed behavior championed in this way continues with Alan Lomax's CHOREOMETRICS study of DANCE as cultural behavior. In the 1950s the Institut für den Wissenschaftlichen Film in Göttingen launched its Encyclopedia Cinematographica project, which included an archive and center for the study of filmed behavior. A similar organization was established at the Smithsonian Institution in Washington, D.C.

Ethnographic film designed for the public began as part of a general educational film movement in the 1920s. Films of "exotic" peoples were produced commercially, sometimes with the assistance of anthropologists, and screened in theaters as Selected Short Subjects. For example, CHARLES PATHÉ sought the assistance of the Department of Anthropology at Harvard when producing "People and Customs of the World" in 1928.

There were a number of attempts to represent native life in feature-length theatrical films. Edward Curtis's 1914 production, *In the Land of the Head Hunters*, a romantic epic of the Kwakiutl of British Columbia, had been a box-office failure but established a precedent for ROBERT FLAHERTY's *Nanook of the North* (1922), a portrait of the struggles of an Inuit (Eskimo) family against the harsh environment of the Hudson Bay region of Canada. *Nanook's* international success prompted Paramount to finance Flaherty's second film, *Moana* (1926), and to distribute Merian C. Cooper and Ernest B. Schoedsack's *Grass* (1925), a study of the annual migration of the Bakhtari of Iran (see Figure 1).

These films caused HOLLYWOOD to become inter-

ested in productions with “exotic” locations. However, the procedures instituted at the major studios were essentially incompatible with ethnography. When Cooper and Schoedsack again departed to make *Chang* (1927) in Siam, they carried a fully approved dialogue script, ensuring fidelity to executive preconceptions. Hollywood was beginning to develop its own traditions of Asian, African, and South Sea Island adventure drama, largely ignored by the academic world as irrelevant to anthropological concerns.

A few ethnographic films were undertaken by anthropologists in the 1920s and 1930s. The rapid disappearance of native peoples as well as of the folk customs of Western cultures caused salvage ethnographic film projects to be undertaken. For example, between 1912 and 1927 the Heye Foundation supported a series of films on Native Americans produced by Owen Cattell with the assistance of Frederick Hodge. However, it was not until after World War II that substantial activity took place.

By 1952 there was sufficient interest in the field to form an International Committee on Ethnographic Film associated with UNESCO. The Festival dei Popoli in Florence, the Conference on Visual Anthropology in Philadelphia, Cinéma du Réal in Paris, and the Margaret Mead Film Festival in New York were some of the festivals organized to encourage the growth of anthropological cinema.

In Europe the pioneering work of Jean Rouch of the Musée de l'Homme brought new impetus to the field. In the early 1960s technical advances made it possible for small crews to produce synchronous sound location films. The equipment encouraged some filmmakers to record actions and events as detached observers, hoping that they were not significantly influencing the actions being followed. Rouch adopted an opposite approach: he felt that the presence of the camera could be used to instigate moments of revelation. *Chronique d'un été* (Chronicle of a Summer, 1961; see Figure 2) was produced with sociologist Edgar Morin as a CINÉMA VÉRITÉ film, drawing on ideas from both DZIGA VERTOV and Flaherty. Rouch took cameras into Paris streets for impromptu encounters in which the filmmaking process was often a part of the film. Filmmakers and equipment were in evidence in the frame, and those filmed became collaborators, even to the extent of participating in discussions of the footage that were in turn incorporated into the final version of the film.

Rouch continued his collaborative approach in a number of films made with West Africans. Some early efforts, such as *Les maîtres fous* (The Mad Masters, 1955), were criticized because of their emphasis on the bizarre. Rouch was more successful in his efforts to produce a “shared anthropology” with his so-called ethnographic fiction films, such as *Jaguar* (1965) and *Petit à petit* (Little by Little, 1968).



Figure 1. (*Ethnographic Film*) Merian C. Cooper and Ernest B. Schoedsack, *Grass*, 1925. National Film Archive, London.

A desire to let us see the world through the eyes of the natives was also the guiding principle of the Navajo Film Project (1966) of Sol Worth and John Adair in which members of the Navajo community were taught the technology of filmmaking, after which they determined what images of their lives should be captured on film (see Figure 3). The idea of a reflexive ethnography that actively seeks the participation of the native while acknowledging the role of the ethnographer reflects a growing concern voiced by both anthropologists and filmmakers about the ethics of documentary processes.

During the 1950s and 1960s a number of impressive ethnographic films emerged from diverse institutions and locales. *The Hunters* (1958) is the first North American ethnographic film to gain worldwide attention. It was part of John Marshall's thirty-year film study of the San (Bushmen) of southern Africa. Marshall subsequently produced dozens of African and North American films, including *Nai* (1980), a life history of a San woman, which was broadcast on U.S. public television.

Robert Gardner, a former associate of Marshall's at the Film Study Center at Harvard University, released *Dead Birds* (1964), a study of symbolic warfare among the Dani of New Guinea (see Figure 4). The film grew out of a project in which ethnographers, a novelist, and a filmmaker all described the same culture, permitting audiences to compare the presentations. Gardner later produced several films in East Africa and India and was instrumental in establishing the Program in Ethnographic Film, subsequently renamed the Society for the Anthropology of Visual Communication.

Timothy Asch, director of the University of Southern California's Center for Visual Anthropology, worked collaboratively with anthropologist Napo-



Figure 2. (*Ethnographic Film*) The meeting of Angélo and Landry. From Jean Rouch and Edgar Morin, *Chronique d'un été*, 1961. The Museum of Modern Art/Film Stills Archive.



Figure 3. (*Ethnographic Film*) Al Clah finding his own shadow. From *Intrepid Shadows*, a film by Al Clah. Navajo Film Project of Sol Worth and John Adair, 1966. The Museum of Modern Art/Film Stills Archive.

leon Chagnon on a series of films about the Yanomamo of Venezuela, among them *The Feast* (1968), *Ax Fight* (1971), and *A Man Called Bee* (1972). The films along with written ethnographies and study guides were designed to teach college undergraduates cultural anthropology.

The varied educational values of ethnographic film were exemplified in the curriculum developed by the Educational Development Corporation of Newton, Massachusetts, in "Man: A Course of Study," by Canadian anthropologist Asen Balikci and others. Films on Netsilik Eskimo life originally designed for

use in a grammar-school course were repackaged for college-level courses, a commercial television special, *The Eskimo Fight for Life*, and a Canadian preschool children's series.

While most European and North American ethnographic filmmakers travel to distant places to film exotic peoples, Australians have been filming the native people of their country since the turn of the century (see AUSTRALASIA, TWENTIETH CENTURY). The Torres Straits Expedition of 1898 is reputed to be the first time an ethnographer took a motion picture camera into the field. The Australian government has provided one of the most consistent sources of funding for ethnographic filming found anywhere. The Australian Commonwealth Film Unit and later Film Australia have made it possible for Ian Dunlap to undertake long-term filming projects such as his "Peoples of the Western Australian Desert" series. The Australian Institute of Aboriginal Studies employs a staff ethnographic filmmaker. In that capacity Roger Sandall produced a number of films on the ceremonial life of various Australian Aboriginal peoples including *The Mulga Seed Ceremony* (1969). Recently these films have become restricted in their public showing owing to the secret quality of some of the ceremonial acts portrayed. David and Judith MacDougall are the Australian Institute's current resident filmmakers. They are noted for a series of "Turkana Conversations," including *Lorang's Way* (1979), *The Wedding Camels* (1981), and *A Wife among Wives* (1982), shot in a distinctive observational style that has caught the attention of cineastes as well as anthropologists (see Figure 5).



Figure 4. (*Ethnographic Film*) Warriors assembling for battle. From *Dead Birds*, a film by Robert Gardner, 1964. The Film Study Center, Harvard University.

The Institute for Papuan New Guinea Studies has carried on the tradition begun by its Australian colleagues and has sponsored a number of films on native life. Of special interest is *First Contact* (1983), by Bob Connolly and Robin Anderson. It employs 1930 footage of the forays of three Australian miners into remote sections of the New Guinea highlands and contemporary interviews with the two surviving miners and Papuan natives as they recall their first encounters. The film provides astonishing insights into the clash of cultures that epitomized modern world history.

With the rise of television (*see* TELEVISION HISTORY), the networks and other producing organizations gradually became a significant source of support for ethnographic film activity. In Britain, Granada's long-running series "Disappearing World" established a fruitful tradition of collaboration between field ethnographers and filmmakers, resulting in films like Brian Moser's *Last of the Cuiva* (1971), shot in eastern Colombia. BBC-TV anthropological projects have included the series "Face Values"—produced in cooperation with the Royal Anthropological Institute—and "Worlds Apart," in which pro-



Figure 5. (*Ethnographic Film*) Lorang. From *Lorang's Way*, by David and Judith MacDougall, 1979, distributed by the University of California Extension Media Center, Berkeley, Calif.

ducers Chris Curling and Melissa Llewelyn-Davies explored the impact of Leni Riefenstahl's photography in *The Southeast Nuba* (1983). In the United States the Public Broadcasting Service aired "Odyssey," a series that covered all aspects of anthropology. A similar series was maintained by Japan's Nippon TV under the title "Man," produced by Junichi Ushiyama. Television systems in many parts of the world have scheduled series for school and college use, drawing on the growing anthropological film resources.

Television has become a leading source of funds for nonfiction films of all kinds and seems likely to remain a dominant force in the future of ethnographic film. Some anthropologists will no doubt continue to make researchable footage for analytic purposes, but the preponderance of activity will be in the production of television programs that will also be used in museums and classrooms for the teaching of anthropology.

See also FILM EDITING; MOTION PICTURES; PHOTOGRAPHY; VIDEO.

Bibliography. Steve Feld and Carroll Williams, "Towards a Researchable Film Language," *Studies in the Anthropology of Visual Communication* 2 (1975): 25-32; Karl Heider, *Ethnographic Film*, Austin, Tex., 1976; Luc de Heusch, *The Cinema and Social Science: A Survey of Ethnographic and Sociological Films* (UNESCO Reports and Papers in the Social Sciences, no. 16), Paris, 1962; Paul Hockings, ed., *Principles of Visual Anthropology*, The Hague, 1975; David MacDougall, "Ethnographic Film: Failure and Promise," *Annual Review of Anthropology* 7 (1978): 405-425; Anthony R. Michaelis, *Research Films in Biology, Anthropology, Psychology, and Medicine*, Orlando, Fla., 1955; Jay Ruby, "Is an Ethnographic Film a Filmic Ethnography?" *Studies in the Anthropology of Visual Communication* 2 (1975): 104-111; Sol Worth and John Adair, *Through Navajo Eyes*, Bloomington, Ind., 1972.

JAY RUBY

ETHNOMUSICOLOGY

A discipline that combines scientific and humanistic methods of research to study human musical communication. The claims of ethnomusicology to be scientific are supported by its use of the phonograph and electrical instruments, enabling people to measure accurately the varieties of musical scales and to listen repeatedly to the subtleties and complexities of aurally transmitted PERFORMANCE. Its aims and methods are humanistic in that it does not postulate a universal definition of music but rather takes into account the socially shared perceptions and definitions of music makers. Since this includes the perceptions of ethnomusicologists, an observer may treat

Qur'anic chant as music for comparative purposes or for the study of tune-text associations, even though orthodox Muslims might not regard it as music.

Ethnomusicology arose as part of the response of people in Europe and North America to the impact of other musical systems on their listening habits and their thinking about music. A rationale for a discipline of ethnomusicology was implicitly suggested by British philologist and physicist A. J. Ellis in a paper published in 1885, shortly before Claude Debussy and other musicians were struck by the sounds of Indonesian and African music in Paris. However, the word *ethnomusicology* was not coined until the late 1940s, and the full implications of Ellis's insights were not seriously considered until the 1960s. Even in the 1980s there were still some ethnomusicologists who saw their work as "comparative musicology," a branch of the science of music concerned primarily with "ethnic" and non-Western or non-European musical systems. One of the aims of such an enterprise was considered to be that of filling gaps in the history of music (see MUSIC HISTORY).

Ellis's arguments and evidence challenged the idea of a unilinear evolution of music from simple to complex, reflecting people's increasingly sophisticated use of organized sound as a means of communication. He claimed in 1885 that music was a social fact and a cultural variable, and after measuring the musical scales of various nations he concluded:

The musical scale is not one, not "natural," nor even founded necessarily on the laws of the constitution of musical sound so beautifully worked out by Helmholtz, but very diverse, very artificial, and very capricious.

Ellis stressed the importance of human invention in music and suggested that musical systems are cultural systems whose organizing principles are linked to other modes of social activity. Their impact on social life depends on how people relate them to different kinds of experience.

MAX WEBER came to similar conclusions about relationships between systems of ideas and social and musical organization in *The Rational and Social Foundations of Music* (1921), in which he claimed that European music was rationalized from within the tone system. He argued that the concern with harmonic distances, as distinct from real distances on instruments (such as equidistance between frets or flute holes), was a logical application to music of the scientific attitude that emerged at the time of the RENAISSANCE (see MUSIC THEORIES).

Erich von Hornbostel and colleagues in the Berlin Phonogram Archive (1906-1933) produced comparative studies suggesting that musical systems had not evolved independently of general patterns of cultural history and that European music could no longer be

regarded as the pinnacle of human musical invention. Not only were there other musical systems of comparable value and complexity, but also so-called European innovations, such as polyphony and the use of discords for special effects, had been invented independently at other times and in other places.

The development of ethnomusicology is inconceivable without the invention of the phonograph, which helped to transform speculations about the simplicity and complexity of musical structures into statements of fact (*see* SOUND RECORDING). Repeated listening enabled scholars' ears to become sensitized to the subtleties of unfamiliar patterns of sound. Music that was too complicated to note down by ear could be transcribed and analyzed with some degree of objectivity. Myths about the uniformity, spontaneity, or backwardness of aurally transmitted musics were dispelled. Research was further enhanced by the development of the portable tape recorder in the 1950s and 1960s and by the use of sonagrams and the invention of the melograph, which produced accurate visual displays of melodic line that could be compared with aural transcriptions and with the observations of performers and listeners.

The composers Percy Grainger and Béla Bartók were among the first to carry out systematic fieldwork with a phonograph. In 1908 Grainger produced transcriptions that revealed the creativity of individual British folksingers, and Bartók showed in the 1930s that the individuality of Hungarian folk musicians must also be set in a framework of systematic regional styles and genres that corresponded with social and cultural variations (*see* GENRE).

Studies of recorded performances, and of different musical genres in their social and cultural contexts, have shown that the quality and complexity of musical communication cannot be usefully explained by dividing the world's musics into oral and written or into categories such as folk, popular, and art. There is as much variation, or improvisation, in performances of the same written score by different orchestras and conductors as there is stability in repeated performances of a piece in an oral tradition. *See* MUSIC COMPOSITION AND IMPROVISATION; ORAL CULTURE.

Similarly, musical skills are not required any less for folk and popular music than for art music; and even if popular music were music that did not seek "to appeal to refined or classical taste" (as defined in the *Oxford English Dictionary*), this would not determine the degree of refinement of those who listen to it (*see* MUSIC, FOLK AND TRADITIONAL; MUSIC, POPULAR).

It has been claimed that certain patterns of rhythm, tone, melody, or timbre can induce physiological responses in culturally attuned performers and listeners or even in those with no such preparation.

Indeed, music can be profoundly moving by means of the resonances that people can establish between tone stress and motion on the one hand and the nervous tension and motor impulse of their bodies on the other. But no music has power in itself. Music has no effect on the body or consequences for social action unless its sounds and circumstances can be related to a coherent set of ideas about self and other and to bodily feelings.

Research into the differential effects of the music of possession cults on people's attainment of trance states has shown that there are no direct causal links between musical performance and trance, because there are many other necessary symbols that relate altered somatic states to experiences of daily life. For example, performance of the right music and at the right tempo might be essential for bodily transformation, but only members of cult groups could be possessed, and even then only when they were dancing in the right place (e.g., near the home of their ancestors' lineage).

The chief task of ethnomusicology, then, is to discover how people make musical sense of what they define as music by performing, listening, and talking. Composing need not be treated as a separate activity, because musical composition is an aspect of musical performance (*see* MUSIC PERFORMANCE). It is of comparatively recent origin as a distinct category of music making, a product of the division of labor in society rather than a consequence of fundamentally different musical abilities.

Ethnomusicological discovery is best attained by context-sensitive fieldwork designed to reveal the processes by which music is made and given MEANING by different individuals in different social contexts. What ultimately account for stability and change in patterns of music making are the aesthetic force of musical symbols and people's decisions to invoke them and place them in a social context—the tensions between inner, affective states and the ways in which cultural systems enable people to make sense of them and follow them through. It is for these reasons that some ethnomusicologists have become increasingly interested both in cognitive and affective aspects of musical communication that transcend cultural conventions and in the possibility of innate musical capabilities or of a specifically musical intelligence that could be a primary modeling system of thought, as with speech.

The work of Ellis and subsequent research into the workings of "unnatural" scales, intervals, and musical systems have shown that analyses of music must not be based on tonal relations determined by the laws of acoustics, unless those laws are explicitly invoked as part of the system. However, it is possible that some of those features of human musicality that have been identified by psychologists in the context

of Western music making are in fact part of the innate musical intelligence of human beings. For instance, it has been suggested that people might seek out tonal centers in melodies and clusters of tones whether or not they were explicitly employed in a given musical system. If there are such universal capabilities, they could help to explain the musical attraction of certain types of contemporary pop music in many parts of the world. Future research in ethnomusicology will need to explore how individuals mediate between innate musical capabilities in their bodies and the musical conventions of different societies.

See also CANTOMETRICS; SONG.

Bibliography. John Blacking, *How Musical Is Man?* Seattle, Wash., 1973; A. J. Ellis, "On the Musical Scales of Various Nations," *Journal of the Society of Arts* 33 (1885): 485–527; Steven Feld, *Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression*, Philadelphia, 1982; Alan P. Merriam, *The Anthropology of Music*, Evanston, Ill., 1964; Gilbert Rouget, *Music and Trance* (La musique et la transe), trans. by Derek Coltman, Chicago, 1985; Max Weber, *The Rational and Social Foundations of Music* (Die rationalen und soziologischen Grundlagen der Musik), trans. and ed. by Don Martindale, Johannes Riedel, and Gertrude Neuwirth, Carbondale, Ill., 1958.

JOHN BLACKING

ETHNOPOETICS

Study of the verbal arts in a worldwide range of languages and cultures. Primary attention is given to the vocal-auditory channel of communication in which speaking, chanting, or singing voices give shape to proverbs, riddles, curses, laments, praises, prayers, prophecies, public announcements, and narratives. The aim is not only to analyze and interpret oral performances but also to make them directly accessible through transcriptions and translations that display their qualities as works of ART.

History

Ethnopoetics originated in the United States among poets such as David Antin, Jerome Rothenberg, and Gary Snyder, all of whom had training in anthropology or LINGUISTICS; Nathaniel Tarn, whose poetic career was preceded by an anthropological career under the name E. Michael Mendelson; and anthropologists and linguists with experience in writing POETRY, including Stanley Diamond, Dell Hymes, and Dennis Tedlock. The term *ethnopoetics* was first used in print in 1968 by Rothenberg to name his editorial department in the poetry magazine *Stony*

Brook. In 1970 he joined Tedlock in founding *Alcheringa/Ethnopoetics*, a magazine featuring transcripts, translations, and tear-out disc recordings of performances by indigenous verbal artists from Africa, Asia, Oceania, and the Americas.

Philosophy and Methodology

Practitioners of ethnopoetics treat the relationship between PERFORMANCE and text as a field for experimentation. Texts that were taken down in the era of handwritten dictation and published as prose are reformatted and retranslated in order to reveal their poetic features as defined by such formal devices as initial particles, native pattern numbers, syntactic structures, and parallelism (see ORAL HISTORY). In the case of a SOUND RECORDING, transcripts and translations serve not only as listening guides but also as scores for new performances. The richest single GENRE is storytelling, in which speakers depart from third-person NARRATIVE in order to take the parts of the characters. In the process they provide dramatized examples of everything from an ordinary CONVERSATION to a shamanic power SONG, while at the same time simulating voices that differentiate characters according to social position, personality, and emotional state.

An ethnopoetic score follows the original timing of a recorded performance, dividing the words into lines according to the alternation of sounds and silences. This makes it possible to distinguish rapid passages (with little pausing) from slow ones (with much), and it becomes apparent that pauses often create suspense by cutting across verse or sentence structures rather than coinciding with them. In the following passage translated from Zuni (an indigenous language of New Mexico), three sentences are broken into eight tension-filled lines. The pauses between lines average three-quarters of a second, with two dots indicating a two-second pause. The story concerns a dancer who became possessed by his MASK and tried to run away:

They brought him back, and when they
tried to unmask him
the mask
was stuck
to his face.
He was changing over.

. . .
When they tried to unmask the young man, some of his
flesh peeled off.

In contrast with surprising events like this one, actions carried out according to a plan may be described with a series of one-sentence lines. In the following example, translated from Haya (a language of Tanzania), a woman is preparing for a journey into the wilderness:

She grinds a little millet for herself.
 She makes it into porridge.
 She finishes it.
 She wraps it.
 She finishes wrapping—
 she goes and forges for herself nine arrowheads.
 She ties them up.

Just as the Zuni passage had one line (the sixth) whose completeness momentarily relieved tension, so this passage has one line (the fifth) that introduces a tense moment into an otherwise orderly account. Instead of ending this line with a falling intonation, indicating a complete sentence, the narrator leaves it hanging with a rise (indicated by a dash) just before telling us that the woman knows not only how to prepare food but also how to make weapons.

Scoring also requires attention to changes of amplitude. In this next excerpt a Zuni narrator emphasizes the climactic third line not by loudness but by a decrease in amplitude, thus preserving the delicacy of the moment of birth:

She sat down
 by a juniper tree and strained her muscles:
(softly) the little baby came out.

Other ways of giving emphasis are illustrated by a dialogue from a Yucatec Maya story in which a bereaved man consults with his guardian spirit. In the first and third lines a loud voice (shown in capitals) dramatizes the man's predicament and the forthrightness of the guardian's response; in the last two lines a slow, precise enunciation (in italics) and a focusing of loudness on isolated words give the guardian's further remarks a didactic force:

"What shall I do, small friend? My wife was CARRIED AWAY.

My eyes are sad since it happened."

"WOULD YOU LIKE TO GO SEE HER?"

"I'd like to go see so I could find where she is."

"Good, fine. *You'll have to go see*

BUT there is a WAY to see. You are going to SEE, friend."

Conventional transcripts make oral performances seem more repetitious than literary compositions, but ethnopoetic scores reveal that repeated words may be differentiated by changes in voicing. In the Zuni excerpt below, three identically worded phrases contrast not only because one of them is loud, but also because they are divided into three descending pitch levels by a chantlike rendition:

And ALL THE PEOPLE WHO HAD COME
 KILLED THE DEER

killed the deer

killed the deer.

Some dimensions of performance, including tones of voice, SOUND EFFECTS, and gestures, require par-
 enthetical descriptive notes like the ones in dramatic

scripts (*see* GESTURE). Whatever a score may encompass, the notion of a definitive text has no place in ethnopoetics. Just as any translation from one language to another suggests alternative translations, so any passage from sound to visible marks suggests others. Linguistics avoids this problem by narrowing its attention to the normative side of performance, recognizing only such features as can be accounted for by general rules. Ethnopoetics remains open to the creative side of performance, valuing features that may be rare or even unique to a particular artist or occasion.

See also INSULT; ORAL POETRY; POETICS; PROVERB; RIDDLE; TRANSLATION, THEORIES OF.

Bibliography. *Alcheringa/Ethnopoetics* (New York) nos. 1–5 (old series), 1970–1973, and (Boston) Vols. 1–4 (new series), 1975–1980; David Antin, *Talking at the Boundaries*, New York, 1976; Allan F. Burns, *An Epoch of Miracles: Oral Literature of the Yucatec Maya*, Austin, Tex., 1983; Dell Hymes, "In Vain I Tried to Tell You": *Essays in Native American Ethnopoetics*, Philadelphia, 1981; Jerome Rothenberg, ed., *Shaking the Pumpkin: Traditional Poetry of the Indian North Americas*, New York, 1972; idem, *Technicians of the Sacred: A Range of Poetries from Africa, America, Asia, Europe, and Oceania*, 2d ed., rev. and expanded, Berkeley, Calif., 1985; Peter Seitel, *See So That We May See: Performances and Interpretations of Traditional Tales from Tanzania*, Bloomington, Ind., 1980; Dennis Tedlock, *Finding the Center: Narrative Poetry of the Zuni Indians*, New York, 1972, reprint Lincoln, Neb., 1978; idem, *The Spoken Word and the Work of Interpretation*, Philadelphia, 1983.

DENNIS TEDLOCK

ETHOLOGY

The biological study of animal behavior, encompassing questions of causation, development, function, and evolution. This very broad conception masks the extent to which modern ethology grew from a more narrowly proportioned field in which naturalistic observation of free-living animals (in the wild or in relatively unrestrained captivity) was informed by and gave form to notions of instinct. From the outset, concern with communication—the analysis of animal social behavior in terms of the sending and receiving of signals—has been in the forefront of ethological interest.

Classical Ethology

The founding of ethology as a school dates from the 1930s and was the achievement of Konrad Lorenz in Austria. Lorenz acknowledged a number of influences, beginning with CHARLES DARWIN. Darwin's

theory of evolution by natural selection gave ethology a basic framework. More particularly relevant to behavior study was his discussion of emotional expression in animals and humans, which showed how movement and posture patterns can be interpreted in motivational, functional, and evolutionary terms as means of communication; and his theory of sexual selection, which provided an explanation for the extravagant amounts of effort expended in reproductive competition and display in numerous species. British ornithology made important contributions in the early years of this century, especially Eliot Howard's observations on bird territoriality and the uses of song and other displays in relation to it, and Julian Huxley's conception of how movements can be modified in evolution to serve a signal function, a process he called *ritualization* (the term ethologists still use for it). At about the same time, Charles Whitman in the United States and Oskar Heinroth in Germany independently recognized that behavior patterns can be as useful as anatomical features for characterizing taxonomic groups. Jacob von Uexküll, another German, presented a view of the animal as confined phenomenally to a world bounded by its sensory receptivity and motor capacity, which vary widely among different kinds of animals. Wallace Craig, an associate of Whitman, drew attention to behavior sequences consisting of actions that vary with circumstance in such ways as to bring the animal into a situation sufficient to elicit a specific stereotyped motor pattern: *appetitive behavior* leading to and apparently aimed at performance of a *consummatory act*.

From these and other sources, and observations and conjectures of his own, Lorenz drew a picture of animal behavior as, to a large extent, innately structured and instinctively controlled. Central to his reasoning was the contention that the principles applying in comparative anatomy apply in comparative behavior study as well; for example, the kind of correspondence that makes us call the proximal bone of the forelimbs of all tetrapods—be they frogs, flamingos, foxes, or Finns—by the same name (humerus) has its counterpart in patterns of behavior possessed by related species. Such correspondence, known as homology, has its best behavioral manifestations in postures and movements that serve as social signals. In his observations of ducks, Lorenz found that each species has a repertoire of such displays. The forms of these displays are species-specific in detail yet similar enough across species for lines of correspondence to be drawn and the composition of a core repertoire shared by the whole group to be deduced.

Complementing this evidence for a historical evolutionary interpretation of species-characteristic behavior was evidence of adaptive correlation: variation

between related species in homologous patterns concordant with differences in the habitat conditions or life histories of the species concerned; and resemblances between unrelated species in behavior patterns not homologous but answering to similar functional requirements ("analogous" forms resulting from "convergent" adaptation). Whether in terms of phyletic origin or adaptation resulting from natural selection, the evolutionary interpretations of behavioral comparisons suggested a genetic basis. This was part of what Lorenz meant when he described the behavior with which he was concerned as innate.

But innate also has an ontogenetic connotation, which is that development of an individual's features proceeds on the basis of hereditary specification, independent of any formative contribution from experience or interaction with the environment. The patterns of behavior upon which Lorenz concentrated were so constant in form throughout a species that he assumed both the genetic and the ontogenetic senses of innate applied to them—indeed, that the two senses entailed each other. This constancy of form also seemed to be due solely to neural connection patterns, like reflexes. Unlike reflexes, however, the behavior considered by Lorenz to be instinctive was unresponsive to repeated stimulation for a time after performance and then became progressively more easy to elicit again as further time passed. At a certain point the animal appeared compelled to go in search of the eliciting stimulation, to embark on appetitive behavior aimed at release of the consummatory act. This buildup and collapse in readiness to perform instinctive behavior suggested accumulation and discharge of some internal motivating agency. Lorenz postulated generation and expenditure of "action-specific energy" and likened the mechanism of its operation to a hydraulic system.

Another important feature of these instinctive "fixed-action patterns" was their stimulus specificity. Lorenz, and later the Dutch zoologist Niko Tinbergen, demonstrated that such behavior is tuned to simple but specific features of the normally adequate stimulus object, such as a mark it carries or part of its shape. From the point of view of communication, the most interesting of these *sign stimuli* or *releasers* (as such effective fragments of stimulus objects were variously called) were those presented by "social companions." Here it was apparent that specific social responsiveness can be tuned selectively to signals emanating from individuals of the same species. These signals can be either passively presented (e.g., a color patch or a distinctive odor) or actively presented (e.g., a display posture or vocalization) or some combination of the two. Experiments showed that much social interaction consists of sequences in which the individuals alternate as signalers and responders. This led Lorenz to believe that social behavior in

animals is often a mosaic of releaser/response couplings rather than an integration based on a unified internal representation of the social companion.

This view was reinforced by the study of social orientation governed by *imprinting*. Some social responsiveness, especially among birds, was found to lack a specific stimulus prior to the first performance. The particular stimulus seemed to be fixed by whatever object happened to elicit this initial performance, and that object became an individual's releaser or objective for that kind of behavior from then on. Normally imprinting is to an appropriate social companion. However, Lorenz reported cases for which the imprinting for different social responses occurred at different times (*critical periods*). By experimental manipulation, an animal could be made to be socially attentive to several different kinds of inappropriate objects. Lorenz claimed that this way of acquiring social discrimination differed from familiar forms of learning from experience in being confined to a narrowly limited critical period of development, in being irreversible, and in requiring no association with reward (*reinforcement*).

Like Lorenz, Tinbergen began making ethological observations in the 1930s, and their ideas converged. However, Tinbergen was dissatisfied with the single-level, mosaic structure of Lorenz's causal scheme. His own student, Gerard Baerends, showed how the nest-provisioning behavior of a digger wasp can be viewed as hierarchically organized: the work proceeds in steps, and at each transition point the animal has alternative courses of action open to it, the one taken being decided by the situation encountered. Tinbergen saw that this pattern applied to the organization of the major functional categories of behavior in general. For example, the reproductive behavior of a fish, such as the male three-spined stickleback, divides into territorial fighting, nest building, mating, and care of eggs; each of these activities in turn consists of several components, such as attacking, fleeing, and threatening in the case of fighting; and each of these actions can be broken down further into the particular movements of the moment—turns, fin positions, and the like. According to Tinbergen's observations, behavioral sequences typically follow this kind of order, beginning with appetitive behavior common to a class of functionally related activities, and proceeding, according to the sign stimuli encountered, to increasingly specific selections of appetitive action, and terminating in the fixed-action pattern of one of the constituent consummatory acts. He pictured the underlying mechanism as an arrangement of hierarchically ordered control centers, with, for example, a single center for reproductive behavior at the top; generating "motivational impulses," which it feeds to centers for fighting, nest building, and so on at the level below it; and each of these feeding

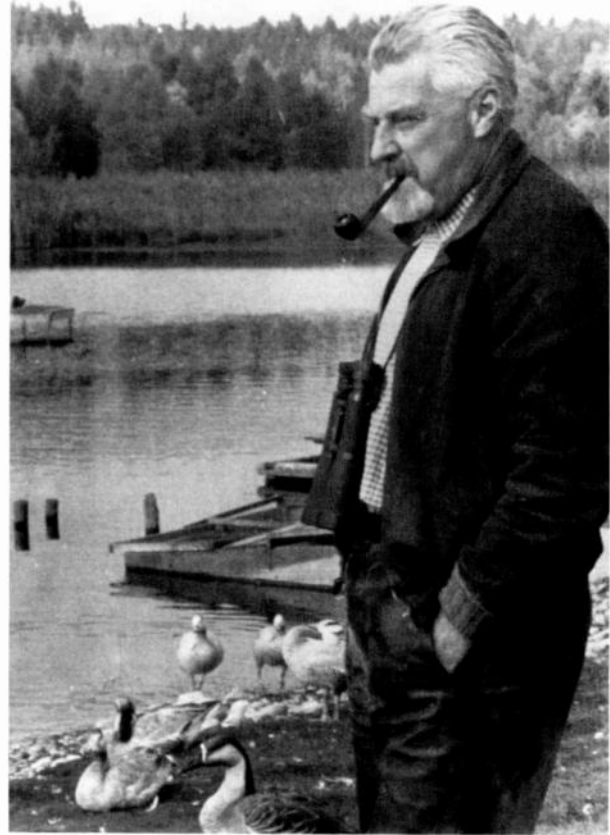


Figure 1. (*Ethology*) Konrad Lorenz, 1973. UPI/Bettmann Newsphotos.

into centers for its alternative action patterns at a lower level again. Outlet from each center at each level was governed by a gate tuned to open in response to the sign stimuli specific to the behavior in question.

Tinbergen followed Lorenz in thinking of the working of this mechanism in hydraulic terms, but instead of many action-specific energies he postulated a single kind of motivational excitation, which descended the hierarchy according to which gate was opened at each level, and was discharged in performance of a terminal consummatory act at the bottom. Also, in contrast to Lorenz's view that only consummatory acts should be referred to as instinctive, and since they and they only were supposed to combine all the attributes of instinct, Tinbergen preferred to regard the whole hierarchical system of a major functional category of behavior as an instinct. He had this sense in mind when he used the term in the title of the book in which he presented his motivational theory as the centerpiece, along with behavioral and physiological evidence that he felt supported it.

The Study of Instinct (1951) can be regarded as the culmination of ethology's classical phase of the-

ory building. In addition to the concern with causal mechanism, Tinbergen discussed the functions and evolution of behavior, which was to some extent independent of the causes. Indeed, a great deal of the ethological research at this time was less directly concerned with theoretical issues than with observation and experiment aimed at comprehensive descriptions of species' behavior repertoires (*ethograms*) and understanding of what ends the behavior served and how it might have evolved. This was especially true for communication behavior. Comparisons of the forms of display postures and movements, of the situations in which they occurred, and of their sequential associations with other behavior—within species and between related species—gave evidence for their interpretations as “derived activities.” Thus many such displays appear to be ritualized versions of the initial parts (so-called intention movements) of locomotory, attacking, or fleeing movements.

Another possible evolutionary antecedent of signal display is *displacement activity*: the apparently irrelevant movements many animals make when they are subject to conflicting tendencies such as attacking and fleeing. For example, many displays signifying that an animal is hesitating between alternative courses of action appear to be derived from grooming or preening movements, which are common as displacement activities in such situations. In yet other cases the display behavior appears to have become causally “emancipated” from the conditions governing its supposed unritualized occurrence; an example here is the courtship preening and drinking movements of some species of ducks, which occur in the absence of conflict conditions.

Perhaps the most intriguing example of this early ethological work on signal analysis was Austrian biologist Karl von Frisch's study of communication in honey bees, the highlight of which was discovery of a kind of symbolic representation. Worker bees returning to their hive after finding food (or a suitable place to set up a new hive if division of the colony is imminent) more than two hundred meters away perform movements on the vertical surface of the comb that convey the location of the find to other bees. This “waggle dance” consists of a figure eight, during the central straight run of which the bee wags its abdomen from side to side. Von Frisch found that the angle of this wagging run with respect to gravity corresponds with the angle of the direction to the location with respect to the position of the sun (azimuth), and that the distance to the location is given by the number of waggles or the time taken to complete a circuit of the figure eight. Adding to this extraordinary story, von Frisch discovered that bees allow for change of position of the sun with time, so that if their return to the hive is interrupted, their eventual dancing takes account of how much the sun

will have shifted in the interval. Moreover, the bees do not even have to have a view of the sun to know its position, for they can tell where it is from an ability to perceive the pattern of polarization of light from a portion of the sky. *See also* INSECTS, SOCIAL.

Reaction to Classical Ethology

The spokesmen for classical ethology took a critical stance toward other schools of animal behavior study, such as behaviorism in the United States with its emphasis on learning and European animal psychology with its insistence on the ultimate inaccessibility of animal minds to scientific analysis. Lorenz in particular was so emphatically outspoken that reaction was inevitable. For example, many comparative and physiological psychologists in the United States criticized ethology for drawing ontogenetic conclusions from evolutionary or functional premises without doing the necessary developmental study; for constructing hypothetical physiological machinery from features of the behavior it was designed to explain rather than from physiological fact, some of which was already known to be inconsistent with ethological motivational theory; and for giving insufficient consideration to the qualitative differences in the behavioral capacities of different kinds of organisms.

Dissatisfaction with classical theory also arose within ethology, partly because of the outside criticism and partly because some of its own discoveries called aspects of the theory into question. For instance, Erich von Holst, the most physiologically sophisticated of the classical ethologists, undermined the idea that consumption of behavioral energy is what consummates behavioral sequences by demonstrating the importance of *reafference*—the stimulus changes experienced by an animal as a consequence of its own movement. In particular, he showed how the reafference compares to that “forecast” at the beginning of the movement in determining whether the animal continues in what it was doing or switches to something else. No such role for sensory feedback was included in the motivational schemes of Lorenz and Tinbergen. As evidence accumulated, however, the stimulation resulting from movement rather than performance of the movement per se took on an increasing significance.

Pressure to pin terminology down to observable magnitudes led ethologists in the 1950s to abandon speculative concepts like action-specific energy and motivational impulses and replace them with measures such as behavioral tendency, which were anchored in estimates of probabilities of occurrence. Statistical procedures such as factor analysis were applied to the sequential and covariant patterning of behavior. The once clean lines of ethological theory

became buried under new data, which showed, among other hard lessons, that causal accounts of behavior in terms of unitary instinctive motivation were too crude to come to grips usefully with the variety of ways in which behavior varied.

Developmental study such as that of the British ethologist Peter Marler and his associates of vocal ontogeny in songbirds showed how the interplay between heredity and experience can be far more intricate, much more a matter of complementary contribution than an exclusive dichotomy between innate and learned. Further work on imprinting showed that the limits to the time when experience can take effect are more flexible than the concept of critical period assumed, and so led to adoption of the looser concept of *sensitive period*; that the claim of irreversibility has to be qualified according to the manner in which it is assessed; that reinforcement can be involved; and generally that imprinting has more continuity with other kinds of learning, especially perceptual learning, than was initially supposed. Other work on communication behavior was mainly either descriptive of order in social interaction or aimed at finding principles that would generate that order. The 1950s and 1960s saw ethology dividing its energies among a disparate number of areas of research, in which it increasingly joined forces with neighboring disciplines, such as physiology, experimental psychology, and ecology. The distinguishing characteristics of ethology became blurred; no longer was there a theoretical integration of the sort presented by the theses of *The Study of Instinct*.

Sociobiology

A new theoretical synthesis of animal behavior study was claimed in the 1970s, but its foremost spokesman, U.S. biologist Edward O. Wilson, represented it as an alternative to ethology rather than a part of it. Sociobiology proposed a combination of population genetics and behavioral ecology as the basis for explanation of all aspects of social behavior and social organization in evolutionary terms. In fact, the sociobiological orientation arose within ethology, where it had always been latent. It caused a surge of renewed interest in issues concerning the adaptive significance of behavioral phenomena that had seemed inconsistent with natural selection ever since Darwin had brought his theory to bear on them.

Foremost among these problems was altruism. Any genetically based tendency for an animal to act in another's interest and thus increase the other's chances for survival and reproduction (its "fitness") at the expense of its own should, according to natural selection as originally conceived, be eliminated from the population, because helped individuals will tend to leave more progeny than the helpers. In spite of

this, altruistic behavior is not uncommon. One of the answers seems to be kin selection, which applies to altruism among genetically related individuals. By promoting the reproduction of a relative, an animal can add to the copies of the kinds of genes it replicates by its own reproduction (to the extent that the two animals have genes in common) and so increase its own "inclusive fitness." Kin selection theory has led to much new insight into social patterns, such as the finding that in some species individuals can distinguish close kin from others and thus preferentially distribute their aid.

This effort to relate behavioral characteristics to genetic advantage has also encompassed communication. For example, assessments of the costs and benefits of alternative strategies in aggressive encounters have been found to favor threat display over unconditional attack or surrender. The time and effort devoted to courtship signaling by males in numerous species as well as the elaborateness and risk-exposing conspicuousness of the behavior in many cases have apparently evolved as advertisements of reproductive potential as a consequence of assessment by females prior to choosing a mate (a form of Darwinian sexual selection).

This view of signal function has led to the controversial idea that animals use signals to try to manipulate one another, rather than to inform one another. Since informing can be one way of manipulating, this may be a false dichotomy. And where the possibility of DECEPTION exists, one can ask whether it applies only to a recipient's being misled by a signal or if it extends to the proposition that a signaler acted deliberately to deceive. The latter implies intentionality, which most ethologists shy away from as too mentalistic a notion to merit scientific consideration. However, U.S. biologist Donald Griffin has reopened "the question of animal awareness" and thus has brought to the fore something he calls *cognitive ethology*. Several lines of evidence, ranging from chimpanzees to honeybees, have revealed that animals can be cognizant of much more about their social and physical worlds than used to be thought possible (*see* COGNITION, ANIMAL). This research has led to claims of syntactic structure, semantic content, and intentionality in animal signaling. Comparison between animal signaling systems and human LANGUAGE has also received a boost, but the more substantial contribution of the ethological perspective to the human case has been the attention it has drawn to NONVERBAL COMMUNICATION as part of the emergence of human ethology.

Concern with the syntactics, semantics, and pragmatics of animal communication is rife with controversial issues, yet it makes the point that more than the evolutionary questions of sociobiology must be taken into consideration in a fully developed biology

of animal behavior. As Tinbergen added, after he had defined ethology in terms of the four questions of causation, ontogeny, function, and evolution, the mission of the science is to give equal attention to each of them, and to their integration.

See also ANIMAL COMMUNICATION; ANIMAL SIGNALS; ANIMAL SONG.

Bibliography. Donald R. Griffin, *Animal Thinking*, Cambridge, Mass., 1984; Robert A. Hinde, *Ethology*, New York, 1982; David McFarland, ed., *The Oxford Companion to Animal Behavior*, Oxford and New York, 1982; W. John Smith, *The Behavior of Communicating: An Ethological Approach*, Cambridge, Mass., 1977; Niko Tinbergen, *The Study of Instinct*, Oxford, 1951.

COLIN G. BEER

EVALUATION RESEARCH

In the context of communication projects or programs, the term *evaluation* refers to all those systematic information-gathering activities that close the communication loop and potentially improve the effectiveness of message delivery (see MODELS OF COMMUNICATION). These activities may include identifying levels of prior knowledge and the characteristics of usual practice among intended recipients, assessing the readability or clarity of messages, measuring changes in behavior (intended or not) that are associated with message delivery, or assessing the impact of an intervention in alleviating the problem it was designed to address.

This latter type of problem has been the focus of a good deal of project evaluation work (see DEVELOPMENT COMMUNICATION). Traditionally, evaluation has been an after-the-fact, or summative, exercise designed to determine whether a project or program attained its objectives and whether the outcome could be attributed unequivocally to project or program activities. The goal was to obtain reliable information that would allow decisions to be made about future support for the present activity or about new, related activities. Consistent with this viewpoint, choice of methodology became crucial as more threats to the validity of conclusions about causes were uncovered. Thus during the 1960s and 1970s much work was conducted on developing experimental and quasi-experimental designs that could increase the capacity of evaluators to draw conclusions about causality.

There are other consequences to the view that evaluation should address summative questions. Such evaluations are usually carried out by outside consultants, people other than those whose work is being evaluated. The outsiders are expected to contribute not only their particular skills in data gathering and analysis, but also the requisite objectivity, much in

the manner of basic scientific research. In this context the relationship between project staff and evaluators is often adversarial, and the dominant mode is fault-finding.

Evaluations designed to uncover causal relationships also require a stable, well-functioning project and quite large sample sizes, particularly when the expected effects are likely to be small. Thus they are expensive and tend to be conducted quite late in the life history of a project.

Formative Evaluation

While always a feature of the evaluation landscape, formative evaluation has been gaining increasing recognition as a valuable tool for project personnel and, in many cases, a more productive use of scarce evaluation resources. Procedures to gather information about a process or product to improve quality or effectiveness are used routinely in the communications field for materials that are meant to influence or teach (although sometimes they are called *field testing*, rather than formative evaluation). However, their systematic use in all stages of project planning, design, and implementation is relatively new.

Case studies. Two cases in which formative evaluation has made an important and significant contribution to project design and implementation will illustrate the point. Both were funded by the U.S. Agency for International Development. The Mass Media and Health Practices Project was implemented in Honduras and Gambia; the Radio Mathematics Project was implemented in Nicaragua and replicated in Thailand. These two cases exemplify the variety of approaches that can be taken to gathering evaluative information. While by no means unique, they represent two substantial and well-funded efforts that produced, on the one hand, successful communication campaigns and, on the other, a successful instructional program, with the help of intensive information-gathering activities.

The Mass Media and Health Practices Project (MMHP), conducted by the Academy for Educational Development, designed and implemented a program to conduct public health education aimed at the treatment of infant diarrhea. The core of the program involved teaching mothers to prepare and administer oral-rehydration fluid. The academy used formative evaluation in three ways during project planning and implementation: (1) It conducted pre-program research, to assist planners to understand thoroughly the problem that the educational campaign would address and the cultural context in which the campaign would take place. (2) It pretested materials, including posters, radio programs, and training materials, with members of the appropriate target audience for accuracy, comprehension, and

acceptability. And (3), the processes of production, distribution, use, and consumption of educational materials were systematically monitored and analyzed to create a permanent feedback loop. The information gathered measured incremental learning among target audiences and identified weaknesses in project implementation sufficiently early so that action could be taken to correct them.

A variety of qualitative and quantitative research methods were used to gather information.

1. *Focus group interview.* This practical and efficient technique for eliciting reactions was adapted from the field of marketing (see CONSUMER RESEARCH). The goal is to encourage the expression of as many ideas as possible and to stimulate participant interaction. Questions are open-ended, and the interviewer must be able to ask follow-up questions that probe, without leading the group toward predetermined answers. MMHP used focus groups of rural mothers to discuss traditional beliefs and practices about diarrhea and to generate the vocabulary used by rural people for objects and concepts to be incorporated in the project's educational materials.
2. *In-depth interview.* This is a one-on-one interview, usually structured around a carefully designed set of open-ended questions. The in-depth interview serves a purpose similar to that of the focus group—to probe ATTITUDES and feelings among a small number of respondents and to develop hypotheses—but it avoids the peer influence and pressure of a group setting. MMHP used the technique in one setting to probe health workers' understanding of diarrheal disease and in another to explore the concept of dehydration with rural mothers.
3. *Pretest interview.* A one-on-one or group interview is structured around specific materials. Questions are directed at determining what people see or hear in the material, how well they understand its message, and how well they like it. This technique was used extensively in developing radio spots and printed materials.
4. *Survey.* The survey is the standard method for systematically gathering quantifiable information by aggregating responses from a sample of individuals. MMHP used surveys to assess audience performance on such variables as knowledge and practice of oral-rehydration therapy, radio listenership, and awareness of the project's educational messages. See OPINION MEASUREMENT.
5. *Central-location intercept interview.* This special type of survey is usually conducted at some popular place within the community—for example, a street corner, market, or clinic. The questions are very short, usually requiring only yes or no or

other simple answers. Intercept interviews allow the researcher to question large numbers of people quickly and require little interpretation or subjective analysis. MMHP found this technique particularly useful for pretesting simple graphic materials.

6. *Observation.* This research technique was used by MMHP during the preprogram stage, when trained observers spent several days in rural households observing child-care practices, particularly the care of sick children. As a corroborative technique complementary to other data sources during the campaign, observers again observed children with diarrhea and the care they received.
7. *Behavioral trials.* Such trials provide detailed information on unexpected problems and are essential for validating the potential practicality of new manual skills being promoted. MMHP conducted trials of mixing oral-rehydration fluid during the preprogram research to expose any difficulties rural mothers might have in mixing the fluid in their actual home conditions.
8. *Product preference trials.* Product preference trials seek to identify consumer preferences among a range of products and product packaging available for a particular need. MMHP asked rural mothers to identify the types of medicines they preferred (among tablets, injections, liquids, etc.) to help determine how best to package and promote oral-rehydration fluid.
9. *Broadcast monitoring.* Two types of broadcast monitoring were used. During preprogram research, project researchers monitored the number and strength of all radio station signals reaching the target area, to validate reports of radio listening by survey respondents and to guide the choice of stations for best broadcast coverage. Broadcasts of project radio spots were monitored to ensure that radio stations were adhering to the schedules agreed on with project personnel.

Each of the above techniques required slightly different skills, provided significantly different kinds of information, and was more appropriate at certain stages of the formative evaluation process than at others. The special value of combining several of these methods is in the variety of perspectives they bring to bear and the cross-validation they provide.

The Radio Mathematics Project (RMP) developed a substantially different formative evaluation model in response to the requirement to produce a daily radio lesson. The project developed full-year courses in primary-school mathematics using what has become known as *interactive radio instruction*, in which students listening to radio lessons are expected to participate actively, responding aloud, writing in their notebooks, or working with specific materials. The

course of lessons, about 150 for a school year, carries the major burden of instruction and thus differs conceptually from educational broadcasts that are meant to provide enrichment or supplemental information to students (*see* AUDIOVISUAL EDUCATION).

In educational broadcasting for formal education (*see* EDUCATIONAL TELEVISION) the goals and problems are quite different from those for the kind of nonformal education undertaken by MMHP. The main goal of interactive radio instruction is the development of specific skills. The in-school audience is captive, relatively homogeneous, and can be expected to have heard most of the prior lessons in the series. Thus, in several ways, the problems of the producer of formal educational programs are less severe than those of the producer of nonformal broadcasts, who must appeal to a casual listening audience with a wide variety of backgrounds.

On the other hand, the producer of programs for formal education has problems not often found in nonformal education. He or she must impart skills that can be taught only by a structured sequence of carefully designed, integrated instructional units that build slowly but continuously toward a set of well-defined objectives. Skills such as arithmetic, GRAMMAR, READING, or LANGUAGE cannot be taught in small independent units that can be broadcast in random order; the component skills must be taught in a specific sequence, and instruction cannot proceed effectively unless the audience has mastered preceding lessons. Furthermore, adequate mastery of skills can only be expected after both effective instruction and ample practice over time.

To accommodate itself to these characteristics of educational programming, the RMP developed a system of lesson production whereby programs could be continuously adapted to the changing characteristics of the audience, even though the producers could not predict in advance the exact rates at which changes in the listeners would occur. In this system, which is modeled after industrial feedback processes, programs are produced just before broadcast, and the reactions of the listening audience are continuously monitored to determine the direction and amount of change taking place. The information collected is used in the planning and production of upcoming programs in the series. If the students are learning to respond more quickly to a particular type of oral drill, the time allowed for such responses is decreased in future lessons. If students show that they can now understand shortened instructions, the number of words used in similar messages is reduced in the future. In this way the production of a year-long series can be accomplished within a single calendar year, and the final product is well fitted to the audience for which it is intended.

The greatest difference between this feedback system of production and the more traditional field testing is that in the feedback system there is no actual revision of materials. The information collected in the field is used in the production of new programs, not in the revision of those that were already broadcast. That is, it is not a method for correcting faults but rather one for adapting design parameters for an audience in a state of flux.

The feedback method can be used only when most of the instructional and broadcast features of the lessons are approximately correct and when the production team is capable of producing good, if not perfect, programs with high face value. Work must be done in advance to make appropriate decisions about the pacing, vocabulary level, and other features of the lessons. Thus the two methods—feedback and revision—are complementary, and both can be used to good effect under different circumstances, even within the same project.

The methods used by RMP to collect data were similar to those used by MMHP, with the addition of paper-and-pencil tests of student achievement administered weekly. Systematic classroom observation was the most important of the qualitative methods used, but the project also interviewed children and teachers and administered questionnaires to teachers and other school personnel.

Evaluation as a tool. The growing appreciation of formative evaluation within communication campaigns reflects a shift toward evaluation as a tool for getting things done. Earlier evaluation work reflected a view of evaluation contributing to a body of basic research findings upon which later campaigns could build, but providing mainly after-the-fact information of little benefit to the campaign that was evaluated. Formative evaluation, integrated as it is within the campaign and during the campaign, allies the evaluation enterprise with the efforts of the campaign directors, taking away the adversarial edge and providing useful guidelines for improvement. The evaluator and the campaign director work together, and later campaigns benefit even more. Evaluation ceases to be a threat and becomes a constructive tool suited most appropriately to communication campaigns.

While summative evaluation has dominated the field of evaluation, particularly regarding methodological developments, formative evaluation techniques have long been usefully employed in the communication field. The cases described here exemplify intensive and systematic use of techniques that will continue to enhance the power of mass communication media as tools for instruction and PERSUASION.

See also MASS COMMUNICATIONS RESEARCH; MASS MEDIA EFFECTS.

Bibliography. Marvin C. Alkin, Richard H. Daillak, and Peter White, *Using Evaluations: Does Evaluation Make a Difference?* Beverly Hills, Calif., 1979; Tony Bates and John Robinson, eds., *Evaluating Educational Television and Radio*, Milton Keynes, Eng., 1977; D. J. Casley and D. A. Lury, *Data Collection in Developing Countries*, Oxford and New York, 1981; Thomas D. Cook and Donald T. Campbell, *Quasi-experimentation Design and Analysis for Field Settings*, Chicago and Boston, 1979; Lee J. Cronbach et al., *Toward Reform of Program Evaluation: Aims, Methods, and Institutional Arrangements*, San Francisco, 1980; Michael Q. Patton, *Utilization-focused Evaluation*, Beverly Hills, Calif., 1978; Wilbur L. Schramm, ed., *Quality in Instructional Television*, Honolulu, Hawaii, 1972; Elmer L. Struening and Marcia Guttentag, *Handbook of Evaluation Research*, Beverly Hills, Calif., 1975.

BARBARA W. SEARLE AND PETER L. SPAIN

EXPLORATION

The period historians label the Age of Discovery extends from 1415, when the Portuguese started to explore the coast of West Africa, to the mid-sixteenth century. At the beginning of the fifteenth century, Europe was a largely self-contained region, having only sporadic contacts with other continents and civilizations. By 1550 most of the world's coastlines had been mapped, the Portuguese had built a trading empire in the Far East, and Spain ruled vast tracts of America (Figure 1). A linking up of civilizations had occurred, and the world was no longer divided into discrete units surrounded by wastes of unexplored ocean or desert. All this had been achieved by a Europe that in the late fourteenth century contained only about 15 percent of the world's population. These discoveries led to important changes in the outlook of Europeans, as the classical Christian worldview of the early RENAISSANCE was infused by an increasing awareness of the rest of humanity. This process prompted French historian Jules Michelet (1798–1874) to define the Renaissance as “the discovery of the world and of man.”

Early history. In the ancient classical world exploration had taken place. Greeks and Romans reached the Red Sea, the Persian Gulf, and even northern India. However, between 500 and 1000 much of this geographical knowledge was lost to the Latin West, although preserved in Greco-Arabic libraries in Spain and the Middle East (see LIBRARY). Thus, Greek astronomer Claudius Ptolemy (Ptolomaeus; 90–168), who lived in Alexandria, had a far more sophisticated grasp of cosmography than anyone in medieval Europe. A key date in Renaissance scholarship is 1406, when Ptolemy's *Geography* became available to Western readers through translation. Although Ptolemy made significant errors, his achievement was

to describe a system of geographical coordinates whereby any point on the earth's surface could be fixed (see CARTOGRAPHY; MAP PROJECTION). The effect of the *Geography's* availability on the European imagination was to create speculation about the world and the possibility of its exploration.

This advance did not dispel contemporary ignorance. Europe's isolation had been accentuated in the late fourteenth century by the rise of the Ottoman Turks, whose empire interposed a barrier cutting off the land route from Europe to the East. Late-medieval scholars had no way of distinguishing between, for instance, the basically accurate account of MARCO POLO (ca. 1254–1324; see Figure 2) and the entirely spurious travelers' tales of the pseudonymous and immensely popular fourteenth-century writer “Sir John Mandeville,” who told of headless beings and ants the size of goats. The learned knew from classical sources that the world was round, but they had no idea what lay on its other side (Figures 3 and 4). There was also the view of the Roman author Pliny (ca. 23–79) that the equator was an impassable barrier and that crews attempting to cross it would be scorched to death.

Such beliefs were among the first casualties of the voyages. The Age of Discovery was also the age of print and of increasing LITERACY among the upper classes. Numerous editions of explorers' accounts were published, such as the *First Letter* of Christopher Columbus (ca. 1451–1506), which went into twenty editions by 1500. The first collection of documents relating to the voyages, Montalboddo's *Paesi Novamente Retrovati*, dating from 1507, rapidly went through fifteen editions in four languages (see PRINTING—CULTURAL IMPACT OF PRINTING). The epoch-making voyages of Columbus during 1492 and 1493, of Vasco da Gama (ca. 1460–1524) to India from 1497 to 1499, of Ferdinand Magellan (ca. 1480–1521) from 1519 to 1521, and of others not only undermined the credibility of Mandeville but also demonstrated the fallibility of Pliny, ARISTOTLE, and even Ptolemy, thus perhaps contributing to a growing awareness of the superiority of direct personal observation over reliance on traditional authority.

The clash of cultures. English historian J. R. Hale has said that the attempt of one society to comprehend another inevitably forces it to reappraise itself; this was no easy task for a Europe newly emerging from its medieval straitjacket. Intellectually, the voyages posed two separate challenges to accepted opinion. One was the discovery of the New World. (It was in 1503 that Florentine explorer Amerigo Vespucci [1454–1512] first postulated that the newly mapped coast of Venezuela might be a part of a “new world” and not, as hitherto believed, some remote part of Asia.) The other challenge involved

Tabula noua totius orbis.



Figure 1. (Exploration) Michael Servetus, *Tabula Nova Totius Orbis* (Ptolemaic World Map), Vienna, 1541. Courtesy of the Royal Ontario Museum, Toronto, Canada.



a

Figure 2. (Exploration) Details from a late-fourteenth-century copy of *The Book of Marvels*, by Marco Polo. (a) Kubla Khan hunting in the Gulf of Cambay. Bibliothèque Nationale, Paris. Giraudon/Art Resource, New York.



b

the Portuguese encounter with advanced Eastern civilizations such as the Hindu culture of the rich city-state of Calicut on the Malabar coast of India.

Da Gama's first encounter with the Hindus in 1498 led to ludicrous misunderstanding. After insulting the elegant *samorin* ("ruler") of Calicut with presents

more suited for a West African village headman, he proceeded to mistake Hindu temples for churches and to equate the goddess Kali with the Virgin Mary. Such failures of interpretation became more lethal once the Portuguese, through superior naval and warfare technology, had established local domina-

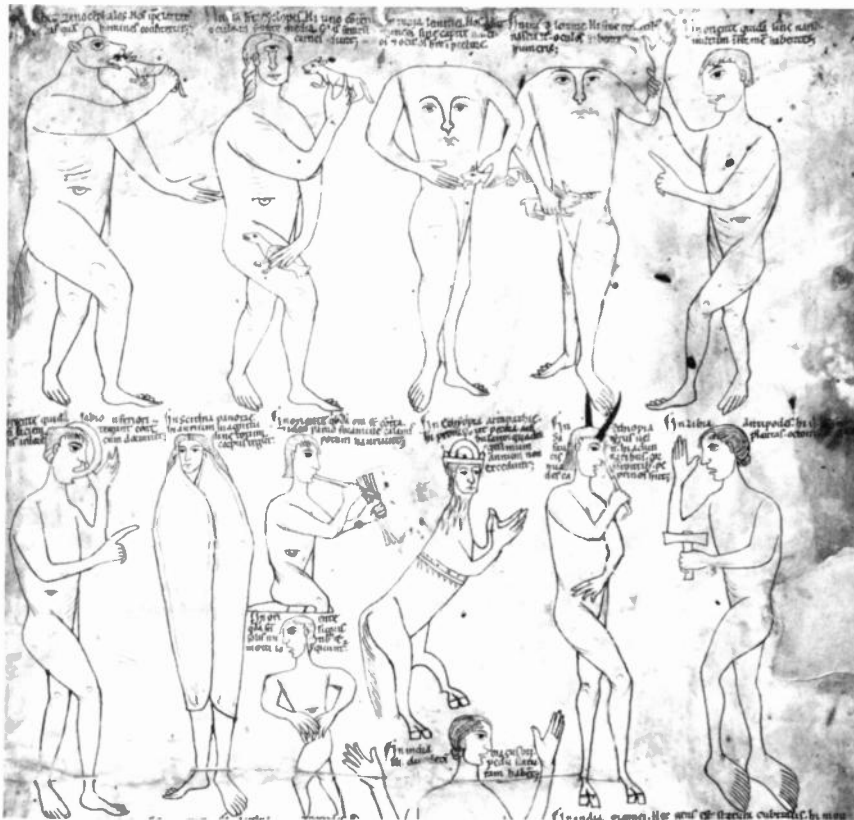


Figure 3. (*Exploration*) Detail from "The Arnstein Bible," from the Premonstratensian Abbey, Arnstein, ca. 1175. These products of a twelfth-century monk's imagination illustrate some medieval ideas about the appearance of natives of foreign lands. By permission of the British Library.

tion. The Portuguese Empire came to be thoroughly imbued with the intolerant and crusading spirit of the sixteenth-century Counter-Reformation. In Goa (India), for instance, only Christians could hold public office, and temples were systematically destroyed. This was the start of what Indian historian K. M. Panikkar has labeled the Age of Vasco da Gama, a period of imperialist domination and cultural apartheid that lasted from 1497 until 1947, the year of India's independence, and to some extent beyond.

The New World produced a different kind of challenge. Where had the American natives come from? sixteenth-century theologians asked. How was their geographical situation to be squared with biblical accounts of the creation of humanity and its dispersal after the Flood? Also, why had these peoples been excluded for so long from the benefits of Christianity? And—the more immediate question—how were they to be treated? The answer to the last question clearly depended on the answers to the other questions. Were the natives innocent survivors of a golden age, an earthly paradise, as their nakedness and tractability seemed to indicate? Or were they rather, as some among the first settlers held, degenerate and fit only to labor in the fields and mines for their European masters?

The "answers" ultimately assigned to all such

1 N eadem tabula ad h. d. alius serpens mar. ad centum aut ducentos pedes longus, ut descriptio habet, (uel etiā trecentos, ut numerus iconi ad iunctus præ se fert,) circa Noruegiā interdum

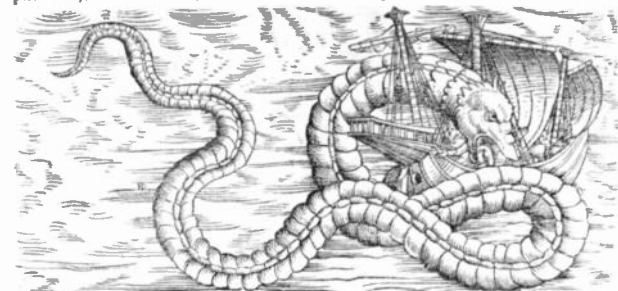


Figure 4. (*Exploration*) A large sea monster destroying a sailing ship, ca. sixteenth century. From Conrad Gesner, *Historia Animalium*, Liber III, p. 1040. Courtesy of the Library of Congress.

questions have greatly influenced the intellectual outlook of the modern world. It was Europeans, and not Amerindians, Arabs, or Chinese, who "discovered" and in most cases conquered the known world of the sixteenth century. The truculent self-confidence of the conquistadores was reinforced by their successes and deeply penetrated European consciousness. The whole world came to be locked into the conceptual embrace of the West, so that today peoples

of every culture and countries at different points in economic development (see DEVELOPMENT COMMUNICATION) still see the world and themselves largely through Western cultural spectacles.

See also AMERICAS, PRE-COLUMBIAN; COLONIZATION; EAST ASIA, ANCIENT; HELLENIC WORLD; ISLAM, CLASSICAL AND MEDIEVAL ERAS; MIDDLE AGES; ROMAN EMPIRE.

Bibliography. Bailey W. Diffie and George D. Winius, *Foundations of the Portuguese Empire 1415–1580*, Minneapolis, Minn., 1977; John Huxtable Elliot, *The Old World and the New 1492–1650*, Cambridge, 1970; Donald F. Lach, *The Century of Discovery*, Vol. 1, *Asia in the Making of Europe*, Chicago, 1965; Kavalam M. Panikkar, *Asia and Western Dominance*, London, 1953; Geoffrey V. Scammell, *The World Encompassed: The First European Maritime Empires, c. 800–1650*, Berkeley, Calif., 1981.

DAN O'SULLIVAN

EXPRESSIONISM

A range of work in ART, literature, THEATER, and film is commonly dubbed expressionist, but the precise limits of this art movement are matters for debate. There is widespread agreement on the major geographical locus—Germany—and on a time period that, on the most generous interpretation, extends from the beginning of the twentieth century up to the rise of the Third Reich. There is also agreement that expressionism has had a continuing impact on the development of many forms of modern communication, most particularly on the cinema. So-called German expressionism remains one of the more durable movements routinely invoked by film historians.

The principal influences on cinematic expressionism in Germany lie in the visual arts and, to a lesser degree, in DRAMA. Two groups of artists are always identified in art histories of expressionism: *Die Brücke* (The Bridge), organized in Dresden in 1905 and dominated by Ernst Kirchner (Figure 1), and, six years later in Munich, *Der blaue Reiter* (The Blue Rider), including Wassily Kandinsky (Figure 2), Paul Klee, and August Macke. Often quite diverse in style, these expressionist artists were united as much as anything in their general beliefs, their *weltanschauung*. They shared a rebellion against traditional forms and a drive to achieve what in 1910 Kandinsky called the “great abstraction.”

They argued that the established AESTHETICS of naturalism and impressionism were profoundly limited in seeking to represent only the surface of things. The task for expressionism was to delve beneath this surface in search of essences. Accordingly, expressionism was formally antinaturalistic, insistent upon

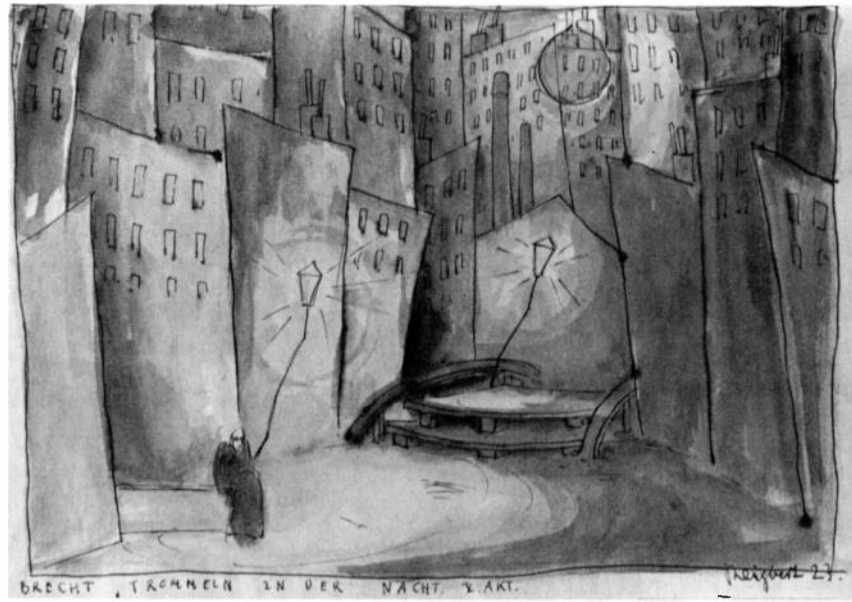


Figure 1. (Expressionism) Ernst Ludwig Kirchner, *Einladung zur Ausstellung der Künstlergruppe Brücke* (Invitation to the Brücke Artists' Group Exhibition), 1906. Woodcut. From Annemarie and Wolf-Dieter Dube, *E. L. Kirchner: Das graphische Werk*, Munich: Prestel-Verlag, 1967, p. 98, fig. 693. Copyright by Dr. Wolfgang and Ingeborg Henze, Campione d'Italia.



Figure 2. (Expressionism) Wassily Kandinsky, *Aquarelle abstraite* (Abstraction in Watercolor), 1910. National Art Museum, Paris. Lauros-Giraudon/Art Resource, New York.

Figure 3. (*Expressionism*) Otto Reigber, set design for *Trommeln in der Nacht* (Drums in the Night), by Bertolt Brecht. Kammerspiele, Munich, 1922. Deutsches Theatermuseum, Munich.



freeing the object from its natural environment. Allied to this aesthetic rebellion—which, while genuine enough, did not necessarily lead to any single artistic style—was a wider rejection of European bourgeois culture. That is perhaps clearer in drama, where the painter’s visual abstractions could be united with more easily articulated social commitments. Thus in expressionist theater—Georg Kaiser’s *Gas* is one of the best-known examples—characters and events are construed in terms of their emblematic qualities rather than within the conventions of psychological REALISM. With its NARRATIVE experimentation, elaborate set design, and stylized ACTING, this theater was to prove an influential mediator of expressionist techniques for the German cinema of the early twenties (Figure 3).

Das Cabinet des Dr. Caligari (The Cabinet of Dr. Caligari, 1919) marks the beginning of German expressionist cinema (Figure 4). Its distorted sets and fierce contrasts of black and white, light and shadow, give the film the look of an expressionist painting brought to life. However, it would be misleading to take *Caligari* as typifying the German cinema of its period. Few films aspired to its aesthetic extremes, and closer examination of German cinema between 1919 and 1927 suggests a more varied output. Expressionist film encompasses far more than *Caligari*. Fritz Lang’s *Metropolis* (1927), considered the end of German expressionist film, has the usual fantastic sets, sharp contrasts, geometric patterns, and stylized movements of mass workers rising in anger (Figure 5). But Lang suggests that a rational spirit may prevail in his futurist city.

There are many sources for this hybrid movement,

some deriving from older German traditions. As film scholar Lotte Eisner has argued, Max Reinhardt’s theatrical innovations were important, particularly his impressionistic lighting techniques and his concern with group composition onstage. This “chiaroscuro” tradition, as she terms it, combined with some of the more obviously expressionist influences, gave rise to what might more appropriately be called the German style, a body of techniques employing perspective distortions, shadows, halftones, and studied compositions to convey a peculiar sense of insecurity and threat. Borrowing themes and narratives from the romantic and gothic traditions, German silent cinema created a grotesque and displaced universe in which powerful forces combined to assail often despairing individuals (*see ROMANTICISM*).

This sense of disharmony, of a world at odds with itself, is common to expressionist work in several media. In film, however, the style was grafted onto themes that differed somewhat from those commonly found in the other arts. Where expressionists in painting and theater often held radical political views, German expressionist cinema proved predominantly conservative. Trapped in an unforgiving and constraining world, characters in these films were obliged to subject themselves to proper authority so that acceptable social order might survive. The darkly disturbing shadows of the German style, in film at least, thus served to express a fatalistic and conservative response to the stresses of Weimar society: a metaphorical defense against social chaos and a call for authoritative leadership. It is this element that allowed Siegfried Kracauer to forge the central connection of his famous thesis, seeking to establish a



Figure 4. (*Expressionism*) Robert Wiene, *Das Cabinet des Dr. Caligari* (*The Cabinet of Dr. Caligari*), 1919. The Museum of Modern Art/Film Stills Archive.

clear line of progression all the way from *Caligari* to the rise of Adolf Hitler.

Whatever the truth of Kracauer's analysis, German expressionist cinema itself was effectively finished by 1926. In the wake of the 1924 Dawes Plan, U.S. investment in the German film industry was exchanged for a drastic cut in the German export market. The HOLLYWOOD majors (most notably MGM and Paramount) took the opportunity to undermine their only serious competitor in Europe. Already guaranteed 50 percent exhibition in Germany, they set about luring away the industry's major talents. Many of the technicians, performers, directors, and producers central to German cinema headed for new jobs in Hollywood. See MOTION PICTURES—SOUND FILM.

As well as precipitating the decline of the German industry, this had the effect of accelerating the rate at which the German style came to influence U.S. film. Hollywood filmmakers were already aware of the remarkable innovations wrought in Germany, particularly in relation to camerawork. The influx of German technicians added to that influence, and the German style became a primary resource whenever filmmakers needed to suggest mystery, instability, or malevolence. Thus, the two emergent popular genres

of the early thirties—the gangster movie and the HORROR FILM—both employed “German” lighting and compositional techniques to invoke their respective underworlds.

Such applications were, of course, specific and pragmatic. Yet the German style was also more diffusely influential. Those U.S. filmmakers already inclined toward a broadly pictorial aesthetic found their preferences further legitimated by the German idiom. John Ford, for example, was to use expressionist-influenced imagery in several of his critically successful films of the thirties and forties, including most notably *The Informer* (1935). In a period when it seemed important to establish the credentials of film as art, the very obviousness of the German style commended it to critical attention, though as concern with such obvious artiness has declined so too has the acceptability of expressionism's visual extravagances. Some genres, notably the horror film, remain deeply marked by the expressionist influence, and there is no doubt that our conceptions of composition and light in cinema were significantly changed by the German silent film. But the cinema's dominant ethos was to prove naturalistic in both narrative and style, precisely the restrictive aesthetic against which the original expressionists arrayed themselves. It is



Figure 5. (*Expressionism*) Fritz Lang, *Metropolis*, 1927. National Film Archive, London/Deutsches Institut für Filmkunde.

both ironic and revealing that in cinema, at least, their battle was lost almost before it began.

See also AVANT-GARDE FILM; CINEMATOGRAPHY; FILM EDITING; FILM THEORY; MOTION PICTURES—SILENT ERA.

Bibliography. Lotte H. Eisner, *The Haunted Screen*, London, 1969; Siegfried Kracauer, *From Caligari to Hitler*, Princeton, N.J., 1947; Victor H. Miesel, ed., *Voices of German Expressionism*, Englewood Cliffs, N.J., 1970; Peter Selz, *German Expressionist Painting*, Berkeley, Calif., 1957; Wilhelm Worringer, *Abstraction and Empathy* (*Abstraktion und Einfühlung*), trans. by Michael Bullock, London and New York, 1953.

ANDREW F. TUDOR

EYES

Eyes are fundamentally important for communication because the direction of the gaze reveals the direction of an organism's attention. Throughout the animal kingdom, being attended to by another animal of the same or a different species is a matter of

the highest possible significance. Survival depends on sensitivity to the attentions of predators, members of the opposite sex, and sometimes competitors. Because a direct gaze signifies attention, it commands attention in response. Eyes looking at us are a salient stimulus: in a roomful of people or on the street, the person who is looking at us stands out. Most people have had the experience of glancing up from some absorbing matter only to find themselves looking directly into someone's eyes, creating the sensation that the eyes have some magnetic power to penetrate into consciousness through the skull itself. A more likely explanation is that the gaze is registered in peripheral vision but not immediately recognized; the innate importance of being looked at keeps the impression from fading and brings it to awareness, so that the person looks up in the right direction. Evolution has provided us with a remarkable sensitivity to the gaze.

In the wild, visual attention from another (particularly another of a different species) typically means danger. Perhaps for this reason, various prey species of fish and insects have developed eye spots—parts

of circles or rings that look like the eyes of a much larger animal and presumably serve to discourage predators. Often these "eye" displays are combined with sudden startling movement. Many other species have developed eye rings or other markings around the eyes themselves, although their evolutionary significance is still a matter of speculation.

Gaze and attention. In most species, a direct gaze is a signal of danger. In the social primates, although the gaze is still most commonly a threatening stimulus, the situation has become more complicated: the gaze serves as an important signal of an animal's intentions (or, more scientifically, of its likely future behavior) and thus serves to facilitate smooth social interactions. Eyes are particularly important in the communication of the dominance and subordination relationships that are fundamental to the group's social organization. Visual attention is directed from less dominant animals toward more dominant ones: infants look toward mothers, females look toward males (or higher-status females), subordinate males look toward dominant males. In a face-to-face interaction between a dominant and a subordinate animal, however, the subordinate animal averts its gaze in a *GESTURE* of submission. A steady face-to-face stare is a component of nearly all primate dominance or threat displays. If the subordinate animal does not look away but returns the gaze, that constitutes a challenge, and the dominant animal will escalate its threat display with various other signals such as an open mouth or a vocalization. The subordinate animal may then submit, or (rarely) the encounter may erupt into overt aggression. The stare is central to genuine displays of aggression. When young animals merely play at fighting, they open their jaws as in a threat, but keep their eyelids partly closed, as though indicating that the threat is just pretend. *See also* ANIMAL COMMUNICATION; ANIMAL SIGNALS; INTERACTION, FACE-TO-FACE.

It would be wrong to assume, however, that the gaze has a fixed form or a fixed meaning in primates. The form and meaning even of the threat display differ according to the situation and the animal's position in the social hierarchy. In addition, not all eye contact is associated with threat. Among the higher primates, we see the first signs of eye contact as a sign of affiliation. Mother and infant may look into each other's eyes for protracted amounts of time, perhaps because of the position of the infant in nursing. The significance of the gaze, like the significance of attention itself, is more variable than it is in species with less stereoscopic vision, less developed muscles of *FACIAL EXPRESSION*, and less complicated social relationships. Nonetheless, it is worth noting that most affiliative interactions, such as mating and grooming, are much more likely to involve averted gaze and presentation of the back.

In human beings, a direct gaze is a salient and arousing stimulus. By the time they are six weeks old, human infants smile, and their pupils dilate when they see faces or masks of faces; the critical stimulus seems to be the eyes. Babies do not respond as reliably to faces with the eyes covered up or with the features scrambled or to profiles as they do to a simple *MASK* with two dots appropriately oriented. Eyes are the first feature to be included in children's drawings of people, and both children and adults show a tendency to interpret ambiguous figures as faces when there are two spots roughly where eyes would be (*see* *CHILD ART*). In looking at each others' faces or at pictures of faces, human beings focus most on the eyes and remember the eyes better than other parts of the *FACE*; in looking at pictures of groups of people, we remember the ones who were looking directly at the camera. In our daily lives as well, a direct gaze is a salient element in the environment. It has a much higher probability of being noticed than many other aspects of behavior, such as foot movement, changes in pupil size, and subtle facial or postural changes.

A direct gaze is not only a salient stimulus, it is an arousing one. Numerous studies have shown that eye contact (or, more likely, the perception that one is being looked at) produces increases in measures of physiological arousal such as heart rate, galvanic skin response, and electroencephalogram. And in some contexts this arousal still shares some of the threatening properties characteristic of the displays of lower primates. In many (preliterate) cultures masks with prominent eye spots were used to frighten off evil spirits or to keep the uninitiated away from secret ceremonies. Although cultures differ in the overall amount of time people spend looking at each other in social interactions, all cultures have rules defining the amount of direct gaze that is appropriate for various kinds of social interactions and relationships. More often than not, these rules serve to restrict rather than to encourage looking at another's face. People feel uncomfortable when they are stared at, unless they have a clear, nonthreatening explanation of the stare, and they may try to escape the situation. The threatening properties of the stare are also reflected in the ancient and widespread belief in the evil eye. According to this superstition, some people (often people who are disfigured, diseased, or socially disfavored) have the power to harm others merely by looking at them. The gaze signals attention, and too much attention, especially from strangers, suggests danger.

Human beings, however, far outstrip their primate cousins in the range and subtlety of their personal relationships. In some circumstances people fear attention, but in others they yearn for it and feel abandoned when it is withdrawn. Thus the meanings

communicated to a person by the movements of another's eyes are as diverse and complex as all the meanings of attention and inattention in human interaction. One of the most important differences between human and animal eye communication is that in humans the eyes are enormously significant in communicating affiliation: intimacy, affection, desire, and love. Eye movements are an important element of flirtation, and cosmetic decoration of the area around the eyes is as old and as general as the evil eye itself.

Eye contact. The importance of eye contact in establishing affiliative relationships begins at birth. Newborn babies soon begin to focus on their mothers' eyes (this may strengthen the mother's attachment to her child). By six weeks the infant responds to eye contact with a smile. The mother's gaze and the baby's gaze are interdependent; her looking at the baby increases the probability that the baby will start looking at her or keep looking at her. Likewise, a mother responds by smiling or talking when her baby looks at her. By the second half of the first year, the excitement of losing and regaining eye contact is the essence of one of the baby's first games—peekaboo.

In adults the attention signaled by a look may be interpreted positively or negatively. In some social contexts it is even irrelevant to emotion. For example, one of the most carefully studied communicative functions of human eye movements is the moment-to-moment regulation of the sequence of turns in CONVERSATION. Making eye contact is important in initiating a social interaction in the first place, and eye movements are also an important part of a cluster of subtle signals communicating a person's wish to begin speaking, to keep speaking, or to stop speaking and give the other person a chance. In general, people look at their companions more while listening than while speaking. While speaking, people look away at the beginning of their turns and when they are saying things that are difficult to communicate, either cognitively or personally. Looking away seems to limit incoming information for the speaker so that more attention can be given to the formulation of the difficult thought. It may also serve as a signal to the listener not to interrupt. These regulating signals are so automatic in face-to-face conversation that they are rarely noticed consciously until the normal pattern is disrupted. For example, if someone gazes straight at us while recounting an apparently painful and intimate experience, we may suspect that we are hearing a story that has been well rehearsed.

Numerous attempts have been made to pinpoint the emotional meaning of visual behavior in human interaction, some arguing that a direct gaze signals attraction, others that it is a threat, and so on. It should be clear by now that the direct gaze is a

salient and arousing stimulus that signals attention, but within these limits particular directions or durations of the gaze do not have intrinsic meaning. Instead, the gaze is interpreted in terms of the surrounding behaviors, the interpersonal relationship, the social context, and the perceiver's motivations and goals in the interaction.

For example, people sometimes feel uncomfortable when they are stared at and try to escape if they can. In one study, an experimenter stared at drivers or pedestrians who were stopped at a red light and found that when the light changed, allowing them to escape, those who had been stared at crossed the intersection faster than those who had not. However, if the person gazing at us is in trouble and the remedy is clear (for example, a lost child), a stare can elicit approach and comfort. In the first case, the attention implied by the stare is ambiguous; some response seems to be called for, but it is not clear what it should be. In the second case, the meaning of the attention is clear and nonthreatening, and so is the appropriate response.

Similarly, an unusually high level of gaze is appreciated in a friendly context and increases our liking for the person, but in a critical context we prefer a person who does not look at us so much. A person who seeks contact with others welcomes eye contact and likes the gazer; a person who is feeling withdrawn or embarrassed reacts to the same gaze with tension and hostility. To some extent, a gaze serves to focus and intensify the general emotional tone of a social interaction.

A wide range of contextual factors affects the meaning of visual behavior. The face itself is an enormously important context. People can easily recognize facial expressions of fear, anger, surprise, and interest, all of which include a direct gaze as a component. All of these emotions involve heightened attention; in expressions of shame, sorrow, and disgust, involving a desire to withdraw attention, the eyes are partially closed or turned away. Age, GENDER, and status also determine the meaning of gaze, with children, females, and lower-status people expected (or permitted) to pay more visual attention.

Eyes and communication. The eyes "communicate" at many different levels. The gaze may have a direct effect on the receiver, an effect that precedes or occurs independently of an interpretation. Researchers have often found that people are not consciously aware of a companion's visual behavior, even when their own behavior is affected by it. At the next level, the receiver notices the gaze and interprets it. The ultimate interpretation may vary greatly in type and complexity, but the initial realization is the same: "That person is attending to me." In most situations this fundamental interpretation is insufficient, and the person goes on to make further

interpretations and attributions, all springing from the first one.

A fully communicative situation involves a shared code and shared assumptions about the code usage, as when two people prearrange a set of eye signals with explicit meanings. But this is rare. Many non-verbal cues, and the gaze in particular, gain much of their power in social interactions from the shared assumption—not necessarily a valid one—that they are unintentional. The gaze is a central component of an undercurrent code that differs from most other human codes in that others are not likely to make explicit comments on it, and if they do the signal can be denied. The existence of a not quite conscious,

not exactly systematic code that is assumed to be less conscious and less systematic than it really is allows people to express their feelings and to negotiate developing relationships without having to be held accountable until they are ready to acknowledge the developments.

Bibliography. Michael Argyle and Mark Cook, *Gaze and Mutual Gaze*, Cambridge and New York, 1976; Robert G. Harper, Arthur N. Wiens, and Joseph D. Matarazzo, *Nonverbal Communication: The State of the Art*, New York, 1978.

PHOEBE C. ELLSWORTH

A large, bold, red capital letter 'F' in a classic serif font, positioned on the left side of the page.

(ef), the sixth letter of the Roman alphabet, represents historically the sixth letter (*waw*) of the Semitic alphabet, which expressed the sounds of *w* (approximately) and the related vowel *u*. In early Greek writing the letter had at first the same twofold power; but subsequently its accidental varieties of form came to be differentiated in function, the form F (retaining the sixth place in the alphabet) being appropriated to the consonantal use, while V or Y served for the vowel, and is the source of the Roman U, V, Y. . . .

FACE

The human face is the most conspicuous and the most varied of a person's physical attributes. Great differences in its form and structure can be observed not only between different communities but also within them. Its huge repertoire of movements, both voluntary and involuntary, gives it the power to display the most subtle feelings and sentiments, moods, intentions, and desires. It is the great silent communicator that provides the physical basis for much that is important in social decision making and judgment.

It serves also as the reference point, the locus of the personality, the embodiment of the inner self. It seems entirely appropriate that important communications should be addressed to it and that messages should in turn be received from it, since that is where the personality appears to reside. To its possessor, the face feels to be the center of waking life. If the "me" resides anywhere, it is in the face.

Emotions, personality, and the face. Whether we, as observers, always interpret correctly the messages received from a face, and whether the judgments we make about the person "behind it" are soundly based, is, however, open to question.

There is no doubt that we can be highly successful in correctly identifying emotions in FACIAL EXPRESSION. The patterns of facial movement corresponding to feelings such as joy, sorrow, and fear are similar in many parts of the world, and we can recognize them in societies quite different from our own. Although the basic "language" of expression is universal, the nature and extent of facial movements may vary in different communities; local "dialects" need to be allowed for. Individuals, too, show much variability in facial expressiveness. Some people externalize their feelings readily; others reveal them hardly at all. Furthermore, facial mobility is influenced by the expressive norms and conventions of the particular subculture in which an individual lives.

When we attempt, however, to go beyond feelings and judge from the anatomy of the face more enduring qualities of character and personality, we are likely to be unsuccessful. A review of the unhappy history of the pseudoscience of physiognomy reveals many remarkable assertions about the implications for character of particular anatomical characteristics. ARISTOTLE, for example, declared that "large ears indicated a tendency to irrelevant talk or chattering," and in the eighteenth century Johann Kaspar Lavater, the Swiss writer whose classic work on physiognomy was printed in no fewer than 140 editions, asserted that "a small nostril is an infallible sign of a timid mind." Physiognomists have not agreed about which facial parts are related to which qualities of personality, and none of the alleged relationships has ever been proved to exist. Nevertheless, anatomical char-

acteristics such as a tall brow, closely spaced EYES, a small chin, or a hooked nose are commonly, but quite mistakenly, associated in many people's minds with particular qualities of personality. Closely spaced eyes, for example, often lead to attributions of meanness.

Race, sex, and age. The facial features on which such erroneous judgments are so often based are related not to temperament but to race, sex, and age. The overall shape of the face is determined by the skull, which in blacks, for example, tends to be longer than it is in those of Mongoloid stock (whose faces, in consequence, tend to be broader). Individual features also show considerable racial variation; the lips of blacks, for example, tend to be fuller than those of Nordic peoples. The noses of Mongolians and Eskimo do not protrude from the face nearly so much as those of Caucasians. Also, the shape of the nose, as well as other facial features, differs according to sex. Among Caucasian females, the inward-curving, turned-up nose is much more common than in males; the jaw is also less pronounced. Female eyes are larger and darker, and their skin is smoother with more underlying fat. In all faces, advancing years bring changes not only in the wrinkling, color, opacity, and texture of the skin but also in the underlying bones; shrinkage of the jaw, for example, is often quite marked. As children grow older, there is a large increase in the distance from nostrils to eyes.

Elaboration and modification of the face. The human face offers countless opportunities for elaboration and modification. Its features can be exaggerated; its surface painted, marked, scored, or cut; and its immediate context readily manipulated to produce powerful illusory effects. Such alterations have long been exploited for a variety of social purposes.

The rulers of ancient Egypt emphasized their superior status by painting their faces with malachite green, carmine, and antimony. Babylonians—both young men and women—lined their eyes with stibium and painted their faces with white lead. The Greeks in Homer's time used little makeup, but by the fourth century B.C.E. the use of cosmetics was well established. They were especially fond of ceruse, a paste of white lead and egg white, which gave the face an ethereal paleness. This highly poisonous cosmetic remained popular as a beautifier until the nineteenth century and was especially favored by women eager to proclaim their aristocratic way of life. It provided the most striking contrast imaginable to the suntanned appearance of peasant workers in the fields, and it concealed at least some of the ravages of age. In ancient Rome, Ovid recommended and wrote lyrically of the powers of cosmetics. One hundred years earlier, the Indian writer Vatsyayana, in the Kama Sutra, told women how to use cosmetics



as “extra arts” in seduction. In France, in the eighteenth-century courtly society of Pompadour, Dubarry, and Marie-Antoinette, they reached the highest peak of artificiality.

How to interpret the cosmetic codes needed to be learned. At one period during the eighteenth century in France, a red-rouged face indicated a lady of quality and a painted white face a prostitute. Across the English Channel at the same time, the ladies painted themselves white and the prostitutes used red. And there have been times, for example, in England during the reign of Queen Victoria, when the use of any cosmetic substances proclaimed immodesty and impropriety.

Such has been the belief in the power of the face to influence people and events—a supernatural power, as many equatorial peoples have believed—that facial modifications far more radical than face painting have seemed worth much effort and pain. Highly painful facial scars and weals, made by cauterizing and cutting the flesh, have often been eagerly sought. Such scarification and cicatrization follow strict rules dictated by local custom. Among the Abipone of South America techniques of this kind were used to communicate tribal membership and to confirm passage through important initiation rites, such as those attending the attainment of full adulthood. Marking or scarring the flesh of the face has also been used to declare that an appropriate relationship has been established with the gods and spirits. In the Bible there are references to “cutting for the dead,” a form of facial scarification that proclaimed solemn respect for ancestors. In Germany, facial dueling scars were once much prized by young men as public marks of valor.

Facial tattooing, a far less radical but nonetheless painful procedure, still occurs in many parts of the world. The exalted rank of tribal chieftains was often indicated by their more beautiful and elaborate designs. Tattoos have been used for a variety of purposes: to declare one’s totem, rank, or family connections; to record achievements, such as the number of whales killed; or simply to signify that a young woman was available for marriage. Tattoos have even recorded disgrace, as in the case of an island chief who deserted in battle. In Australia a particular style of facial tattoo could announce that a woman’s child had died or might simply record the number of children she had borne.

Another method of facial elaboration, popular in equatorial countries, is the attachment of objects by forcing them through the flesh. Nose, ear, and mouth

piercing, the stretching of ear lobes by suspended objects, and the extension of lips by labrets, or circular plugs, all have particular local significance. Among the Toposa of the Sudan, for example, a brass wire piercing the lower lip signifies that a woman is married. In Malaysia teeth might be mutilated by drilling or filing to announce that the rituals of puberty, wedding, or mourning have been properly undertaken.

In Western countries, too, attached objects have sometimes been used to adorn faces. A fashion for applying patches to the face developed during the seventeenth century in Europe. Very soon a “language of patches” evolved, which became almost as elaborate as the “language of the fan,” a patch at the corner of the eye indicating passion or one at the corner of the mouth signifying the expectation of a kiss. In England patches at one time served as party symbols, the Whigs patching to the right of the face and the Tories to the left.

Some highly effective methods of facial elaboration, however, are concerned not so much with the

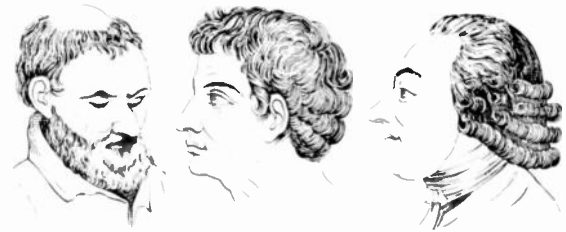


Figure 2. (Face) Physiognomical exercises. From Johann Kaspar Lavater, *Essays on Physiognomy*, London and New York: Ward, Lock, and Bowden, 1880s, plate xxi.



Figure 3. (Face) System of race determination in Nazi Germany. The Bettmann Archive/BBC Hulton.

◁ Figure 1. (Face) The Chatsworth head, Greek severe style, from Cyprus, ca. 460 B.C.E. Bronze. Reproduced by courtesy of the Trustees of The British Museum.



Figure 4. (Face) Young man of Mali. United Nations photo 153449/Ian Steele.



Figure 5. (Face) A girl on horseback in Inner Mongolia. United Nations photo 152120/John Isaac.



Figure 6. (Face) A Laotian refugee of the Hmong tribe. United Nations photo/John Isaac.

face itself as with the space around the face. The impression created by the face is much influenced by its immediate context, by the things that immediately surround it, such as jewelry, headdress, helmet, or beard. Of all these possibilities, the hair has been exploited most consistently in this way.

During the seventeenth and eighteenth centuries, coiffures of great height and bulk were much esteemed as badges of rank and wealth. Women of quality would adorn their towers of hair with flowers in bottles, candles, and even models of battleships in patriotic celebration of recent naval victories. Wigs of considerable complexity and refinement were much favored by those who could afford their very great cost (which made them a lucrative prospect for snatch thieves in the streets).

Distinctive styles of wigs evolved. Lawyers, judges, parsons, and physicians proclaimed their professions by the cut of their wigs. Officers of the Buffs and Blues indicated their regiment by the color of the dusting powder they used. British prime minister William Pitt (the Younger) almost suppressed the wig with his "guinea tax" in 1795. In France, following the Revolution of 1789, the wig became the hated



Figure 7. (Face) Sugutani Shichi Nin Kesho, Woman looking in mirror. Woodcut. Orion Press/Scala/Art Resource, New York.



Figure 8. (Face) Yanomamo man decorated for a ceremony. Napoléon A. Chagnon/Anthro-Photo.



Figure 9. (Face) Eighteenth-century Frenchwoman with large hat and wig. Engraving. The Bettmann Archive, Inc.

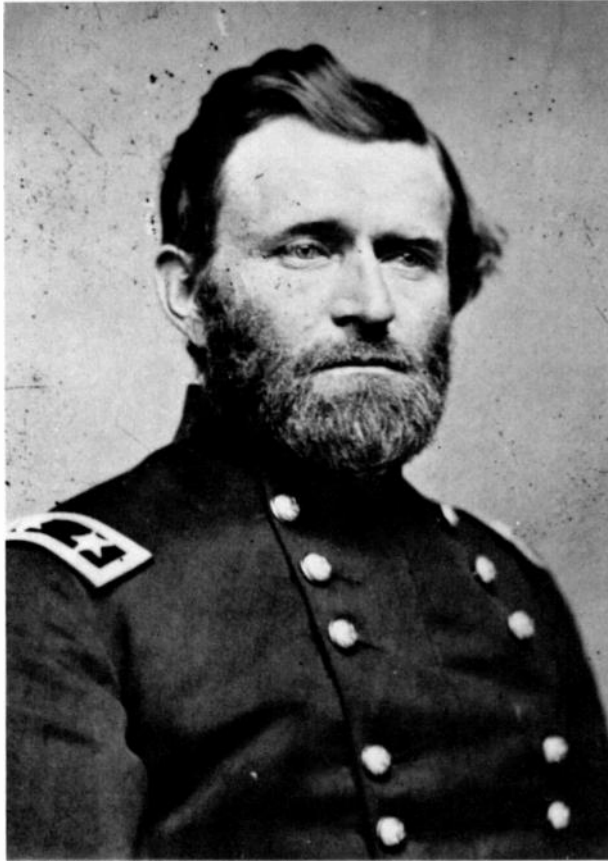


Figure 10. (Face) Ulysses S. Grant (1822–1885). Photograph by Matthew Brady or an assistant. The Bettmann Archive, Inc.

symbol of the aristocracy. Then a curious reversal of meaning occurred: the wig was now reserved, apart from one or two professional groups, for footmen and servants.

The beard also has enjoyed changing meanings. In ancient Egypt it was the sole prerogative of rulers; even Queen Matshrtpdont wore an artificial beard. Yet, as a special dispensation, commoners were also allowed to wear the beard as a sign of mourning. In Greece the beard was the mark of wisdom and enlightenment, and the great god Zeus was always respectfully portrayed as bearded. During later centuries the beard exchanged places many times with the shaven face as the mark of the aristocrat. In the time of Queen Elizabeth I of England, the precise cut of the beard denoted one's profession: the soldier had his "spade," the courtier his "court," and the clergyman his spirelike "cathedral." Soon thereafter, however, beards disappeared until well into the nineteenth century.

In the United States it was a different story. During the Civil War, luxuriant beards proclaimed a proper soldierly patriotism; General Ulysses S. Grant typi-

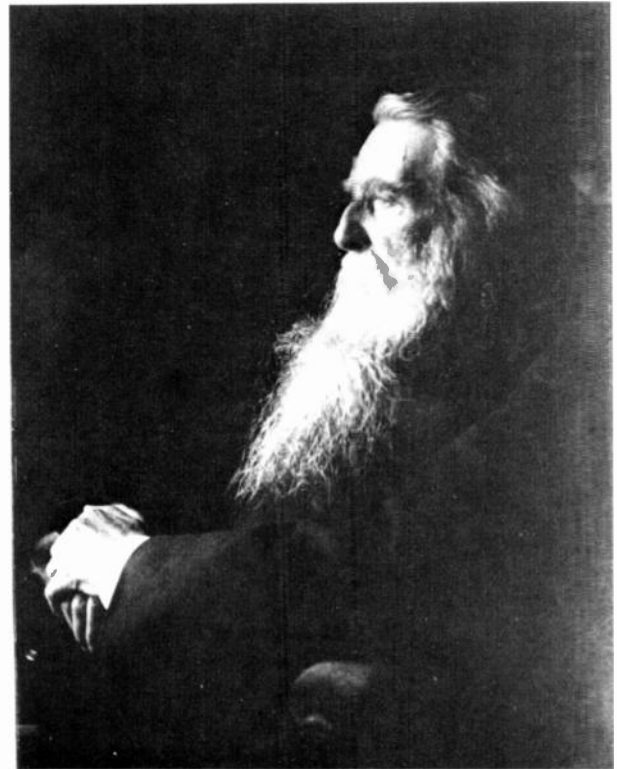


Figure 11. (Face) John Ruskin (1819–1900). Photograph by Frank Hollyes. Courtesy of the Board of Trustees of the Victoria and Albert, London.



Figure 12. (Face) Giuseppe Arcimboldo, *Autumn*, 1573. Oil. Louvre, Paris. Giraudon/Art Resource, New York.

fied a long line of U.S. presidents who wore beards. The tradition was broken only after many years by William McKinley.

In Europe it was poets, musicians, intellectuals, and reformers who boldly reintroduced the beard in the nineteenth century. Such are the curious ways of fashion and fancy, however, that by the 1890s those same freethinkers and reformers were signaling their independence of spirit by making themselves the very first to appear aggressively clean-shaven.

See also BODY DECORATION.

Bibliography. John Brophy, *The Human Face*, New York, 1946, reprint London, 1954; Johann Kaspar Lavater, *Physiognomische Fragmente zur Beförderung der Menschenkenntnis und Menschenliebe*, 4 vols., 1775, trans. by Henry Hunter (Essays on Physiognomy), London, 1789; John Liggett, *The Human Face*, New York and London, 1974.

JOHN LIGGETT

FACIAL EXPRESSION

The human FACE is an exquisitely complex structure, and its "information value" is dependent not only on specific muscular movements but also on its structural features. The human face, particularly, is notable for the degree to which it is specialized for displaying information. There are several separate sources of information used in making judgments of facial expressions. Rapid signaling is provided by muscular movements, as well as by blanching or blushing, sweat production, pupillary responses, and alterations in head position or gaze. Informative structural features include those that are relatively constant over the life span, such as bone structure, size and shape of facial features, or skin pigmentation; and others that reliably change with age, such as bags, pouches, and fatty deposits. Additional information is provided by features such as facial anomalies or, more commonly, by eyeglasses, cosmetics, hair removal or hairpieces, scars, or appliances.

The relatively constant signs are frequently, and often erroneously, judged as reflections of emotion or personality characteristics. Only a minority of facial muscular behaviors (probably about one-third) is related to emotion per se. Some are related to nonemotional functions that are not primarily communicative in nature, such as eating, drinking, breathing, and visual and auditory localization. Other facial behaviors can serve a communicative function but are not usually expressive of emotion. These include (1) gestures, such as winking; (2) self-manipulative actions, such as lip biting; (3) actions that are patterned accompaniments to SPEECH, such

as eyebrow and upper-eyelid elevation in emphasis; and (4) such actions as head nods, smiles, eyebrow actions, and the like that listeners do and that play a role in regulating conversational exchanges. Psychological disorders can affect both the frequency and the intensity of facial expressions.

Origin and meaning of facial expressions. CHARLES DARWIN believed that expressions of emotion originated in our evolutionary past, a belief that has inspired attempts to determine the universality of these expressions. Several studies have demonstrated that people in diverse literate and preliterate cultures agree in identifying the emotions represented by certain distinctive facial expressions, such as those for happiness, sadness, anger, fear, disgust, and fear/surprise. Universal facial expressions have also been proposed for "interest," shame, and contempt, but the evidence is less compelling in these cases. The startle reaction shows reliable patterns of facial behavior and probably has a universal expression. However, because the startle reaction is such a stereotyped and automatic response, many researchers do not consider it an emotion. (Emotional responses to *being* startled often occur, but these responses are variable.)

While there is substantial evidence that full-blown facial expressions of fundamental emotions are the same in all cultures, the facial behavior observed in different cultures may be influenced by two factors: (1) an evaluation of the situation, which means that the "same" situation may invoke different emotions in different cultures; and (2) display rules, or social conventions for managing expressions of emotion. Display rules can stipulate that emotional expressions be minimized, masked, neutralized, exaggerated, or faked in specific situations. These rules are less evident if individuals who are responding emotionally are not aware that they are being observed.

Development of facial expressions. Discriminable facial expressions can be observed early in development. Nearly all the discrete facial muscle actions visible in the adult can be identified in the newborn. Several investigators have reported neonatal imitation of specific facial actions such as tongue protrusion and mouth opening. Complex patterned facial expressions are present from the first days of life: the "cry" face of distress; the "disgust" face to unpleasant tastes; startle responses to sudden, intense stimulation; brow knitting (interest or puzzlement) while fixating on visual objects, including faces; and "smiles" seen largely during the rapid-eye-movement phase of sleep.

Social smiling toward a caregiver begins around three to four weeks of age, and by two or three months broad smiles are seen during social interaction and in contexts suggesting successful cognitive mastery. Laughter first appears at about four months.



a



b

Figure 1. (*Facial Expression*) (a) Man recoiling, (b) woman sneering, (c) child sulking. Photographs by O. G. Rejlander. From Charles Darwin, *The Expression of the Emotions in Man and Animals*. Gernsheim Collection, Harry Ransom Humanities Research Center, The University of Texas at Austin.



c

Throughout the first year of life, crying is the dominant response when any strong emotion is aroused. How the discrete, differentiated expressions of fear, anger, and sadness emerge during development is less fully understood. Few studies have been conducted on how these expressions are used by two- to five-year-olds in natural interaction.

Since we do not have access to an infant's self-awareness, it is not known at what point infants' expressions reflect experienced emotion. Estimates have ranged from three to eighteen months, depending on the investigator's criterion for the ability to experience emotion. However, it is known that infants soon learn to use their expressions as signaling mechanisms to caregivers. Instrumental (purposive) use of crying and smiling is acquired by two or three months of life, and by the end of the first year infants use smiles as social greetings, display deliberate tantrum behaviors, and make visible efforts to hold back or suppress tears. By age six, children are already able to verbalize some cultural display rules for emotional expressions (e.g., "big boys don't cry").

Children show parallel development in abilities to recognize emotional expressions. By two months the human face becomes a meaningful stimulus, and by four to six months children can recognize smiling versus nonsmiling faces. Three- to five-year-old children can match facial expressions to emotion terms and can voluntarily produce recognizable versions of prototypic facial expressions. Children learn to take advantage of their enhanced abilities to recognize expressions of others and to produce expressions as signals. They use information conveyed by caregivers' facial expressions in evaluating ambiguous situations (strangers, novel objects, etc.); and they use facial and gestural actions during fighting, rough-and-tumble play, seeking of caretaking, and defense of desired objects.

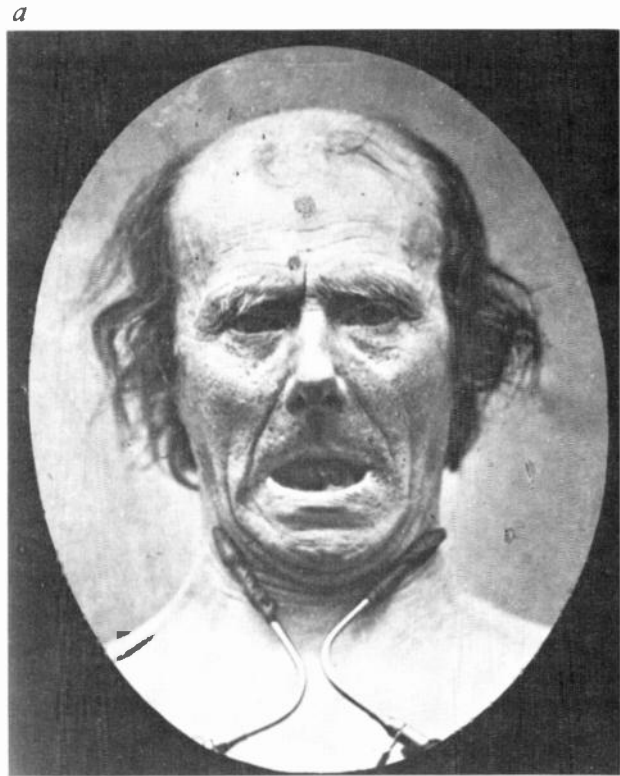
The abilities to produce and understand facial expressions are important in adult communication. Such abilities do not seem to vary with personality characteristics. Nor are skills in producing facial expressions correlated with skills in recognizing them. The one consistent finding that has emerged from studies of production and recognition ability is a slight superiority for women in both abilities.

People base their judgments of emotion primarily on facial cues. Judgments of facial expressions alone generally correlate better with judgments made when both facial expression and speech are available than when the judge has only speech and no visual cues. However, contrary to the assumption that people can detect from facial expressions when they are being deceived, research shows that individuals do little better than chance in discerning when a facial expression reflects authentic versus simulated emotion.

Studying facial expressions. Research on facial expressions was greatly impeded until the 1970s by unsatisfactory methods for measuring facial behavior. Most studies have used either observers' judgments or direct measures of facial behavior. In the judgment approach, naive or trained observers are shown a set of facial expressions and asked to identify the emotions represented, to guess the eliciting situation, or to place the expressions along an emotion scale (e.g., "pleasantness-unpleasantness"). Observer judgment approaches are less informative because it is difficult to determine which features of facial expressions are responsible for the judgments rendered.

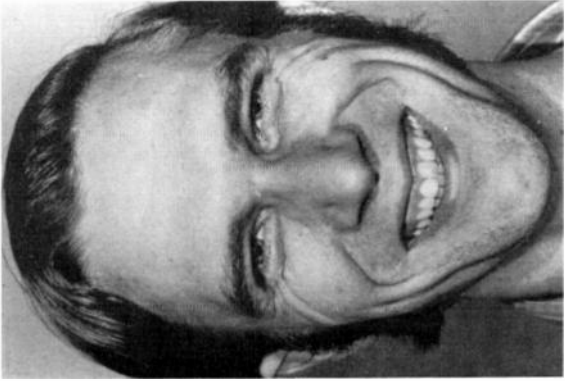
In the more precise direct measurement approach, photographs, films, or videotapes of facial expressions are examined by coders trained to identify specific facial actions thought or shown to represent emotion. The most comprehensive coding system is the anatomically based Facial Action Coding System (FACS), developed by psychologists Paul Ekman and Wallace Friesen, which defines nearly fifty indepen-

Figure 2. (*Facial Expression*) Nineteenth-century physiologist Dr. G. B. Duchenne produced hundreds of artificial "expressions" by applying electric current to the face of an almshouse patient who had no sensation of pain in that area. The experiments and photographs were published in *Mécanisme de la physionomie humaine*. Gernsheim Collection, Harry Ransom Humanities Research Center, The University of Texas at Austin.





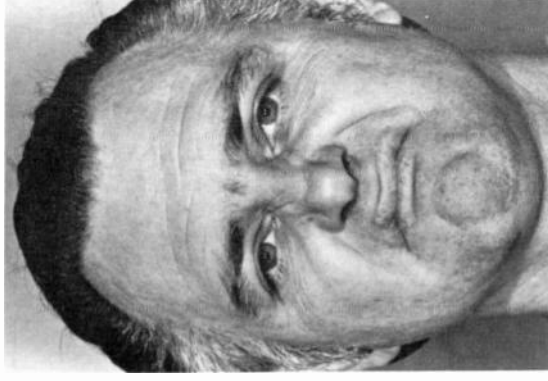
a



b



c



dent visible facial actions (in combination, these actions can produce more than five thousand facial expression configurations). The actions may also be detected electronically, using a procedure known as electromyography to amplify the tiny electrical discharges created by contracting muscle tissue. Electromyography can detect facial actions too small to be visible, such as the actions that occur while imagining emotional situations.

Why are particular facial expressions associated with particular emotions? Contemporary investigators agree with Darwin that many expressive movements derive from actions that once served some direct biological function (e.g., sensory or protective functions) or that represent the initial phases ("intention movements") of an act such as attacking or fleeing. Evolutionary biologists and ethologists have sought the precursors of human expressions in non-human primates. Explanations have been proposed for some key facial expressions.

The evolution of the smile has been traced from the protective "grimace" seen in lower nonhuman primates during aggressive encounters. In higher nonhuman primates this grimace is seen as an appeasing or reassuring signal in positive social encounters. The story remains incomplete, however, since the primate grimace (like the human fear grimace) involves a different facial muscle from that used for the smile. (The great apes do have a smilelike display involving the same muscle as the human smile, but its use has not been studied carefully.) The smile is one of the easiest facial expressions to recognize at a distance, and this may explain in part its specialization for expression of positive emotion.

The tensed or pursed lips that humans show in anger closely resemble the "tense-mouth" display seen in other primates. Anger expressions in humans, as in nonhuman primate threat displays, are accompanied by fixed, staring EYES and lowered brows. Darwin believed that the lowered brow seen in anger served to shade the eyes from light and enhance visual acuity, a strategy that is perhaps useful in assessing a threat or keeping an eye on an opponent. Gaze aversion is found in many species as an appeasement signal. More generally, looking away serves to reduce arousal in moments of uncertainty or ambivalence (e.g., flirting or shy approaches to strangers). See also ANIMAL COMMUNICATION; ANIMAL SIGNALS; ETHOLOGY.

Physiology and facial expression. The specific mechanisms in the central nervous system for gen-

erating the muscular actions in facial expressions are poorly understood. It is clear from neuroanatomical studies and clinical investigations of brain-injured patients that there is dual control of facial expressions. Spontaneous, "emotional" expressions seem to be controlled primarily by the pathways of the subcortical extrapyramidal nervous system, whereas voluntary expressions (e.g., those performed in response to a request) are controlled largely by the pyramidal motor tracts that emanate from the motor strip of the neocortex. Brain damage in these different systems can selectively impair spontaneous or posed expressions.

Attempts to understand further the neural bases of the generation and the perception of facial expressions have explored possible cerebral hemispheric differences. In the production of facial expressions there is greater asymmetry (lopsidedness) in posed expressions than in spontaneous expressions. However, consistent left/right differences across individuals, muscles, or even types of expressions have not been found in all studies.

There do seem to be hemispheric differences in the perception of faces. A slight right-hemisphere advantage (the right hemisphere "sees" the left half of the field of vision) is generally found in tasks that require recognition of faces flashed briefly to the left or right visual fields. This advantage may be due to the right hemisphere's bias for processing information globally rather than by attention to small local features. The right-hemisphere perceptual advantage is weak, however, and is not always seen in experiments.

Facial expression and emotion. When do facial expressions reflect real emotion rather than just social rituals, display rules, or even DECEPTION? This is a vexing issue, because there is no infallible sign of real emotion, and people's self-reports of emotion are unreliable. But there are several clues. As mentioned previously, spontaneous facial expressions are more symmetrical. They are also likely to occur more quickly, whereas posed or managed expressions tend to be slower and to last longer. Smiles that reflect felt happiness are accompanied by a crinkly-eyed appearance caused by contractions of the muscles surrounding the eyes; posed or unfelt smiles as a rule do not involve contractions of these muscles. Expressions that mask another emotion may be betrayed by "leakage cues," that is, by giveaway movements in the body or elsewhere in the face.

Facial expressions are sometimes accompanied by signs of changed activity in the autonomic nervous

◁ Figure 3. (*Facial Expression*) (a) Happy, (b) sad, (c) disgusted. Left-hand photos in (a), (b), and (c) from Paul Ekman, *The Face of Man: Expressions of Universal Emotions in a New Guinea Village*, Garland, N.Y., 1980; right-hand photos from Paul Ekman and Wallace V. Friesen, *Unmasking the Face: A Guide to Recognizing Emotions from Facial Clues*, Englewood Cliffs, N.J., 1975. Courtesy of Human Interaction Laboratory, University of California, San Francisco.

system (ANS), which is responsible for many of the most salient characteristics of experienced emotion, such as a racing heart, altered respiration rate, sweating, blanching or blushing, goose bumps, or pupil dilation or constriction. Some signs of autonomic activity are visible to the naked eye, and others can be detected using sensitive electronic procedures. The presence of these signs is often used as an additional (but not conclusive) clue that an individual is experiencing emotion.

Infants who show wariness or distress faces when approached by strangers show different patterns of heart rate from those of infants who show neutral or positive faces. In adults, viewing slides of emotional faces may be sufficient to produce some ANS changes. There does not seem to be any consistent relationship between the intensity of facial expressions shown by individuals and the degree of their ANS changes. Contrary to long-held belief, different emotions are associated with distinctive patterns of ANS change. Moreover, voluntarily producing facial expressions characteristic of emotion can elicit the corresponding ANS patterns.

See also GESTURE.

Bibliography. Paul Ekman, *Darwin and Facial Expression: A Century of Research in Review*, New York, 1973; idem, ed., *Emotion in the Human Face*, 2d ed., Cambridge and New York, 1982; Carroll E. Izard, ed., *Emotions in Personality and Psychopathology*, New York, 1979; Michael Lewis and Leonard A. Rosenblum, eds., *The Development of Affect*, New York, 1978.

ALAN J. FRIDLUND, PAUL EKMAN,
AND HARRIET OSTER

FACT AND FICTION

The distinction between "fact" and "fiction" appears, at first sight, to be simple. It would seem to be a condition of sanity that we can distinguish between something that has actually been done (the literal meaning of "fact") and something that has been thought of or imagined (the literal meaning of "fiction"). Yet there can be an unthinking transfer of this necessary everyday distinction into the theory and practice of communications, where it soon becomes clear that matters are not so simple. *See also* FICTION.

The decisive new factor in the distinction, within a context of any kind of communication, is that "fact" can no longer be taken as simply "something done." Once some fact in the simple sense is spoken or written about, reported, reconstructed, it can no longer be referred, unexamined, to the unquestionable side of the distinction. At the same time, "fiction," within any communicative practice, is no longer

a matter of simple contrast with "fact." It is true that some "facts" can be shown, by the offer of further evidence, to be fictitious. But it is also true that "fictions" of a certain kind are regularly judged by their degree of fidelity to what is taken as actuality or reality. Moreover, and crucially, there are overlaps of actual procedure, in composition and presentation, between what is offered as fact and what is offered as fiction. At least some of these overlaps are inherent in any communicative procedure.

Fact, Fiction, and the "Factional"

If we are to understand, in its necessary complexity, the real range of relationships between fact and fiction, we must begin, not from their abstract relation as polar opposites, but from the modes in which either can be communicated. This is not to surrender the most basic everyday distinction between "things done" and "things thought of or imagined." But this distinction can be retained only if we are sufficiently attentive to the diverse modes of communication within which it becomes operative.

We can begin by contrasting the two most extreme modes: the scientific report and the specified fantasy. These appear to be the archetypes of fact and fiction, but this is only because of their relatively special conditions. The scientific report, in its ideal form, is a description of things done and observed in such a way that others can do and observe them again. Yet it is clear that this MODE of the scientific report depends on a certain limited number of conditions, as in laboratory experiments. When the facts are not capable of replication in this way, the special warranty of this mode is not available, however faithfully the conventions of this kind of reporting are followed. Unless the facts can be replicated, questions about the position and interest of the reporter, about the conditions within which the observation occurred, and about the relations of the reported facts to other areas of knowledge arise as certainly, if not as controversially, as in cases of political and social reporting in which they are or ought to be crucial.

Thus there can be, and often is, a false extension from the mode of the scientific report dependent on replicable facts to modes that lack this warranty but retain its conventions of presentation: the "objective" reporter; the style of "letting the facts speak for themselves." This has important consequences in political and social reporting, but it is also an important consideration in certain kinds of scientific reporting, especially in sociology and anthropology, in which the position and interests of the observer/reporter are crucial to the nature of the observation but are often masked by conventions of objectivity and impersonality as matters of style.

The specified fantasy is less complicated. In its simplest forms the conventions of removal from any observable time or place—"Once upon a time"; "On the fourth planet of Sirius"—are explicit. Yet there are almost imperceptible gradations, within the broad category of fantasy, from what is offered as familiar (and therefore checkable) reality to the extraordinary and uncheckable event. In genuine fantasy this causes few practical problems, but there are cases—"true stories of the supernatural"; "factual reports of the paranormal"—in which the conventions no longer hold, although their styles may still be relied on.

Nevertheless, at its extremes the fact/fiction dichotomy is not especially difficult to sustain. The most difficult and most relevant problems occur in a wide area between these extremes, in which very careful distinctions are necessary in practice but in which the simple categories are often automatically applied.

A good example is what has been called *faction*—that is, a novel, play, or film explicitly based on some real-life event. What is supposed to be original about this stems from the assumption that fiction, in the broad sense, is normally not so based. Yet this is far from being as simple as it looks. What is to be said about Shakespeare's history plays, or about all historical novels? These are "imaginary" works in the obvious sense that nobody supposes them to be documents or transcripts of the events they present; but in many of them the claim is clearly implied that they have a general basis in fact, and in modern examples this is often underlined by reference to research undertaken. What then distinguishes these works from others in which all the characters and events are said to be invented? There are some conventional signals, including the use of actual names and places, in the historical as in the "factional" play, novel, or film, although precisely what this is a signal of is not always clear. Although the difference between works drawing on actual and invented elements is important, there is still an uncertain area between them. There are many cases in which characters, places, and events are seen as based on actual people, places, and events, even though these are not directly named. But what really matters in this attempted distinction is the implied claim of closeness to reality that depends on the simplest version of the fact/fiction dichotomy: those other works are fictional; these are life itself.

In practice we have only to read different versions of the same "faction" to realize that some of the basic procedures of fiction—selection of point of view, identity of narrator, INTERPRETATION of words and actions, temporal and spatial boundaries of the NARRATIVE—are necessarily involved in any such writing. We may then, as with any other kind of

work, make our own judgments about whether or not a particular presentation is convincing. Here again there is a large overlap, since many judgments of this kind are based on internal evidence, of how well—how coherently, penetratingly, sympathetically, wisely—the presentation is carried out. Judgments are often also based on technical evidence—that is, whether the work is well executed. But there remains a real distinction: in the faction or in the specified historical work one can appeal to available evidence not included that would alter the treatment, whereas in pure fiction one cannot. Yet it is remarkable how often, in the reading of mainstream fiction or the viewing of film and television, the same kind of reference, though necessarily more general, is made. People do try to re-place the most absolute fictions, of a broadly realist kind, within a world of which they have other kinds of experience. Thus we have the familiar paradox of a work of fiction being judged by its truth to life.

It must be recognized that truth, in this kind of judgment, is different from simple factual accuracy or reproduction, though often there is also intense interest in these, down to the most marginal details. The truth referred to is of that broad kind underlying the RENAISSANCE claim that POETRY was more true than history because it addressed the most general and universal experiences rather than the necessarily local particularities of historical persons and events. Is there anything in this kind of thinking about "truth" and "the facts" that can be taken on into the most difficult and most controversial area of communications practice, the reporting and interpretation of current events?

Television and the Mediation of Facts

Television has raised certain old problems in some very new forms. Unlike other communications media, it appears to offer us the opportunity of seeing events for ourselves. All written accounts and all oral reports (whether by word of mouth or by RADIO) have a more observable and conventional mediation. Either the text is there, to be assessed as writing for its degree of reliability, or the intermediary is there, with at least some potential of assessment for reliability. Much is done in these older forms to establish authority or objectivity or fair-mindedness—often by fair means, often by foul. But the apparent innovation of television—in which an intermediary can also usually be identified and indeed made subject to the same kind of assessment—is that over and above this it is made to appear that we are seeing what is happening without mediation, that we are seeing the facts for ourselves.

We should not underestimate the qualitative change

in news reporting made possible by the television camera (*see* TELEVISION NEWS). In very many cases there is indeed a directness that surpasses all earlier communicated forms. Yet we are bound to hesitate at the claim that we are then seeing the facts for ourselves. Two considerations—one relatively minor, one quite major—qualify this common assumption.

First, the stance of the television reporter is typically that of the narrator. In factual reporting, as in fiction, the key decision is that of stance: where and on what terms, and with what, if any, declaration of interest does the reporter/narrator position himself or herself? The most evident cases are in reporting of battles, street fighting, and demonstrations (*see* DEMONSTRATION). It is often crucial to observe, as one of the facts, where the reporter is positioned. Usually for logistical reasons, but at times also for other, often ideological reasons, the reporter and then the field of vision of the camera are placed clearly on one side of the conflict. This is not only a limitation on the area of observable facts; it is also commonly a framework within which a theoretically common area of facts is perceived. Thus in a case in which, for example, there is charge and countercharge between police and demonstrators, it becomes a specific fact of this chosen mode that the forward, aggressive movement is seen from one side only, and moreover that it is directed not only toward the reporter but apparently, through the camera, toward the viewer. When the alternative charge is made, it is from chosen and typically identifying ground toward relatively distant others. Many of the facts may then indeed be directly recorded, but there is a strong tendency to see them within the enclosing but less evident fact of the choice of position. This tendency is of course strongly confirmed if the reporter's commentary or narrative also comes from the same selected point of view.

More broadly, there is always a selected communicative relationship between the commentary/narrative and the images being shown. There is interpretation of incidents not always easy to make out. There are labeling and description, frequently tendentious, very often at least *parti pris*, of the conflicting forces. Indeed, in a significant number of cases there is actual asymmetry, or even contradiction, between the commentary/narrative and the images. Yet when only the images are seen as the facts, one can fail to notice the elements of a fiction.

Yet if only because, for all the difficulties of such cases, both commentary/narrative and images are explicit and observable, this is the lower level of the most general problem. The higher level is where the procedures of composition—in factual reporting as in the most explicit fiction—are necessarily involved. It is only on certain rare occasions that factual reporting is a camera crew working in real time. Pre-

sentation typically involves the crucial, and practical, intermediary processes of selection and editing.

Selection as such, inevitable as it usually must be, is a long step from the bare simplicity of facts toward the procedures of a fiction. However scrupulously done, selection is always the exercise of comparative evaluation of importance, significance, and representativeness. Thus the "facts" are almost always subject to this ordinarily undisclosed exercise of discriminating composition. Excluded facts can through this process be deprived of their factual quality and interpreted as mere rumor or assertion.

This is the crux of a common and inevitable problem in factual reporting. But we should not assume, from its practical inevitability, that it can be safely described as a technical, professional, and thus neutral process. Some examples of undoubtedly manipulative editing throw light on the more general procedure.

It has been alleged that in the editing of a television report on the 1984 British coal strike the temporal order of two key events was reversed. In one edited version the police were shown as charging and the miners countercharging; in another the miners were charging and the police countercharging. The observable facts were much the same in each case, but the alternative order of the events had a major effect on the most central (and most disputed) fact: the identification of the aggressor and of the group responding to aggression. This came out differently, but equally "factually," in the alternative edited sequences.

Again, there have been cases in which a soundtrack from one event—the shouting of angry abuse—was edited into apparent association with a physical action that had occurred at another time and even on a different day. This is a familiar device of television and FILM EDITING; a general effect is achieved by the imaginative interweaving and composition of diverse material. Most responsible news organizations would reject such overtly misleading practices, though it must be noted that only those few with access to the primary "factual" material can really know—still less prove—whether anything of the kind, in major or minor ways, has been done.

Yet cases of malpractice, which deserve to be isolated and investigated, point to the more general problem of all editing. Is it then possible to retain the simple fact/fiction dichotomy and to refer cases of malpractice, minor or major, to an area of error or malignity in what is still, for the most part, factual reporting?

Communication as Continuum

It is important that some position of this kind should be retained. If we draw the wrong conclusions from

observation of the compositional elements inherent in all factual reporting, we can deprive ourselves of any grounds for distinction between the best and the worst cases and, even more seriously, can arrive at a damaging cynicism, in which the common desire to try to establish the facts of any situation can be made to appear naive. Indeed, this has been the effect of some recent theoretical tendencies that, correctly observing some common illusions of objectivity and of positive knowledge, would reduce all communication to a series of subjective relativities and would finally deny communication itself as a possibility—all human discourse being an exchange or encounter of private fictions.

It is clear, given the weight of the evidence in the matter of composition of even the most factual reports, that this hopeless conclusion cannot be refuted by any simple reassertion of the fact/fiction dichotomy. But instead of collapsing the dichotomy, we can more usefully review it with attention to its historical formation and its specific conventions and modes. The distinction between truth and lies, and the more difficult distinction between factual truth and imaginative truth, has been attempted and on the whole successfully made in all recorded human societies. In the latter case the arguments have always been more difficult, as we should expect. Yet historically the arguments were altered by the development of methods of substantiating facts, and especially by the movement from personal or official authority as evidence to modes of proof and re-proof, notably in the physical sciences. The great gains of this development were, however, partly nullified by a related rejection of fictions, in which kinds of discourse without these methods of substantiation were indiscriminately downgraded. The popular belief not based on evidence, or even against the evidence, was compounded with forms of discourse that were not claiming provable status. The widespread prejudice against "fiction" was very damaging, but almost equally damaging was the inherent naïveté about "fact." As the role of the observer and of methods of observation as constituents of fact become more clearly understood, an equally prejudiced reaction against "fact" seems likely.

What was missing from these crude and prejudicial contrasts was any adequate understanding of modes and conventions of discourse. It is this understanding that the science of communications seeks to promote. We are learning to identify the signals by which a particular mode, in the broad spectrum from the most factual to the most fictional, is or can be announced. We are learning the conventions that make different modes possible and, within these conventions, the responses that are relevant to any particular mode. To know the signals and the conventions is not enough in itself. There can be abuses and con-

fusions of procedure within any of them: the fictional claiming an inappropriate factuality, the factual using its procedures to include inappropriate fictions. Yet none of these judgments can be made until we realize that we are dealing, not with two large and separate categories, "fact" and "fiction," but with a range of communicative modes that has become a range just because the range of human experience—of events quite beyond us, of events involving us, of speech, of thoughts, of images, of dreams—is in practice so wide and so diverse. It would be an extraordinary loss if our sense of "fact," in all the innumerable cases in which the concept is wholly appropriate, were in any way weakened. But it seems now that we can only intelligently retain it, in a world in which widespread communication and new media and institutions are central in most of our lives, if we understand it as part of the communicative process: the complex social establishment of what we are able to observe. And if this is the case, there can be no crude contrast with "fiction," which in its most serious sense is a related part of the communicative process: the complex social embodiment of what we can observe, feel, and imagine.

RAYMOND H. WILLIAMS

FAMILY

The family is generally regarded as a basic social institution that has considerable impact on children's socialization and development. The family influences several facets of children's acquisition of communication skills (*see* CHILDREN—DEVELOPMENT OF COMMUNICATION). Children are active, self-directed learners of the rules of communication, but they do benefit from parental guidance. Some aspects of communication development respond mainly to maturational factors and children's own efforts, whereas others are susceptible to external influences.

The most important source of influence in the family is the parents, along with the *home environment* they provide. Home environment is a complex concept that includes simultaneously the family's socioeconomic status, the actual living conditions, interaction patterns and activity structures in the family, and other factors such as parental ATTITUDES, goals, and orientations.

Socialization

Parents socialize their children by providing the example of their own actions, attitudes, and beliefs in ways that allow the children opportunities to learn. Willingly and unwillingly, parents model behaviors that children imitate. In the same way, parents reward and punish children, provide direct instruction,



Figure 1. (*Family*) A middle-class family at home, South Dakota, 1939. The Bettmann Archive, Inc.

and structure their environments (*see* SOCIAL COGNITIVE THEORY).

The psychological impetus for socialization seems to come initially from children's dependence on parents and from the affective relationship between parents and children. By establishing a positive affective relationship with their children, parents instill in them a willingness to acquire the behaviors of other family members. The effectiveness of socialization, indicated by the extent to which children acquire the behavior and values of their families, is further promoted by (1) the ability of parents to control the sources of information and rewards available to children and (2) parents' readiness to monitor their children's behavior and respond with appropriate rewards and sanctions. The family's influence may decrease as children grow older and gain access to other reference groups, to other reward contingencies, and to other sources of information outside the family.

These principles of socialization apply across a wide variety of cultures and social settings. They are not peculiar to the family but operate whenever a new member joins an established group (*see* POLITICAL SOCIALIZATION). The types and content of behavior that are socialized vary dramatically among cultural groups and to some degree from one family

(or any other basic unit) to another within a given CULTURE. Despite these differences the skills of special significance to human beings—such as LANGUAGE—are universal targets of socialization processes.

Basic Skills

Much research has been devoted to elucidating the family's role in the development of communication skills considered fundamental: LANGUAGE ACQUISITION (the formal elements of language), SPEECH (oral communication), and LITERACY (READING and WRITING).

Language acquisition. Language acquisition is one of the truly momentous achievements of early childhood. Within their first five years children master the basic rules of PHONOLOGY, SYNTAX, SEMANTICS, and PRAGMATICS. Researchers disagree about the extent to which acquisition is governed by innate factors or environmental sources such as the family. The strongest environmental position has been voiced by behaviorists like B. F. Skinner, who claimed that children's language is structured by the environment through principles of reinforcement. According to this view, parents selectively reinforce those features of infants' babbling that most closely resemble adult speech and continue to shape the utterances until they approxi-

mate adult style. Other learning theorists emphasize imitation: the child imitates adult words and phrases and is rewarded for doing so. In contrast, U.S. linguist Noam Chomsky and others have argued that language acquisition is innately preprogrammed and that we are genetically endowed with knowledge about language. For Chomsky the language to which parents and others expose children is error-ridden and incomplete, making the task of deciphering its underlying structures extremely difficult without ready-made hypotheses.

Both of these accounts have been challenged. Few linguists or psychologists take the environmental position without also referring to children's innate capacity for language and their efforts at mastery. Researchers now recognize that the language to which children are exposed is not as deficient as was once assumed; parents tailor their speech in several ways to their perceptions of children's abilities and interests. Phonological features of adult speech to children include high pitch and exaggerated intonation, clear enunciation, and slow tempo with distinct pauses between utterances. Syntactic features include sentences that are well formed and intelligible; few disfluencies or broken sentences; heavy reliance on content words; many repetitions and expansions of the child's own utterances; and avoidance of pronouns, modifiers, and functors. Semantically adults use a limited vocabulary, restrict topics to the "here and now" and to matters of interest to children, and use particular levels of generality when naming objects. Pragmatically they use more directives, imperatives, and questions.

Presumably this specialized input makes the rules of language more apparent for children and lures them into meaningful dialogue. Examples of parents'

modifications that appear to affect children's syntactic growth rate include expansions on children's prior utterances, specific uses of gestures (*see* GESTURE), and repetitions. Engaging children in routine games or rituals (*see* RITUAL) may also promote language learning because these activities make language predictable, associate it with concrete actions, and encourage children to produce utterances. In short, by accommodating children's attentional states and cognitive capacities, parents may enhance the children's ability to comprehend and express verbal meaning.

A tendency to modify the speech of young children may be universal. It has been observed in all family members and across different ethnic groups, social classes, and language communities (*see* LANGUAGE VARIETIES). However, cultural groups do vary in the degree and type of adjustments they use with young children and in the specific caretakers (e.g., parents, siblings) that employ them.

Oral communication development. In addition to learning the formal systems of language, children learn social rules governing its usage, such as cooperative rules of CONVERSATION, conventional devices to attain specific communicative goals, and methods to check on the accuracy of one's own understanding and that of one's interactional partner. As with language acquisition, developments in communication depend on both children's own efforts and environmental feedback.

Parents adopt several conversational techniques to help children participate in interaction and become aware of the communicator's responsibilities. Use of distinct gestures to gain attention and convey information is one such technique. Another is ritualized question-and-answer sequences, from which the children learn about taking turns and the functions of

Figure 2. (*Family*) Father plays with baby. Bajoeng Gede, April 30, 1937. From Gregory Bateson and Margaret Mead, *Balinese Character: A Photographic Analysis*, New York, 1942, plate 74, 2. The Institute for Intercultural Studies/Library of Congress.





Figure 3. (*Family*) Carl Mydans, Japanese family. *Life Magazine*. © Time Inc.

questions. These games or rituals become more complex as children acquire a larger repertoire of skills.

Specific instructional sequences may be offered in some cultural groups but not in others. Cultural groups may also differ in the types of communicative lessons they provide and the specific rules they abide by. Nonetheless, all groups have some provisions for making known and reinforcing their conventions of communication.

Cultural groups and individual families within cultures vary in their reliance on patterns of communication that are used in the CLASSROOM. Parents differ in the degree to which they encourage children to specify referents clearly (as occurs in written text), familiarize them with the structure of NARRATIVE through storytelling, and draw attention to components of language such as words and sentences. In addition, parents influence children's scholastic performance in the extent to which they foster a dialect or style of communication that conforms to the expectations of educational institutions. Children encouraged to use dissimilar patterns may be hindered in their performance at SCHOOL not because they lack communication skills but because the language of the classroom does not build on the skills they do possess.

Literacy skills. A considerable body of research shows an association between resources of the home

and children's literacy skills. The effects of family environment appear before children begin school and continue throughout the school years. Analyses identify several types of home resources and family interactions that may affect acquisition of reading and writing skills. Most of the available studies examine family effects on reading, but several researchers suggest that similar influences may affect writing skills.

Literacy skills are associated with access to reading and writing materials and relevant experiences provided by the home. The tendency of parents to read to their children is associated with children's reading skills. Parents of early readers are likely to acquire picture dictionaries, alphabet books, and basal readers and to provide paper, pencils, and blackboards for their children. They are also likely to take children to the LIBRARY and to expose them to a variety of other out-of-home experiences such as family trips and cultural activities. Parents also influence their children's reading through modeling. The reading habits of parents (e.g., amount and type of material read) are generally correlated with children's performance on tests of reading readiness.

In addition to these specific features of the home, other general factors are associated with children's performance. Parents' expectations for achievement in school-relevant skills are associated with perfor-

mance during preschool and grade school years. The affective relationship between mothers and children is also correlated with reading activity, possibly because it indicates how supportive the learning environment is.

Summary. Parents may employ many strategies that promote children's communication skills. These include encouraging participation; tailoring communications to a comprehensible style; responding to the child's attempts; and modeling patterns of speech, reading, and writing. The variety of cultural contexts and the specific interaction patterns of each family allow for a multiplicity of individual differences in children's communicative skills and styles.

See also EDUCATION.

Bibliography. Noam Chomsky, *Aspects of the Theory of Syntax*, Cambridge, Mass., 1965; Jill G. de Villiers and Peter A. de Villiers, *Language Acquisition*, Cambridge, Mass., 1978; Shirley Brice Heath, "Questioning at Home and at School: A Comparative Study," in *Doing the Ethnography of Schooling: Educational Anthropology in Action*, ed. by George Spindler, New York, 1982; Robert D. Hess, S. D. Holloway, G. G. Price, and W. P. Dickson, "Family Environments and the Acquisition of Reading Skills: Toward a More Precise Analysis," in *Families as Learning Environments for Children*, ed. by Luis M. Laosa and Irving E. Sigel, New York, 1982; B. F. Skinner, *Verbal Behavior*, New York, 1957.

ROBERT D. HESS AND TERESA M. MCDEVITT

FAR EAST, ANCIENT. See EAST ASIA, ANCIENT.

FARADAY, MICHAEL (1791–1867)

British physicist and chemist (or, as he put it, "natural philosopher") whose findings played a seminal role in modern scientific developments, including many aspects of communications technology. Michael Faraday's work is often linked with that of JAMES MAXWELL (1831–1879). Their careers overlapped, and both were intent on unifying the fields of electricity and magnetism—Faraday by experiment and Maxwell by mathematics. Their work, at a time when electricity and magnetism were little understood, established principles that paved the way for the invention of TELEGRAPHY, the TELEPHONE, dynamos, RADIO, and television, as well as such basic aspects of modern life as the large-scale production of electricity.

Born of poor parents on the outskirts of London, Faraday had only rudimentary schooling. At age fourteen he was apprenticed to a bookseller and bookbinder. Faraday furthered his education by reading the books he was to bind or sell, including an encyclopedia article on electricity that drew him strongly to science. In 1813 he heard four lectures by Sir Humphry Davy, head of the Royal Institution.

Faraday sent him his lecture notes, bound and carefully illustrated, and asked for a job. Soon retained by Davy as a lecture assistant, Faraday began his lifelong association with the Royal Institution. He continued to learn from the experiments he set up for lecturers, and later in 1813 he embarked on a one-and-a-half-year trip with Sir Humphry and Lady Davy that enabled him to visit laboratories and outstanding scientists all over Europe. Thus he had an extraordinary introduction to the scientific developments of the time.

Back at the Royal Institution laboratories Faraday began the experimentation that eventually made him famous. He not only carried out his own experiments but also repeated new experiments reported by others in order to better his own understanding. He became director of the laboratories in 1825 and by 1830 had published more than sixty papers. On an annual wage of one hundred pounds plus rooms, coal, and candles he and his wife lived simply.

Faraday's greatest triumphs were the induction of an electric current by a moving magnet (the principle of the dynamo) and, almost equally important, the rotation of the plane of polarization of a polarized light wave by a magnetic field. The latter showed that a magnetic field affected a light wave. (Faraday and others had already shown that light had wavelike properties.) Faraday thus anticipated, but did not achieve, the electromagnetic theory of light and all other electromagnetic waves (radio, X ray, and many others). He used the evocative term "lines of force" to describe an electric or magnetic field and was conceptually close to modern field theory.

In acknowledgment of Faraday's achievements the electromagnetic unit of capacitance is now universally known as the *farad*. Faraday also had a law of chemistry named for him, but his work in chemistry is not so well known as that in physics. He did, however, introduce such terms as *electrode*, *electrolysis*, *anode*, *cathode*, and, at the suggestion of a friend, *ion*.

Faraday's leadership in establishing the core of electromagnetic theory, although entirely experimental, was the basis on which Maxwell, as the latter acknowledged, started his famous study aimed at uniting the field mathematically, which in turn resulted in the all-embracing Maxwell Equations. Faraday, ever eager to uncover new experimental knowledge, appealed to Maxwell for suggestions on how the mathematical conclusions might be developed experimentally.

Faraday received honors from many parts of the world but declined a knighthood. He and his wife continued to live simply. Lectures and a government stipend from the Civil List brought him about one thousand pounds a year during the latter part of his life. He once accepted a one-thousand-pound fee for consultation on industry matters but generally avoided

such involvements to devote himself fully to his "great objective."

Bibliography. Joseph Agassi, *Faraday as a Natural Philosopher*, Chicago, 1971; J. G. Crowther, *British Scientists of the Nineteenth Century*, London, 1935; R. A. R. Tricker, *The Contributions of Faraday and Maxwell to Electrical Science*, New York, 1966; L. Pearce Williams, *Michael Faraday: A Biography*, New York, 1965.

JOHN G. BRAINERD

FARNSWORTH, PHILO (1906–1971)

U.S. inventor best known for his role in the creation of electronic television—the great turning point in TELEVISION HISTORY. Two men are regarded as chief contributors to that breakthrough: VLADIMIR K. ZWORYKIN, head of the television development staff assembled by the Radio Corporation of America (RCA) at Camden, New Jersey; and Philo Taylor Farnsworth, a largely self-taught experimenter working with slim backing in a San Francisco laboratory. The relative significance of their contributions was long contested, first in U.S. Patent Office confrontations and throughout later years in journal literature.

Farnsworth, born on an isolated Utah farm, did not encounter electricity until his early teens, when his family moved to Rigby, Idaho, and acquired a Delco machine. The youth seemed able at once to understand its workings and became an obsessed

Figure 1. (*Farnsworth, Philo*) Philo T. Farnsworth. The caption reads: "Invention of California scientist designed to permit reception of talking movies in the home." The Bettmann Archive, Inc.



reader of electrical journals. In 1922, talking to his high school history teacher, Justin Tolman, he said he had read about television experiments in the East that used a whirling disc to scan images. That was not practical, Farnsworth said, and he proceeded to astonish the teacher (who later testified about this) by covering a blackboard with diagrams showing how it might be done with electrons in vacuum tubes. Tolman encouraged Farnsworth to pursue his ideas. In Salt Lake City two years later those ideas caught the interest of George Everson, a California promoter who had come to organize the community-chest drive and had hired Farnsworth and his friend Elma Gardner. Everson offered to set up Farnsworth in a California laboratory to develop his electronic television scheme and to search for additional funds himself. Farnsworth, aged nineteen, asked Gardner, aged seventeen, to become his wife and laboratory assistant; she agreed, and they set out for California.

Farnsworth proved to be a near genius in conceiving and developing new technical ideas. After receiving instruction in glassblowing he designed and made all the needed vacuum tubes. In 1927, one year after the start of laboratory work, Farnsworth applied for his first patent; he received it in 1930. The first public demonstration (i.e., the first open to newspaper reporters) of a completely electronic television system was staged in his laboratory in 1928. It was far removed from the television of later years but was sufficient to bring wide newspaper reports.

The 1930 patent award (and supplementary patents) challenged RCA, whose president, DAVID SARNOFF, had given Zworykin's staff the task of developing and perfecting television for early introduction. Virtually all pertinent existing electronic patents were controlled by RCA; additional patents, if covering essential items, were purchased outright. Like Farnsworth, Zworykin had long seen an all-electronic system as essential and was progressing toward that end. Farnsworth and Zworykin had worked along parallel lines. In pickup tubes Zworykin had developed his iconoscope; Farnsworth had his image dissector tube. They were tubes designed for the same function but based on radically different principles. RCA first announced it would not need Farnsworth's tube but, based on picture quality, finally realized it could not do without it. Challenging Farnsworth's patents, RCA lawyers questioned him relentlessly in interference proceedings but failed to shake his position. RCA then offered to buy his patents outright, but Farnsworth would agree only to a royalty basis. Against all RCA precedent, the company yielded. Farnsworth's image dissector became a key ingredient in the television system introduced by RCA at the 1939 New York World's Fair.

Meanwhile Farnsworth had moved his laboratory to Philadelphia, where his development work was supported by Philco in exchange for patent rights.



Figure 2. (Farnsworth, Philo) A commemorative postage stamp depicting Philo T. Farnsworth and the first television camera. Issued September 21, 1983, Washington, D.C.

After World War II the laboratory was taken over by International Telephone and Telegraph (ITT), which ultimately put Farnsworth to work on rocketry and nuclear fusion. But his health was failing, and he returned to Salt Lake City for his final years.

Farnsworth seemed indifferent to public acclaim. *Century of Honors* (1984), published by the Institute of Electrical and Electronic Engineers, notes that he was the only one among almost a thousand honored in the one hundred years of the institute's existence who did not supply the editors, or place on record, any information about himself. However, after his death a U.S. postage stamp (1983) carried his picture, in a series featuring scientists who had laid the foundations of electronic communications.

JOHN G. BRAINERD

FEEDBACK. See MODELS OF COMMUNICATION.

FEMINIST THEORIES OF COMMUNICATION

Feminist communication theory is nurtured and critiqued by feminist theory as it has developed in the large intercultural and international feminist movements. The histories, questions, analytical tools, and boundaries of feminist communication theory are reviewed, revised, reinterpreted, and written in ways that are themselves challenges to traditional communication theory. Although there is no general agreement about the categories of feminist communication study and theory (or even about the need for agreement), some topics are common to many of the analyses.

Feminist theory. Feminists consider most theories of communication inadequate, misleading, and dangerous because they distort women's experiences, ideas, and concerns. One problem is with what has traditionally been labeled theory. Australian feminist theorist Dale Spender argues that in a society in which men have named only themselves as theorists their theories have often been used to mystify, intimidate, and oppress others while justifying the status quo. Male theorizing has too often been used to

construct divisions between those "who know" and those who don't. Spender points out that much theorizing is based on the honoring of great men: entire systems of books, courses, and dialectics have been erected around individual men whose names are used to label theoretical frameworks. In communication research there is, for example, Marxist theory (see MARX, KARL), Foucauldian theory (see FOUCAULT, MICHEL), McLuhanism (see MCLUHAN, MARSHALL), and Lacanian theory. It is no accident that there is no (Mary) Dalyist theory, no (Julia) Penelopeian theory, no (Suzette) Elginist theory, no (Adrienne) Richist theory, no (Monique) Wittigian theory—even though these theorists have written extensively about communications issues, bringing together and expanding our knowledge of LANGUAGE and interaction and suggesting new problems, methodologies, and interpretations. To validate this work by labeling the theories with women's names would acknowledge that these women are experts and have created serious, impressive, contending theories. For feminists, even though recognizing the need to discover and rediscover the women whose names and intellectual work have been distorted, appropriated, or elided by men's histories, the problems with associating theories with individual names are complex. U.S. scholar Nancy Hartsock and others argue that theory is not the activity of a few but the articulation, open to all, of our practical, knowing activities; theory can be considered as making conscious the philosophy embedded in our lives—"theory in the flesh." Feminism itself is not a theory, a set of hypotheses, an institution, or a collection of principles; it is a movement, a renouncement of obedience to the systems erected by men, a search for answers to new questions, a collective process.

Thus feminists recognize that there is not a single human way of understanding interactions. U.S. philosopher Sandra Harding is joined by others in suggesting that innovative theorists welcome a plurality of perspectives to encourage the instability of analytical categories and to encourage the use of these instabilities as resources for thinking and action. Harding points out that this approach to theorizing incorporates what some believe to be a distinctive emphasis that many women put on contextual thinking and decision making, a focus on the importance and usefulness of talk, connectedness, and relationships. Such a perspective is exemplified by U.S. psychologist Carol Gilligan's *In a Different Voice* (1982), an influential and controversial study positing the existence of a distinctively female process of moral development based on intimacy and caring rather than on the more abstract principles of fairness or justice often characterizing male moral decisions.

Silencing of women. Many studies have uncovered the ways in which women's discourse is subject to male control and CENSORSHIP. For example, research

conducted in the United States and elsewhere shows that in male-female gatherings men talk more and interrupt more than women. It is telling that men's talkativeness and interruptive tendencies are not among men's stereotypes about male interaction.

Formal educational structures and possibilities differ for women and men, leading to the stifling of women's creative reading, writing, and speaking. U.S. writer Alice Walker asks, "What did it mean for a Black woman to be an artist in our grandmothers' time?"—that is, an artist given no training in reading or writing, no books or other resources. UNESCO figures report that the gap between male and female LITERACY is growing in many societies. In some countries when women are permitted to go to universities they are segregated from male students and often are not allowed to participate in discussion. Women often are not permitted to study abroad. In many countries—for example, even in Japan, where the literacy rate is close to 100 percent—women have been excluded from many literary jobs and honors and are encouraged to express their subordination through "feminine" words, voice, and syntax. In all formal education what is taught is men's knowledge; the silencing of active, theorizing women takes place in almost all educational formats. U.S. theorist Berenice Carroll notes that men apply gender-specific terms to evaluate men's and women's intellectual achievements. Terms such as *original*, *innovative*, *first rank*, and *excellent* are used to exclude women, whose intellectual contributions are called derivative, unoriginal, popular.

Women are also silenced or threatened by the application of deviancy labels. Spender documents that women, particularly knowledgeable, witty women, who question or rebel against patriarchy are called aberrations, unnatural, unattractive, unsexed, unnaturally sexed, and man-haters. Women writing in the Indian journal *Manushi*, for example, frequently analyze the ways in which the labeling of women makes it very costly, in terms of reputation and economic sanctions, for women to speak out on social issues. Such analysis often concerns how assessments of a woman's behavior are based on the relations she is believed to have with men and on the deviation of her behavior from the ideal of the loyal, obedient wife.

The ultimate exercise of personal and political power is through VIOLENCE. Although this has long been an issue for feminists concerned with the victimization of women through rape and domestic abuse, some theorists have begun to acknowledge that the threat of male violence, implicit or explicit, restricts women's activities in every sphere and thus underlies all aspects of human communication.

Heteropatriarchal semantics. U.S. theorist Julia Penelope and others have explored the ways in which language itself is a conceptual frame governing how

and what we think (see LANGUAGE IDEOLOGY). In a heteropatriarchal society such as the United States, for example, heterosexuality and male dominance are assumed to be natural and "male" and "female" to be natural, eternal categories rather than the expression of concepts essential to the maintenance of the heteropatriarchy. Similarly, French novelist Monique Wittig asserts that the fact of oppression created the categories rather than vice versa. Masculine/feminine and male/female are language categories concealing the social and political differences between men and women. A materialist feminist approach argues that although race and sex are seen as the cause or origin of oppression, they are actually the sign or mark imposed by the oppressor. Sex, race, and class are not individual characteristics but in many countries constitute the conceptual terminology supporting a white, middle-class, male elite. The categories are thus closely related in function. A major feminist contribution to social scientific theory has been the replacement of *sex* by the terms GENDER or *sex/gender system*, reflecting the fact that such categories are culturally and not biologically determined. Most feminist theorists focus on gender differences in order to draw attention to how that divisive system is socially constructed and maintained.

Feminist communication theorists consider language problematic in a way that much mainstream communication theory does not. Traditional Marxism, for example, assumes the relation "women/men" to be a natural one, outside the social order; in much Marxist theorizing women are assigned to classes of men, bourgeoisie or proletariat, an assumption that hides the class conflict between men and women (see MARXIST THEORIES OF COMMUNICATION). Instead of viewing language primarily as a tool for the transmission of information, the feminist approach treats language as a basically man-made construction that constricts the ways we can make MEANING. In feminist linguistic work, for example, dictionaries are studied as representative of male symbol systems and prejudices. Many feminists are engaged in recovering and inventing ways of defining, speaking, and writing female experiences and perceptions.

Writing the body. This expression is most frequently associated with some French feminists who argue in part that women need to learn to write from their bodies, their pleasures, and their experiences. A major focus is again on silences, on the absence of women's voices caused by the overpowering voices of masculinity in the structure and use of language. Rather than focusing on, for example, the documentation of a past in which women have been vocal or arguing that speech differences are grounded in sex, race, or class differences (which some French feminists find to be inadequate and traditionally North American problem-solving approaches), writers such

as Hélène Cixous suggest that we write a feminine language with "mother's milk" or "the blood's language." That is, women can begin with the immediate specificity of their bodies and their psychosexuality to create a new reality.

Other feminists have criticized this particular psychoanalytical perspective for being ahistorical, ignoring or paying little attention to differences established by race and class, and overlooking the social/political institutions that support the oppression of women. Other, multilingual feminists question the existence of a single language of the body because women think and speak in different ways about their bodies depending on the categories and relationships available in various languages.

Some believe a more useful approach than neo-Freudian psychoanalytic theories is emerging in the writings of feminists who describe their multiple, shifting, often seemingly self-contradictory identities. Objecting to the ready labels often applied to them (e.g., "white," "middle class," "black," or "Hispanic"), these women claim for themselves others as well, such as "intellectual," "feminist," and "anti-imperialist." They also question the assumption that there exist, for our theorizing of language and communication, separate homes within feminism based on the imposed divisions among racial, ethnic, religious, sexual, or national identities. Used separately these labels too often leave unchallenged such polar concepts as East/West or white/nonwhite, which themselves leave unchallenged the idea that communication theory based on analyses of the situation of women in the West can be adequate for the West when they do not deal with the hierarchical East/West divide. Similarly, others point to how such concepts as "capitalism" and "Christianity" construct many of the analytical terms in communication theory.

Technologies. Feminist scholars have been very interested in the differing consequences of technologies for the construction and employment of males and females. One research area concerns the methods that are used to speak and write to others: who may or must interact with whom and how. Some feminist theorists have given explanations and implications of women's exclusions from the social histories of the technological processes involved in communication—PRINTING, RADIO, television (see TELEVISION HISTORY), and so on. A related area of research presents the evidence that technological processes, developed and analyzed primarily by men, have had profound and largely unexplored consequences for women's communication. The resources available to women structure the time, place, and content of their interactions.

The media as industry. Feminist criticism of the media has a long history. In the United States in 1870 Susan B. Anthony and Elizabeth Cady Stanton

were conscious of how very different the structure and policies of their weekly newspaper, *The Revolution*, were from those of most newspapers (see NEWSPAPER: HISTORY). Anthony and Stanton wanted to publish primarily women's words because "masculine ideas have ruled the race for 6,000 years," and they insisted that women's words appear under their own names. In the late twentieth century the establishment and expansion, primarily in Europe and North America, of women's periodicals, publishing collectives, press networks, and professional organizations have been part of an unprecedented effort to provide women with access to information sources and networks. Despite such attempts, however, media industries remain largely under male control, and women remain vastly underrepresented in media management and production worldwide.

In countries with high illiteracy rates for women and with prominent gender differences in work experience, mobility, and media access, much feminist criticism involves the documentation and analysis of the values carried by media messages, including the representation of physical ideals of beauty and femininity against which all women are evaluated and the portrayal of housework and childcare as female duties. Many of these particular messages come from Europe and the United States, a fact that raises important questions about media practices and IDEOLOGY. Who is allowed to make cultural productions, and how are they used? How are media practices in the dominant cultures involved in social and political dominance throughout the world?

Feminist theorists have begun to address such issues by expanding on the perspectives and approaches characteristic of traditional MASS COMMUNICATIONS RESEARCH (see also MASS MEDIA EFFECTS). The impact has been felt in various fields as studies examine the ways in which women's participation in the production of ART and literature (see LITERARY CANON) has been ignored or restricted and how biased and distorted media images—or the absence of images—have contributed to the silencing of women and the perpetuation of dangerous stereotypes (see FILM THEORY; LITERARY CRITICISM; PORNOGRAPHY).

Public and private. The opposition of the concepts "public" and "private" is central to many communication histories and theories. In many cultures these concepts support a capitalist status quo and an extensive sex/gender system. Within this system the minds and words of women are considered complementary, and inferior, to those of men; masculine intellect is seen in contrast to and as transcending the feminine character, which is biologically driven and firmly bound to the body and the home. Men make the move away from the body and the home to reason and public activities.

This public/private division is present throughout mainstream communication theorizing, which is it-

self often divided into the study of INTERPERSONAL COMMUNICATION—focusing on such topics as male/female, intimacy, sex roles, role playing, friendships, body image, empathy and healthy interaction, styles of listening, perception processes, self-concept, and identity—and mass communication—concerned with such issues as competition, producers and consumers, technology, political power, audience, content, history, institutions, PERSUASION, and policymakers. Interpersonal communication study is the “small world” approach dealing with relationships among individuals. Much interpersonal communication research begins with an assumption of equality in the private world. Mass media study, however, is the “big world” of communication structures and policies and deals with significant political issues.

There are other areas of study that do not fit neatly into this dichotomy. Yet most cultural studies, with interest in forms of communication as everyday activities and with concern for the misuse of media, have not provided critiques of the controlling dichotomy or incorporated women’s communication experiences as represented in feminist scholarship and theory. Notable exceptions include U.S. scholar Janice Radway’s analysis of readers’ uses of romance novels (see ROMANCE, THE) and British scholar Angela McRobbie’s critique of the exclusion of girls from men’s cultural studies of the working class.

Feminists have written about the dichotomy between public and private not as a natural or convenient division of labor but as a paradigm convenient for posing separate sexual spheres of activity and for exaggerating gender differences in political life. Men cannot possess a public, political life unless there is also posited a separate private, apolitical life. For centuries women have criticized masculinist assumptions in many cultures about a “women’s sphere.” For example, Westerners often are critical of *purdah*, the man-made rules and sanctions that seclude women, govern their behavior toward men, and control their speech and movement in the home and community. Yet related rules and sanctions can be seen to operate in many forms in all patriarchal societies, even in men’s harassment of women in “public” streets throughout the world. The history of women’s attempts to “make sense”—to speak and write for themselves, to control their own knowledge, and to transmit this knowledge to others—has been virtually ignored in men’s histories. Feminist communication theory exposes that divisive, distorting category system of private and public and offers a more diversified, holistic understanding of communication.

See INTERPRETATION; SEXISM.

Bibliography. Donna Allen, ed., *Media Report to Women*, Washington, D.C., 1972–; Katherine Fishburn, *Women in Popular Culture*, Westport, Conn., 1982; Carol Gilligan,

In a Different Voice: Psychological Theory and Women’s Development, Cambridge, Mass., 1982; Fran P. Hosken, ed., *Women’s International Network*, Lexington, Mass., 1975–; Cheri Kramarae and Paula Treichler, with Ann Russo, *A Feminist Dictionary*, New York, 1985; Cheri Kramarae, ed., *Technology and Women’s Voices: Keeping in Touch*, London, 1987; Teresa de Lauretis, ed., *Feminist Studies/Critical Studies*, Bloomington, Ind., 1986; Toril Moi, *Sexual/Textual Politics: Feminist Literary Theory*, London and New York, 1985; Cherríe Moraga and Gloria Anzaldúa, eds., *This Bridge Called My Back: Writings by Radical Women of Color*, Watertown, Mass., 1981; Dale Spender, *Women of Ideas and What Men Have Done to Them: From Aphra Behn to Adrienne Rich*, London, 1982; Barrie Thorne, Cheri Kramarae, and Nancy Henley, eds., *Language, Gender, and Society*, Rowley, Mass., 1983.

CHERIS KRAMARAE

FESSENDEN, REGINALD (1866–1932)

Canadian-born electrical engineer who made important contributions to the evolution of RADIO in the United States. The course of his career was set by GUGLIELMO MARCONI’s 1895 invention of wireless TELEGRAPHY, but Reginald Aubrey Fessenden was intent on the next step, the transmission of voice—a step analogous to the progression from SAMUEL F. B. MORSE’s telegraphy to the TELEPHONE of ALEXANDER GRAHAM BELL. Leaving an academic career to pursue his interests, Fessenden first took a position with the U.S. Weather Bureau, which was serving farmers with wireless weather bulletins in Morse code and was willing to let him experiment with voice transmission—or radio, as some called it. He later secured backing for his own company, the National Electric Signaling Company. Marconi’s wireless system used a separate radiomagnetic burst for every dot and dash. Fessenden envisioned a radical departure: a continuous carrier wave on which he hoped modulations capable of carrying recognizable voices and tones could be introduced. To produce his carrier wave he ordered a high-frequency alternator from General Electric, whose engineers were skeptical of the idea but were willing to fill the order. Fessenden soon had success with experimental voice transmissions, and on December 24, 1906, he staged a historic demonstration. Wireless operators on ships on the Atlantic, alerted in advance, heard through their earphones a woman singing, a violin playing, a man talking. It was Fessenden wishing them a merry Christmas and asking them to let him know at his laboratory in Brant Rock, Massachusetts, if they had heard his transmission.

Throughout that winter Fessenden maintained radio transmissions between two stations eleven miles apart. The American Telephone and Telegraph Company (AT&T) showed interest in this demonstration

of radiotelephony, but nothing came of the negotiations. Meanwhile LEE DE FOREST's invention of the Audion vacuum tube, used as a detector and an amplifier, brought a big leap forward in the quality of voice transmission. Radio became a hobby for countless amateurs, but neither De Forest nor Fessenden found it easy to translate this enthusiasm into steady income. Fessenden's backers grew restive. A 1909 navy contract failed to check their disillusion, and two years later Fessenden was dismissed from his own company. He subsequently focused on naval electronics—depth finders, underwater communications devices, and the like. His reputation revived in 1926, when his antitrust suit against Radio Corporation of America (RCA) won him \$500,000.

Fessenden's career was one of beginnings. Among his notable early achievements was his 1901 invention of the heterodyne circuit, which greatly increased the strength of an incoming signal. Later combined with De Forest's Audion, it led to EDWIN H. ARMSTRONG's superheterodyne, which became the basis for radio amplification throughout the industry.

HARTLEY S. SPATT

FESTIVAL

An ancient and resilient cultural form, richly varied in organization and function across the world's societies. For all their diversity, however, festivals display certain characteristic features. They occur at calendrically regulated intervals and are public in nature, participatory in ethos, complex in structure, and multiple in voice, scene, and purpose.

Festivals are collective phenomena and serve purposes rooted in group life. Systems of reciprocity and of shared responsibility ensure the continuity of and participation in the festival through the distribution of prestige and production. Most festivals provide

the opportunity for individual religious devotion or individual PERFORMANCE, and this opportunity is a primary motive for the occasion. Other unstated but important purposes of festivals are the expression of group identity through ancestor worship or memorialization, the performance of highly valued skills and talents, or the articulation of the group's heritage. Rarely do such events use the term *festival*, employing instead a name related to the stated purposes or core symbols of the event: Mardi Gras (Catholic), Sukkot (Jewish), Holi (Hindu), Shalako (Zuni), Aday (Ghanaian), Calus (Romanian), Namahage (Japanese), Cowboy Reunion (American), and Feast of Fools (French). Those events that do have *festival* in their titles are generally contemporary modern constructions, employing festival characteristics but serving the commercial, ideological, or political purposes of self-interested authorities or entrepreneurs. See also SPECTACLE.

Consideration of terminology also raises the question of festival's relationship to RITUAL. The separation of the two types of symbolic enactment evolved as a consequence of modern religious systems' attempts to obliterate native religions. Quite commonly, however, indigenous practices survived under a new name, disguising their origins. These became known as festival or fiesta, in contrast to ritual, which became the serious occasions focusing on male authority legitimated by modern official RELIGION. In an effort to denigrate indigenous religious practices, modern religion thus assigned festival to a position peripheral to the core of ritual life. The most recent modern religions, such as Protestantism, completely dissociate festival from religion, and it then becomes a secular event. As a result ritual is associated with official religion, whereas festival designates occasions considered to be pagan, recreational, or for children. Like PLAY and creativity, festival explores and experiments with MEANING, in contrast

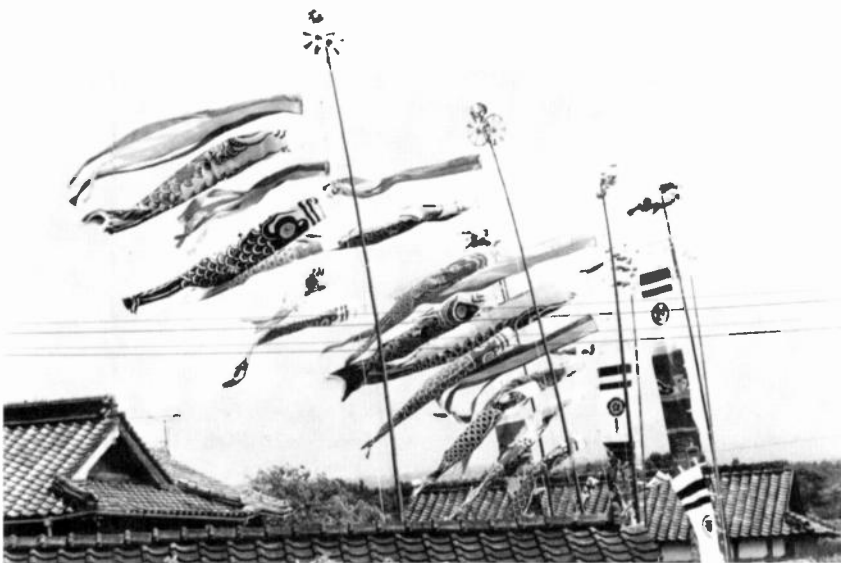


Figure 1. (*Festival*) Boy's Day (May 5), Japan. Carp streamers on the roofs of houses. Courtesy of Japan National Tourist Organization.

to ritual, which attempts to control meaning. Both forms utilize multiple codes and channels (*see* CODE). Examples of contemporary festivals and holidays with ancient roots include celebrations of saints' days, the Virgin Mary, Christmas, the new year, Easter, May Day, and Halloween, all of which represent a fusion of early Indo-European and/or Native American religious rituals with modern official religion and CULTURE.

Ritual and festival occur in modern cultures as separate events, but older religions integrate the calendrical rites we are labeling festival into the larger ritual cycle. For this reason much of the literature on religion, ritual, festival, fiesta, or carnival does not distinguish between the two related forms.

Festival Communication

Festival communication actively engages the participants. It is this feature that distinguishes festival from those large-scale forms that may be observed from a distance or by television or those events in which the participants passively receive messages but have no choice in their roles. Therefore, we can describe festival action as a combination of participation and performance in a public context. Very little festival action is private; those acts that are, such as courtship or religious devotion, are nevertheless made possible and defined by the special purposes of a particular festival. Moreover, what is spoken, acted, or displayed in festival—public or private—anticipates a response, social or supernatural. This active mode, then, makes demands on participants, requiring their attention. And this concentration of attention heightens consciousness, creating an intersection of individual performance and social reflexivity.

Festival communication involves a major shift from the frames of everyday life that focus attention on subsistence, routine, and production to frames that foster the transformative, reciprocal, and reflexive dimensions of social life. Such a frame shift does not rule out the mundane or the dangerous; commercial transactions flourish in many festivals, and MASK and costume have on occasion disguised bloody violence. The shift in frames guarantees nothing but rather transposes reality so that intuition, inversion, risk, and symbolic expression reign.

The messages of festival concern the shared experience of the group and multiple interpretations of that experience. Shared experience may be enacted as myth, music, or DRAMA; it may also be the marked representation of a segment of everyday life such as harvesting; it dominates the rhetoric as well as the action of an event clearly defined as "ours." In all socially based festivals, however, the messages will be directly related to the present social circumstances as well as to the past. Because festival brings the

group together and communicates about the society itself and the role of the individual within it, every effort either to change or to constrain social life will be expressed in some specific relationship to festival.

Festival Structures

The structures that operate to create festival reality may be characterized as (1) event structures and (2) social structures of participation.

Event structures. The multiple activities of festival do not occur randomly but rather in an order, officially or unofficially agreed upon. The following events generally are included in a genuine festival.

(a) *Opening ceremony:* A ceremony such as a parade or procession, simple or elaborate, provides the official opening. The display of individuals and institutions and sometimes characters in costume in this ceremony can reveal the social structure of the community and confirm dominant community values as well.

(b) *Ritual:* In festivals linked to religion the ritual will enact a religious purpose: promises made to a saint or to the Virgin, the acknowledgment of the ancestors, a sacred DANCE for rain or a feast in honor of the harvest. In secular festivals the ritual event



Figure 2. (*Festival*) Musicians at a festival in Languedoc, France. From Daniel Fabre and Charles Camberoque, *La fête en Languedoc*, Toulouse: Privat, 1978, p. 187.



Figure 3. (Festival) Dragon dance. New Year celebration, Taipei. Courtesy of the Information and Communication Division in New York, Coordination Council for North American Affairs.

may provide the means for addressing death and the affirmation of life, or it may be the ceremonial coronation of the festival queen.

(c) *Drama and contest*: Through the genres of folk drama, contest, or other dramatic forms the community expresses social conflicts and concerns rooted in social relationships and/or survival issues. In ritual drama such as Mexican *pastorelas*, British mummers' plays, and Jewish *Purimspiel*, or in ritual contests such as the Indianapolis 500 or cowboy rodeo, experience can be symbolically addressed from any point in history or from any domain of social experience. Thus pagan and modern religious themes are often combined with ease, the actions and characters of one period of history can be shuffled with those of another, animals can represent human behavior and relationships, and the sacred and secular can be reversed.

While dramatic forms are not required to resolve conflicts or to provide solutions, these forms interpret conflict and identify sources of tension through continued enactment and the display of alignments and oppositions. They can confirm the social order, introduce change, foster REVOLUTION, or express alternative viewpoints or resistance to oppression, depending on what forces are in control of social reality and in charge of performance.

(d) *The feast*: FOOD plays a very important role in festival. Some festivals contextualize food in a feast event, such as a barbecue or a pig roast, scheduled and set aside in a special place where large groups can eat together. Especially relevant is the nature of festival food. It will embody the identity of the group and represent the occasion, so festival foods are always specific: *posole*, haggis, shrimp jambalaya,

homentashn, mutton stew. Thus what food is served, who serves it, how it is prepared, the spices or condiments associated with it, the bread, and the drink all communicate about "our tradition." No one confuses tortillas with croissants or croissants with cornbread. Festival also emphasizes the *social* act of eating, for in this setting many people ingest their tradition simultaneously, confirming their identity as a group by eating certain foods during a certain period of time.

(e) *Dance and music*: Like food, dance involves the individual in action that is performed within a group, most of whose members are engaged in the same action. Specialists will provide music or drums to accompany the dance, though musicians will also perform in settings other than those involving dance. Dance may be performed for religious purposes, as part of folk tradition, or as a social act. Music and dance permeate festival, so much so that they set the pace for most activities and key the emotions of the participants.

(f) *Concluding event*: Festival follows a pattern from formal opening to informal conclusion, characterized by increasing spontaneity and intensity. The concluding event, in contrast to the opening ceremony, exhibits less structure and more creativity or personal expression. Noise and participation increase as drumming, dancing, drinking, and displays of fireworks accompany courtship, singing, and socializing.

Social structures of participation. Although festivals share many features, they may differ radically in appearance, sound, and purpose. The route to comprehension of a specific festival is through the concept of *participation*. In a community-based fes-

tival individuals have many alternatives for participation, and not everyone attends the same activities. But if those in attendance are primarily observers or consumers rather than participants, the event is not based in the social life of the community.

Festival offers opportunities for wide participation because its general purpose is relevant to all group members. It therefore attracts separate social interests, recognizing difference within the confines of the social group. Both women and men will have roles, the young and the old attend, outsiders and insiders alike have spaces accorded to them, and the rich and the poor walk on the same ground (though not necessarily together). Because socially based festival recognizes difference and strives for participation and integration, it defies external ideological control.

As we have seen, the particular activities available in a given festival reflect the concerns of the community. Thus if the community consists of several ethnic groups, ethnicity will be reflected in the activities, and participants will make choices on that basis. When age and sex divisions are important in a social group, festival activities especially designed for the old or the young or for females or males will be found.

Common to festival is one category of activity that is definitively not of the community: the traveling people and their entertainments and wares. At some festivals an entire carnival may be set up on the festival grounds, while others may concentrate on individual specialists such as fortune-tellers and magicians, and still others on craftworkers. These marginal, traveling people offer the exotic, strange, and different to the community for consumption. In contrast to the local performers, the itinerant specialists offer the strange in a commercial interaction, and often the souvenir object, the memory of the freak, or the hopes of the fortune raised by the fortune-teller remain with the participants long after other memories have dimmed.

Motivation for participation in festival includes the demonstration of religious commitment, the display or gain of social prestige, the public statement of political sentiments, participation in competitive events or the display of special skills, and social interaction that allows for the exploration and negotiation of many kinds of relationships.

Symbolic Processes

Two symbolic processes contribute heavily to the festival mystique: the manipulation of temporal reality and transformation.

The manipulation of temporal reality. The temporal reality of festival incorporates time in at least two dimensions. In the first the principles of periodicity and rhythm define the experience. Not sur-

prisingly, this cyclic pattern is associated with the cycles of the moon in cultures in which the lunar CALENDAR is or has been used in recent history. With the passage of time festival occurs again and again, marking the cycles of the moon, the annual repetition of the seasons, and the movements of the planets governing the solar calendar. Festival occurs calendrically, either on a certain date each month or on a specific date or periodic time each year. The cycles of time are the justification for festival, independent of any human agent. Unlike rites of passage, which move individuals through time, and unlike private parties, which structure a way out of time, festival yokes the social group to this cyclic force, establishing contact with the cosmos and the eternal processes of time.

In the second of these dimensions of temporality, expressions of tradition and change confront each other. Meaning in festival derives from experience; thus festival emphasizes the past. Yet festival happens in the present and for the present, directed toward the future. Thus the new and different are legitimate dimensions of festival, contributing to its vitality.

Transformation. In the festival environment principles of reversal, repetition, juxtaposition, condensation, and excess flourish, leading to communication and behavior that contrasts with everyday life. These principles can be applied to every code in use for communication. Repetition, for example, operates so that the sound of drums, fireworks, or singing voices may be continuous throughout an event, or the major visual symbol such as an image of a bear or the symbol of corn or the cowboy/gaucha may be shown in many circumstances.

Festival use of symbolic form has captured the interest of a number of scholars in different disciplines, from Jane Ellen Harrison to Victor Turner and MIKHAIL BAKHTIN, all of whom noted the transformative potential in rites and festivals. Transformation in festival takes the form of symbolic manipulation using the principles listed above. Among the most common is *inversion*, the reversal of the established social order, including social hierarchy and GENDER roles. In hierarchical societies symbolic inversion creates an upside-down world with the "inferior" at the top and the "superior" at the bottom, or it declares egalitarianism to be in order for the duration of the festival. Special characters such as clowns may assume the role of agent in bringing about the symbolic action. In societies in which egalitarianism is the stated norm, symbolic inversion may create a royalty of queens and princesses (especially common in festivals in the United States), demonstrating the reversal from egalitarianism to aristocracy and from a male-dominated to a female-dominated social structure. Competitions in festival serve the same purpose, creating competitive per-

formers and dividing them into the victorious and the defeated, creating differentiation out of sameness.

The principle of juxtaposition permits the enactment of cultural themes that may be deeply rooted in concepts of difference and contrast or may derive from oppositions or conflicts in social experience. For example, until the modern era, most societies were preoccupied with survival and thus concentrated attention on fertility rites and reproductive acts, emphasizing gender differences. Today festivals continue to represent an opportunity for the enactment of gender roles and for courtship and romance.

Almost any theme selected by festival will be repeated in many codes, and most behaviors and actions can be found in excess. Symbolic forms permit the communication of a large quantity of cultural knowledge because symbols condense messages and carry multiple meanings, offering some ambiguity in meaning. Among the most dramatic symbols associated with festival are masks and costumes (see CLOTHING). They draw upon both the familiar and the strange but distinctly transform the human inside into a message bearer—carrying information that may be supernatural, exotic, condensed, bizarre, or mysterious in nature. LANGUAGE, music, objects, actions, and humans are all available for symbolic communication. Marching band music will carry different messages from those of dance music, clown action will communicate something other than what a queen's behavior conveys, a procession of pilgrims speaks about a different subject from that of a parade of automobiles, and riding a bull sends a message other than that of killing a bull.

Scholarly interpretations of festival stress the licensed relaxation of norms and rules, a negation of the social order that opens doors of risk and con-

fronts destruction and re-creation. Closely associated are themes of revitalization, suggesting that the principles of excess, reversal, repetition, juxtaposition, and condensation lead participants to experience transformation and regeneration. This may take many forms: personal affirmation, political action, courtship and marriage, social revitalization, and so on.

Conclusion

Taken as a whole, festival facilitates regeneration through the rearrangement of structures, thus creating new frames and processes; consequently, it can strengthen the identity of the group and thus its power to act in its own interest, or it can contribute to the articulation of social issues and possibly conflict if more than one interpretation prevails on the same subject. Because of the social power of these regenerative forms, however, festival thrives in both ancient and modern societies, always enacting social life and shaping the expressive enterprise of human society.

Bibliography. Barbara Babcock, ed., *The Reversible World: Symbolic Inversion in Art and Society*, Ithaca, N.Y., 1978; Mikhail Bakhtin, *Rabelais and His World* (Tvorchestvo Fransua Rable i narodnaia kul'tura srednevekovia i Renesansa), trans. by Hélène Iswolsky, Cambridge, Mass., 1968, reprint Bloomington, Ind., 1984; Victoria R. Bricker, *Ritual Humor in Highland Chiapas*, Austin, Tex., 1973; Harvey Cox, *The Feast of Fools*, Cambridge, Mass., 1969; Alessandro Falassi, *Time Out of Time*, Albuquerque, N. Mex., 1987; Jane Ellen Harrison, *Themis: A Study of the Social Origins of Greek Religion* (1911), reprint (2d ed., 1927) London, 1963; Gail Kligman, *Calus: Symbolic Transformation in Romanian Ritual*, Chicago, 1977; Em-

Figure 4. (Festival) Carnival, Rio de Janeiro, Brazil. From Bina Fonyat, *Carnaval*, Rio de Janeiro: Editora Nova Fronteira S.A., 1978, p. 53. © 1978 Bina Fonyat.



manuel Le Roy Ladurie, *Carnival in Romans* (Le carnaval de Romans), trans. by Mary Feeney, New York, 1979; Robert J. Smith, *The Art of the Festival: As Exemplified by the Fiesta to the Patroness of Otuzco*, Lawrence, Kans., 1975; Victor Turner, *Dramas, Fields, and Metaphors: Symbolic Action in Human Society*, Ithaca, N.Y., 1974; Yoshiko Yamamoto, *The Namahage: A Festival in the Northeast of Japan*, Philadelphia, 1978.

BEVERLY J. STOELTJE

FIBER OPTICS

Communication system using hair-thin glass fibers or plastic strands through which light from a laser transmitter serves as a carrier for voice, VIDEO, or data signals. Fiber optics differs from more conventional communications technologies in that photons are the particles of energy used rather than electrons.

Background

Smoke signals were an early example of optical communications. ALEXANDER GRAHAM BELL, after his major work on the TELEPHONE, introduced in 1880 a device he called the photophone. He claimed that the sun's rays could be harnessed to transmit messages, suggesting that light could be transformed into a source of electrical energy and into an electrical signal as well. However, no practical applications were developed until laser technology came about in the late 1950s. The semiconductor laser, the tiny transmitters that literally pulse millions of times every second and are the workhorses of a fiber-optic system, resulted largely from research at AT&T Bell Laboratories. By 1970 these lasers, coupled with the availability of sophisticated light-sensitive devices (photodetectors) that receive and decode the signals they emit and with advances in low-loss glass conductors, gave scientists the components necessary for a workable system.

Prior to that, scientists had considered and then rejected sending light signals through the atmosphere; fog, clouds, and physical obstructions presented problems that were difficult to overcome. It was the search for a "controlled atmosphere" through which laser light could be sent that ushered in the research and development of optical fibers. In their article "Dielectric-fiber Surface Waveguides for Optical Frequencies" (1966), K. C. Kao and G. A. Hockham suggested that thin pieces of pure glass could carry laser signals at a loss level of twenty decibels per kilometer or less, even though to that point only losses in the thousands of decibels had been recorded. Researchers at Corning Glass Works achieved this goal in 1970, meaning that fiber-optic signals could be sent in a manner competitive with existing communications technologies.

By the mid-1970s AT&T and GTE began installing the first fiber-optic links in the United States. Although these early networks provided only a fraction of the capacity of later systems, they demonstrated that fiber-optics technology was technically feasible, generating widespread interest. Proponents emphasized that fibers, despite their smaller size, could carry much larger amounts of data than other technologies such as microwave systems and coaxial cables, with the added advantage that fibers were immune from cross talk, lightning, and other types of atmospheric interference.

The new technology rapidly gained international prominence. GTE installed systems in Belgium and Canada. "Hi-Ovis" (Highly Interactive Optical Visual Information System) was a prototype project carried out in Japan in the late 1970s using fiber-optics technology. A computer and transmission center provided video services to 158 homes in a small community near Osaka. Customers received a multitude of television channels and had access to airline and train timetables, stock-market quotations, and weather reports. They could also prepay theater, travel, or restaurant reservations; access newspapers via telecopier; and have two-way video access to city hall, hospitals, and libraries. *See also* VIDEOTEX.

Applications in Telecommunications

In 1981 Saskatchewan Telephone, a Canadian company, announced its plans to build a three-thousand-kilometer fiber-optic network devoted primarily to CABLE TELEVISION services to rural areas. In the United States the first long-distance application of fiber was proposed and implemented by AT&T in 1983 in the area known as the Northeast Corridor. Originally proposed as a 611-mile network between Cambridge, Massachusetts, and Moseley, Virginia, that network has become part of AT&T's nationwide fiber-optic system. Advantages in cost, capacity, and quality of signals played a key part in this decision, which was soon emulated by other telephone companies providing long-distance services.

The advent of long-distance fiber-optic networks in the 1980s led proponents of fiber to believe that this new technology could be competitive with the SATELLITE. Arguments in its favor included immunity from interference and interception, lower initial cost, greater cost-effectiveness, and rapid standardization.

Even though long-distance applications brought fiber optics to the market in a substantive way, shorter routes could become even more lucrative because of greater demand for installed capacity at the local-exchange level. The local exchange is considered the next frontier, and telephone companies have already begun installing fiber optics.

Whereas fiber-optic technology has been incorporated into networks in Europe, Asia, Australia, Latin

America, and South Africa, it has always been clear that fibers could also be used in other than land-based applications. The first transoceanic fiber-optic system was under construction by the late 1980s. And it seemed likely that a worldwide Integrated Services Digital Network (ISDN)—a widely discussed idea—would utilize mainly fiber-optic technology. See TELECOMMUNICATIONS POLICY.

Bibliography. Allen Boraiko, "Harnessing Light by a Thread," *National Geographic* 156 (Oct. 1979): 516–535; C. David Chaffee, *The Rewiring of America: The Fiber Optics Revolution*, Cambridge, Mass., 1987; Alan G. Chynoweth, "The Fiber Lightguide," *Physics Today* 29 (May 1976): 28–30, 32, 34, 36–37; *Fiber Optics News* (formerly *Fiber/Laser News*), Potomac, Md., 1982–; K. C. Kao and G. A. Hockham, "Dielectric-fiber Surface Waveguides for Optical Frequencies," *IEE Proceedings* 113 (July 1966): 1151–1158; W. T. Tsang, ed., *Semiconductors and Semimetals*, Vol. 22, *Lightwave Communications Technology, Part A, Material Growth Technologies*, Orlando, Fla., 1985.

C. DAVID CHAFFEE

FICTION

In its largest sense, a category including all that is imagined or invented. In a more restricted sense, fiction comprises that body of PROSE works including novels and short stories.

In the broader sense fiction originates in prehistory. Humans are storytelling animals, and so we can assume that fiction came into being with the dawning of consciousness. The earliest cave people sitting around the fire likely told one another stories that were not bound strictly to fact. The element of NARRATIVE in some cave paintings suggests the importance to them of—doubtless embellished—tales of the hunt and of the natural world.

However, the term *fiction* tends to be used specifically to describe written and disseminated prose work. The standard definition includes any form of literature or narrative that does not attempt to relate a true, historic, and documented set of circumstances. The categories so defined include fable, romance (see ROMANCE, THE), fairy tale, conte, prose pastoral, novel, and short story. The word *fiction* is usually not used of DRAMA, POETRY, or MOTION PICTURES—even when these forms are based on fictional material.

The term itself is derived from the Latin verb *fingere*, meaning "to form, mold, or feign." Initially it was used in English to indicate the action of fashioning or forming an object. But its second meaning of feigning or counterfeiting was also invoked, and in this sense to make a fiction meant to create a lie or deception. Only later, in the eighteenth and nineteenth centuries, did *fiction* take on the more

positive meaning of a prose literary work based on the creation of events out of the imagination.

This evolution in meaning has parallels in the cultural history of fiction. English culture in particular was slow to accept fictional works as having value or as being anything other than lies. In the seventeenth century strict Protestant groups such as the Puritans and the Dissenters felt that reading fiction, particularly novels, was undesirable because it amounted to no more than reading falsehoods. In the eighteenth century another trend arose, asserting that reading novels was a morally beneficial activity. Novels such as Samuel Richardson's *Pamela* (1740) and *Clarissa Harlowe* (1747–1748), Oliver Goldsmith's *The Vicar of Wakefield* (1766), and, in France, Jean-Jacques Rousseau's *Émile, ou traité de l'éducation* (1762) and *Julie, ou la nouvelle Héloïse* (1761) served to convince people that this "feigning" form could present morally consistent lessons. Despite the apparent popularity of novels during the eighteenth century, however, the form was not very widely accepted and accounted for only a small fraction of book sales. It was during the nineteenth century that novels were published in large numbers and became the dominant form of fiction.

The acceptance of fiction was largely a function of the social and historical contexts in which it was presented. The earliest fictions were oral (see ORAL CULTURE) and functioned in preliterate cultures (see LITERACY). Those oral works were of two genres (see GENRE): the epic and the FOLKTALE. The earliest epics that have survived include the ancient Greek *Iliad* and *Odyssey*, the Babylonian *Gilgamesh*, and the Indian *Ramayana* and *Mahabharata*. The epic is a form that tends to arise during periods in which a feudal type of aristocracy dominates, and it serves to unite the members of the hierarchy by emphasizing the feats of their collective ancestors. Sung or chanted to groups by bards who memorized these lengthy stories, epics required the presence of listeners and ratified the experience of the group.

The tale could be told and retold more informally, either by a local storyteller or, for example, by parent to child. Early tales tend, like the epic, to be about aristocratic heroes in supernatural settings and have been hypothesized by critics such as the psychoanalyst Bruno Bettelheim to channel collective and unconscious wishes into narrative form. Both epic and folktale were based on collective myths and legends, not on original material as would be required of later fiction.

These earlier forms of fiction, usually authorless in today's sense of that term (see AUTHORSHIP), existed in cultures in which little attention was paid to the distinction between FACT AND FICTION—at least in its narrative forms. Before the seventeenth and eighteenth centuries most epics, tales, contes, and the like did not make a point about being either factual

or fictional, any more than history or journalism was bound to strict standards of facticity (*see* HISTORIOGRAPHY). In this sense the epic and the tale are not truly fictional because there did not then exist a correspondingly strong sense of the factual.

During the seventeenth and eighteenth centuries there were increasing attempts to distinguish the factual from the fictional in all realms—in the writing of history, the presentation of news, and the determination of LIBEL in courts of law (*see* LAW AND COMMUNICATION). The category of fiction became more clear-cut. Fiction was not legally actionable, but fact was; fiction was not “news,” and neither was it history. During this period the novel became its dominant form.

Unlike the epic, the early novel was an essentially middle-class form addressing the particular problems and ideological concerns of that class (*see* IDEOLOGY). Its central character was not a hero in the old sense of a superior being but an ordinary person who was usually the victim of some social injustice or abuse—whether falsely accused of a crime, forced to marry some undesirable person, deprived of financial or social support, or isolated either physically or emotionally from others. Plots often revolved around marriage and inheritance. As its name implies, the novel also required new or original stories and not the retelling of traditional tales and legends.

Since this period the dominant MODE of the novel and of much of popular fiction, including film and television narrative, has been REALISM, which seeks to conceal the artistic conventions on which it depends behind the events of the story itself, thus making what is in fact art appear as a direct transcription of life. In this way the signs and structures of storytelling are made to appear natural rather than artificial. Thus most fictions have appeared to readers to be units of experience rather than structures of fantasy, and realism has served to justify the seemingly frivolous nature of fiction by giving fantasy a utilitarian cast. When we read a novelist like Charles Dickens, for example, we may have the impression that we are seeing the world of nineteenth-century London rather than the highly artificial view of one middle-class Englishman.

By confining themselves to the fictional and at the same time creating the illusion of factual subject matter, novelists created a new mode of writing that could comment on the social world while remaining immune from legal attack. By keeping to the safety of fiction, early novelists like Daniel Defoe, Henry Fielding, Laurence Sterne, and Jane Austen could satirize society, with the result that such criticism had a special status as social commentary. Because the form was confined to the fictional, readers knew that they were protected, in effect, from engaging with the factual, and novel reading became a self-contained and socially quietist activity.

Throughout the nineteenth century writers aimed to expand the scope of the novel. Walter Scott extended its historical range; Honoré de Balzac transcended the limitations of a single volume by having his *La comédie humaine* (1842) encompass more than fifty volumes, all dealing with the same society and reintroducing the same characters; Dickens, Victor Hugo, George Eliot, William Makepeace Thackeray, Leo Tolstoy, and Émile Zola, among others, included within single works all classes of society and used the novel as a kind of ENCYCLOPEDIA of humanistic knowledge. It was thought that novels could and should represent as much as possible in life. Implicit in most such works were criticisms of social practices from child labor to penal reform to the role of women. One might describe this period as characterized by the domination of fictional representation.

At the end of the nineteenth and the beginning of the twentieth century, however, the novel, though at its height, began to suffer a crisis in self-confidence. Writers such as Joseph Conrad, Ford Madox Ford, James Joyce, and Virginia Woolf began to question the conventions of realism and the limits of LANGUAGE and wrote works in which fundamental truths were shown to be ultimately incapable of being captured in words. Such novels demonstrate the struggle between the desire that fiction represent life through verisimilitude and a recognition that the most crucial aspects of life—love, beauty, horror—cannot ultimately be represented in a realistic work of prose or perhaps in any language at all.

During this crisis of the novel other forms of fiction came into their own. The short story, for example, as practiced by writers such as Edgar Allan Poe, Guy de Maupassant, and O. Henry, reflected the recognition that the encyclopedic nature of the great nineteenth-century novels was a falsification. Short stories could best represent the fragmentary nature of reality and true perception. Fragmentation, whether in the short story or in the narratives of Joyce and Woolf and later those of John Barthes, Thomas Pynchon, the Italian writer Italo Calvino, and the French practitioners of the *nouveau roman* such as Alain Robbe-Grillet and Marguerite Duras, set the pattern for experimental fiction. In such works questions of representation, of the limits of language, of the fragmentary nature of experience, and of the inadequacy of rational explanation become central issues. The traditional hero often becomes an antihero or a patently unheroic figure. The conclusive ending that raised the eighteenth- and nineteenth-century hero to some kind of satisfactory and fulfilling role in society gave way in the twentieth century to unresolved endings often indicating the increased alienation from society of the central character. *See* AVANT-GARDE; FICTION, PORTRAYAL OF CHARACTER IN.

An increased attention to psychology was linked to the decline of realism. The theories of WILLIAM JAMES, SIGMUND FREUD, and CARL JUNG helped to bring to authors an awareness of the role of unconscious motivation in human behavior, thus transforming the depiction of reality. Increasingly novels began to represent less of the objective world and more of the state of mind, of the consciousness (or unconscious motivations) of characters. Writers such as Henry James, Edith Wharton, Woolf, Joyce, and William Faulkner allowed the state of mind or point of view of a particular character to determine the content of the novel. The traditional form of narrative exposition might give way to one modeled on the flow of thought or "stream of consciousness."

Popular literature continued to depend on realism as a mass market for fiction developed (see LITERATURE, POPULAR). Mass-market fiction of all forms is characterized by traditional heroes and heroines, strongly realistic scenarios and settings, decisive endings, and action-oriented plots.

Another feature of the development of fiction in the twentieth century was the recognition that fact and fiction are themselves arbitrary categories that are not necessarily mutually exclusive. Writers such as Norman Mailer and Hunter Thompson have produced works that are ostensibly about historical events but are nonetheless novels, and the boundary between DOCUMENTARY and fictional film has been blurred by directors such as Frederick Wiseman, Jean-Luc Godard, and Michelangelo Antonioni (see AVANT-GARDE FILM). The influence of STRUCTURALISM and poststructuralism has meant that even genres such as history and journalism can no longer be seen as value-free and objective but rather as bound by the conventions and biases of fictional narrative. Even the legal system recognizes the factual status of fiction by awarding libel damages to people who have been negatively represented in fictional works even if their names have been changed.

The recognition that all fictional forms depend on conventions and ideological structures has led to an expansion of the subject matter of fiction. Increasingly issues and groups not usually represented by the dominant discourse—women, nonwhites, non-Westerners—are demanding and to some extent are achieving fictional representation (see LITERARY CANON). This in turn may have the effect of creating new fictional forms, just as the rejection of realism has spurred attempts to return to earlier, traditional sources of fiction such as folktales.

See also ART.

Bibliography. Wayne C. Booth, *The Rhetoric of Fiction*, 2d ed., Chicago, 1983; Peter Brooks, *Reading for the Plot*, New York, 1984; Lennard J. Davis, *Factual Fictions: The Origins of the English Novel*, New York, 1983; Georg Lukács, *The Theory of the Novel* (Die Theorie des Ro-

mans), trans. by Anna Bostock, Cambridge, Mass., 1971; Robert Scholes and Robert Kellogg, *The Nature of Narrative*, New York, 1966; Ian P. Watt, *The Rise of the Novel*, Berkeley, Calif., 1957, reprint 1974.

LENNARD J. DAVIS

FICTION, PORTRAYAL OF CHARACTER IN

Before the days of nonrepresentational ART it used to be said that every picture tells a story, because the viewer identified the historical personages or the social class and type being illustrated, and by an almost automatic process of psychological metonymy extrapolated the relevant aspects of the characters that the artist was using to suggest a NARRATIVE situation. The writer of FICTION has traditionally worked in the same way. The differences among fictional characters are the most important ways of indicating to us what is going on and what the author is trying to do.

The notion of character in literature begins in ancient BIOGRAPHY. Greek philosopher Theophrastus (ca. 372–ca. 287 B.C.E.) and Roman historian Suetonius (ca. 69–after 122 C.E.) were alike interested in the oddities and quirks of human nature and in the difference between inadvertent private habits and deliberate public image. In *The Lives of the Caesars* Suetonius did not flatter his subjects but showed their strengths with their weaknesses, thus revealing incongruity and inconsistency as the mainspring of literary character.

Theophrastus was more interested in the dominant trait in an individual's nature, or, as Elizabethan dramatist Ben Jonson was to say, one's "humor." In his *Characters*, Theophrastus presents portraits of the coward, the flatterer, the chatterbox, the miser, and so on. This kind of CLASSIFICATION was soon in alliance with the medical doctrine of the "four humors," the preponderance of one or more of which was said to determine character; and it anticipated modern typologies such as the introvert and extrovert nature or U.S. psychologist W. H. Sheldon's correspondence of three physical types—the ectomorph, the mesomorph, and the endomorph—with certain mental attributes.

Early interest in character was thus, on the one hand, quasi-scientific and, on the other, concerned with biography and anecdote. Class and sex were important. Great and influential people were psychologically interesting; the masses were not. Nor, on the whole, were women; their character was determined by their sex. Homer portrayed human beings as individuals, but individuals determined by their roles in society as warrior, wife, or child. We are moved by the scene in the Iliad when Hector bids farewell to his wife Andromache, and his little son shrinks back in fear of the waving plume on his

helmet. Everyone in the scene behaves, as it were, "in character." We should be startled if Homer told us that Hector was inordinately fond of cheese, that Andromache had affairs and breakdowns, that their child was psychopathic. Yet examples such as these are the concealed, incongruous matters that concerned Suetonius, just as they do the modern novelist.

In *The Canterbury Tales* (ca. 1387), one of the great literary works of the MIDDLE AGES, Geoffrey Chaucer follows the principle of decorum, derived ultimately from Homer by way of his critics and imitators, which prescribes the correct image and behavior for characters in all walks of life—the knightly, the ladylike, the worldly, the pious, the coarse, the comic. With this he mixes the personality based on humors, so that his Miller, for example, is not only coarse and churlish as befits his station ("A churl has told a churl's tale"), but has all the physical and psychological attributes of the angry man, whose temperament is based on an excess of choler. In his other long poem, *Troilus and Criseyde* (ca. 1386), Chaucer demonstrates a quite different way of looking at character, based on humane gossip and speculation. What was Criseyde really like? What was her motivation? Is she to be blamed or pitied? For his absorbing interest in these and other questions, in which he seems to enlist the cooperation of a circle of civilized listeners, Chaucer has been called the first psychological novelist.

The twentieth-century English novelist E. M. Forster distinguishes the "round" from the "flat" character in fiction. The former, like Shakespeare's Hamlet or Jane Austen's Emma, is constantly surprising us by unexpected behavior or by revealing a wide and contradictory spectrum of being and awareness. The latter, like Charles Dickens's Mr. Pickwick in *The Pickwick Papers* (1837), pleases and reassures us by remaining predictable and consistent through all the events of the story. Forster's distinction is convenient and sums up the frequently cited literary practice of basing character either on convention and type or on a creative process of speculation and inquiry. At the same time it does not answer the real question: on what grounds do we feel that a character has come alive or has failed to do so? There is no doubting the vitality and convincingness of Mr. Pickwick, which we may confirm, for example, by calling a friend's behavior Pickwickian. But many "round" characters, closely and ingeniously examined by their authors, may nonetheless strike the reader as intelligently constructed rather than alive and kicking. Other characters seem imagined as "flat" and yet during the course of a long novel may become so intimate and so familiar to the reader as to appear "round."

Arguably, we only recognize and respond to characters in fiction as alive if we have met people like

them in life. Some writers give the impression that they see and enjoy their characters in the same way as they enjoy people they meet in life. Others appear to invent purely literary characters whom neither they nor their readers would or could ever meet. In the first case the unconscious element is important. The writer cannot say how the character arrived or why it seems so real. The Russian poet Aleksandr Pushkin, who greatly admired Shakespeare, was one of the first to perceive that Shakespeare's characters appear independent of the plot and action in which the play requires them to take part. Shylock in *The Merchant of Venice* is a more interesting and complex person than the play needs. In the same way descriptions of some of the most successful fictional characters such as Falstaff (fat, cowardly), Hamlet (melancholy, indecisive), or Austen's Emma (handsome, clever, and rich) seem not to coincide with the impression we actually receive of them. Their success as characters depends on their not resembling an objective view of themselves.

Here the author seems to create a parallel to the psychological fact that we appear different to ourselves than to others. "Consciousness" in this sense is different from "character," and a master novelist like the Russian Leo Tolstoy could invent a consciousness, as if from the inside, before also shaping it as a character. Some decades later English writer Virginia Woolf made the operation of consciousness paramount for all her characters, representing their "stream of consciousness" (a phrase coined by U.S. philosopher WILLIAM JAMES) rather than their appearance, distinctive manners, or habits of speech. Consciousness in Woolf's novels tends to become uniform—her own—and the idea that all consciousnesses are much the same both enables the reader to identify with the generic consciousness in her fiction (and in that of other writers) and diminishes the older notion of character as an observation of human types. Instead of observing others, judging them, perhaps laughing at them, the reader is invited to partake in a more universal awareness of being. Similarly, English author D. H. Lawrence rejected "the old stable ego" of the character and replaced it with a generic physical "blood awareness" of characters as men and women, spiritually alive or dead, saved or damned.

Other twentieth-century novelists like the French writer André Gide have explored the artistic possibilities in the notion that, far from our actions being determined by the way our characters have formed, anyone might do anything at any time. Such so-called gratuitous acts express a basic anarchy of being that the Russian author Fyodor Dostoyevsky earlier conveyed in his novels, and they relate also to the British novelist Joseph Conrad's vision of the inexplicable moment, arranged by chance, that may

determine what the individual is and will become.

Such a concept of character may itself become a convention associated with a particular kind of novel or writer, and such conventions are often very persistent, perpetuating at their crudest a stock type of character—the English gentleman, the omniscient detective, the femme fatale. Successive writers try to evade such archetypes (which essentially resemble the “characters” of Theophrastus) by merging consciousnesses and removing distinguishing marks of class, type, or sex. But structuralist critics have objected that any attempt by the novelist to represent the reality and the people “out there” in life shows a misunderstanding of the nature of fiction. Fiction and fictional characters are inevitably based not on an imitation of life but on a CODE of signifiers, conventional signs like those of LANGUAGE itself, representing nothing but “literariness” (see STRUCTURALISM).

The abandonment of the assumption that fiction and its characters are based on a representation of external reality has had important consequences. It confines characters to books and to the relation of books to one another. Yet however important type or GENRE is in the construction of MEANING, all character is ultimately created by the relation between the self and some person out there, in life or in literature, who is not the self.

Bibliography. John Bayley, *The Characters of Love: A Study in the Literature of Personality*, London, 1960; W. J. Harvey, *Character and the Novel*, London, 1965; Jean de La Bruyère, *Les caractères*, Paris, 1688, reprint 1965; J. W. Smeed, *The Theophrastan ‘Character’: The History of a Literary Genre*, New York and Oxford, 1985; P. F. Strawson, *Individuals*, London, 1958.

JOHN BAYLEY

FILM. See MOTION PICTURES.

FILM EDITING

The process of selecting and arranging discrete film shots (and, in the sound era, recorded sound elements) in a manner designed to serve the overall purposes of a film project. A shot is a continuous moving image of a person, object, or event—that is, a moving image in which there are no temporal jumps in the action. A shot is the integral space-time image unit that is produced between the moment the motion picture camera is turned on and the moment it is turned off. In the broadest sense, film editing is the arrangement of these integral image units into larger wholes.

Each shot corresponds to a discrete strip of film. At its most basic level, film editing is the manual

process of connecting strips of film. However, most films have some communicative function: to tell a story, to convey information, to promote aesthetic experience. Thus the process of connecting film strips is informed by these purposes, and the history of film editing traces the refining of the techniques that serve such purposes and of defining new purposes and related techniques.

Usually more than one shot, or “take,” is executed of the subject before the camera. Alternate takes are made both to increase the probability that at least one version of the subject will be usable and to try out different ways of portraying the subject. Film editing involves selecting preferred takes. Also, a shot may be longer and may contain more information than a scene or sequence requires. In such circumstances the editor will shorten the scene by removing extraneous material from the film strip. Furthermore, in the production of most films, more images and even scenes are photographed than are used in the finished film. One task of the editor, often in consultation with the director and/or producer, is to make decisions about which takes and which shots to use, and how much of a shot to use, given the purpose of a film or film sequence as a whole.

There was little call for editing in the earliest days of cinema, because films were composed of single shots. This was true of the first films of the brothers LOUIS AND AUGUSTE LUMIÈRE. However, their later films—largely travel films—were often composed of a number of shots, each lasting about a minute. These might be images of parades, newsworthy personages, and exotic locales (see DOCUMENTARY). Editing here amounted to little more than trimming the length of the shots and manually splicing film strips together, with perhaps a minimal concern that there be sufficient variety among the views selected. This was not film editing as we presently know it, for that requires a conception of a film as a unified whole rather than as a collection of shots. Around the turn of the century, however, with such films as Georges Méliès’s *Cinderella* (1899), cinema became committed to the function of telling stories. NARRATIVE came to provide standards of wholeness, and editing began to evolve.

Early film narratives were subject to certain constraints. First, their temporal organization was strictly chronological; for example, the birth of Christ could only be shown before his encounter with the wise men in the synagogue. Second, the visual organization of these early narratives tended to be invariant. The camera took a position vis-à-vis filmed events that was roughly like that of a THEATER spectator in relation to onstage action. Each scene, often enacted as a tableau, was seen from a medium-range view.

Film editing grew more sophisticated with an increase in the number and variety of temporal and

visual patterns available to the filmmaker. The period dating from Edwin S. Porter's *The Great Train Robbery* (1903) and culminating with D. W. GRIFFITH's *The Birth of a Nation* (1915) was marked by a number of significant developments. Strict chronology ceased to be the sole connective between events. Events might be arranged in strict temporal order, but they could also be portrayed as happening simultaneously (through parallel editing) or represented out of chronological order through the use of flashbacks or flash-forwards. In a related development one could cut between modalities—from actuality, for example, to dreams. Thus, the kinds of relations between depicted events became more flexible.

Similarly, the visual organization of the narrative image became more complex. In contrast to the "theatrical distance" of early film narratives, the space inside scenes became the subject of intensive articulation. In addition to middle-range views, the camera could move in for a close view of a detail (a close shot), or it could fill the screen with a face (a close-up). Certain aspects of a scene could be singled out for emphasis. The camera could also pull back from a detail to a medium view or a long view, thus contextualizing that item in a larger constellation of objects and actions where its significance becomes apparent. Here the issue of simultaneity assumes special importance. If one cuts from a close shot of a gun to a medium shot of someone pointing the gun at a character, intelligibility requires that the audience presume that these are roughly simultaneous views of the same event rather than, say, views separated by a significant temporal distance.

In addition to the introduction of variable camera positions—close shots, medium shots, long shots—and their alternations, the frontal, approximately eye-level tableaux of early films were also augmented by the use of overhead shots (high-angle shots), shots from below (low-angle shots), and shots in which the camera is not held parallel to the action (oblique-angle shots). These devices, along with point-of-view editing (in which a shot of a character looking at something offscreen is followed by a shot of that offscreen something), supply the basic elements from which the film editor composes scenes. The editor then combines scenes or sequences by means of temporal ordering patterns such as chronology, simultaneity, flashbacks, or flash-forwards. This was the core system of narrative editing that had evolved by 1915 and is still in wide usage.

Soviet film theoreticians and filmmakers of the 1920s, including Lev Kuleshov, V. I. Pudovkin, SERGEI EISENSTEIN, and DZIGA VERTOV, were so impressed by Griffith-style editing that they declared editing, referred to as "montage," to be the sine qua non of film. In their writings and films they refined

and expanded upon already existing editing patterns. They employed a type of editing, sometimes called the montage of attractions, to make metaphorical comments about narrative events—for example, cutting from a shot of a disreputable official to one of a peacock in order to underscore the official's pride. And in films such as Vertov's *Chelovek s kinoapparatom* (The Man with the Movie Camera, 1929), a veritable cine-poem in which editing is devoted to cataloging comparisons and contrasts between myriad aspects of everyday life, the Soviets experimented with patterns of editing not primarily subordinated to narrative purposes.

With the coming of sound to film, there was a danger that film would regress to the sort of canned theater that had predominated before the editing breakthroughs associated with the name of Griffith. However, Russian theoreticians and filmmakers as well as the literary critic ROMAN JAKOBSON extended the principles of montage editing to the organization of the soundtrack. In montage, shots were juxtaposed for expressive purposes. These theoreticians and filmmakers advocated that asynchronous aural elements (such as offscreen sounds) should also be juxtaposed against the image, affording a contrapuntal means of expression. Thus, in *M*, by Fritz Lang, we hear the ominous whistle of the child-killer offscreen, while on-screen we see his innocent victim, a juxtaposition that makes the scene all the more foreboding. This type of contrapuntal use of sound was pioneered in such films as Carl Dreyer's *Vampyr*, Lang's *M* and *Testament of Dr. Mabuse*, Vertov's *Enthusiasm* and *Three Songs of Lenin*, Pudovkin's *The Deserter*, LUIS BUÑUEL's *L'âge d'or*, and René Clair's *À nous la liberté*. Modeled on montage, this use of sound makes the aural track an element in the editing.

Although most editing is narrative in form, the AVANT-GARDE FILM movement has explored other options. In the 1920s the cubist Fernand Léger choreographed moving images of industrially produced goods to alert viewers to their aesthetic properties, while surrealists such as Buñuel and Salvador Dalí used editing to portray and celebrate unconscious thought by imitating the disjunctive logic of dreams. More recently collagist Bruce Conner juxtaposed images culled from other films to create what are called "found footage films." Here the function of editing is to call attention to the bizarreness of contemporary ICONOGRAPHY by dislodging the images of advertising and popular films from their normal contexts. The development of editing through avant-garde experimentation is a matter of determining new aesthetic purposes and of discovering shot arrangements and rhythms that communicate those purposes.

See also CINEMATOGRAPHY; FILM THEORY; MOTION PICTURES.

Bibliography. Sergei Eisenstein, *Film Form: Essays in Film Theory*, and *The Film Sense*, ed. and trans. by Jay Leyda, New York, 1957; Lev Kuleshov, *Kuleshov on Film*, ed. and trans. by Ronald Levaco, Berkeley, Calif., 1974; V. I. Pudovkin, *Film Technique: Five Essays and Two Addresses*, trans. and annot. by Ivor Montague, London, 1933; Karel Reisz and Gavin Millar, *The Technique of Film Editing*, 2d enl. ed., New York, 1968.

NOËL CARROLL

FILM MUSICAL. See MUSICAL, FILM.

FILM THEORY

The discipline that aims at an exploration or understanding of issues related to the film medium as a whole—as distinct from film criticism, which has as its goal the description, INTERPRETATION, or evaluation of a given film. Film theorists for a long time considered themselves aestheticians, but have come to treat film AESTHETICS as but one of the many subdisciplines of film theory.

In the early decades of the twentieth century there were many speculations about the social and psychological consequences of this new system of representation; but the writings that come down to us, those that established a tradition that continues to grow, sought to define the status and possibilities of film as ART. Those who felt an immediate sympathy for film and wanted to see it blossom on its own realized that they had first to free it from sheer mechanical reproduction on the one hand and the slavish imitation of theater on the other. In short, cinema had first to be deemed not only an art but an independent art with its own principles.

Predictably, those first decades saw countless interarts comparisons. Cinema was said to function like the other arts because it imposed on the chaos and meaninglessness of the world a self-sustaining structure and rhythm. Poet Vachel Lindsay, the first person in the United States to publish a theory of film, showed that cinema enjoyed the properties of all the other arts, including ARCHITECTURE. In France a whole coterie of film enthusiasts compared film to music, concentrating on its ability to shape the flow and look of reality. Following the initial steps of Ricciotto Canudo, and under the banner raised by Louis Delluc, leader of the French AVANT-GARDE FILM movement until his death in 1924, this group insisted that cinema was an independent art. Numerous essays of the early 1920s suggested that, because cinema in its infancy was economically obliged to record theatrical performances, it had seldom looked beyond the theater for its own essence. In contrast, the AVANT-GARDE perspective of the twenties stressed the qualities of rhythm, image, and, above all, dream inherent in the film experience. Delluc tried to sum

up his conception of the new art in one word, *photogénie*—a special quality available to cinema alone that can transform both the world and the viewer in a single gesture. Cinema is PHOTOGRAPHY, to be sure, but photography that has been raised to a rhythmic unity and that in turn has the power to give solidity to our dreams. The writings of Germaine Dulac, Jean Epstein, and Abel Gance similarly abound with lyric statements about the uniqueness of cinema.

Around 1925 a new center of film theory grew to rival that in Paris. The Soviet Union had established its famous State Film School (VGIK) in 1919, and around it there developed heated and productive discussion. Lev Kuleshov, DZIGA VERTOV, V. I. Pudovkin, and especially SERGEI EISENSTEIN are the names most often associated with this period. Nearly all questions pertaining to cinema were framed by this group as questions of FILM EDITING. Eisenstein's ideas went furthest here, but his writings were composed in the context of a vast and vibrant atmosphere of debate, in which the famous literary formalists, the constructivists, and the FEX (Factory of the Eccentric Actor, a futurist theatrical group) participated.

Formalist film theory. Two strains of early formalist theory can be distinguished, which for convenience might be termed Western and Eastern. The Western strain is a direct descendant of Kantian aesthetics. It accords an essential value to art, one we participate in through contemplation. Hugo Münsterberg and Rudolf Arnheim, both German expatriates who settled in the United States, updated Kant with Gestalt psychology. Münsterberg felt that cinema, imitating the motions and emotions of mind and spirit, was the modern art par excellence. Arnheim hoped to protect the new art from popular and technological corruption. For both thinkers the medium would become valuable only when its specific temporal and spatial characteristics were shaped in such a way as to turn cinema's bare recording capability into an object of imagination. They proposed various techniques of style in their quest for an expressive cinema. Their work has spawned most of the introductory textbooks in film analysis, each addressing the possibilities of camera angles, editing, sound, color, and so on. See CINEMATOGRAPHY.

The Eastern tradition, flourishing under the sign of an emergent Marxism, certainly could never have accepted the "essentialist aesthetics" of neo-Kantianism. For Pudovkin, Eisenstein, Vertov, and other Russian formalists, the cinema was a medium ripe for the radical representation of social life. They too wanted cinema to do something other than reproduce life. All insisted that only through the conscious shaping of images and through their violent or subtle juxtaposition could cinema perform its only valuable mission, the representation of a revolution-

ary consciousness. When the Western theorist called for a cinema of contemplation and spiritual values, these Soviet theorists and their Eastern European followers argued for a cinema of action, the action of the film on the spectator or the action of the spectator on the film.

The end of the silent film triggered many important essays on film. By 1929 the number of journals devoted to film theory indicated that a significant world community regarded cinema as an art form. Aestheticians rose up everywhere to debate the new direction that cinema should take after sound had disturbed its equilibrium. Today we can see that the coming of sound marked the decline of the great age of formalist film theory. Nevertheless, by 1935 it was taken for granted in most educated circles that cinema was an art, independent of all other arts, yet having in common with them the process of transformation whereby dull matter is shaped into scintillating and eloquent statement. If film devotees still see cinema in much this way, if most articles on cinema still hold to this general perspective, it is in large part because of the powerful viewpoint propounded between 1915 and 1935.

Realist theories. The combination of a worldwide economic depression and the transition to sound film effectively quashed silent-film aesthetics. The Russian formalists were stilled, the German film community emigrated, and the great French film clubs and journals ceased to exist (see MOTION PICTURES—SOUND FILM). Social rather than aesthetic issues came to the fore in the cinema and in discourse about the cinema. The British documentarists, particularly Paul Rotha and JOHN GRIERSON, insisted on the primacy of film for the education and social cohesion of the masses (see DOCUMENTARY). Their views were later systematized by Siegfried Kracauer, a German émigré whose influential *Theory of Film* was published in the United States in 1960.

But while this Western European realist theory vied with Soviet social-realist thought, the French anthropological tradition that began at this time became more influential than both. André Malraux, Gilbert Cohen-Séat, André Bazin, and Edgar Morin may all be taken as anthropologists of the medium, since their primary endeavor was to understand the place of a new technology, the cinema, in social and psychological life. Bazin's position, for example, was based on the intuition that before being an art—that is, a construction of the imagination—cinema is a fact of nature impinging directly on our psychological relation to reality, however defined. This form of REALISM, in contrast to that of Kracauer or Grierson, permitted Bazin to deal with many types of films as he sought the human impact of home movies, medical films, documentaries of exploration and of art works, fantasy films for children, and of course the

mainstream fictional genres. For him and his followers at the journal *Cahiers du cinéma*, the language of the cinema depends on the phenomenological stance toward the image that the spectator is asked to take. For example, in filming a magic trick a director is permitted every ploy of *mise-en-scène* but may not construct the trick on the editing table without betraying the viewer's belief that the event has actually occurred. Entire periods (such as NEOREALISM or NEW WAVE FILM) and auteurs (JEAN RENOIR, ORSON WELLES) are constituted first by the relation they ask the spectator to adopt vis-à-vis reality and the image.

Evidence of this phenomenological turn in film theory, apparent in the interest in the medium shown by philosophers Jean-Paul Sartre and Maurice Merleau-Ponty, can also be seen in the work of the Institut de Filmologie, headed by Cohen-Séat from 1946 into the 1960s. In the pages of the *Review* published by the Institut, studies of the perception of space, time, and causation sit side by side with audience studies examining depth perception and the development of cinematic comprehension in children. For these theorists, the facticity of the image, even as it strives to engage the imagination, makes it a peculiarity in the world of culture and separates it absolutely from the standard canons of art. Even the conservative GENRE of literary adaptation underwent a change in this era, at least as chronicled by Bazin, who applauded Robert Bresson, Jean Cocteau, Welles, and others for refusing to remake some literary structure into a cinematic structure; instead, the original was taken as a kind of objective fact to be documented. This was the age of Alexandre Astruc's "camera-stylo" and of new auteurs like Jean Rouch, Nicholas Ray, and Roberto Rossellini, who rejected traditional notions of art in the quest for a vibrant notion of cinema.

Semiotics. During the 1960s film theory began to draw away from broad and casual reflection as it embedded itself deeper into the life of the university. Now a certain type of film, the art cinema of Cocteau, Federico Fellini, INGMAR BERGMAN, and others, found easy acceptance on European and U.S. campuses; such films became part of legitimate culture. Some humanities scholars used this base to formalize auteur theory and genre theory. These approaches, designed to legitimate a larger number of films that might otherwise have been consigned to the cluttered drawers of popular culture, are not properly theoretical at all, but critical methods. Jean Mitry was a pivotal figure in lifting theory beyond mere critical application. He both summarized the traditions that went before him and demanded a new philosophic rigor in film theory, although his work still resides within the humanistic paradigm of theory.

Once inside the walls of the university, film theory was open to changes and influences from many other,

"nonhumanist" disciplines. As one outgrowth of the expanding fields of structural anthropology and LINGUISTICS, the first developments of a SEMIOTICS of the cinema found their way into seminars and dissertations in France and Italy in the mid-1960s. Christian Metz, whose career parallels that of modern theory, sought to distill from Mitry's works the rules by which films are constructed and comprehended. Metz invited a thorough scientific analysis of signification in the cinema.

Semiotics prospered in Italy as well with the work of Gianfranco Bettetini, Emilio Garroni, and Pier Paolo Pasolini, all of whom influenced Metz's French school. In the Soviet Union, Jurij Lotman began to synthesize his views, updated from the Russian formalism of the 1920s and 1930s. His essays arrived in the West in the early 1970s and lent a needed social dimension to what might otherwise have become a largely grammatical undertaking.

Poststructuralism. Whereas Metz's first writings depended on CLAUDE LÉVI-STRAUSS, FERDINAND DE SAUSSURE, and Louis Hjelmslev, a second wave of work derived from intellectuals clamoring for a serious Marxist interpretation of cultural artifacts such as films. Louis Althusser's influence was an important factor in the complete redirection of the formerly auteurist *Cahiers du cinéma* in the late 1960s. *Cahiers*, along with *Cinéthique* in France and *Screen* in England, promoted a kind of theory best termed "ideological analysis," which gave to Metz's semiotics a potent political thrust. Their analyses of films and filmmaking practices showed just how conventional our sense of cinematic realism is. And they went on to suggest that the semiotic rules of naturalness help keep in place the reigning IDEOLOGY of bourgeois society, thwarting other ways of making sense of reality, other styles of representation and of life. Simultaneously, these journals and their key contributors—among them Jean Narboni, Jean-Louis Comolli, Stephen Heath, Laura Mulvey, Colin McCabe, and Peter Wollen—promoted alternative modes of filmmaking that escaped the codes of standard NARRATIVE and forced the spectator into more constructive relations with the images. Bertolt Brecht became a significant figure whose greatest disciples in film included Jean-Luc Godard, Jean-Marie Straub, and Danièle Huillet, and the political avant-garde in England.

This trajectory made film theory important not only to a growing number of scholars but also to cultural critics not formerly drawn to the cinema. The development of ROLAND BARTHES's influential literary theory from phenomenology to a rigid STRUCTURALISM, then to ideological analysis, and on to PSYCHOANALYSIS, helped to pull film studies into maturity in the 1970s. At the same time, an avant-garde wing of feminist scholars found in the cinema

a perfect site for a kind of unified field theory seeking to organize diverse disciplines (*see* FEMINIST THEORIES OF COMMUNICATION). From this perspective the semiotic codes of cinema produced by a cultural institution like HOLLYWOOD may be seen as reaffirming the existing patriarchal societal order. Cinema is thought to create rather than merely reflect reality by "constructing" viewers in certain ways. Such a functionalist approach is also exemplified by Heath's detailed psychoanalytic examinations of films.

Perhaps in response to the frequently speculative nature of this type of criticism, some scholars reduced their focus to more negotiable objects of analysis—to the minute ways any given film is seen to function and to the larger ways the whole system of cinema (genres, traditions of style and production) operates. Many theorists found the interplay between film history and film theory indispensable. Others reacted to the poststructuralist period of the 1970s by applying philosophical concepts and methods to the study of cinema. In France, for example, philosophers like Gilles Deleuze and Jean-Louis Schefer advanced their own theories of film.

Yet another approach, what might be termed "neoformalism," is concerned with the objective, systematic analysis of films as texts that exhibit rational cinematic laws. In the United States, David Bordwell, a representative of this approach, has attempted to map the findings of cognitive psychology onto those of film theory. Here observable mental laws are taken as essential for the understanding of intertextual factors that guide the comprehension of films. At the opposite extreme from the neoformalists are followers of the French philosopher Jacques Derrida, such as Marie-Claire Ropars, whose analyses aim not at reconstructing the laws of cinema but rather at generating fresh meanings. Theory here is concerned with the fluid interaction of viewer and film.

The blossoming of film theory in universities throughout the world during the late 1960s and 1970s may have slowed, but the breadth and energy it afforded the field will be felt for a long time. As it always has, the cinema continues to mix aesthetic, logical, and anthropological speculation. Film theory remains an extraordinary spectacle on the margins of the cinema itself.

Bibliography. Dudley Andrew, *Concepts in Film Theory*, New York, 1984; idem, *The Major Film Theories*, New York, 1976; Stephen Heath, *Questions of Cinema*, Bloomington, Ind., 1981; Brian Henderson, *A Critique of Film Theory*, New York, 1980; Gerald Mast and Marshall Cohen, eds., *Film Theory and Criticism: Introductory Readings*, 3d ed., New York, 1985; Bill Nichols, ed., *Movies and Methods*, Vols. 1 and 2, Berkeley, Calif., 1976, 1985; Phil Rosen, ed., *Narrative, Apparatus, Ideology: A*

Film Theory Reader, New York, 1986; Elizabeth Weis and John Belton, eds., *Film Sound: Theory and Practice*, New York, 1985.

DUDLEY ANDREW

FLAHERTY, ROBERT (1884–1951)

Pioneer U.S. documentarist known especially for his startlingly intimate portrait of Inuit life, *Nanook of the North* (1922)—which earned Robert Joseph Flaherty the title “father of the DOCUMENTARY”—and for three other features of similar style: *Moana* (1926), shot in Samoa; *Man of Aran* (1934), shot in Ireland’s rugged Aran Islands; and *Louisiana Story* (1948), shot in Louisiana’s Cajun bayou country. In each of these Flaherty sought to capture on film a vanishing (or vanished) way of life that he saw threatened or doomed by the advance of modern society. He worked on many additional film projects, long and short, in most cases controlled by others. Some were never completed. From some he withdrew because he found himself at odds with studio views and practices. Flaherty’s career gave full meaning to the term *independent filmmaker*. He wanted always to work alone or in small units, which included in almost all cases his wife, Frances Flaherty. Studio hierarchies

and large production crews were anathema to him. His work was achieved mainly outside the film industry world as he struggled for funds and for distribution of his films. His career presaged that of generations of independent documentarists.

Born in Michigan, son of a mining engineer who often worked in Canada, the young Flaherty spent years as an explorer and prospector before turning to film. During the period from 1910 to 1915 he made four subarctic expeditions for Sir William Mackenzie, builder of Canadian railroads, with the task of determining the mineral deposits along proposed northern railway routes. Flaherty fulfilled his mission, but his interests shifted to the Inuit of the area, from whom he learned much about frontier survival. During his last two expeditions he made a film about them, but the film was lost in a fire. Five years of fund-raising efforts to make another film about the Inuit finally led to the support of Revillon Frères, French furriers, and to *Nanook of the North*. The film was so different from cinema successes of the day that all U.S. distributors rejected it, but Pathé took a chance and won worldwide success, which brought Flaherty a contract from Paramount (one of the companies that had rejected *Nanook*) to go to Samoa for “another *Nanook*.” The result, the idyllic



Figure 1. (*Flaherty, Robert*) Robert Flaherty (*right*) with Frances Flaherty and Richard Leacock. National Film Archive, London.

Moana, was a box-office failure, and it virtually ended Flaherty's relations with big-studio HOLLYWOOD. His next feature, *Man of Aran* (his first sound film, and a substantial success) was financed by British film interests. His last film, *Louisiana Story*, was backed by Standard Oil of New Jersey, which hoped to assure the public that oil exploration of wilderness land was in safe hands. A film of rare beauty, it was for Flaherty another chance to celebrate the wonders of the wilderness and those who lived there.

Years of frontier isolation had given Flaherty minute powers of observation. For him the first task of a filmmaker was to see what was before the lens, not to get the lens to record what one expected and wanted to see. He developed his footage on location, often under the most inhospitable circumstances, and screened the rushes over and over, always sharing the ongoing filmmaking experience with those in the film, while searching for patterns of meaning to emerge. On the screen, in projection, the film took shape. Filmmaking was a new kind of exploring. If one went on location with a firm plan of action, as executive producers tended to expect, one went—it seemed to Flaherty—with blinders. Alert to the unanticipated moment, he was always ready to amend his plans. The people in his films, his cocreators, suggested many of the film episodes and seemed endlessly ready for the reenactment of events that characterized their lives. Moments of exceptional intimacy, almost unknown in the actualities of earlier days, often resulted.

Flaherty did much to rescue film from the studio. At a time when studio ingenuity could produce astonishing things, Flaherty showed that a close-up look at an actual segment of humanity could provide its own kind of astonishment. Thus *Nanook* marked a watershed. Flaherty's on-location achievements influenced fiction as well as nonfiction films. Of special significance has been his influence on such genres as Italian NEOREALISM, ETHNOGRAPHIC FILM, and CINÉMA VÉRITÉ.

See also MOTION PICTURES.

Bibliography. Arthur Calder-Marshall, *The Innocent Eye: The Life of Robert J. Flaherty*, London, 1963, reprint Baltimore, Md., 1970; Frances Hubbard Flaherty, *The Odyssey of a Film Maker*, Urbana, Ill., 1960; William T. Murphy, comp., *Robert Flaherty: A Guide to References and Resources*, Boston, 1978; Paul Rotha, *Robert J. Flaherty: A Biography*, ed. by Jay Ruby, Philadelphia, 1983.

WILLIAM T. MURPHY

FOLKLORE

Term coined in 1846 by the British antiquarian William John Thoms, apparently a translation of the German term *Volkskunde*, introduced in 1787.

Thoms's "good Saxon compound, Folklore" has achieved wide currency in the world's languages (including prominently Romance and Slavic languages), though sometimes in conjunction or competition with more local coinages. Thoms defined folklore essentially by enumerating some of its forms: "The manners, customs, observances, superstitions, ballads, proverbs, etc., of the olden time." Folklore names both the traditional cultural forms and the discipline devoted to their study, though in recent years the term *folkloristics* has gained increasing currency for the latter.

The concept of folklore emerged in the late eighteenth century as part of a unified vision of LANGUAGE, CULTURE, literature, and IDEOLOGY in the service of romantic nationalism. For Johann Gottfried von Herder (1744–1803), the German philosopher whose romantic conception of *das Volk* and folk tradition informs all subsequent understandings of folklore, the possession of a common language was the touchstone of a people's distinctiveness, the source that gave rise to and sustained their sense of themselves as a separate, unique, social entity; language embodied the character, the inner being, of a *Volk*. Moreover, language represented the means of transmitting the distinctive traditions of a *Volk* across the generations, thus representing the instrument for that progressive cultivation of faculties that Herder identified as culture. In Herder's conception, culture and tradition found their highest and truest expression in the poetry of the folk, its folk song and folklore. With the modern fragmentation of humanistic thought and the concomitant quest for disciplinary autonomy, however, that formerly unified vision has largely come undone. Anthropologists, linguists, literary scholars, and folklorists have all continued to maintain an interest in folklore but have defined it from their own disciplinary vantage points, emphasizing certain features or aspects at the expense of or in opposition to others. Instead of proposing a single definition of folklore, it seems most useful to identify those definitional foci that have remained salient (though in various guises and formulations) as guides to the concerns that continue to attract interest and attention to folklore. See also ROMANTICISM.

Traditionality

There is no single idea more central to conceptions of folklore than tradition. Tradition has figured prominently in definitions of culture in general, but folklorists tend to place especially great emphasis on traditionality as a criterial attribute of folklore. This emphasis, in its various guises, was a response to the powerful challenge to traditional authority, in MAX WEBER's classic sense, by the modern ideologies of

the Protestant Reformation, the Enlightenment, and industrial capitalism, in which reason, individualism, innovation, and progress were paramount values. The deepening consciousness of the great transition to modernity that stimulated the discovery of folklore rested in part on a perceived contrast between those societies in which traditional authority was dominant and those emergent forms of social organization governed by the rule of practical reason. The interest in folklore that burgeoned in the nineteenth century was part of the intellectual effort of that watershed era to comprehend the fundamental changes represented by the advent of modernity. The legacy of this effort still colors the popular but distorted conception of folklore as folly, superstition, and falsehood, anachronistic leftovers from an earlier stage in human social development since transcended by the scientific rationalism of modern civilization.

There is, however, a counterimage of folklore that is no less a product of the intellectual currents just mentioned, namely, the view of folklore as attractive, colorful, emotional, natural, and authentic. This may be termed the romantic view of folklore, in contrast to the rational one. Part of the Herderian legacy, this romanticization of folklore stemmed in part from a reaction against the cold rationalism of the Enlightenment, insisting instead that in folklore lay the foundation for an authentic national culture, true to the spiritual and historical integrity of a people. This view provides the source of romantic nationalist glorifications of folklore, the nostalgic quest for cultural roots, folk arts, crafts, and music revivals, the "folklorico" phenomenon, folklife preservation programs, and so on. From either the rationalistic or the romantic perspective, however, folklore is viewed overwhelmingly as declining in the face of modernity, and this consciousness of epochal change provides much of the stimulus for our interest in folk traditions.

The term tradition is conventionally used in a dual sense, to name both the process of transmission of an isolable cultural element through time and also the elements themselves that are transmitted in this process. To view an item of folklore as traditional is to see it as having temporal continuity, rooted in the past but persisting into the present in the manner of a natural object. There is, however, an emergent reorientation taking place among students of tradition, away from this naturalistic view of tradition as a cultural inheritance rooted in the past and toward an understanding of tradition as symbolically constituted in the present. Tradition, so reconceptualized, is seen as a selective, interpretive construction, the social and symbolic creation of a connection between aspects of the present and an INTERPRETATION of the past. This view of tradition as an interpretively assigned meaning not only provides an illuminating

basis for the critical understanding of the idea of folklore itself as a symbolic construct, but also opens the way for investigations of folklore-based cultural revival movements, the use of tradition as a mechanism of social control, the modern construction of invented traditions (such as Royal Jubilees or May Day rallies) as ways of giving symbolic resonance and authority to modern social formations, and the very need for traditionalization itself—the social need to give meaning to our present lives by linking ourselves to a meaningful past. Such lines of investigation may seem to challenge the insistence of more conservative folklorists on distinguishing between folklore and folklorism, the genuine and the spurious, the authentic and the concocted, but they need not diminish our interest in demonstrably old forms. Rather, they provide an integrative critical perspective that comprehends both the materials and processes of folklore and the discipline devoted to their study in terms of the continuous social process of traditionalization.

A further implication of the centrality of tradition to conceptions of folklore has been the tendency to emphasize the collective, ready-made, stereotyped nature of folklore forms. Traditionality implies supraindividuality, insofar as it involves intergenerational transmission, continuity, and customary authority within a social group. In addition, prevailing models of the nature of folk society tend to view it as essentially homogeneous; in the words of U.S. anthropologist Robert Redfield, "in the ideal folk society, what one man knows and believes is the same as what all men know and believe." Linguistic theory has also been influential in this regard, as scholars have extended FERDINAND DE SAUSSURE'S linguistic distinction between *langue* and *parole* to the contrast between folklore and written literature, seeing folklore as *langue*, collectivized, socialized, persistent traditional form, the creation and possession of the community at large. While folkloric variation has long been of real interest to folklorists and much scholarly effort has been devoted to the comparative analysis of versions and variants of particular items of folklore, the standard of reference has been the idealized, generalized folk tradition, seen as a communal product. Hence, too, the imputed anonymity of folklore; individuality of expression is seen as totally subsumed by the homogeneity of the collective.

In recent years, however, largely under the influence of performance-centered approaches, greater emphasis has been placed on individuality and creativity in folklore. Examination of the PERFORMANCE of folklore in concrete situations of use has provided a productive framework within which to study the interplay of tradition and innovation in the actual conduct of social life. Folklore texts have come to be

seen not simply as realizations of a normative standard, but as emergent, the product of the complex interplay of communicative resources, social goals, individual competence, community ground rules for performance, and culturally defined event structures. Tradition, the collective, the communal, the conventional, are not forsaken here; rather, the individual and the creative are brought up to parity with tradition in a dialectic that is played out within the context of situated action, viewed as a kind of practice.

Social Base

The prefix "folk" in folklore suggests that part of the essence of folklore resides in its social base. The question "Who are the folk?" looms large in any consideration of the nature of folklore and the history of the discipline devoted to its study. Conceptions of the social base of folklore may be summarized in terms of three broad perspectives, with the understanding that each perspective involves nuances and further distinctions.

The term folk was first introduced into social theory in late eighteenth-century Germany and became one of the formative concepts in the development of nineteenth-century sociology as part of the great evolutionary and typological tradition represented by the work of Wilhelm Wundt (1832–1920), William Graham Sumner (1840–1910), Ferdinand Tönnies (1855–1936), ÉMILE DURKHEIM (1855–1917), and others. The features attributed to the ideal folk society are most concisely summarized in the abstract of Redfield's synthetic essay, "The Folk Society," published in 1947: "Understanding of society may be gained through construction of an ideal type of primitive or folk society as contrasted with modern urbanized society. Such a society is small, isolated, nonliterate, and homogeneous, with a strong sense of group solidarity. . . . Behavior is traditional, spontaneous, uncritical, and personal. . . ."

Redfield, like the great majority of his predecessors, constructed his model of the folk society as an ideal type, acknowledging that "No known society precisely corresponds with it." In Redfield's schema, folk stands in opposition to urban society, which he leaves for his readers to define by assembling the logically opposite characteristics of folk society. The polar types in these constructions represent the opposite ends of a continuum, along which all empirically occurring societies may be expected to fall. In historical terms, though, the continuum is seen as a directional one: it represents the great evolutionary progression from premodern to modern society. The effect of such theoretical constructs is to reinforce the point that folk society is steadily giving way to progress and that folklore is increasingly incompat-

ible with modern life. Thus, many folklorists orient their work toward rural peoples; members of ethnic groups less far removed from their agrarian past than those who are full participants in modern, urban, technological, mass society; and occupational groups like cowboys, loggers, seamen, or miners, whose work keeps them in close contact with the natural environment.

Another significant aspect of Redfield's formulation is his inclusion under the rubric *folk* of both "tribal and peasant groups." This inclusive scope, however, has been the subject of extensive debate. Many *folk* theorists, including most folklorists, have reserved the designation folk for peasant peoples, village artisans, and other occupational groups that constitute the lower, less advanced stratum of a complex society. Tribal societies have been seen as qualitatively different social forms, whole—not part—societies in which the primitive modes of existence have retained their full functional integrity. Others, like Redfield, have emphasized the continuities between tribal and peasant societies and have brought these societies within a more unified frame of reference. The issues continue to be debated, often as the basis for the disciplinary differentiation of folklore from anthropology.

Notwithstanding the continuing influence of the traditional conception of folk society, recent thinking about the social base of folklore has begun to depart from the classic view in significant ways. One influential formulation has been advanced by U.S. folklorist Alan Dundes: "The term 'folk' can refer to *any group of people whatsoever* who share at least one common factor. It does not matter what the linking factor is . . . but what is important is that a group formed for whatever reason will have some traditions which it calls its own." Here the notion of the folk has been detached from the evolutionist and typological assumptions of much classic folk theory, but certain key features are retained. Shared tradition remains the essential criterial attribute of the folk group, grounded in shared identity. Crucially, however, this is a limited homogeneity; in place of the essentially complete homogeneity of ideal folk society, Dundes falls back on any single feature of shared identity that can constitute the basis for the formation of a social group. Any such group, as it persists through time and accumulates a body of experience in common, will have its own core of traditions, hence its own folklore. Thus we can find jokes shared by astronauts, proverbs current among computer programmers ("Garbage in, garbage out"), and so on. In these terms "Every group has its own folklore" and will continue to do so as long as people continue to come together in groups. The nature and extent of the folkloric repertoire in these various groups remains to be discovered.

Still another substantial departure from classic folk theory is represented by recent social-interactional and performance-centered approaches to folklore that focus on the structures of social relations that organize the actual use of folklore forms in the conduct of social life. To be sure, certain of the older formulations accord a central place to the kinds of social relations that constitute the essence of folk society, but the new approaches go further yet in their investigations of the social base of folkloric expression by treating it as an empirical problem, examining the structure and dynamics of identity and role relationships in situations of use. Such investigations reveal that folklore may be an expression of differential as well as shared identity, relationships of conflict as well as group unity, social diversity as well as homogeneity. Most important, it appears, the empirical investigation of the social base of folklore in use highlights the ways in which folkloric expression may be constitutive of social relationships, not merely reflections, projections, or correlates of them.

Finally, in Redfield's enumeration of the attributes of the ideal folk society is the criterion of nonliteracy. As elaborated later in his essay, "The folk communicate only by word of mouth; therefore the communication upon which understanding is built is only that which takes place among neighbors, within the little society itself." The prominence of the verbal channel and oral, face-to-face communication has been a feature of folklore since its inception. Folklorists ever since the late eighteenth century have continued to give pride of place to oral folklore; indeed, some would define folklore itself as "oral literature" or "verbal art" or "literature orally transmitted," though others would insist on the inclusion of customary behaviors and beliefs, material folk culture, and the like. As a rule, modern anthropological folklorists tend to concentrate their efforts on oral genres of folklore, in large part because they have other theoretical frameworks for the comprehension of other aspects of culture. *See also* ORAL HISTORY.

Another correlate of the emphasis on orality is a widespread emphasis on oral transmission as a criterial attribute of folklore. This has dual implications, highlighting both the medium of transmission and the social configuration of the learning situation. As for the medium of communication, the focus on the oral channel has traditionally been invoked to distinguish folklore from written—especially print—communication. Perhaps the major difference between oral and written language, in the eyes of folklorists, has been the relatively greater capacity of WRITING to fix a verbal text, inhibiting the kind of flexibility and variability that reliance on oral transmission alone will allow. Such variability, of course, will be conditioned by a range of social and

generic factors; forms of oral folklore run the gamut in performance from word-for-word fidelity to a fixed textual standard, as in a curing chant or a PROVERB, to great textual flexibility, as in the telling of a legend. Nevertheless, print and LITERACY do make a difference, and folklorists tend largely to draw the boundaries of the field to exclude forms that depend on the written word, with the exception of a few genres, such as graffiti and autograph verse, which share with the spoken genres the qualities of traditionality, anonymity, and variability.

Also conventionally excluded from the domain of folklore are the modern mass media, such as commercial recordings, radio, film, or television, that use oral language but in ways that contrast significantly with face-to-face spoken interaction. The mass media are disqualified on three counts: (1) they are not rooted in community life but commodified and imposed from without, (2) they are not participatory but are meant to be consumed by a mass audience, and (3) as with print, they are not variable but fixed by the media in which they are communicated.

Modes and styles of learning are implicated by the insistence on orality. Literacy is acquired by formal, institutionalized teaching and learning, largely foreign to classic folk culture, where informal learning—personalistic, context-linked, and traditional—predominates. To be sure, not all informal learning relies on spoken interaction; folklorists or folklife scholars whose interests extend beyond the verbal forms to include customary behaviors and material folk culture add to the criterion of orality the mechanism of transmission by imitation or customary example. The American Folklife Preservation Act of 1976, for example, stipulates that the forms of expression that constitute folklife "are mainly learned orally, by imitation, or in performance, and are generally maintained without benefit of formal instruction or institutional direction," taking account of both the media of transmission and the social configuration of the learning situation.

Aesthetics

Clearly, orality is only one element in each of such labels as "verbal art," "oral literature," and "literature orally transmitted" that designates what is for some folklorists the essential core of folklore; the other is artfulness. Indeed, it was the aesthetic appeal of certain folklore forms that first excited attention in the eighteenth century, well before the coining of the terms *Volkskunde* or folklore or the emergence of a sociology of folk society. The source of one major impulse that led to the discovery and study of folklore was the romantic movement, especially in its more nationalistic guises. In the ideology of romantic nationalism, a distinctive language and liter-

ature are the principal vehicles for the expression of national identity, pride, and spirit. Thus a quest for the roots of an authentic, indigenous national literature in folklore began in the eighteenth century with such powerfully influential compilations as Thomas Percy's *Reliques of Ancient English Poetry* (1756) and Herder's *Volkslieder* (1778–1779) and reached an apogee, perhaps, in Elias Lönnrot's *Kalevala* (1835), the rallying symbol for Finnish national culture. The romantic aesthetic glorified folk songs, ballads, fairy tales, legends—the folk genres of poetry and prose—for their vigor, spontaneity, naturalness, emotional impact, and lack of contrivance, and the celebration of folk art has continued to be sustained by such aesthetic standards ever since. *See also* FOLKTALE.

Interest in verbal art and folk AESTHETICS has become one of the most vigorous sectors of contemporary development in folklore theory. An especially influential definition of folklore that highlights interest in the aesthetic dimension has been put forward by Dan Ben-Amos: "folklore is artistic communication in small groups," that is, groups "in which people confront each other face to face and relate to each other directly." *See* INTERACTION, FACE-TO-FACE.

One line of analysis, now becoming increasingly influential, centers on the nature and conduct of performance, influenced by the insights of literary theory and symbolic anthropology. Here, the principal interest lies in what constitutes artfulness in SPEECH and action, not only in the formalized genres of verbal art and the symbolic enactments of RITUAL and FESTIVAL but also in the less marked ways of speaking and acting. Those who explore folklore as performance also study the functional role of artfulness in the conduct of social life: to enhance rhetorical efficacy, to elicit the participative energies of an audience, as a medium of reflexivity or self-aggrandizement, as entertainment, and so on. Related to such performance-centered perspectives is ETHNOPOETICS, centrally concerned with the aesthetic patterning of oral literary forms and the problems of translating and rendering them in print in such a way that the artfulness of their oral performance is not lost. A still broader enterprise is ethnoaesthetics, the ethnographic investigation of native systems of aesthetics in their own terms, as these condition the making, consumption, and interpretation of aesthetic productions.

All of these efforts are integrative, in the great intellectual tradition of folklore, resistant to intellectual or disciplinary compartmentalization as folklore has always been since the first emergence of the concept more than two centuries ago. While the forms of folk expression and the discipline devoted to their study are continuously transformed, the symbolic construction of folklore remains a significant social force, energized by the dynamic processes of

traditionalization, ideology, social thought, and the artfulness of everyday life.

See also ARTIFACT; ETHNOMUSICOLOGY; HUMOR; MUSIC, FOLK AND TRADITIONAL; ORAL CULTURE; ORAL POETRY; RIDDLE; SPEECH PLAY.

Bibliography. William R. Bascom, ed., *Frontiers of Folklore*, Boulder, Colo., 1977; Dan Ben-Amos, ed., *Folklore Genres*, Austin, Tex., 1976; Jan Brunvand, *The Study of American Folklore*, 2d ed., New York, 1978; Giuseppe Cocchiara, *The History of Folklore in Europe*, Philadelphia, 1981; Richard M. Dorson, *The British Folklorists*, Chicago and London, 1968; idem, ed., *Handbook of American Folklore*, Bloomington, Ind., 1983; Alan Dundes, ed., *The Study of Folklore*, Englewood Cliffs, N.J., 1965; Åke Hultkrantz, *General Ethnological Concepts*, Copenhagen, 1960; Américo Paredes and Richard Bauman, eds., *Toward New Perspectives in Folklore*, Austin, Tex., 1972; J. Barre Toelken, *The Dynamics of Folklore*, Boston, 1979; William A. Wilson, *Folklore and Nationalism in Modern Finland*, Bloomington, Ind., 1976.

RICHARD BAUMAN

FOLKTALE

Refers to oral NARRATIVE in general or to a particular GENRE of oral tales. As a general term *folktale* succeeds but does not replace the term *fairy tale*, which continues to be in literary and popular use. Fairy tale, in English at least since 1749, is a translation of the French *conte de fée*, a term that Comtesse d'Aulnoy (Marie-Catherine le Jumel de Barneville de la Motte) used in the title of her book published in 1697. Folktale is a translation of the German *Volksmärchen*, which appeared first in *Volksmärchen der Deutschen* (1782–1786), by Johann Karl August Musäus. The term, like other German compounds such as *Volkslied* (1778) and *Volkskunde* (1785), derives from Johann Gottfried von Herder's thought, use, and coinage, particularly his formulation of the concept of *das Volk*. Folktale, hence, is an oral narrative told by peasants, lower classes, or traditional people whose LITERACY, if existing, is minimal. In their verbal art these groups were thought to embody the spirit of a nation. Today the term extends to tales of groups with strong traditional, ethnic, or regional bases or their literary imitations.

As a particular genre, folktale, together with *myth* and *legend*, constitutes the primary European generic CLASSIFICATION of oral narratives that has been adopted in scholarly discourse. These three genres are taken to differ from one another in their relation to cultural conceptions of truth and reality. Myth (from Greek *mythos*) is believed to be true, legend (from Latin *legenda*) purports to be true, and folktale is inherently untrue—only FICTION and fantasy. As a function of their distinctive relations to belief, these

three genres also differ from one another in terms of their narrative figures, times, and locations. Myths are about supernatural beings that exist beyond the boundaries of human time and space; legends involve identifiable personalities, dates, or places, yet their events have an extraordinary quality, often involving interaction between humans and supernatural beings or forces. In contrast, in the folktale the human characters, as well as the times and places, are unidentifiable in social, historic, or geographic terms, thus suspending reality and letting fantasy rule.

This division of oral narratives into myth, legend, and folktale is not universal. Societies differ in their categorizations of narratives, the choice of distinctive features that differentiate among them, and the number of categories they perceive and name. Cultural ideas, conventions, purposes, means, and meanings of narratives can potentially function as distinctive features of genres. These factors not only can vary from one culture to another but also can change over time within a single society.

Before the rise of the German term *Märchen* in the late eighteenth century and the acceptance of the term folktale in the English of the nineteenth century, speakers and writers in these languages used other terms to designate fictive oral tales. In German *Fabel* and later *Mährlein* served that purpose before *Märchen* and *Volksmärchen* replaced them; in English *tale*, *fairy tale*, or even *old wives' tale* were in use. The equivalent of the last term served a similar purpose in classical Greece (as is suggested by PLATO in *Lysis* and *Gorgias*).

History of the Folktale

Essentially oral, folktales could not have left historical records until the introduction of literacy. The paradoxical dependence of oral tales on WRITING has resulted in four types of historical documentation of the folktale in which the variables are the tellers, the writers, and the literary contexts.

Intracultural recordings of folktales. With the emergence of literacy, scribes and sages, chroniclers and teachers committed to writing religious, philosophical, historical, and judicial texts. Within them they incorporated the oral literature of their societies, including folktales. However, these folktales are not characterized as fiction in the contexts in which they appear. On the contrary, their inclusion in documentation of other subjects depends on their cultural acceptance as historical reality rather than fiction. They offer sanction to social values, institutions, or dynasties. Their fictive nature becomes apparent only anachronistically and comparatively. For example, the biblical story of David, who killed Goliath and married King Saul's daughter to become a king himself, has the pattern of the dragon-slayer folktale

variety (Types 300–359 in Antti Aarne and Stith Thompson's *The Types of the Folktale*, "The Ogre [Giant, Dragon, Devil, Cobold, etc.] Is Defeated") detailing the hero's rise from humble to royal status. In the Bible the narrative recounts the historical foundation of the Davidic dynasty, but comparative research could point to its folktale features.

Folktales in intercultural contacts. In the past as well as the present, contact between literate travelers and nonliterate natives has resulted in the recording of the latter's folktale traditions. In their accounts the nonnative writers describe the tales, together with the histories, institutions, customs, or landscapes of the natives' countries. For example, in the fifth century B.C.E. Herodotus included in his description of Egypt a rendition of the "Pharaoh Rhampsinitus' Thief" tale (Type 950, "Rhampsinitus"). In modern times traders, missionaries, and anthropologists have recorded the folktales of the peoples they visited and studied and have made them available in print.

Literary writing of folktales. After the emergence of literacy, authors from different oral traditions documented in their own writings the occurrence of folktale themes and plots in specific languages and historical periods. If their own writing launched a tale into oral circulation, the written evidence could mark the earliest-known version of a tale. None of these literary texts resembles an oral narrative, nor do they purport to; nevertheless, even if they are relatively remote from their oral renditions and are currently available only as short stories, romances (see ROMANCE, THE), framed stories, or even dramas, they are milestones marking the history of particular folk stories. The tale of "The Two Brothers" (Type 318, "The Faithless Wife"), for example, was written down by a scribe called Ennana in Egypt around 1210 B.C.E. (New Kingdom); the apocryphal Book of Tobit (Types 505–508, "The Grateful Dead") probably dated from the fourth century B.C.E., and the story of "Susanna" that is included in the apocryphal Daniel draws upon folk themes and later became part of the medieval folk-religious and religious literatures. Petronius, a first-century Roman writer, presents the realistic anecdote of the "Matron of Ephesus" (Type 1510) in a storytelling context in his *Satyricon*; and Apuleius, a second-century North African philosopher and rhetorician, inserts in his *Metamorphoses* the tale of "Amor and Psyche" (Type 425A, "The Monster [Animal] as Bridegroom") as an old wives' tale.

Writers used the storytelling situation as an artistic device for the presentation of narratives, some their own, some traditional. So framed are, for example, the Indian collection *Pañcatantra* ("The Five Chapters," second century B.C.E. or 300 C.E.) and the Arabic *1001 Nights* (ninth century). Later in Europe this literary device was used by Giovanni Boccaccio

(1313–1375) in the *Decameron* (ca. 1358) and by Geoffrey Chaucer (ca. 1342–1400) in *The Canterbury Tales*. The literary tradition of framed narratives as a method of folktale presentation continued up to the height of the RENAISSANCE and the threshold of the Enlightenment. The *Piacevoli notti* (1550–1553), by Gianfrancesco Straparola (ca. 1480–ca. 1557), was molded after Boccaccio's *Decameron*, and the narratives in *Il pentamerone* (1634, 2d ed. 1674), by Giambattista Basile (ca. 1575–1632), are presented as if told to a woman during the last five days of her pregnancy before the onset of labor. These last two collections include several tales that later were identified as part of the core of the European folktale tradition. Whereas the early Asian narrative frames have a didactic, ethical purpose, the later European frames are concerned primarily with social entertainment.

Anthologies of tales that lacked a narrative frame had functional purposes: their writers intended them to be either rhetorical aids or written substitutes for storytelling entertainment. These editors did not necessarily draw on their oral traditions directly but culled the texts from former sources. These collections thus have a mnemonic function—as do current professional Japanese storytellers' notebooks—to help memory that has declined with the increase of literacy. In the transition from oral to written texts, writers could make an additional transformation and versify the tales, which was done more than once to the Aesopian fables.

European medieval collections such as *Gesta Romanorum* (end of the thirteenth century, printed in 1473) contained tales from different written and oral sources. These collections had both entertainment and moralistic functions, similar to the Italian collection of tales from the same period—*Cento novelle antiche*—and the literary genre *faraj*, which flourished earlier in Arabic literature.

Modern authors who present folktale collections often are ideologically and/or nationalistically motivated; they resort to these tales as a symbol and resource of traditionality. However, during the nineteenth and twentieth centuries some writers without scholarly responsibility changed, rewrote, and “improved” the oral texts to bring them up to the aesthetic standards of a READING audience and to meet readers' expectations of their national rustic literature. Since the romantic period authors who have been influenced by oral tales have developed a distinct genre and literary tradition of artistic tales, *Kunstmärchen*, that is separate from and cannot become part of the history of the folktale. See also ROMANTICISM.

The deliberate recording of folktales. In Germany the work of the brothers Grimm, Jacob (1785–1863) and Wilhelm (1786–1859), established yet another

reason for the recording of folktales: they were attributed a cultural literary import of their own. The tales were recorded by scholars who shared a native language with the tellers—the peasants and lower classes of their own society. Although historically the work of the brothers Grimm marks the inception of purposeful folktale recording by natives from natives and for natives, some of the literary writers in Italy and France were their precursors. For example, Basile's *Il pentamerone* is written in a local Neapolitan dialect that attests to the author's regard for local speech. However, these early collectors lacked the ideological motivation of the brothers Grimm and their followers concerning the recording of folktales.

The Grimms also affirmed the scholarly-literary goal of an accurate documentation of storytelling, reflecting the vocabulary, style, and narrative exposition of the oral narrators themselves. For many years this had been an ideal that could only be approximated rather than achieved—even the Grimms themselves deviated from their rule—but it became the guiding principle of folkloristic documentation of folktales. Modern recording techniques and awareness of ideational constraints now make this goal obtainable.

Research Methods

Theoretical speculations in the nineteenth century derived principally from comparative philology and comparative anthropology. On the one hand, because of the discovery of the connection between Indic and European languages, a single country—India—was thought to be the cradle of European folktales. On the other hand, the application of the theory of cultural evolution to folktale research led to the belief that the folktale emerged in a single cultural stage, one common to all peoples all over the world. The two theories are known as *monogenesis* and *polygenesis*. The research that evolved early in the twentieth century purported, in part, to resolve the conflict between these incompatible theories.

The historic-geographic method. The historic-geographic method purports to reconstruct, locate, and date the primary form of a tale through a systematic comparison of all its available written and oral versions. In the course of analysis the tale dissemination routes are delineated, and its subforms are established. The two fundamental concepts of the historic-geographic method are *type* and *archetype* (or *Urform*). Folklorist Stith Thompson defined the type as a “traditional tale that has an independent existence,” but in practice a tale type is not an existing story but a construct formulated in the course of classification of themes and episodes. Its correspondence to actual tales told around the world is variable, depending on the tradition in which the tale

is told and the tradition on which the typology is based. For example, European tales have a better fit with standard types than do African tales. When the correspondence between tales and types becomes too weak, a new typology is needed in order to carry out research effectively. A narrative text could be a fragment of a type, or it could combine episodes that belong to several types. On occasion folklorists reify narrative types and consequently refer to such specific texts as fragments or conglomerates of types. A tale type is constructed inductively on the basis of all known versions and their variations, thus representing the possible thematic combinations and plot boundaries of tales that manifest similarities in spite of historical and cross-cultural differences.

Folklorists have long been aware of the fact that in oral tradition tales exist but types do not, yet they have maintained simultaneously that types have independent existence in tradition, and therefore their primary forms are describable and retrievable from among currently available versions. These primary forms are the tale archetypes. Consequently the fundamental theoretical difficulty that the historic-geographic method has had to confront is the weak link between its two basic concepts, type and archetype, often requiring reification of the former in order to recover the latter. The historic-geographic method incorporates principles of comparative philology. To a certain extent the concept of type corresponds to the notion of *root*—the ultimate constituent element common to all cognate words. In that respect type is the thematic core of a tale that is found in all its versions in different cultures and historical periods.

The relationship among the numerous versions that share a thematic core is based on three assumptions that are sometimes considered the “laws” of the dynamics of tales in society. First, tales are disseminated centrifugally, “like ripples in a pond,” independent of human MIGRATION, trade contacts, and linguistic affinities. Second, tales maintain their thematic similarities through a self-correcting principle that guides narrators toward median versions: each storyteller learns the tale from multiple sources, and the eventual synthesis then serves as one of the many sources for subsequent narrators. Third, innovations (mostly through errors and faulty memory) that trigger a positive response can be established in a community and generate a subtype of a tale.

The morphological method. The morphological method moves the historical quest from the particular tale to the genre in general, seeking to uncover the historical roots of the folktale. Russian folklorist Vladimir Propp (1895–1970), the chief proponent of this method, shifted folktale studies from a focus on change in a folktale over a period of time (diachronic analysis) to a focus on the elements in a folktale at a particular time (synchronic analysis). He proposed a morphological description of the folk-

tale, examining the integration of narrative elements into the whole. This is in contrast to the historic-geographic method, which compares narrative elements across many versions of a single type.

The basic concepts in Propp’s morphological analysis are *function* and *role*. The functions are the fundamental components of a tale. Each function is an act of a character, described in terms of its significance for the tale’s course of action. Whereas the historic-geographic method considers acts and characters independently, the morphological method sees them in relation to each other and to the tale as a whole. The definition of each function is an abstract descriptive term: absence, violation, departure, and so forth, expressing the importance of a particular function to the general development of the plot. The folktale functions do not exceed thirty-one, following each other in a distinct sequence that characterizes the folktale as a genre. Often the functions occur as sets of logical pairs of cause and effect, action and consequence, such as pursuit and rescue, struggle and victory. The development from a conflict to its resolution is a *move*. A move can constitute a sequence of functions that encompasses a single episode or an entire tale.

The folktale characters fulfill seven roles: villain, donor, helper, princess, dispatcher, hero (seeker or victimized), and false hero. Each has a sphere of actions consisting of appropriate functions. When a single character is involved in several spheres of actions, the roles played change during the course of the story. The import of the morphological method exceeds its initial goal of historical inquiry or even conclusions that remain inevitably speculative. This method allows formal narrative regularities to be discovered and a story GRAMMAR to be formulated in many tales that lack an established literary text and theoretically can be transformed with each telling.

On this foundation other tale morphologists, such as Alan Dundes in the United States and Claude Brémont in France, have formulated methodological strategies and theoretical concepts that are only implicit in Propp’s own study, exploring in particular the ideas of pairing of functions, the notion of the move, and the structural SEMANTICS of the folktale. Both Dundes and Brémont maintain a syntagmatic principle of analysis, describing the tale in terms of the sequence of its elementary parts. A group of Russian morphologists, headed by Eleazar Meletinsky, has proposed a transformation of the morphological into a structural analysis of the folktale. Such a method builds on the semantic significance of the folktale functions and roles and analyzes them in terms of oppositional and paradigmatic sets that constitute the deeper structures of the tale. Actions and characters do not simply follow each other narratively but relate to each other in terms of their

values, meanings, and positions in the social structure, and the significance of their actions. *See also* STRUCTURALISM.

Quite apart from the trend in morphological studies of the folktale that Propp initiated is the formal description proposed by U.S. linguist William Labov. He defined the elementary part of a narrative not in terms of its significance but in terms of its sequential position and rhetorical function in the narrative. His analysis uses personal experience narratives, but it can be related to folktale morphology as well. Labov's descriptive terms are abstraction, orientation, complicating action, evaluation, result or resolution, and coda.

The morphological method began with a historical quest but has developed into a method in its own right, the ultimate goal of which is the description of narrative grammar or grammars of the folktale told in different cultures by different peoples of different genders and ages.

The ethnographic method. The ethnographic method extends the goal of systematic description of the tale to its telling, exploring narration in society and culture. In ethnographic research the holistic conception that is the basis for morphological analysis encompasses the entire system of storytelling in society. The major concepts of the ethnographic method are *storyteller*, *performance*, and *context*, thus grounding the narrative tradition of a culture in the verbal activity of its individual members and its social institutions. The storyteller is the vehicle for the articulation of a narrative tradition, for its rise and demise, for the creativity and placidity in its delivery, and for its continuity and transformation. Storytellers differ from one another in age, GENDER, and verbal proficiency, and their tales and tellings are dependent on these variables. In addition, personal temperament and experience potentially affect their tales. In the past most studies have concentrated on the most proficient narrators in a community. However, in principle the ethnographic method requires the exploration of storytelling by community members who have not received, and perhaps rightly so, any public recognition for their narrative ART.

Women's tales often differ from men's tales. The generic designation of old wives' tales need not be derogatory but may be indicative of a thematic sphere that older women articulate best. Narrators of either gender vary their repertoire of tales as they move from childhood to adolescence and then to adulthood and old age, narrating culturally and developmentally age-appropriate tales. The focus on the storyteller implies that in spite of commonly shared aesthetic standards and cultural values, narrators differ in style, themes, vocabulary, and rhythm, as do writers in literate societies. *See also* LANGUAGE VARIETIES.

PERFORMANCE, as Richard Bauman defines it, is a communicative MODE of artistic responsibility that

the storyteller assumes publicly as a teller of tales. It involves a shift from ordinary speaking into performance that involves dramatic use of gestures (*see* GESTURE), a higher frequency of formulaic and rhythmical language, as well as the possible use of instrumental accompaniment, interspersing PROSE with songs.

The nature of oral narrative performance is context dependent. Context consists of such variables as the listening community and the occasion for narration. The listening community could be children or peers of the narrator's age and gender; itinerant listeners such as pilgrims or traveling companions; or a stable audience such as FAMILY, friends, and the native village population. The occasion could be formal entertainment associated with rites, such as a wake, or an informal aside in a daily CONVERSATION; it could take place in the market or at the bedside of a child. The tale text and its performance would vary accordingly.

The goal of the ethnographic method is to describe the total narrative potentialities and their actualizations in a single society. In practice, so far, most studies have concentrated on individual storytellers, their art, styles, and repertoires, or their performance in culturally appropriate occasions. The ethnographic approach particularizes the narrative tradition of a society, describing the general notion of tales of a nation (such as "Japanese tales" or "Zuni tales") as a system of narratives that are dependent not only on shared AESTHETICS, common cultural values, social-historical experiences, and a common stock of themes and figures but even more so on individual narrators, their verbal proficiency, their performances, and the social institutions in which society enables them to tell stories.

Interpretation of Folktales

What do folktales mean? There have been countless interpretations of these narratives, as if fantasy without reason is senseless, and folktales cannot just be but must have MEANING. These explicative analyses interpret folktales in terms of a specific frame of reference, and in most cases the validity of such interpretations depends on the correspondence between the tales and the theoretical construct that serves as a key for their explanation.

Psychoanalytical interpretations. Probably the most controversial of these interpretive frameworks has been formulated by either Freudian (*see* FREUD, SIGMUND) or Jungian (*see* JUNG, CARL) psychoanalytic theory. Most likely, the objections to this kind of INTERPRETATION are based at least as much on its content as on its logic. Since PSYCHOANALYSIS, perhaps more than any other theory, emphasizes the sexual dimension of symbols, and since adults often have a conception of childhood as the age of sexual

innocence, it is difficult to accept an interpretation of tales told by and for children that dwells on sexuality. However, from psychoanalytic perspectives consciousness controls neither dreams nor folktale fantasy, and therefore the two are an ideal match for mutual interpretation. The meanings of symbols in dreams can be explained in light of their significance in folktales, and folktale fantasy makes sense in terms of its meaning in dreams. Thus conceived, the folktale is a cultural or even universal dream fantasy, reflecting emotions that individuals as well as society suppress because they are unable to confront directly the ambivalent feelings of children growing up within a family.

Although all psychoanalytic interpretations share these premises, they involve three distinct though not mutually exclusive modes: symbolic, dynamic, and equivalentic. Symbolic analysis treats figures, objects, and actions in the folktales in terms of their significance in either Freudian or Jungian analytic theory. The tales become a symbolic CODE that represents concepts in either theory. Dynamic interpretations deal with the psychological effect the tales have or—in the words of Bruno Bettelheim's apt title—with the uses of enchantment. Accordingly, the traditionality of the folktales and their preoccupation with family figures enable children to experience their family-related fears in their fantasies and overcome them in reality. The equivalentic interpretation draws on the variability of folktales themselves. The substitution of actions and figures that the narrators themselves make in different renditions of the same story offers a key, according to Dundes, to their symbolic significance. When a narrator substitutes "beheading" for "castrating" when talking to a more refined audience, an implicit interpretation is given to the verb used earlier.

Anthropological interpretation. Along with the recording of folktales of nonliterate cultures, anthropology has developed several paradigms for the interpretation and explanation of the significance of tales in society and their relation to culture. Folktales, along with other narrative genres, have complemented direct observation of and participation in the life of traditional peoples. These stories are the tales people tell to themselves about themselves, their fantasies, and their past. The tales evoke a responsive chord among the listeners only if they correspond to their worldview, their aesthetic standards, and the ethical values that were partially shaped by these tales to begin with. Hence folktales are valuable primary testimony about a society's view of itself. The validity of the interpretation of folktales depends on its agreement with observations of social conduct, analysis of language and religious symbols, and information about sociopolitical structure and history.

On the basis of these premises anthropological

interpretations have taken three directions. First is the consideration of tales as a reflection of culture and history. The world of the imagination must draw on knowledge of reality, history, and a specific belief system. Hence it should be possible to read in, and not into, these tales the past and present life of the people who tell them and to consider the tales as a mirror of culture, a worldview, and modes of thought.

Often, however, direct observations of social life contrast with the folktales' popular themes. Peaceful people tell about wars, and tribes that enjoy family cohesion tell about the abandonment of children. In these cases folktales offer a reversed picture of actual conduct, and interpreting them often calls for the integration of psychoanalytic theory with anthropological observation and the suggestion that folktales reflect family tensions, unconscious wishes, and interpersonal dynamics that often stand in direct contrast to observed behavior. Hence in this second trend of anthropological interpretation, folktales, together with social acts, art forms, and RITUAL, might provide glimpses into the inner workings of the mind in traditional societies.

Third is the functional interpretation of folktales that purports to explain their significance in terms of a contribution to social and cultural cohesion. Functional interpretations depend on observation and inference. The consideration of the entertainment function of the folktale depends on ethnographic observation or examination of historical records concerning the occasions in which storytelling occurs in society. Similarly the idea that folktales have an educational function has its basis in observation and thematic analysis of the narrative. But the notion that folktales function as an outlet for psychological frustrations, ambivalences, and tensions incorporates psychoanalytic assumptions into anthropological interpretations, drawing on the assumed rather than the observed.

Literary interpretation. Often the applicability of psychological and anthropological interpretations has obscured the validity and import of the literary interpretations of tales. Furthermore, vestiges of nineteenth-century thought, according to which folktales represent the childhood of fiction and hence its primitive literary stage, impeded modern interpretive abilities that would have revealed the literariness of the folktale. The morphological method has made a partial contribution to literary analysis of the folktale, but since the method is concerned with narrative actions and characters in the abstract, divorced from their representation in language, its concepts and terms have but a limited application to literary interpretation of folktales. However, the necessary concepts for literary interpretation have been formulated in two contrasting trends: ETHNOPOETICS and folktale criticism.

Ethnopoetics has emerged in recent years as a research trend and an interpretive mode that seeks the poetic principles according to which nonliterary societies create and perform their verbal art. Though not aimed at folktales in particular, ethnopoetic interpretation has been applied to folktales and has demonstrated its effectiveness in their analysis. Ethnopoetic interpretation builds on the locally defined genres as a system to frame and communicate meanings; it explores the use of poetic imagery and cultural verbal symbols as a way to interpret emotions and ideas the narrators wish to convey artistically to their listening community, and it analyzes the linguistic means by which storytellers shift from speaking and (to use U.S. anthropologist Dell Hymes's apt phrase) "break into performance." See also ORAL POETRY.

Contrasted with ethnopoetic interpretation is folktale criticism. Although the two trends seek to explore the folktale's own artistic merit, ethnopoetics is based on the group's own terms, concepts, and linguistic phrases in the texts, whereas folktale criticism, particularly as formulated by the Swiss folklorist Max Lüthi, proposes a set of critical concepts that would allow folktale interpretation on its own appropriate terms. Accordingly, Lüthi suggests that the folktale is one-dimensional, depthless, and abstract. The terms are taken from the critical vocabulary of modern art. Drawing on the historical connections between the emergence of modern abstract art and the European discovery of primitive art, Lüthi suggests that the very qualities that have been discerned in the visual expression of nonliterate societies are also intrinsic to their verbal art; they are the source of the folktale, its aesthetic value, and the foundation of its literary value.

Conclusions

Folktales are oral narratives. However, after centuries of interdependence on script and print their themes and figures have become an integral part of literate and now electronic society. The process began quite early. Sophocles drew on the oral traditions of his time in the writing of *Oedipus the King*, as did Shakespeare when he wrote *The Taming of the Shrew*, *King Lear*, and other plays. In modern literate societies, folktale themes have become the subjects of operas and ballets (see DANCE; OPERA), children's stories, and animated movies. They are the references for cartoons and POETRY alike. Some are concerned that folktales have all but disappeared from oral tradition. They have tried to renew the art of their telling in children's library story hours and even special festivals, doing so in an exaggerated fashion, wishing to resuscitate a dying art. But neither print nor film has so far silenced the narrators in pubs and

in the marketplace, in the moonlit village square or the pilgrimage van, or even on the airplane. Storytelling and folktales may change, but they do not go away. They thrive in the nonliterate societies of the world and survive even in the multimedia environment of the modern world. See also ORAL CULTURE.

Bibliography. Antti Aarne, *The Types of the Folktale* (Verzeichnis der Märchentypen), 2d ed., trans. and enl. by Stith Thompson, Helsinki, 1961; Dan Ben-Amos, ed., *Folklore Genres*, Austin, Tex., 1976; Dan Ben-Amos and Kenneth S. Goldstein, eds., *Folklore: Performance and Communication*, The Hague, 1975; Bruno Bettelheim, *The Uses of Enchantment: The Meaning and Importance of Fairy Tales*, New York, 1976; Claude Brémond, *Logique du récit*, Paris, 1973; Linda Dégh, *Folktales and Society: Story-Telling in a Hungarian Peasant Community*, Bloomington, Ind., 1969; Richard M. Dorson, gen. ed., *Folktales of the World*, 14 vols., Chicago, 1963–1987; Alan Dundes, *The Morphology of North American Indian Folktales*, Helsinki, 1964; Gonthier-Louis Fink, *Naissance et apogée du conte merveilleux en Allemagne, 1740–1800*, Paris, 1966; Bengt Holbek, *Interpretation of Fairy Tales*, Helsinki, 1987; Melville Jacobs, *The Content and Style of an Oral Literature*, Chicago, 1959; Kaarle Krohn, *Folklore Methodology* (Die folkloristische Arbeitsmethode, 1926), trans. by Roger L. Welsch, Austin, Tex., 1971; William Labov, *Language in the Inner City*, Philadelphia, 1972; Wilhelm Laiblin, ed., *Märchenforschung und Tiefenpsychologie*, Darmstadt, 1969; Max Lüthi, *The Fairytale as Art Form and Portrait of Man* (Volksmärchen als Dichtung), trans. by Jon Erickson, Bloomington, Ind., 1984; Vladimir Propp, *Morphology of the Folktale*, 2d ed., rev., trans. by Laurence Scott, Austin, Tex., 1968; Kurt Ranke, ed., *Enzyklopädie des Märchen*, Berlin and New York, 1975–; Lutz Röhrich, *Märchen und Wirklichkeit*, 2d ed., Wiesbaden, FRG, 1964; Stith Thompson, *The Folktale*, New York, 1946; Jack Zipes, *Fairy Tales and the Act of Subversion*, New York, 1983.

DAN BEN-AMOS

FOOD

Essential for human biological survival, food is also a cultural domain that is often elaborated into complex systems of MEANING. CLAUDE LÉVI-STRAUSS remarked that food is not only good to eat but "good to think." Food is both physically manipulated to feed us and intellectually manipulated to refer metaphorically to important aspects of existence. The unique, incorporative nature of eating (assimilating) makes food an important sacred and social symbol (see SYMBOLISM). Relationships between a group and its gods, as well as between members of the community, are manifested in events of food sharing and exchange. Relationships between competing and con-

flicting class and ethnic groups are often symbolized in food preferences and avoidances.

Food items themselves can be used to mark an individual's status as well as the boundaries of an ethnic or class group. However, other more complex levels of food manipulation (dishes, meal structures, and cycles) are also used to transmit social and cultural messages. Finally, eating events themselves can be major communicative events reserved for transmitting basic messages about social roles and relationships.

In the process of moving from nature to CULTURE, food items are produced and/or acquired, transformed through cuisine rules, and then combined with other dishes in expected arrangements and sequences to comprise meals or eating events. Such meals or eating events are scheduled to interrupt or punctuate social time. Ordinary meal cycles punctuate regular activity/LEISURE cycles. Special events occur to mark major breaks in productivity (weekends, harvests, successful hunts), in the life cycle (births, weddings, deaths), and in the maintenance of the group (political and religious commemorations). At each stage in the movement from food production to consumption, food is used to communicate. However, the degree to which the domain of food is elaborated symbolically differs among societies.

Lévi-Strauss has argued that humans universally distinguish between "the raw and the cooked" as a METAPHOR for nature versus culture. Cooking represents human ability to transform nature. In his ambitious scheme labeled the "culinary triangle," one point in the triangle—the raw—is contrasted with two other points—the cooked and the rotted. Cooking signifies a transformation through culture, but rotting (used to process many foods such as cheese) is a transformation by nature. Within the domain of the cooked, two common processes—roasting and boiling—are discussed. Roasting involves direct contact between food and fire, but boiling is mediated by both a pot and a cooking medium. According to Lévi-Strauss, boiling is thus more culturally mediated, and roasting is closer to rawness and to nature. Through several more steps of logic, boiling is ascribed to "endo-cuisine"—that which is for domestic use in a small, closed group; roasting belongs to "exo-cuisine"—what one offers to more distant guests.

This general scheme is not borne out by systematic cross-cultural research. However, many societies do use such aspects of their culinary systems to distinguish between insiders and outsiders and between the good or pure versus the defiling, polluting, and dangerous. Thus relationships between social actors and groups as well as those between groups and the forces that govern existence are controlled by rules

for food use that define inclusion and encourage discipline, solidarity, and the maintenance of social boundaries.

Ritual purity: Inclusion and exclusion. In the Hindu food system food plays a major role in underscoring the caste system. Caste relations are explicitly manifested in food transactions. The food-giving and food-receiving relationships among castes mark their relative position in the hierarchy of RITUAL purity. Higher castes may receive only raw (natural and unpolluted) food from lower castes. The lowest caste groups are defined by their willingness to take any kind of cooked food from any group.

The Hindu food system distinguishes between two types of cooked foods: *pakka* and *kacha*. Pakka food is domestic-group food. It is boiled (grain and legumes) and is thought to be highly susceptible to pollution. In high-caste Hindu homes such food cannot be touched by servants. High-caste women prepare the food with elaborate ritual precautions, as described by R. S. Khare in *Hindu Hearth and Home*. Kacha food is FESTIVAL food, fried in a highly valued cooking medium (ghee or clarified butter), which is viewed as a purifying substance. Different foodstuffs are usually used for kacha food, and kacha food is exchanged more freely between groups. At a higher level, foods for Hindu gods are set even more apart. Food offerings are elaborately cooked and sanctified in rituals exclusive to the highest-caste priests.

Kashruth provides another example of the use of food to signify ritual purity and separateness. British anthropologist Mary Douglas, in "The Abominations of Leviticus," points out that the rules concerning which animals are kosher and which are not involve the appropriateness of an animal's form and locomotion for its epistemological class (land, air, or water animals). By eating only animals that are not anomalous to their class in appearance or movement, the individual and the group maintain purity and avoid danger. Others have pointed out that such rules qua rules also serve to discipline members of a group and create and maintain a strong sense of exclusiveness. Taboos on totemic animals (animals associated with the origin of a descent group or clan) reflect the mystical association of a food source with the forces that control the continuity of the world. Such food avoidances simultaneously affect spiritual and social solidarity. In the Christian religion communion is an inversion of such an association. Here the consumption (incorporation) of the essence of a supernatural force (rather than its avoidance) communicates similar spiritual and social messages.

Food taboos are often not part of such coherent epistemological systems as we find elaborated in the Old Testament or in Hindu sacred writings. Many food taboos are not as basic to the worldview of a society. They refer not to the controlling forces of



Figure 1. (*Food*) Feast given by Louis XIII for the Cavaliers of the Holy Spirit at Fontainebleau, May 14, 1633. Engraving after Abraham Bosse. The Bettmann Archive, Inc.

the universe but to systems of health beliefs (what is good or bad for the body) or to systems of social status. The latter are of central concern to food and communication.

Social, cultural, and political factors. Food items are frequently associated with particular social statuses and are selected accordingly. GENDER is often marked by food. A recent study of restaurant eating in Chicago indicated that in such public settings where food choices were open (not controlled by the household cook) and observed by others, men's and women's choices differed in distinctly patterned ways. Moreover, in restaurants whose clientele was predominately couples, gender differences in food choice were more marked than in other settings. In family restaurants food choices tended to mark age more than gender differences.

In U.S. popular culture men eat red meat and potatoes and avoid white meats and quiches. There is some indication that these ideas go back to nineteenth-century associations between red meat, blood, and strength on the one hand and eggs, light meats, and procreation on the other. Gender-marked food items are found in most cultures. Similarly food is used to mark age. In the classic ethnographic film *The Hunters*, about the !Kung of the Kalahari Desert in southern Africa, it is noted that the scavenged contents of a bird's nest (newly hatched birds and eggs) would never be eaten by adults but would be made into soup for CHILDREN. Cross-culturally children's food tends to be easy to chew and digest. Mass ADVERTISING has targeted age groups for certain foods and beverages in contemporary society. Such close associations between particular statuses

and particular foods severely constrain one's food choices if one wants them to communicate social-status competence.

In societies with structured social inequality foods are strongly associated with class position and prestige. Studies of food consumption in societies moving from agricultural subsistence economies to those dependent on markets and industrially processed food frequently find an association between prestige and the consumption of newly available, highly processed foods. This phenomenon was noted in several studies conducted during the 1940s in the rural United States and is now common worldwide in the transformation of Third World societies. At the same time new metropolitan elites in major world cities have restored the highest prestige rank to homemade items—those “made from scratch”—and to the authentic one-pot dishes of exotic ethnic cuisines that were once thought of as poor people's food.

In his recent book *Cooking, Cuisine and Class*, British anthropologist Jack Goody attempted to relate the nature of internally differentiated cuisine styles, particularly distinctions between high (haute) and ordinary cuisine, to types of societies. He finds differences in cuisine variation between preindustrial Africa and preindustrial Europe, Asia, and the Middle East. He relates these patterns of variability to differences in the systems of production.

Food has also frequently become a political symbol in social movements against the state. Food riots are a familiar event in the history of state-organized societies. The focus on food shortages as a potent symbol of political discontent is a major means of mobilizing large groups to action. Studies of food as

an important symbol in political movements cover such historically and culturally diverse systems as early China and Rome, twentieth-century India, and the recent Solidarity movement in Poland.

Ethnic identity. It is almost a cliché to say that food items are used to mark ethnic groups. Foods are both eaten and avoided in the name of ethnic identity. Sharing certain special foods communicates a positive identity and solidarity, as in, for example, the use of the crawfish in Cajun cookery and the tamale for Tejanos (Mexican-Americans), as described in *Ethnic and Regional Foodways in the United States*. Similarly the food items closely identified with other groups can be consciously avoided. High-caste Hindus refer to nonvegetarian Hindus in derogatory terms, distinguishing levels of pollution that rank beef eaters lower than other meat eaters. Italians often make fun of "American" bread. The Oglala Sioux view negatively the American foods they eat daily; in contrast, as William and Marla Powers's work illustrates, they imbue the puppy meat reserved for ceremonial activities with the essence of Siouxness.

However, ethnicity is less often marked by particular items than by the complex rules for how to prepare the items and when to eat them. Many people in the United States eat as many bagels as Jewish-Americans or as much pasta as Italian-Americans, but they do not follow the rules for how to prepare these foods, when and with whom to eat them, and how they should be served.

For many groups, particular dishes (transformed food items) are imbued with meaning and signify

group membership. For example, distinctions in the way a food is cleaned or cut, the way heat is applied (roasting, broiling, steaming, boiling), the cooking medium used (water, oil, broth), and the proportions of spices used to flavor it can all be used to distinguish the cuisines of different groups that use similar ingredients. All Asian cuisines use similar spices and soy sauce, but proportions and combinations generate major variations in taste traditions and regional styles.

Chinese cuisine is very eclectic in the food items it incorporates in its cuisine structure, but cooking rules are specific, and the repertoire of dish structures is limited. Thus new items are incorporated into a basic cuisine pattern that K. C. Chang has found persisting over thousands of years. It is the structure of dishes, the way they are combined in meals, and certain flavors that communicate "Chineseness."

For Italian-Americans in the northeastern United States two types of food-preparation styles exist: Italian and American. The basic Italian dish is a one-pot mixture called "gravy," which is a slowly cooked, meat-based, highly spiced tomato sauce that is served mixed with pasta. The other dish is the "platter," which is the typical Anglo meal of meat, starch, and vegetables, cooked quickly and separately, and presented simultaneously but in a segregated fashion on the plate. Similar items could be used in both dishes (a platter could contain meat loaf, noodles, and stewed tomatoes). However, the two types of cooking and presentation signify opposing identities for the two dishes. This food system uses both types of culinary rules alternatively and recursively in the



Figure 2. (Food) A ceremonial post-mortuary feast, Bajoeng Gede, July 10, 1937. From Gregory Bateson and Margaret Mead, *Balinese Character: A Photographic Analysis*, New York, 1942, plate 29, 1. The guests sit sideways, hunched over the food, in two rows facing opposite directions, so that each person's right hand is toward the food. (In Bali the eating of meals is accompanied by a sense of shame.) The Institute for Intercultural Studies/Library of Congress.

patterning of meals. Gravy meals are alternated with platters throughout the week. Gravy items and platter items are served together at most holiday and life-cycle feasts. Thus culinary rules play a major role in communicating the hyphenated identity of the group.

Within any single cuisine tradition, food is used to create solidarity in individual families and lineages. Particular recipes and kitchen utensils are passed down to perpetuate the family's special taste preferences and style. Thus family continuity is deliberately conveyed through the transmission of unique practices in those aspects of the system in which variety and creativity are permitted. Family distinctiveness is also displayed at extended-family and community gatherings, during which differences in practice are publicly recognized.

Organization of eating events. The activities related to organizing meals for special occasions and the actual PERFORMANCE of these occasions are even more explicitly related to communication. Rules exist for the appropriate composition of a meal. Dishes must be organized in time sequences or spatial arrangements to comprise a meal appropriate for the occasion. Meals and feasts involve presentation rules. In what order are dishes presented? What combination can be served simultaneously? Course sequences are a specific way of encoding group differences, and they are often hard to change. Americans eating Chinese meals have forced restaurants to adapt to American sequence rules in which soup is served first and sweets last. How are foods arranged on the table or on the plate or banana leaf? In the elaborated Hindu food system in one region the spatial arrangement of feast foods on the banana leaf is very formal. The feast foods are also placed in formal temporal sequence as well. The left or "sinister" side of the leaf holds raw or fried (kacha) foods, which are least susceptible to pollution. The right or ritually purer side holds and protects boiled (pakka) foods. In the middle, two foods that mark the meal are placed: rice—the staple—which is present at every meal, and a sweet—unique to special occasions—which marks its festive nature. It is the ritualized nature of the procedures at a feast as well as the special food markers (sweets, special meats, or baked goods) that is used to underscore the significance of the occasion.

The planning of feasts or special food events is particularly significant for communicating the identity, status, and power of a group, family, or individual. Important aspects of family, extended family, friendship, and community relationships can be revealed by watching the menu negotiations for an event. In many major community feasts the planning may be a major diplomatic event in which the fight for control over the invitation list, the menu, and food-preparation assignments may be used to dem-

onstrate, exacerbate, or resolve long-term conflicts. Interfamily cooperation or status competition can be generated. Members of the community can be flattered or insulted by the negotiations. Being asked to bring food may be an honor or a sign of subservience, but it is always socially significant.

Menu decisions for events in which the social context is larger than the family depend very much on who the social audience will be and what message is intended to be conveyed. In a study of a community of Italian-Americans decisions about what to serve at three daughters' weddings were strongly influenced by the nature of the match and what the family wanted to communicate through food choice. In a match involving a non-Italian groom from outside the community the menu was unusual in that it consisted entirely of homemade traditional Italian dishes. In a match involving an Italian-American groom from outside the community an expensive American catered dinner was served that included only one specific traditional item made collaboratively by the close female relatives and friends of the bride's family. However, a match with a local member of the close-knit enclave led to a dinner with no Italian items.

In the first wedding a need to demonstrate a strong ethnic tradition to the outsider was satisfied. The second wedding format communicated both family status through the quality of the menu and a solid and appropriate support group through the collaborative baking. For the last wedding there was less need to convey either ethnicity or status.

Often feasts are used to display status through conspicuous consumption. It has often been noted that the potlatches of the Indians of northwestern North America as well as pig feasts in Melanesia were used to demonstrate and validate social status through the lavish provision of both quantity and quality by the host. Analogies can easily be drawn to contemporary wedding feasts for upwardly mobile families or families with social power that display their status by using the most prestigious foods in the catering repertoire for that year. Competitive entertaining events are also increasingly important among metropolitan elites, who compete through the media of French, nouvelle, and exotic cuisines. For them quantity—the former hallmark of Euro-American hospitality—has been replaced by the search for light, fresh, scarce, and esoteric ingredients.

Eating events themselves are fraught with rules of precedence and deference as well as etiquette. By controlling when one begins to eat, how fast one eats, how much one eats, and the like, individual groups communicate their civility and separate themselves from disdained ethnic or class groups.

Prestige and power statuses are often clearly marked by the order in which a person is served as well as



Figure 3. (*Food*) Thanksgiving dinner at a rural home in Pennsylvania, 1940s. The Bettmann Archive, Inc.

by the amount he or she is served. Sometimes the types of food permitted are status specific. The most desirable parts of animal or plant food may be mandated for the most powerful or respected person present; the converse is also frequently true.

Communication occurs at eating events indirectly as privilege and power are revealed by deference, precedence, and control. Personal traits are also inferred from eating behavior associated with gluttony or waste.

Eating occasions are also settings in which messages are transmitted directly through CONVERSATION. The act of eating together in private family settings provides an opportunity to communicate about appropriate role behavior. Ethnographic observations of conversations at mealtimes in societies as different as those of the United States and Bangladesh indicate that a great deal of socialization occurs during this time. Women in Bangladesh are told directly and indirectly that they are subservient

to men, that their food needs are secondary, and that the constraints on their eating are much more severe. Similarly at dinner tables in the United States children learn gender and age roles, and the talk of adult males and females gives evidence of unequal power distribution, both specifically through non-food-related discussion and indirectly through commentary about the food itself. Conversation about how food was selected, prepared, and served offers commentary about the appropriateness of the role behavior of the cook and how these behaviors conform to the community standard.

The roles of women as food givers and men and children as food receivers are characteristic of most cultures. This often leads to eating patterns in which women spend a great deal of time and effort serving their families and catering to individual needs rather than participating in the social interaction of the meal. Women's eating is often temporally separated from the rest of the family. In Islamic countries,

where women are viewed as potentially polluting, they are often strictly segregated spatially from men during eating. In the Sudan, for example, men eat in one part of the home and women in another. Such temporal and spatial segregation powerfully conveys gender differences.

Summary. As one of the basic human drives, the need to eat provides many opportunities for communication. Human groups select raw foods from nature, transform them through cuisine, compose meals, create cycles of meals to punctuate seasons and stages of life, and create rules of etiquette for meal performance. With each of these steps they use food to mark social status, power relationships, and group identity. Food transactions and sharing underscore major social relationships. Domestic events reveal relationships of dominance and subservience between gender and age groups. Community food events have the potential to display relations of cooperation, exchange, solidarity, and sometimes conflict within friendship and extended-kinship networks. In many societies large public feasts and transactions as well as patterns of preference and avoidance communicate relationships of inequality and exclusion between major class and ethnic groups. Finally, many cultures use food systems as elaborated domains of meaning to express important messages about relationships to sacred forces.

Bibliography. Linda Keller Brown and Kay Mussell, eds., *Ethnic and Regional Foodways in the United States*, Knoxville, Tenn., 1984; Kwang-chih Chang, ed., *Food in Chinese Culture: Anthropological and Historical Perspectives*, New Haven, Conn., 1977; Mary Douglas, "Abominations of Leviticus," in *Purity and Danger: An Analysis of Concepts of Pollution and Taboo*, New York and London, 1966, reprint 1978; idem, ed., *Food and the Social Order*, New York, 1984; Peter Farb and George Armelagos, *Consuming Passions: The Anthropology of Eating*, Boston, 1980; Jack Goody, *Cooking, Cuisine and Class*, Cambridge and New York, 1982; R. S. Khare, *The Hindu Hearth and Home*, Durham, N.C., 1976; Claude Lévi-Strauss, "The Culinary Triangle" (in French), trans. by Peter Brooks, *Partisan Review* 33 (1966): 586–595.

JUDITH GOODE

FORENSICS

In current usage, those communicative activities in which argumentation plays a major role—primarily PUBLIC SPEAKING, discussion, and debate. It also refers to an argumentative perspective for investigating any communication, whether or not it is overtly argumentative in nature. Forensics has served both as a means of public decision making on controversial questions and as a pedagogical instrument providing training in the skills of analysis and advocacy.

Origins and Philosophical Assumptions

ARISTOTLE defined forensics as a branch of ORATORY concerned specifically with argumentation in a court of law, focusing on past events, and involving issues of justice and injustice. Elements of debate can be found in passages of Homer, but the father of debate is considered to be the Sophist Protagoras of Abdera (ca. 481–ca. 411 B.C.E.), best remembered for his statement that "man is the measure of all things." Protagoras taught his students to argue both sides of a question. In classical Greece citizens were expected to defend their own claims in assemblies and courts of law, so forensic skills were valuable for pragmatic reasons (see HELLENIC WORLD).

These skills remained useful during the Roman and early medieval periods, although the emphasis was increasingly pedagogical. Students recited the *suasoriae* and *controversiae*, speeches arguing opposite sides of fictitious legal cases (see ROMAN EMPIRE). Public debates over abstract theological questions characterized the MIDDLE AGES and the RENAISSANCE; these debates took the form of disputation—defending a thesis by means of formal logic.

Forensics is rooted in several philosophical presuppositions. First, it is assumed that much in human affairs is uncertain and contingent, not susceptible to absolute knowledge or empirical measurement. Forensics emphasizes resolution of such matters through argument. Second, knowledge is socially constructed through the forensic encounter. What the arguers take to be true is influenced by the ability of a resolution to withstand close scrutiny and argument. Forensics may be considered a means of testing the probable truth of hypotheses put forward in the form of resolutions. Third, forensics emphasizes the rigorous scrutiny of ideas through such formalistic conventions as the presence of committed advocates, the opportunity for full and free discussion, and the adjudication of the dispute by disinterested parties. Fourth, forensics is intimately related to the theory of freedom of expression as the system best calculated to promote truth and justice. What gives confidence that truth will emerge from such an exchange is the careful scrutiny of proffered claims and the Aristotelian assumption that truth is by nature stronger than its opposite. Forensics, therefore, is an important element of democratic governance.

Varieties of Forensic Activities

During the twentieth century there have been four major forms of forensic activities: parliamentary debate, political campaign debate, advocacy systems in special fields, and academic contest forensics.

Parliamentary debate. Debate has long been a major feature of legislative bodies. Tradition, law, or

other influences may determine procedures. In the United States, for example, congressional debate rules derive from centuries-old British precedents, from the U.S. Constitution, from the *Manual* written by Thomas Jefferson as U.S. vice-president, and from rules adopted by each of the legislative branches for its own proceedings. Interpretations of these rules by the presiding officer may also have an impact on procedures.

Debates in parliamentary style, though less elaborate, have also been a common feature of state and local governments, annual meetings of corporations, and a variety of private voluntary organizations. These groups may evolve their own procedural rules or adopt some established codification such as the widely used *Robert's Rules of Order*, compiled by Henry M. Robert in 1876 and later amended by him.

Political campaign debate. The joint appearance of opposing candidates on the same platform, dividing time in a debate format, is a relatively recent democratic innovation. It gained considerable impetus on the U.S. frontier, where candidates for local office often met in debate. Among the most celebrated political debates of the nineteenth century were the seven debates between Stephen A. Douglas and Abraham Lincoln in the 1858 campaign for the U.S. Senate seat from Illinois. A modern adaptation of the idea came a century later when John F. Kennedy and Richard M. Nixon, respectively the Democratic and Republican candidates in the 1960 U.S. presidential election, engaged in four television debates, also heard on radio. Each debate featured brief opening and closing remarks from each candidate, with the bulk of time given to responses to questions posed by a panel of journalists. Such campaign debates, at various governmental levels, have been staged frequently but irregularly since that time in the United States and elsewhere. The idea has been welcomed enthusiastically but also criticized as leading to superficial responses. It seems likely to remain one of the options of democratic government. *See also* POLITICAL COMMUNICATION.

Advocacy systems in special fields. While courts of law remain an especially notable arena for the resolution of issues through forensic procedures, the forensic approach to the resolution of disputes has proved valuable in many other fields, such as RELIGION, science, medicine, and the arts. The publication in 1958 of British philosopher Stephen Toulmin's *The Uses of Argument* did much to stimulate interest in organized argumentation as a social technique. He urged that individual fields avoid formal logic as a model and evolve their own standards for the conduct and resolution of disputes.

Academic contest forensics. Since the late nineteenth century debating contests have become a prominent activity at universities, colleges, and high

schools in a number of countries. Academic study of argumentation has burgeoned during this same period, usually in speech departments. This study has led to interscholastic, intercollegiate, and international debates, in which debating teams from Australia, Great Britain, Japan, New Zealand, the Soviet Union, the United States, and many other countries have participated. Various tournament formats have been used. In the most common, opposing two-person teams are assigned to debate alternately for and against a resolution. Each speaker delivers one constructive and one rebuttal speech and cross-examines one member of the opposing team.

Forensics as a Perspective for Inquiry

In addition to designating a variety of speaking activities, the term *forensics* also has been used to refer to an argumentative perspective on communication studies, one that focuses on people's giving of reasons to justify beliefs and values and to influence the actions of others. This perspective is applied not only to formal speaking situations but also to informal interaction. Research topics include children's acquisition of argument skills, argument in informal CONVERSATION, and the argumentative dimension of works of literature and ART.

See also PERSUASION; RHETORIC.

Bibliography. J. Robert Cox and Charles Arthur Willard, eds., *Advances in Argumentation Theory and Research*, Carbondale, Ill., 1982; Douglas Ehninger and Wayne Brockriede, *Decision by Debate*, 2d ed., New York, 1978; Austin J. Freeley, *Argumentation and Debate: Reasoned Decision Making*, 5th ed., Belmont, Calif., 1981; Ray E. Keesey, *Modern Parliamentary Procedure*, Boston, 1974; Sidney Kraus, ed., *The Great Debates: Kennedy vs. Nixon, 1960*, Bloomington, Ind., 1962, reprint 1977; James H. McBath, ed., *Forensics as Communication: The Argumentative Perspective*, Skokie, Ill., 1975; J. W. Patterson and David Zarefsky, *Contemporary Debate*, Boston, 1982; Richard D. Rieke and Malcolm O. Sillars, *Argumentation and the Decision Making Process*, 2d ed., Glenview, Ill., 1983; Stephen Toulmin, *The Uses of Argument*, Cambridge, 1958, reprint 1964.

DAVID ZAREFSKY

FORGERY, ART

It is not entirely clear what makes ART forgery a crime. Some aesthetes claim that the sole legitimate reason for collecting art resides in the aesthetic qualities of the work; thus forgery should not be an issue, much less a crime. Such a perspective is, however, naive. Art markets treat works as investments and as historical artifacts (*see* ARTIFACT). Art touched by the hand of a particular artist gains value from that

fact alone. So forgery is a crime, even when buyers deceive themselves.

Art forgeries have been divided into four categories: the copy, the PALIMPSEST, the pastiche, and what might be called the original forgery. The *copy* is designed to be an exact replica of an original work of art, including its signature if the work is signed. It is sold either as the work itself or as a second version of the work by the original artist. A *palimpsest* is a basically authentic artwork, but one that has been partially restored or painted over by a second person, often to increase its value and with the side effect that the artist's intention has been lost. The primary example of a palimpsest is the addition of a false signature. A *pastiche* is probably the most common type of forgery. This is a work in the style of an artist and includes images and themes the artist used in other works; it is a work the artist might have created. The *original forgery* is an original composition, not composed of elements previously painted by the artist, but designed to be seen as the artist's own work. The most famous example of an original forgery is Han van Meegeren's *Christ at Emmaus*, a picture Jan Vermeer might have painted had he been influenced by Michelangelo da Caravaggio and had he decided to paint religious pictures.

As long as particular works of art have had a value attached to them because they are originals, forgers have been willing to reap the rewards. Forgeries occurred in ancient Egypt, and forgers apparently

were common in ancient Rome. The growth of collecting art works for the sake of owning them as objects also contributed to the growth of forgery. Extensive forgeries of works of art began in the late MIDDLE AGES with the rise of princely collectors. By the RENAISSANCE forgeries were common, and artists we now describe as great, such as Michelangelo, Peter Paul Rubens, and Andrea del Sarto, forged the work of others to satisfy patrons or to demonstrate their own virtuosity.

Statistics on the scope of the problem of forgery are difficult to establish. One art expert, Leonard DuBoff, speculates that between 1 and 10 percent of all art transactions involve forgeries and fakes. A classic anecdote illustrates the problem: George de Cornell, director of the Fine Arts Guild of America, reportedly claimed in 1935 that "out of three thousand Corots, eight thousand are in the United States." Incredibly, New York customs statistics indicate that more than 103,000 "Corots" were imported from Europe over a twenty-year period.

This history refers to Western art worlds. In other societies attitudes toward originality, hence forgery, have been quite different. Tribal and folk societies typically do not place the same premium on novel creativity and the role of the individual artist as do modern Western art worlds. In many societies, such as classical India or Mesoamerica, the individual artist was unimportant, although the art might be highly esteemed. In such contexts exact copying was

Figure 1. (*Forgery, Art*) Han van Meegeren, *Christ at Emmaus*, 1937. Oil on canvas. Museum Boymans-van Beuningen, Rotterdam.





Figure 2. (Forgery, Art) Forged Corot (*ouvrage en détrempe*), *Landscape with Stream*. Drawing. Reproduced by courtesy of the Trustees of The British Museum.

valued, and change was not desired. Likewise, in an advanced non-Western civilization such as Ming China (seventeenth century), creativity as Westerners define it was not essential. As critic Laurence Sickman wrote, "When a Chinese artist reproduces a composition of an old master or paints in his style, it is no more plagiarism than when Horowitz plays a composition by Brahms." The art is seen as fundamentally separate from the artist. To capture the style of another is a mark of success, not dishonesty, and so "forgery" has quite a different meaning in such a society.

Basically, two techniques can be used to determine whether an artwork is genuine: scientific analysis and critical (or aesthetic) analysis. Numerous advances have been made over the past few decades in the scientific dating of art works. For example, certain paints are known to have been used in particular historical periods. Even the crackle in the paint can indicate the age of a picture. X rays are helpful for seeing what is beneath the outside covering of paint. These techniques do not aid in the identification of modern works. Further, they prove only that a painting is *not* genuine, not that it is. For this, the art expert's discerning eye is necessary.

How can the critic determine who painted what?

Leaving aside historical traces, such as certificates of authenticity (which can be forged more easily than the work itself) and provenance (which can be created like any good story), the expert must look at the work and its style. This is inherently problematic, and in legal trials involving forgeries experts have testified for both parties. Such a judgment may seem almost mystical, as in the comment of Klaus Perls, a prominent forgery hunter:

It is difficult to explain how you recognize a fake. The first look at a work of art has to give you the emotional response of truth or fake. You can write whole books on what this first look implies. It is the summing up of all the knowledge you've acquired, all the things you've seen of the artist, all you've read.

The skill in creating forgeries is to ensure that they do not raise suspicion, that they do not look like forgeries. In the words of Ernst Bloch, "A forgery can be distinguished from an original because it looks more genuine."

Style, of course, is not an objective feature of an artwork but an abstraction of the essence of the work as viewed by an individual or group. Style is known only through social, historical, and personal contexts. What a Rembrandt "looks like" changes from generation to generation. Successful forgeries capture the spirit of the age's perception, underlining and exaggerating those features that contemporary critics deem most significant.

The Aesthetic Valuation of Artistic Forgeries

Forgery poses particularly thorny questions for both philosophers of art and those associated with the crime. Does authenticity by itself bestow some value? This question was raised most directly by critic Aline Saarinen:

If a fake is so expert that even after the most thorough and trustworthy examination its authenticity is still open to doubt, is it or is it not as satisfactory a work of art as if it were unequivocally genuine?

Some, such as Arthur Koestler and Alfred Lessing, adopt a position that has been termed "appearance theory." They suggest that our only concern should be the work itself, abstracted from the whole of its surroundings. According to this view, condemning forgery is simply a means by which an artistic establishment maintains its own power, legitimacy, and credibility. Forgery may be a problem historically, biographically, legally, and economically, but not aesthetically. Philosopher Jack Meiland argues that we must distinguish between the primary value and the derivative value of a work. Forgery is relevant to the derivative value.

An important approach to understanding forgeries focuses not on the work but on the individual creator. Every work of art has a history of production.

A forgery misrepresents this history. Its meaning is fundamentally dishonest. Part of the aesthetic meaning of a work is that it was completed in a particular period by a particular hand. Such a view grounds AESTHETICS in historical circumstance. In the West creative artists are defined as those who can transcend the unstated limits of what constitutes artistic traditions; they break free of the conventions of the age. The forger has by comparison an easier job; the conventions have already been laid out by others. Creativity has become mimicry. Critics are concerned with the original use of a technique, not the second. Leonard Meyer suggests that knowingly to admire a forgery or to claim that it does not differ from the original is reverse snobbery. He argues that an object can only be understood in context, not through intrinsic qualities alone. This approach finds no difficulty with the changed evaluation and value of a

forgery after its unmasking because of the change in its social context.

In certain AVANT-GARDE art movements the question of a forgery becomes more complex. Can one forge Marcel Duchamp's *Fountain* (1917), a real ceramic urinal? The display of "found objects" presents the same problem to those who wish to draw an uncrossable line between creator and deceiver. Where are the boundaries of art? Likewise, if we choose to label as forgery the work of one person passed off as the work of another, can we protect the legitimate art restorer? Of course, as participants in the art world we can make these distinctions because of our tacit knowledge, but this does not provide a formal method of distinguishing "real" from "forged."

A final issue, and one that differentiates forgery from many other crimes, is that the forger wishes to

Figure 3. (*Forgery, Art*) G. F. Ioni, *Madonna and Child with Angels*, nineteenth century. Forgery in the style of San di Pietro (Siena, 1406–1481). Tempera on panel. The Cleveland Museum of Art, Bequest of James Parmelee.



have a say in our moral evaluations. Many of the more prominent forgers of our century have been willing to tell their own stories, either revealing themselves or after being revealed. They have an argument to make, in line with what was earlier referred to as appearance theory. Many forgers do not consider themselves criminals; rather, they conceive of their actions as a protest against a corrupt art world. For example, Tom Keating, an English forger of the 1960s and 1970s, claimed that his motive was simply "a protest against merchants who make capital out of those I am proud to call my brother artists, both living and dead." The comment is self-serving but is supported by those in the art world who suggest that the greed of the buyer is partially responsible for the crime. According to some, museums turn a blind eye when fakes are donated to them by wealthy collectors, on the assumption that if they were to turn down collectors who would not be able to get their tax write-offs, the museums might not receive future gifts.

By blaming their victims, forgers contend that they are great artists. If their works are accepted as the creations of famous painters, they must have equal talent. Given that the structure of the art world is based on patronage, today in the form of critics, MUSEUM officials, and wealthy collectors, unsuccessful artists may feel that their work is not accepted because *they* have not been accepted. The art world from this perspective has become a social and political arena.

In sum, forgery poses complex problems that touch on reputation, originality, value, and expertise. As fraud, forgery surely poses a major problem for all members of the art world. However, as an aesthetic enterprise, opinions are mixed. As long as we value particular artists rather than beauty, forgery will be with us and will continue to be discussed heatedly.

See also ARTIST AND SOCIETY; AUTHORSHIP.

Bibliography. Daniel P. Biebuyck, ed., *Tradition and Creativity in Tribal Art*, Berkeley, Calif., 1969; Leo M. Drachler and Harry Torczyner, eds., *Forgery in Art and the Law*, New York, 1956; Denis Dutton, ed., *The Forger's Art: Forgery and the Philosophy of Art*, Berkeley, Calif., 1983; Gary Alan Fine, "Cheating History: The Rhetorics of Art Forgery," *Empirical Studies of the Arts* 1 (1983): 75-93; John FitzMaurice Mills and John M. Mansfield, *The Genuine Article*, New York, 1979.

GARY ALAN FINE

FOTONOVELA

The fotonovela, or photonovel, tells a story through the combination of still photographs and the written word. The union of PHOTOGRAPHY and the captioned story was used as early as 1855 in France in the presentation of a romantic story (*see* ROMANCE, THE).

It was not until after World War II, however, and the advances made in offset printing, that the fotonovela received extended distribution. It is popular in several European countries, particularly Italy, Spain, and France, and in many parts of the Third World, notably North Africa and Latin America.

The fotonovela is a product of advancing technology in the production and mass reproduction of images (*see* GRAPHIC REPRODUCTION). Beginning in Italy and then in France with the use of captioned stills from films, it was seen first as simply a means of retelling motion picture stories in MAGAZINE form, thus allowing a wider distribution of the film medium. In Italy these early film-based fotonovelas were known as *fumetti*, or "clouds of smoke," for the balloons placed above characters' heads indicating speech or thought. Content often included film gossip and publicity and astrological predictions along with the main story. As the fotonovela became more popular, stories were written specifically for the medium, most of them simple romances depicted in a sequence of staged and photographed scenes.

During the 1950s European colonies or dependencies proved fertile ground for the export and sale of fotonovelas. New marketing techniques and content variations were developed for these areas. Established publishing empires in Spain and Italy produced fotonovelas that were then translated and printed in Latin American countries such as Brazil, Chile, and Argentina.

By the 1960s the fotonovela's potential for profit in Europe and Latin America, combined with an increasing availability of press capacity and a policy in many countries of subsidizing paper and ink manufacture, led to a vast expansion in fotonovela creation and production. Spain and Italy were no longer the major producers for developing nations. Production centers arose in countries with strong film industries, particularly Argentina and Mexico. Local variations were created to appeal to regional audiences. In Brazil and other southern Latin American countries domestic production began to compete with fotonovelas whose copy was imported from Italy and translated.

Mexico became the heart of fotonovela production for North America and northern Latin America in the 1970s. The photographic stills were shot in Mexico, but a majority of the Mexican fotonovelas were printed in the United States, usually in Miami or Los Angeles, cities with large Spanish-speaking populations. As with the exported Italian products, the mounted photographs and captions produced in Mexico were sent to publishing houses in such countries as Colombia and Venezuela, where they were printed. Some of the language, particularly the highly local Mexican slang, was altered for regional taste.

Fotonovelas are usually aimed at a female audience, although they are also read by men. In some

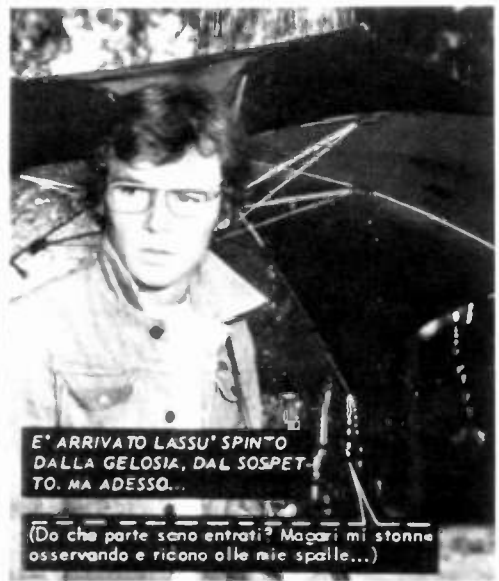


Figure 1. (Fotonovela) Page from an Italian fotonovela. From *Charme*, Rome, September 11, 1975, p. 40. Copyright Lancio Film 1975—Edizioni Lancio SpA.

areas, as in France, they were originally included as inserts in popular women's magazines, indicating a largely middle-class readership. With the development of a separate format, however, the fotonovela could be directed to a working-class audience whose members were not likely to purchase or read women's magazines. The separate format thus tends to attract less ADVERTISING, and profits depend on direct sales. The GENRE has also spawned numerous offshoots appealing to specific audiences, such as the *fotoaventura* or the *fotonovela picaresca*, whose content is male-oriented and more often overtly sexual.

Fotonovela readers are usually young and primarily urban. Because fotonovelas are generally regarded with some disdain as a type of subliterature, readership tends to be underestimated by surveys. This may be compounded by the fact that reading often takes place in a group setting. Anthropological studies in Latin America have suggested that particularly in small regional centers fotonovelas are often read aloud by the literate member of a group. Fotonovela readership in Latin America is also greater than the estimated weekly circulation of 20 million. Many issues are recirculated through trading arrangements with family or community members. Most working-class neighborhoods and market towns have women entrepreneurs who set up fotonovela rental libraries where for a small fee one can rent and read on the spot a fotonovela that may be several years old.

Fotonovela subgenres stress different themes or types of content. The *fotonovela rosa*, which dominated early production, presented variations on a Cinderella story in which a poor but virtuous heroine attracts and marries a handsome millionaire. This type of story soon lost its appeal in Europe and Latin America. As the production arena expanded, the social class of the hero in particular became more representative of that of most fotonovela readers. The problems resolved in the course of the story changed from class differences over which love could prevail into more mundane confrontations with parents, friends, or career goals that seemed to block the fulfillment of true love.

In Latin America a notable shift of content first occurred with the *fotonovela suave*, in which middle-class young people faced middle-class romantic problems. An even bigger innovation came from Mexico in the form of the *fotonovela roja*, which focused on working-class protagonists. Romance was no longer the solution to problems; instead, stories generally ended with the violent death of one or more characters. The juxtaposition of sexuality and death was a recurrent and striking theme. Stories tended to strongly reinforce traditional moral codes; punishment or retribution for wrongdoing is always exacted and yet is not usually the result of any deliberate action on the part of the main characters.

There is a strong emphasis on trusting to fate and the ability of faith and true love to overcome obstacles.

It has been theorized that each fotonovela type fulfills a different function for its audience and stresses specific components of cultural IDEOLOGY. The *fotonovela rosa*, for example, provides a mechanism of escape from real problems; its emphasis on female virtue and passivity and the obligatory happy ending (usually the prospect of a marriage) foster traditional notions of femininity. The *fotonovela suave*, which attracts more advertising than the others and is largely distributed in the more affluent southern Latin American countries, encourages readers to aspire to middle-class life-styles and promotes the consumption of middle-class goods. The *fotonovela roja*, concerned with the portrayal of urban values such as individualism and law and order, may serve to integrate rural and working-class readers into an urban way of life.

Fotonovelas have been attacked by critics on several grounds. Feminists see them as contributing to the cultural oppression of women by portraying stereotyped roles and romance as the solution to problems (see FEMINIST THEORIES OF COMMUNICATION). Fotonovelas have also been denounced as escapist fare whose themes downplay issues of class and social conflict and thus reduce class consciousness and the possibility for change. Fotonovela readers point out that at least the *fotonovela roja* deals with problems largely ignored by polite society, such as rape, incest, and illegitimacy. While plots do not end in the resolution of such problems, at least it is made clear that these things are not the fault of the victim.

While it is true that fotonovelas ignore political, economic, and social issues in favor of the more easily resolved love story of two individuals, the medium has also been seen in terms of its potential for eliciting reaction and change and has been the subject of experimentation in Europe and Latin America. In France a number of alternative fotonovelas have been produced by state agencies trying to adapt the form for different, progressive messages. In Latin America both private and government groups have attempted to use the fotonovela form for straightforward self-improvement messages ranging from encouraging nonformal education or better hygiene to feminist consciousness-raising or the propagation of radical political views. In this way the fotonovela's role in the formation and influence of group values and its significance as an interpersonally mediated form of mass communication can become an important basis for community organization.

See also DEVELOPMENT COMMUNICATION; LITERATURE, POPULAR; SERIAL; SOAP OPERA.

Bibliography. Fernando Curiel, *Fotonovela rosa, fotonovela roja*, Mexico, D.F., 1980; Cornelia Butler Flora, "Fo-

tonovelas: Message Creation and Reception," *Journal of Popular Culture* 14 (1980): 524–534; Cornelia Butler Flora and Jan L. Flora, "The Fotonovela as a Tool for Class and Cultural Domination," *Latin American Perspectives* 5 (1978): 134–150; Angeluccia Bernardes Habert, *Fotonovela e indústria cultural: Estudo de uma forma de literatura sentimental fabricada para milhões*, Petropolis, Brazil, 1974; Serge Saint-Michael, *Le roman photo*, Paris, 1979.

CORNELIA BUTLER FLORA

FOUCAULT, MICHEL (1926–1984)

French philosopher, historian, and political theorist. Michel Foucault's ideas on social power and its concealed roots in LANGUAGE and socially constructed meanings had wide implications for the study of communication. Born in Poitiers, Foucault studied philosophy at the Sorbonne. After a brief spell as a member of the French Communist party, he turned from philosophy to psychopathology and published an early book on mental illness. In the 1950s he left France to teach in Sweden, Poland, and Germany, returning to an academic post in France in 1960. After the widespread acclaim that greeted his *Les mots et les choses* (*Words and Things*, 1966) he received an academic appointment in Paris, where he taught philosophy at the avant-garde University of Vincennes and was deeply influenced in his political thought by the student uprisings of 1968. Foucault edited the leftist weekly journal *Libération*, became active in campaigns for prison and homosexual reform, and was hailed as a master of the fashionable new intellectual current of STRUCTURALISM (an allegiance he consistently denied). In his later years his work turned increasingly to themes of social power, and his final study was of the history of sexuality. He died of a cerebral tumor in 1984.

Although he was praised by many as the single most important European philosopher of his time, Foucault's lifelong work actually constituted a set of intellectual guerrilla raids against what he took to be the insidiously repressive, violent character of Western philosophical thought and social practice. His early, vastly influential study *Madness and Civilization* (1964) is on the surface a documentary history of Western society's treatment of the supposedly insane, charting the epochal shifts from medieval ATTITUDES toward the mentally ill to the gradual growth of techniques for incarcerating and institutionalizing those labeled psychologically deviant. The secret subtext of the work, however, is a powerful polemical challenge to what Foucault regards as the repressive project of stringently dividing a dominant "reason" from its monstrous "other"—a project inherent both in Western philosophy since René Descartes and in the nature of Western social and polit-

ical institutions. From the outset, then, Foucault championed in both his theoretical work and his political practice groups marginalized by the prevailing social order. The political passion that fueled this enterprise is curiously dissembled by the meticulously clinical techniques of documentation and analysis evident in his major published works.

Foucault's abiding concern is less to pass moral or political judgment on the repressive phenomena he recounts than to expose the profound relativity of all modes of thought and political regimes, which absolutize and idealize forms of knowledge that are in fact intimately bound up with the institutional disciplining, control, and "normalization" of human subjects in society. His chief philosophical work, *Les mots et les choses*, seizes upon changing notions of language from the MIDDLE AGES to the modern period, but it does so as a way of uncovering the hidden logics by which societies organize their "discursive formations," legitimating certain areas as proper objects of inquiry and excluding others. In this work, as in *The Archaeology of Knowledge* (1969), Foucault's concern is with the concealed epistemes or structural sets of rules that govern the definition of evidence, license certain forms of social authority, and permit certain objects to be interrelated in particular ways. Thus Foucault's apparently neutral methodological inquiries in fact secretly serve the radical political impulses that emerge more explicitly in his later publications.

In *Discipline and Punish* (1975), with its detailed examination of techniques of penal correction, Foucault discovered that his real theme is less epistemology than power—more particularly the varied microtechniques by which power is "imprinted" on the human body to render it a docile, well-drilled agent of dominant social forces. Yet power, Foucault insists, is not to be viewed purely negatively as an oppressive force stifling the free expression of the human subject. On the contrary, power is positive and productive; it is less what crushes the human subject than what constitutes it, in a complex range of internalized disciplines and "technologies." It is humanism, to which Foucault is implacably opposed, that would view the human subject in sentimental fashion as some rich interior space of potential freedom rather than as the product and effect of social technologies. Because this consistent antihumanism looks forward eagerly to the passing of the ephemeral historical construct known as "Man," Foucault has been ranked with the structuralists from whom he sought to distinguish himself.

Turning in his final work to the history of sexuality, Foucault warns against the romantic view that would regard sexuality as bound up with our free, "natural" identities, awaiting its appropriate expression. On the contrary, he describes sexuality as being

of rather recent historical birth, a construct of many varied forces (including the PSYCHOANALYSIS that purports to “treat” it) rather than a biological given. The steady proliferation of post-Freudian discourses on sexuality and of techniques for its management and normalization is for Foucault simply a dramatic instance of the manipulation of human subjects at the hands of social power. The subject who “freely” confesses in the psychoanalytic scene colludes with such powers rather than emancipating himself or herself from them.

Briefly a Marxist in his youth and a pupil of French Marxist philosopher Louis Althusser, Foucault turned under the influence of the May events of the 1968 French student revolt to a more local, pluralistic, strategic politics, rejecting all “global” political programs as inherently oppressive, yet with increasing skepticism about the possibility of any total break with a social power that he now saw less as centralized than as all-pervasive. His thinking about power and its capacity to produce forms of knowledge was deeply shaped by the work of Friedrich Nietzsche; indeed Foucault could be best described as a neo-Nietzschean thinker, passing to that point from orthodox Marxism by the precarious bridge of late-1960s Western Maoism. His work is relentless in its ingrained suspicion of all humanist or idealist illusion, scornful of all notions of “truth,” and produced out of a sense of solidarity with the mad, victimized, imprisoned, categorized, and sexually “deviant.” Foucault’s final position could perhaps best be summarized by claiming that he is an anarchist without being a libertarian—doggedly committed to a fundamental refusal of the given social order but profoundly skeptical of any positive, “totalizing,” or liberatory alternative to it.

See also BARTHES, ROLAND; COMMUNICATION, PHILOSOPHIES OF; DURKHEIM, ÉMILE; MARX, KARL; MARXIST THEORIES OF COMMUNICATION.

Bibliography. Michel Foucault, *Madness and Civilization* (Histoire de la folie), trans. by Richard Howard, New York, 1965; idem, *Discipline and Punish: The Birth of the Prison* (Surveiller et punir), trans. by Alan Sheridan, New York, 1977; idem, *The History of Sexuality*, Vol. 1, *An Introduction* (Histoire de la sexualité), trans. by Robert Hurley, New York, 1978.

TERRY EAGLETON

FREUD, SIGMUND (1856–1939)

Austrian physician and founder of PSYCHOANALYSIS, whose theories have had reverberating effects on ideas about human communication and have been a major influence on communications study and research. The name of Sigmund Freud is inextricably

linked to fin de siècle Vienna, where he based his initial work in laboratory research and then private medical practice on the assumptions of the natural sciences. But after early studies in neurology and hysteria that emphasized physiological presuppositions, Freud moved increasingly toward a psychological understanding of nervous diseases. His contribution to the study of communication begins with his first major work in psychoanalytic theory, *The Interpretation of Dreams* (1899), in which he argued that the dream has a symbolic or an expressive function.

In this autobiographical confession Freud established that dreams are expressions of unconscious wishes that are unrecognized as such by the untrained individual. He eventually identified a veritable language of the unconscious in seemingly meaningless behavior such as jokes, facial tics, SLIPS OF THE TONGUE, compulsions, and daydreaming. In simple terms, Freud developed a technique of reading the unconscious, which was, according to his theory, unavailable to direct observation because of the psychic mechanism of repression. Freud’s insistence on the



Figure 1. (Freud, Sigmund) Sigmund Freud. The Bettmann Archive, Inc.

fundamentally instinctual nature of the unconscious and the ineliminable opposition of repression to the instincts separates him from many of his best-known disciples, such as CARL JUNG, Alfred Adler, and Wilhelm Reich.

Freud's theoretical and case studies identify two levels of communication: the intrapsychic and the interpersonal. Intrapsychic communication becomes problematic when repressions fail to prevent otherwise forbidden impulses from disturbing consciousness. The purpose of psychoanalytic therapy is to work toward the conscious control of unconscious conflicts by drawing them out in INTERPERSONAL COMMUNICATION between analyst and patient, which circumvents failing repressions. The analyst encourages uninhibited talk by the patient—a technique that Freud's famous early patient Anna O. dubbed "the talking cure." Within the privacy of the analytic session each individual becomes something of an artist revealing the most private details of inner life. Indeed, Freud discovered a bit of the artist in every person in fantasies and dreams. But the artist in every person remains merely potential, lacking the power to communicate until released by the psychoanalyst. With the analyst's guidance the patient grows into a successful but limited artist by constructing a system of interpersonal MEANING.

Freud argued that the patient inevitably develops resistances to revealing the most significant intimate details. Among the most desperate but predictable strategies is the phenomenon of transference, in which the patient projects onto the analyst both hostile and affectionate feelings in order to avoid communicating what the patient most wants to keep unconscious. The analyst's task, as in the case of most resistances, is to press for a conscious honesty about tabooed wishes. Successful therapy results in more honest interpersonal and intrapsychic communication.

Freud also encouraged honesty about the private motives behind public communicators and communications. He understood public figures (e.g., Woodrow Wilson, Leonardo da Vinci) and cultural products (e.g., novels, paintings) as private symptoms rather than public symbols. In reading public meanings backward to private motives Freud helped to inaugurate an era in which communication has come to be understood as a psychological art, the art of symbolically shaping and expressing our most private lives.

Freud's writings have had a considerable influence on theories about communication in other disciplines and have had practical applications as well. His ideas on sexuality, repression, and the unconscious have helped form modern notions of personality and GENDER and have found application in such fields as ART, EDUCATION, and ADVERTISING. Freud's views on SYMBOLISM and the unconscious have contributed to

various artistic theories and techniques—inspiring, for example, a school of LITERARY CRITICISM and the stream-of-consciousness technique in novels. Along with such figures as CHARLES DARWIN and KARL MARX, Freud is one of the seminal thinkers of the modern era, helping to furnish the vocabulary of the modern mind and contributing to the mass of assumptions that underlie most thinking about communication.

See also IDEOLOGY; STRUCTURALISM.

Bibliography. Sigmund Freud, *General Psychological Theory*, ed. with an intro. by Philip Rieff, New York, 1963, reprint 1966; idem, *Therapy and Technique*, ed. with an intro. by Philip Rieff, New York, 1963, reprint 1967; Philip Rieff, *Freud: The Mind of the Moralizer*, 3d ed., Chicago, 1979.

ALAN N. WOOLFOLK

FUNCTIONAL ANALYSIS

A theoretical framework for the analysis of social phenomena and structures. Also known as structural-functional analysis, it emphasizes social rather than individual-level explanations of phenomena, pointing—in general—to the functions (consequences) of the phenomena under study for the social system.

Sociology in the United States is often credited with advancing the structural-functional approach to the study of mass communication. Early traces of a functional orientation can be found, for example, in the treatment of society's communication system by Albion W. Small and George E. Vincent in their introductory sociology textbook published in 1894. These authors likened a society's communicating apparatus to a "social nervous system," with ramifications throughout the social organism. Such early allusions to the social functions of mass communication, sometimes suggested by biological analogies, usually were not articulated explicitly and systematically in terms of sociological functional theory. *See also* COOLEY, CHARLES HORTON.

A major step in the explicit codification and paradigmatic presentation of functional theory for U.S. sociology was the publication in 1949 of ROBERT K. MERTON's critical essay on *manifest* and *latent* functions as part of his work on social theory and social structure. In clarifying the nature of functional analysis Merton identifies three postulates common to early functional theory, which he suggests have proved debatable (thus leading to ideological criticisms of the functional approach) and which he regards as unnecessary to the functional orientation: (1) functional unity (the idea that any practice must be functional or dysfunctional for the total society), (2) universal functionalism (the idea that all persisting

forms of social or cultural practices must be functional), and (3) indispensability (the idea that society has certain functional requirements that can be met only by certain specific social or cultural forms). These three dispensable early postulates of functionalism have led, according to Merton, to charges that functional analysis "inevitably involves certain ideological commitments," usually that it is conservative and insensitive to problems of social change.

Merton reformulates the functional approach to avoid these troublesome postulates and their associated ideological criticisms. First, he proposes that, rather than assume unity throughout society, functional analysts should specify the unit or system that is of concern for a particular functional analysis (e.g., society, subgroups, individuals). One can then examine the functions that a social practice has for this and other specified units, allowing for the empirical possibility that a practice may have positive functions for certain units and not for others—that is, being functional for one subgroup but not others. Second, rather than assume universal functionalism, one should accept the possibility that a social practice can have either functional or dysfunctional consequences (or both) for the unit under analysis. Finally, rather than assume indispensability of any particular social item or practice, the analyst should attempt to specify the functional prerequisites for a society and then study how any particular function may result (more or less effectively) from alternative social and cultural forms and practices.

In 1959 Charles R. Wright explicitly applied Merton's paradigm of functional analysis to the study of mass communication. From this perspective it is useful to regard mass communication as a social activity and to examine its role in the maintenance and change of social structure. Functions, as conceived by Wright, refer to the contributions that an organized system of communication, some element in it, or other regular communication activities make toward the ability of a system (personal, social, cultural) to survive and to maintain itself in working order, thereby making appropriate adjustments to changing conditions outside or within the system. Dysfunctions refer to those consequences that impede necessary adjustments and responses to changing external or internal demands on a system.

The aim and focus of functional analysis differ from those of other theoretical and research approaches to MASS MEDIA EFFECTS, which usually center on the effects of a specific instance of mass communication. For example, while media-effects research might focus on the immediate impact of a televised scene of VIOLENCE on the ATTITUDES or behavior of individual viewers, functional analysis would direct attention to the consequences that the

practice of regularly presenting such content in mass entertainment might have for society and its members, especially consequences for stability, adaptation, and change.

The first step in applying functional analysis to the study of mass communication, then, is to identify or stipulate the items to be the subject of analysis. These should be regular, patterned, or repetitive features of communication. Mass communication is conceived of as a special kind of social communication involving relatively large, socially heterogeneous audiences, mostly anonymous to the mass communicator. Media content is produced and distributed by social organizations or by persons working in complex organizations, involving extensive division of labor and costly resources. And its messages are communicated publicly, rapidly, and in a transient form.

At the broadest level one may examine the functions of mass communication itself, taking this regular form of social communication as an item for analysis. For example, James Beniger argues from a historical-sociological view that the current modes of mass-communicated information serve to cope with society's ever-increasing social needs for control over the production and movement of manufactured goods. In this sense mass communication is functional for contemporary, so-called information society.

A second level is to consider the functions of a particular way of organizing mass communication and the mass media, taking the specific form of the mass media system found in a particular society as the item for analysis. To do so requires the specification and identification of types of communication systems. Often this CLASSIFICATION is made in terms of the major institutional ownership and control of the mass media (e.g., state or private ownership) and the governing philosophy of the system (e.g., totalitarian or democratic). Thus one might be concerned with the functions of centrally organized and controlled systems of mass media for a totalitarian or for a democratic society. See GOVERNMENT-MEDIA RELATIONS.

A third level (or type of item) for analysis is some regular practice within the mass communication process, such as the practice of presenting national news on network television at a specific time every day or the practice of assigning news reporters to news beats (see TELEVISION NEWS).

Once the communication item to be studied has been specified, the next consideration is how such an item contributes functionally or dysfunctionally to the system under study (i.e., society, its members, subgroups, CULTURE, or some other unit). As an example, the regular broadcasting of weather forecasts enables a society to take the steps necessary to survive the potentially disruptive and even devastat-

ing social, economic, and human costs that could follow from unforeseen storms. To that extent one may interpret such commonplace weather broadcasts as functional. On the other hand, the routine broadcasting of weather predictions might lead to public apathy, indifference, boredom, satiation, or similar responses so that warnings of imminent danger go unheeded and steps necessary to avoid social disruption, even disaster, are not taken. Then one might interpret routine mass-communicated weather predictions as dysfunctional. A third possibility is that routine predictions have no significant effect on the ability of a society and its members to adjust, survive, or operate normally.

An item may be perceived as functional for one system but not for another. As an example, a tightly controlled mass media system, involving regular practices of CENSORSHIP and GOVERNMENT REGULATION, might be regarded as functional for the stability of a totalitarian society but dysfunctional for a participatory democracy. See POLITICAL COMMUNICATION.

It is this aspect of functional analysis—the interpretation of consequences—that leads to concern that ideological judgments may bias the analysis. Clearly the analyst must make an assessment of what is to be regarded as functional or dysfunctional from some point of view. Sociological functional theory has stressed the adaptive maintenance of the social system, its perceived tendency toward an equilibrium. This does not imply a total lack of change by society but rather an overall ability to survive without being destroyed or paralyzed, seriously disrupted, or essentially transformed through sudden internal social conflict, REVOLUTION, external threats, or other dangers to the existing system. Thus through its attention to questions of adaptation or failure to adapt, dysfunctional and functional consequences, and forces pressing for change as well as for stability, functional analysis allows for consideration of social change as well as for the maintenance of the social order. It thereby avoids a conservative bias. Functional analysis focuses attention on the potentials of mass communication for both beneficial and harmful effects, thereby protecting investigators from biased viewpoints that consider only the positive or only the negative consequences of, for example, mass-communicated news and entertainment.

A framework for a functional inventory that has proved useful in organizing claims and findings about mass media effects has been suggested by Wright. Adapting distinctions suggested in the writings of political scientist and communications scholar HAROLD D. LASSWELL, this framework specifies four basic communication activities engaged in by members of a society: (1) *surveillance* of the environment (“news

activity”), (2) *correlation and interpretation* of these events and prescriptions for reactions to them (“editing and persuasion”), (3) *socialization*, or the transmission of culture and values to new members of the society, and (4) *entertainment*. Clearly these communication activities can be performed through INTERPERSONAL COMMUNICATION, mass communication, or both. A functional approach raises questions about what happens when these basic communication activities are carried out regularly by means of mass communication.

More specifically, the functional framework poses the comprehensive task of specifying the manifest (intended) and latent (unintended) functions and dysfunctions of mass-communicated news, editing, PERSUASION, socialization, and entertainment for the society, its individual members, specific subgroups, and cultural systems. This framework guides a functional approach to examining the social consequences of mass communication.

Efforts to determine the functions or dysfunctions of carrying out surveillance, correlation, socialization, or entertainment by means of mass communication are complicated by the fact that in most societies these communication activities are usually conducted through both interpersonal and mass communication, as noted above. Sociologically oriented communication studies in the 1970s and 1980s also have drawn attention to the interdependent roles of mass communication and interpersonal communication in people’s lives and in social processes. These studies often bear on the functions of mass-communicated news and entertainment even when the research is not explicitly framed in terms of functional theory.

One function of mass-communicated news, suggested in the early writings of PAUL F. LAZARSFELD and Merton, is to confer status and public legitimacy on those people, organizations, or public issues that get mass media attention. This conferred status, in turn, may play a role in organized social action by affecting a candidate’s chances for leadership, an organization’s public role, public discussions and PUBLIC OPINION concerning the issue, or some other social process or mechanism. Sociological studies have examined the complex ways through which mass communication and interpersonal communications affect the public’s awareness of and response to social crises, including the status conferred on social issues and the subsequent conditions and patterns of organized social action. Such studies examine the contributions of mass communication and interpersonal communications to society’s ability to cope with social crises and social problems, including such diverse phenomena as national political scandals or the threat of natural disasters. The findings of these

and similar studies are consistent with a functional orientation even if it is not explicit.

Functional analysis presents a distinctive sociological orientation toward the formulation and interpretation of MASS COMMUNICATIONS RESEARCH. Its use provides researchers with a theoretical framework for examining the social consequences of mass communication phenomena, especially their contributions to social order and social change.

Bibliography. Jeffrey C. Alexander, ed., *Neofunctionalism*, Beverly Hills, Calif., 1985; James R. Beniger, "The Information Society: Technological and Economic Origins," in

Media, Audience, and Social Structure, ed. by Sandra J. Ball-Rokeach and Muriel G. Cantor, Beverly Hills, Calif., 1986; Lyman Bryson, ed., *The Communication of Ideas*, New York, 1948; Harold A. Mendelsohn, *Mass Entertainment*, New Haven, Conn., 1966; Robert K. Merton, *Social Theory and Social Structure*, Glencoe, Ill., 1949, reprint (rev. and enl. ed.) 1962; A. R. Radcliffe-Brown, *Structure and Function in Primitive Society*, New York, 1952, reprint 1965; Albion W. Small and George E. Vincent, *An Introduction to the Study of Society*, New York, 1894; Charles R. Wright, *Mass Communication: A Sociological Perspective*, 3d ed., New York, 1986.

CHARLES R. WRIGHT

A large, stylized, red letter 'G' is positioned on the left side of the page. It is a bold, serif font with a thick stroke. The letter is slightly tilted to the right. The background is a light cream color with a faint, repeating pattern of the letter 'G' in a lighter shade.

($d_{\text{z}}\bar{i}$), the seventh letter of the Roman alphabet, was originally a differentiated form of C; for its early history see that letter. In Latin G represented the voiced guttural stop; but in the later period of the language it must have been pronounced before front vowels as a palatal, its representation in the Romance languages being precisely the same as that of Latin *i* consonant, (j). . . .

GALLAUDET, THOMAS (1787–1851)

U.S. educator of the deaf and general educational reformer. In 1817 Thomas Hopkins Gallaudet founded the first free U.S. SCHOOL for the deaf in Hartford, Connecticut, following in the tradition of eighteenth- and early nineteenth-century European pioneers in EDUCATION for the deaf, such as the Abbé de l'Épée in France, Samuel Heinicke in Germany, and Thomas Braidwood in Scotland and England. With his Hartford school Gallaudet effectively launched the movement for free, formal, and general education for the deaf in the United States. By the late 1800s this movement had culminated in the development of one of the largest and most respected systems of free education for the deaf in the world.

Born in Philadelphia and raised in Hartford, Gallaudet graduated from Yale in 1805. After work in law, teaching, and commerce, he studied for the ministry and was ordained but declined a church post because of poor health. During this same period, through his acquaintance with a deaf neighbor child whom he had tried to teach privately, Gallaudet became interested in the education of the deaf, which at that time in the United States took place only individually, irregularly, and unsystematically. Backed financially by the child's father and several friends, Gallaudet went to Europe in 1815 to study the methods of education in schools for the deaf there. After a disappointing reception in England, Gallaudet was warmly welcomed at the Institut Royal des Sourds-Muets in Paris, where he studied for several months. In 1816 Gallaudet returned to the United States with the Paris school's Laurent Clerc, who became the first deaf teacher of the deaf in the United States. The following year Gallaudet founded his school in Hartford, and the school soon won government funding. Similar schools in other states quickly followed—in New York in 1818, Pennsylvania in 1820, and Kentucky in 1823—and by 1863 there were twenty-two schools for the deaf throughout the United States. Gallaudet was principal of the Hartford school until 1830, when poor health forced him to retire.

Gallaudet continued his educational efforts for the deaf after his retirement. He also devoted himself to other educational reform causes, including the education of blacks and higher education for women.

Deafness and its concerns were also central in Gallaudet's family. Gallaudet married a deaf woman, Sophia Fowler, who had been one of his first pupils at the Hartford school. His eldest son, Thomas, became a well-known minister to the deaf in New York. His youngest son, Edward, helped found the first U.S. college for the deaf, in Washington, D.C., in 1864. This institution was renamed Gallaudet College in 1894 in honor of the senior Gallaudet. In 1891 the school established the first U.S. college

training center for teachers of the deaf. In 1986, in recognition of the institution's role in research on the deaf and in training teachers, the school was renamed Gallaudet University.

See also NONVERBAL COMMUNICATION; SIGN LANGUAGE.

JOSEPH CADY

GALLUP, GEORGE (1901–1984)

U.S. pollster who pioneered the development of scientific methods for measuring PUBLIC OPINION. A measure of George Gallup's influence is that, before he reached the age of forty, all sample surveys of public opinion had come to be called "Gallup polls."

Born in Jefferson, Iowa, Gallup earned a Ph.D. in psychology at the State University of Iowa in 1928. One year later he was made head of the Department of Journalism at Drake University; he also taught journalism at Northwestern University during 1931–1932. Then he was hired by Young and Rubicam, the New York ADVERTISING agency, to conduct sample surveys for the agency's clients. In 1935 he founded the American Institute of Public Opinion to conduct his own opinion studies.

In 1936 came one of the important turning points in Gallup's career and in the history of public opinion studies. As usual in a presidential election year, *The Literary Digest*, then an influential U.S. weekly magazine, conducted a preelection POLL to forecast the winner. The magazine's theory was that the more people surveyed, the greater the poll's accuracy: it

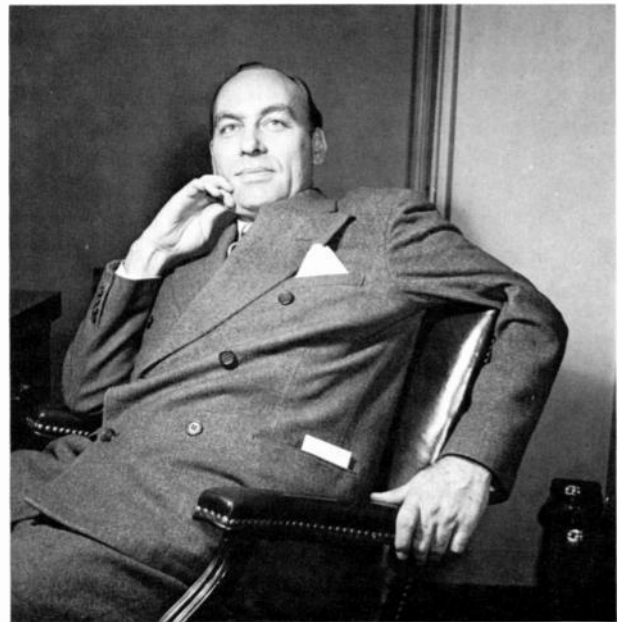


Figure 1. (*Gallup, George*) George Gallup. The Bettmann Archive, Inc.

mailed out sample ballots to ten million people—its subscribers plus automobile owners. Meanwhile, working independently, three young survey researchers—Gallup, ELMO ROPER, and Archibald Crossley—also conducted preelection polls. Each interviewed only a few thousand voters, but, having learned something in college about the theory of sampling, they selected their interviewees to represent as well as possible the voting population of the United States. On the basis of two million returned ballots, “one in every five voters,” *The Literary Digest* confidently predicted that Alfred M. Landon would win. The three researchers predicted that Franklin D. Roosevelt would win by a margin very near what the election returns soon showed.

As a result of his success, Gallup began to conduct and publish polls approximately every three weeks from his American institute. In late 1936 he founded the British Institute of Public Opinion; thereafter he cooperated in establishing institutes or other programs for opinion studies in some thirty countries. He was instrumental in developing methods for determining relative interest in different news items and different advertisements. He also pioneered in establishing time series of opinion data; for example, the polls on presidential popularity that he initiated in 1936 have become one of the devices by which U.S. presidents are compared and held accountable. In addition to starting such trend lines, he was also able to make some of the first international comparisons of opinion data.

The professional performance of pollsters continued to concern Gallup. He urged his colleagues to make more effort to separate informed from uninformed opinion, to study the intensity with which opinions are held, and to learn to predict when an opinion is likely to be translated into action. Above all, he urged pollsters to inform readers in detail how a given poll was made so that they would have some idea of how much it could be trusted.

See also OPINION MEASUREMENT.

Bibliography. George Gallup, *The Sophisticated Poll Watcher's Guide*, Princeton, N.J., 1972.

WILBUR SCHRAMM

GANDHI, MOHANDAS (1869–1948)

Indian leader, apostle of nonviolence. A master of moral communication able to stir masses of people to action, to sway the world press, and to disarm opponents, Mohandas Karamchand Gandhi was known to his people as mahatma (“great soul”) and led them in struggles that in 1947 achieved Indian independence. He saw in nonviolence a technique of political resistance for the oppressed and eventually

a new way of REVOLUTION. His ideas were influenced by the Quakers, U.S. author Henry David Thoreau, and Russian writer Leo Tolstoy, but of primary importance were Indian religious doctrines that emphasized respect for all life. From the Bhagavad Gita, the principal Hindu SCRIPTURE, Gandhi derived important concepts, including *satyagraha* (“holding to the truth,” resisting wrong without feeling enmity or using violence). As a leader in this new kind of revolution Gandhi adopted an unusual and striking uniform—the loincloth, or dhoti—by which he became known to the world.

It was a different Gandhi who at the start of his career had gone to London to train as a lawyer. There he wore Bond Street clothes, took dancing lessons, and sported a silver-topped stick. He returned home to take up practice in Bombay, but his first case found him tongue-tied and ended in disaster. In 1893 his brother arranged for him to work for an Indian firm in South Africa. There the shock of his encounter with the brutal racism of colonial rulers awakened his conscience and began to shape his ideas for combating oppression with what he then called passive resistance. Meeting violence with nonviolent suffering inspired his followers and disconcerted the oppressors. Here, urged Gandhi, was the true way to fight evil and cleanse the soul of hatred for the evildoer. He furthered his ideas with eloquent speech, prolific writing, and the force of his example, as well as by a shrewd choice of occasions on which to put his views into action for the greatest impact.

Back in India in 1915, already widely known for his African work, he continued his prolific writings. In 1919 he helped establish the periodical *Young India*, which later became *Harijan*, published in nine languages. His doctrine of *ahimsā* (“nonviolence”) developed into a more comprehensive program of civil disobedience that began to challenge British imperial dominance and included boycotts of British manufactured goods. Gandhi showed a rare gift for symbolic action to dramatize issues and conflicts. His decision to wear the dhoti, identifying himself visibly with the millions, including the lowliest, was an example of this. Another was his emphasis on the spinning wheel, symbol of a program of Indian self-sufficiency that challenged the might of Britain’s textile industry. The symbol acquired deep emotional meaning. A glimpse of a spinning wheel in a motion picture sometimes prompted an Indian audience to burst into applause. Censors began to excise such shots from MOTION PICTURES.

In 1929 the Congress party of India adopted total independence as its goal and asked Gandhi to lead the country to it. This set the stage for one of the most extraordinary of Gandhi’s symbolic actions, his famous march to the sea to break the law protecting

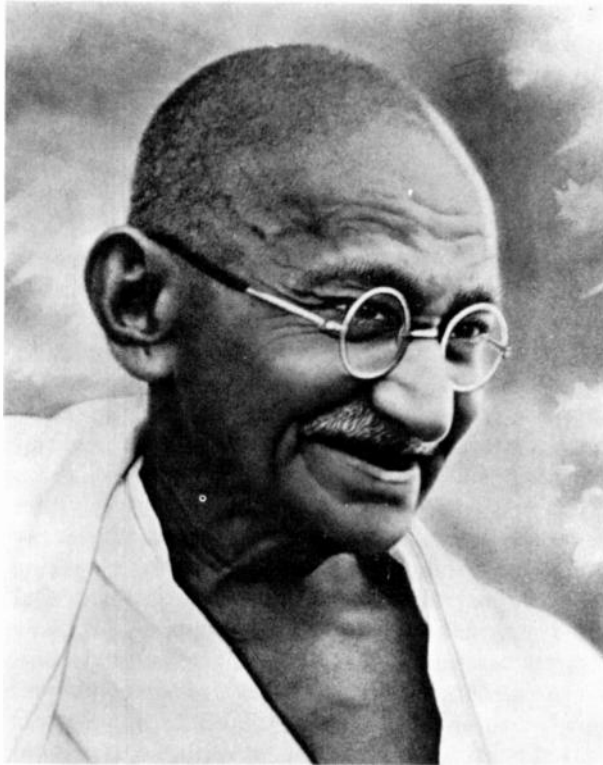


Figure 1. (*Gandhi, Mohandas*) Mohandas Gandhi. The Bettmann Archive, Inc.

the British monopoly in salt manufacture. It was an event both bizarre and awesome. With his thin legs setting a brisk pace, followed by struggling thousands including reporters and NEWSREEL cameramen, he walked two hundred miles. Reaching his destination, he entered the surf, dipped up saltwater, and, while crowds roared, placed it on a fire. It spurred resistance to the salt monopoly and to payment of the hated salt tax. Film of the event was banned for years from Indian theaters but was shown abroad. In India the message went by word of mouth, electrifying the country.

In 1933 Gandhi started a "fast unto death" to make his countrymen renounce the practice of untouchability. The thirteen days he went without food shook the age-old institution to its foundations and robbed it of its moral sanction. In later years he sought in the same way to allay religious strife. In 1948, his assassination by a fanatical Hindu made him a martyr to the cause of Hindu-Muslim unity.

Gandhi's doctrine of nonviolence proved relevant again in the U.S. civil rights movement (1950s–1960s) led by Martin Luther King, Jr., and had echoes elsewhere in marches, boycotts, demonstrations, vigils, fasts, and other symbolic actions. The vigilance of the mass media and the growth of international communications in the global village suggest the continuing relevance of such actions.

See also ASIA, TWENTIETH CENTURY; COLONIZATION; DEMONSTRATION; POLITICAL SYMBOLS.

Bibliography. Louis Fischer, *The Life of Mahatma Gandhi*, New York, 1950; Mohandas Karamchand Gandhi, *The Story of My Experiments with Truth*, 2 vols., trans. by Mahadev Desai, Ahmedabad, 1927–1929; Vithalbhai K. Jhaveri and D. G. Tendulkar, *Mahatma: Life of Mohandas Karamchand Gandhi*, 8 vols., Bombay, 1951–1954.

CHIDANANDA DAS GUPTA

GENDER

In the scholarly literature on sex differences and on the difference between sex and gender, *sex* refers to biological differences, whereas *gender* characteristics are learned cultural constructions. Differences in the biological functions of males and females may be genetically determined and immutable, but the significance of those differences for social roles is determined by cultural belief systems. The values and meanings attributed to gender identity are encoded, preserved, and transmitted in public symbols that are shared by members of a particular society. At the most basic level these symbols are the vocabulary and conventions of LANGUAGE itself. Of even greater significance for thought and behavior, however, are the complex images and representations of gender that are communicated through religious doctrine and RITUAL in traditional societies, through the mass media of industrial societies, and in the conversational habits of daily interaction everywhere. *See also* CULTURE.

Research and theories. MARGARET MEAD was one of the first to draw attention to cross-cultural variation in the behaviors expected of men and women. Her pioneering study in 1935 suggested that all cultures may have institutionalized male and female roles, but little consensus exists about what these roles should be. Furthermore, many role-specific behavioral characteristics are irrelevant to actual differences in male and female biological functioning. Nevertheless, in *Male and Female* Mead concluded that "men may cook, or weave, or dress dolls or hunt hummingbirds, but if such activities are appropriate occupations of men, then the whole society, men and women alike, votes them as important. When the same occupations are performed by women, they are regarded as less important."

Debate continues over whether female occupations, and by implication women themselves, are thought to be inferior to those of the male in all cultures and in all historical periods. Those who support the universalist position regarding gender inequality fall into several categories, of which two are the most widely known. According to a traditional school of thought, women are universally de-

valued because they are naturally less aggressive and physically weaker than men. A related position proposes that women and men were apportioned different life tasks by God, and therefore women should confine themselves to the concerns of the home.

One controversial theory states that women have lower prestige than men in all human societies for structural rather than biological reasons. Best represented by anthropologists Sherry B. Ortner and Edwin Ardener, this analysis follows from CLAUDE LÉVI-STRAUSS's proposition that all humankind values "culture" above "nature." Nature, in this view, represents the fact that each individual is a biological organism subject to the vicissitudes of illness, death, and other sorts of experiences that are beyond human control. Culture, by contrast, represents those human activities that are creative, that are more lasting than the physical body, and that allow individuals to "transcend" their biological destinies. The structuralist position argues that women, because they alone experience biological processes such as menstruation, pregnancy, and lactation, are universally identified more closely with nature than are men. Men are thus seen as being more transcendent, and this has far-reaching implications for the social valuation of the sexes.

A number of theorists, however, oppose the idea that women are universally devalued. One group of feminist anthropologists, perhaps best represented by Eleanor Leacock, has suggested that the universalist notion is based on ethnocentric reporting. Furthermore, most anthropologist field researchers have been male and have talked primarily to male informants. Feminist anthropologists have begun to make a point of discussing this question with female informants. In their view ethnography from a female point of view will yield a contrasting picture of the social valuation of women.

Some scholars have taken an intermediate position, insofar as they acknowledge that gender asymmetry is common to most or all documented societies, but they argue that this asymmetry had its origin at a specific point in human history. The significance of history for a feminist agenda for action is implicit in historian Gerda Lerner's assertion that "patriarchy as a system is historical: it has a beginning in history. If that is so, it can be ended by historical process."

One of the first historical theorists to address this problem was German philosopher Friedrich Engels. He argued that the ultimate source of women's subjugation was the development of private property, which led in turn to the institution of monogamous marriage and the control of female sexuality by men. Subsequent research, however, has supported the notion that male dominance exists in societies without inheritable private property and may have pre-

dated this institution in the history of Western civilization.

Origins of male dominance. The search for the origins of male dominance has led a number of scholars to scrutinize existing data on the earliest prehuman ancestors. The traditional view of human evolution emphasizes the role of large-animal hunting, which is primarily a male occupation, in the emergence of humanity. In this model the transition to upright stance improved survival by allowing hunters to carry and use weapons against their animal prey. In addition, the development of language was related to the need for planning among hunters and cooperation during the hunt. An alternative viewpoint is outlined by Nancy Tanner and Adrienne Zihlman. They suggest that it was not hunting per se that was the driving force in evolution but rather the movement of the ancestral apes from a primarily forest to a primarily savannah niche. The gathering of FOOD (generally a female occupation) was critical to the exploitation of the new environment and may have given rise to tool use through the production and use of containers to hold the gathered food and convey it to offspring. In this model, kinship systems evolved from small, mother-centered groups to more complex units through sibling cooperation and sharing. Females would have been socially central in this model, and by implication they would have wielded considerable influence as the source of socialization and as the pivotal figures in food-sharing groups.

This model does not account for the fact that in most known societies women are not socially central, at least not in public life. Other theorists have advanced the argument that the development of the sexual division of labor may account for women's loss of public influence. The sexual division of labor is common to most, if not all, human societies. The rigidity and exclusiveness of sex-specific occupations vary widely, but in the simplest societies such large-game hunting as exists is identified as a male occupation. This is probably because women, burdened during most of their adult lives by pregnancy or the care of small CHILDREN, have a diminished capacity for participation in long-distance chases in pursuit of prey. Because both hunting and the gathering and identification of numerous plant species may require years of training and preparation, it behooves these societies to teach children of each sex the skills they will best be able to utilize. Thus in most cases women reach adulthood without the skills of the hunter. Although the woman's contribution to the caloric intake of the group may be no less than that of the male (and in many cases is far greater), her prestige may suffer because the vegetable foods she gathers are usually shared only within her FAMILY group. Large animals, on the other hand, are normally dis-

tributed more widely throughout the group and among social groups, because meat must be disposed of immediately. A sort of common historical precedent is established, whereby women's concerns are viewed as private and familial, but men's activities and influence are seen as more social in nature. In anthropologist Michelle Rosaldo's view this parallels the tendency of more complex societies to relegate women's activities to the domestic sphere but to allow men to be active in the extradomestic public sphere.

Nevertheless, most researchers agree that women in hunting/gathering societies experience greater autonomy and power than they do in more complex societies. Lerner has proposed that the real beginning of women's oppression may be traced to the development of agriculture. In foraging societies an increase in population is thought to be undesirable because it strains the carrying capacity of the land. Women's reproductive capacity has only a neutral value under these circumstances because it is not seen as a valuable resource. In agricultural systems, however, children are desirable because of the labor they can provide. Under these conditions women's power to reproduce (and perforce women themselves) becomes a desired "object" to be controlled, traded, or raided. Thus women lose their identity as autonomous subjects and become a form of objectified property. The concept of women as objects underlies Lévi-Strauss's analysis of tribal kinship and marital exchanges in which the exchange of women between groups forges intergroup linkages that are essential for human survival and the development of culture. To feminist theorists such as Gayle Rubin this signifies that men have assumed rights over their female kin that women do not have over their male kin or over themselves.

Determining the status of women. All of these analyses fail to address the fact that women's status is not uniform in all societies at a given level of complexity. For example, women's status is high in some tribal societies, such as that of the Hopi, but much lower in some tribal areas of Papua New Guinea. A number of ethnographic studies have attempted to establish the sorts of conditions under which women may be accorded high or low status. These field studies have focused almost invariably on the sex-gender system in a single culture. However, some efforts to uncover generalities about the determinants of women's status cross-culturally have been undertaken.

The results of these cross-cultural comparisons are inconclusive. Nevertheless, some promising avenues of research have been revealed. For example, anthropologists have compared the social condition of women under different systems of social organization. Results suggest that in matrilineal systems, in which

property and social affiliations pass through the female line, women seem to experience somewhat greater autonomy than in patrilineal systems. Nevertheless, even under conditions of matriliney, a woman seldom controls the major share of the family's or group's property because it is commonly passed from her brother to her son.

Another area of intensive research concerns the extent to which women produce food or material wealth for the family or kin group. One theory holds that women have greater power when they make significant contributions to the production (rather than only to the processing) of food or wealth.

Systematic comparisons of the ethnographic record, however, suggest that there is no simple answer to the question of what factors determine women's status in society. Martin King Whyte reviewed a sample of ninety-three preindustrial cultures and found that none of the popular hypotheses concerning these determinants was strongly supported. Although women's contribution to subsistence was not found to have general status implications, Whyte found that matriliney and matrilocality (residence of the husband with his wife's natal group) do exhibit minor benefits for women and that the existence of private property is associated with a low social estimate of the value of women's labor.

The strongest pattern Whyte uncovered was an association between social complexity and loss of formal female authority. In more complex societies women experience greater sexual restriction, have fewer property rights, and have less independent solidarity with other women than in simple societies. One of his most significant findings, however, was that there is no simple measure of women's status. Components of high status—such as women's personal autonomy, control over property, and participation in group decision making—are not necessarily found together in the same society. These variables seem to occur independently, and Whyte concludes that there is no such thing as *the* status of women cross-culturally.

One problem with cross-cultural comparisons is that they fail to account for the fact that societies themselves vary in terms of the factors that confer status on individuals. For example, it may be that the power and prestige of women suffer to the extent that their society excludes them from the kinds of achievement that are culturally valued. Among the Thakali-speaking peoples of Nepal women have relatively high status (as evidenced by considerable personal autonomy, substantial control over family finances, and a relative absence of negative female imagery in the culture) even though they are excluded from participation in the complex political system of decision-making meetings and public offices. These

offices, however, are assigned by rotation, and thus occupation of them does not confer status in itself. Instead status is achieved by the accumulation of wealth among this mercantile trading population. Women, because they participate actively in commerce, not only are valued as economic contributors but also are highly esteemed as individuals if they demonstrate a shrewd talent for bargaining. The economic values of the Thakali contrast sharply with the religious values of the high-caste Hindus to the south. There ritual purity is a supreme social value. Hindu women, who are seen as more subject to impurity than men by virtue of their ritual pollution through childbirth and menstruation, have far less autonomy and access to public influence than Thakali women.

Sherry B. Ortner and Harriet Whitehead have proposed that cross-cultural variations in ideas about sex and gender are related to the ways in which women and domestic relations fit into various male-dominated prestige systems. For example, because a kinswoman's sexual chastity is so critical to a man's prestige in certain Mediterranean societies, women are often represented as dangerous and disruptive beings in need of strict control. In those societies in which men's prestige is not dependent on the behavior of women there may be less representation of cross-sex relations as threatening and less inclination to restrict women's autonomy.

Representations of women in public communications. The relationship between female oppression and negative representations of women in the symbols of communication has been another highly controversial but profoundly important topic of theory and research. It is unclear what impact exposure to sexual and gender imagery through the media, in literature, and particularly in PORNOGRAPHY has had on the actual behavior of individuals. One position holds that human behavior, both individual and institutional, is shaped primarily by the realities of economic distribution. If so, negative female imagery is merely a reflection of women's economic powerlessness and is not a direct cause of their oppression. According to an alternative view, public representations manipulate and direct social ATTITUDES. Therefore, negative representations of women in public communications may encourage the public to stereotype all women as passive, incompetent, overly emotional, and so on. Stereotypes of this kind may in turn become economically damaging if they prevent women from achieving promotions or appointments to positions of responsibility that would give them economic power and independence.

The commonly understood symbols of human communication are also the basic units of human thought in every society, whether technologically simple or complex. Commonsense perceptions of

appropriate social behavior are shaped by the symbolic terms in which social actors conduct their interactions. According to Melvin DeFleur and Sandra Ball-Rokeach, "As people communicate intensively over the years, selected assertions become regarded as true or correct metasymbolic representations of specific aspects of reality. Because of this process, our interpretations of reality, as well as folkways and other social norms, are *constructed* as by-products of the biosocial process of communication." Cultural conceptions of gender are embedded in this socially shared interpretation of reality. The culturally constructed reality is learned by all members of a communicating group, and so it generally remains unquestioned. Thus gender roles, as part of this unquestioned worldview, appear to be supported by common sense and seem as natural and inevitable as the anatomical differences between the sexes.

The gender content of these symbolic representations has come under increasing scrutiny now that children are partially socialized by their exposure to television, films, and popular songs (*see* MUSIC, POPULAR). Mass media research has frequently focused on the problem of whether the media shape social attitudes or merely reflect them. In his review of this research social psychologist Kevin Durkin explored the link between television viewing and the preference for traditional sex roles among children. Content analyses of television programming revealed that men appear far more often than women, that they are represented as being more dominant and in control, and that women are represented as being subservient more often than men. This is more true of programs aimed at adults than of children's television and is especially pronounced in ADVERTISING. *See also* CONTENT ANALYSIS; MASS MEDIA EFFECTS.

Studies of the association between traditional sex stereotyping and amount of viewing time have been inconclusive, however; some results have supported such a link and others have not. Durkin concludes that attempts to detect direct, linear causation between mass media and children's social learning are unproductive. In his view the child's reaction to television may not be confined to passive absorption; and, what is more, television messages are always interpreted in the light of experiences and information received in familial and other social contexts. This observation serves as a reminder that sex and gender symbols do not exist in a social vacuum. They can be best understood as part of a larger system of cultural assumptions regarding prestige, power relations, and the achievement of social status.

See also FEMINIST THEORIES OF COMMUNICATION; SEXISM.

Bibliography. Frances Dahlberg, ed., *Woman the Gatherer*, New Haven, Conn., 1981; Kevin Durkin, *Television, Sex*

Roles, and Children: A Developmental Psychology Account, Milton Keynes, Eng., 1985; Gerda Lerner, *The Creation of Patriarchy*, New York and Oxford, 1986; Margaret Mead, *Sex and Temperament in Three Primitive Societies*, New York, 1935; Sherry B. Ortner and Harriet Whitehead, eds., *Sexual Meanings: The Cultural Construction of Gender and Sexuality*, Cambridge and New York, 1981; Rayna Reiter, ed., *Toward an Anthropology of Women*, New York, 1975; Michelle Rosaldo and Louise Lamphere, eds., *Woman, Culture, and Society*, Stanford, Calif., 1974; Martin King Whyte, *The Status of Women in Pre-Industrial Societies*, Princeton, N.J., 1978.

BARBARA PARKER

GENRE

Literature has traditionally been organized on the basis of genres, or types of works. Genre makes possible the communication of content: its coded signals prompt readers to take up a work in an appropriate way. Genres used to be regarded as fixed, hard-edged classes, but in actuality they change and overlap so much and so untidily that it is best to regard them as loose groupings or families. Each has its own family resemblances, its characteristic features, but none need contain all the characteristics of its family.

These characteristics are of both form and content. Thus an epic is a long, continuous NARRATIVE focused on a great action; an epigram is a brief, pointed, witty, or touching poem with freedom of subject. Readers learn genres gradually, usually through unconscious familiarization, as when children learn broad types like story or SONG. In such ways expectations of genre are built up that writers can capitalize on so as to surprise or innovate. The system of generic expectations amounts to a CODE, by the use of which (or by departure from which) composition becomes more economical. In fact, genre serves the purposes of communication as much as those of taxonomy or CLASSIFICATION.

History

How many genres are there? In one sense there are as many thousands of groupings as writers and readers have ever recognized, although the nonspecialist probably makes do with as few as a dozen or so: song, TRAGEDY, COMEDY, farce, joke, novel, thriller, romance (see ROMANCE, THE), and a few others.

In the fifth century B.C.E. Homer was already regarded as the inventor of RHETORIC and hence of genre. Ancient rhetoricians identified many genres, and there is no doubt that Virgil, Horace, and other Roman authors practiced such kinds as epic and satire conscious not only of predecessors but also of the forms they shared with them. From late antiquity

on, Christian writers took up the pagan classical kinds with a greater sense of difference, adapting such forms as the epithalamium (wedding poem) to radically different purposes, in the process arriving at new genres like the allegorical epithalamium of the fifth-century writer Martianus Capella. Medieval Christian genres—romance, sermon (see HOMILETICS), carol—constitute a completely transformed set of genres, which superficially appear to have little connection with those of pagan antiquity. Two classical phases followed: the RENAISSANCE, when ancient genres were revived in vernacular guises; and the Augustan period, when a return was made to “purer” or more “correct” versions (see CLASSICISM). From the second of these movements emerged the fatal notion of genre as minutely prescriptive, which was to lead even so sensible a critic as SAMUEL JOHNSON to condemn William Shakespeare for using the word *knife* in a tragedy and JOHN MILTON for introducing Christian pastors into a pastoral.

The so-called fixed historical genres have changed almost beyond recognition. Greek tragedy began with Aeschylus, as a musical form more akin to OPERA than to modern DRAMA. It had only two characters, and its text was divided between episodes of dialogue and lyric choruses. But in the MIDDLE AGES tragedies were narratives, like those of Giovanni Boccaccio's *De casibus*. And when tragedy returned to the stage in the Renaissance, it had large numbers of characters, onstage VIOLENCE, and a range of diction quite foreign to ancient tragedy. Again, the modern PROSE tragedy of Henrik Ibsen or Anton Chekhov abandoned the classical tragedy's reversal of fortune (peripeteia) and even, in the cases of Eugene O'Neill and Arthur Miller, its elevated nobility. Forms change, with or without change of labels.

Nonetheless, writers and critics have abstracted from the various forms of the main kinds certain irreducible elements or modes (see MODE). These can be used to form mixtures between one genre and another. From the late sixteenth century in Britain, and earlier on the Continent, writers have made deliberate attempts to produce mixed genres or to explore intermediate possibilities between two genres, as in Fletcherian tragicomedy, which seeks an elusive mood between the comic and the tragic. When Shakespeare makes Polonius in *Hamlet* speak of “pastoral-comical, historical-pastoral, tragical-historical, tragical-comical-historical-pastoral,” he is not ridiculing the idea of generic combination but only Polonius's tedious account of it.

In the nineteenth century generic mixture was entered into with new energy. Greek, neogothic, and exotic forms (romance, Eastern tale, and countless others) were brought into play so polymorphously that formal diversity outstripped critical generalization. Eventually the Italian aesthetician Benedetto

Croce could plausibly argue that genre was a chimaera—that every work was unique, of its own kind (see AESTHETICS).

It is a common modern assumption that genres are things of the past, if indeed they were ever more than illusions. But in fact communication is impossible without the agreed codes of genre. And distinctively modern genres exist, many created or transformed by the electronic media, although most new genres have not yet been named. In literature, for example, the novel is partly being replaced by the characterless “fabulation” (Italo Calvino, Franz Kafka); by “self-begetting fiction,” or writing about writing (Vladimir Nabokov’s *Pale Fire*, Doris Lessing’s *The Golden Notebook*); and generally by “metafiction,” which creates fictional illusion only to demolish it (see FICTION). And there are other new forms, such as “faction” (see FACT AND FICTION) or the semifictional “documentary” novel (E. L. Doctorow, Truman Capote).

In the same way, individual BIOGRAPHY is partly being replaced by biography of a FAMILY or social group or by a set of short biographies illustrating a thesis. In POETRY the American long poem and, even more, the sequence of short interconnected lyrics have gone far to replace epic. Much LITERARY CRITICISM is now concerned with identifying these new groupings. A revived interest in genre was given a strong impulse by Northrop Frye’s *Anatomy of Criticism* (1957), and many works of a theoretical nature have followed, most of them based on the analysis of modes.

The Study of Genre

In the nineteenth and early twentieth centuries theorists mostly speculated about the essential character of very broad divisions of literature. They divided it into dramatic, lyric, and narrative categories, which they regarded as necessarily constitutive of all literature, and they engaged in philosophical meditations designed to arrive at an understanding of the “vision” each category embodied. This sort of theorizing works at such a high level of generalization that it is often in danger of failing to correspond very closely to actual instances. For example, it does not always take account of the complexities of mixture found in real literary works or of a host of awkward instances that tend to falsify the approach via broad categories.

Later theorists have preferred to come to grips with more restricted or at least more specific groupings, with individual modes if not with historical kinds. Francis Cairns has much to say about the *propemptikon* (“valediction”) in ancient Greek literature, Renato Poggioli and T. G. Rosenmeyer concern themselves with variant forms of pastoral, Tzvetan Todorov describes the operation of fantasy as a mode, and Fredric Jameson traces changing struc-

tures of the romance. Much of the late-twentieth-century theory is still analytical rather than historical in approach, but at its best it tends to take account of historical change, even while treating genre as a system and disengaging inner structures common to the generic tradition in question. This is bound to be so, because literary interest—certainly all literary innovation—consists in modulations or changes of generic signals. It is in departures from rules of genre that writers show their originality. It might almost be said that genre criticism is more useful the more specific it gets. For example, notions of tragedy in general may not take critics very far in interpreting *Hamlet*, but a knowledge of Elizabethan and Jacobean revenge tragedy will allow them to appreciate the weight of many features of the play more accurately.

At the other end of the scale theorists have been concerned with the relations among genres in the whole canon of literature (see LITERARY CANON)—with their arrangement in systems of various sorts. In earlier times the arrangement was hierarchic, the kinds being ranked higher or lower. Even ARISTOTLE discussed whether tragedy or epic is the best of the various genres. To some extent, however, the relations within systems were dynamic. Thus in the seventeenth century, epigram, georgic, and satire all changed position from the lower end of the hierarchy of kinds to places much closer to the top. Nor is this sort of ordering altogether outmoded: critics may still talk of major and minor forms. But modern systems tend to be constructed on a more descriptive basis. There are exceptions, as with the construction of systems in which large numbers of genres are arranged in spectra, according to the degree to which they exemplify certain arbitrarily chosen factors. These (sometimes very elaborate) maps purport to locate the genres in mental space: they may be of local illustrative use but can have no general validity and for the most part are purely fanciful.

If the genre of a work is mistaken, spectacular misreadings may occur. Unless one sees that John Dryden’s *Mac Flecknoe* (1682) is satire, that it is not to be taken as serious panegyric, one cannot appreciate it for what it is. But this is an extreme case; more often readers and critics misinterpret because their ideas of the genres involved are merely crude or vague. Such misinterpretations may, however, be interesting or even significant and may put the work into creative new propinquities that give rise to previously unknown groupings. Thus in the course of history works gradually change their generic affiliations in such a way as to preserve their interest for each new generation. Yet the genre’s tradition embodies a compensating continuity that may keep readers in touch with older meanings and values. See also READING THEORY.

For additional discussions of genre, see ART. For

additional entries on popular genres, *see also* COMICS; LITERATURE, POPULAR; MYSTERY AND DETECTIVE FICTION; SCIENCE FICTION; WESTERN, THE. For genres in film and broadcasting, *see* MOTION PICTURES; RADIO; TELEVISION HISTORY; and also entries on specific genres: AVANT-GARDE FILM; CINÉMA VÉRITÉ; DOCUMENTARY; HORROR FILM; MARTIAL ARTS FILM; MUSICAL, FILM; MYTHOLOGICAL FILM, ASIAN; QUIZ SHOW; SOAP OPERA; TELEVISION NEWS.

Bibliography. Rosalie L. Colie, *The Resources of Kind: Genre-Theory in the Renaissance*, Berkeley, Calif., 1973; Heather Dubrow, *Genre*, London and New York, 1982; Alastair Fowler, *Kinds of Literature: An Introduction to the Theory of Genres and Modes*, Cambridge, Mass., and Oxford, 1982; Northrop Frye, *Anatomy of Criticism*, Princeton, N.J., 1957; Claudio Guillén, *Literature as System*, Princeton, N.J., 1971; Paul Hernadi, *Beyond Genre: New Directions in Literary Classification*, Ithaca, N.Y., 1972.

ALASTAIR FOWLER

GESTURE

Bodily action other than SPEECH that is recognized as being done in order to express something. It is considered separate from emotional expression and separate from other bodily actions such as tics, mannerisms, and nervous movements. These expressions and actions may be very revealing of a person's current level of physiological arousal, emotional state, unconscious motives, social class, or cultural background, but to the extent that they are thought not to be under voluntary control, they are not regarded as gesture.

The topic of gesture includes bodily movements that occur in close association with speech (gesticulation); expressive movements that can be used independently of speech and can serve as complete utterances on their own, such as the thumb-up gesture (Figure 1), the shoulder-shrug, or shaking of the fist (autonomous gesture); gestural codes used in certain occupational circumstances in which speech is difficult or impossible, primary sign languages used in communities of the deaf, alternate sign languages used in some tribal and religious communities during periods when speech is forbidden, and the special elaboration of gesture found in religious RITUAL, as in the complex systems of mudras developed as part of the ritual of prayer in Tantric Buddhism; and the complex gestural systems found in some DANCE traditions, especially in India. *See* MIME.

Gesture has attracted the attention of scholars for many centuries. In the eighteenth century, especially in France, such writers as DENIS DIDEROT and Étienne Bonnot de Condillac thought the study of gesture provided a key to understanding the nature of thought



Figure 1. (*Gesture*) The OK version of the thumb-up gesture. From Desmond Morris, Peter Collett, Peter Marsh, Marie O'Shaughnessy, *Gestures: Their Origins and Distribution*, New York: Stein and Day, 1979, p. 190.

and the origin of LANGUAGE. This view continued to be expressed in the nineteenth century. Important contributions include those by the British anthropologist E. B. Tylor (1868) and the German psychologist Wilhelm Wundt (1900). In the twentieth century gesture was little investigated until the beginning of the 1970s. Since then it has attracted increasing attention with the development of the linguistic study of sign languages, the study of the role of gesture in the development of language in infants, and the study of the relationship between gesture and speech (gesticulation), which is considered to have implications for theories of utterance production. There has also been renewed discussion of the place of gesture in theories of language origins. The discussion of gesture that follows will not include SIGN LANGUAGE and other highly specialized elaborations of gesture.

Types of Expression in Gesture

There are at least four ways in which gestures achieve expression: pointing, characterizing, act ritualization, and arbitrary convention.

Pointing. A body part is moved in a certain direction, thereby serving to direct the recipient's attention

to what is being referred to. Although pointing is often done with an extended index finger, it need not be, and in many cultures the lips, nose, chin, or head may be used more commonly. In fact, any body part that can be moved directionally may be used for pointing. Pointing may be done to referents present in the immediate environment, to indicate directions and locations, or to direct attention to abstract referents, as when a speaker points in different directions when referring to different points of view or different components of the discourse. A pointing gesture may be a simple directional movement or it may describe a path in space. Pointing gestures that do more than merely direct attention to the referent and, by virtue of the movement employed, provide some representation of the features of the referent merge with the next mode of gestural expression.

Characterizing gestures. Here movements are made that characterize aspects of the referent, either by pantomimic action or by sketching or modeling. Characterizing gestures are often used to refer to concrete activities or objects, to characterize the manner or reaction of another person, or to characterize the speaker's own reactions in a situation being talked about. Characterizing gestures may also be employed to provide concrete visual images that are metaphors for abstract referents.

Act ritualization. Gesture plays an important role in the regulation of interaction. Thus there are gestures of greeting, assent, and negation; gestures that signal the relinquishment or the resumption of turns at talk; and gestures such as those of the waiter or police officer that regulate the movements of others, as in beckoning or in signaling "wait" or "halt." Many of these gestures can be understood as abbreviated and conventionalized forms of an actual interpersonal action. Thus the headshake of negation may be seen as a reduced and conventionalized version of turning away, the outstretched arms with exposed palms often seen in greeting may be understood as derived from grasping and embracing actions, raising the hand with palm forward to command another to halt may be seen as derived from the act of holding back another's forward movement. In this respect, many human gestures may show analogies with the displays of animals, which are interpreted by ethologists as ritualizations of acts of withdrawal, approach, aggression, and the like. *See also* ANIMAL COMMUNICATION; ANIMAL SIGNALS; ETHOLOGY.

Arbitrary convention. Novel forms of gesture may be created when needed. Gesturing, however, is much influenced by social convention, and many forms within a given community have become highly stable in both their performance and their meaning. In some cases of such highly stable forms, it is not possible to account for any relationship between form and

meaning in terms of any of the three preceding principles, and the gesture remains significant purely because of a shared convention. In such a case, the gesture is said to be arbitrary. Very few gestures appear to be completely arbitrary in this sense, although many are so highly conventionalized that they function as if they were. Examples include such western European gestures as thumbing the nose as an INSULT (Figure 2), crossing the fingers when wishing for a desired outcome, or tapping the side of the nose as a gesture of warning (used in parts of Italy).

Gesticulation

When a person speaks, muscular systems besides those directly involved in vocal articulation often become active. There are movements of the FACE and EYES; of the head, arms, and hands; sometimes of the torso and legs that, even to a casual observer, are seen to be patterned in relation to the flow of speech. Most commonly noted are those more or less complex movements of the hands and arms that appear as accompaniments to speech and are usually thought to emphasize what is being said or to illustrate it in some way.

Bodily movements that accompany speech have for a long time been considered an important part of the presentation of public speeches. In the first systematic treatment of RHETORIC (by the Spanish Roman Quintilian in the first century C.E.), extensive attention was given to how the speaker should manage bodily expression. Detailed descriptions were given of a number of gestural forms with instructions on when and how they should be used. With the revival of classical learning in the seventeenth century several treatises devoted to this topic appeared, such as those by Louis de Cressolles (1620) and Valentin Conrart (1689) in France and by John Bulwer (1644) in England. Textbooks such as *Chironomia* (1806) by the Irish divine Gilbert Austin and the many that followed in the nineteenth century gave extensive and detailed instructions on the use of gesture in PUBLIC SPEAKING.

The scientific study of gesticulation has been concerned mainly with how such bodily movements are patterned in relation to speech as observed in situations such as interviews or informal conversations. Close analysis has shown that gesticulation in the forelimbs and head is organized into phrases that are patterned in close association with the phrases of speech production. Speech is normally produced in phrases that may be defined in terms of patterns of stress and intonation (depending on the school of linguistic analysis, these are known as phonemic clauses, tone units, breath groups, or syntagmata). Such phrases are widely regarded as minimal units of speech production, each usually serving to express



Figure 2. (*Gesture*) The tandem version of the nose-thumb gesture. Red devil figurine. The Pitt Rivers Museum, University of Oxford.

a single idea unit (a minimal unit of meaning at the discourse level). The discovery that phrases of gesticulation are matched closely to these phrases of speech production suggests that speech and gesticulation are the products of a single underlying process of utterance production. It appears that, in this process, units of content may be given expression partly in speech and partly in gesture. Phrases of speech and phrases of gesture are matched because they are components in the expression of a single unit of content.

Content may be expressed in gesticulation in many different ways, so that the relationship between what is expressed in speech and what is expressed in gesticulation can vary. For example, "beat" or "baton" gesticulations are simple in form and appear to function as markers of units of discourse organization. Complex characterizing forms may present sketches or pantomimes, displaying aspects of the objects or actions the speaker is talking about; or they may have a metaphorical significance, as when a speaker uses containerlike gesticulations to suggest boundaries to the discussion or provides gestures suggestive of actions that can serve as concrete images for abstract processes. Speakers may also use gesticulation to clarify the meaning of a potentially ambiguous word, to complete an incompletely spoken sentence, or to convey aspects of meaning that are not conveyed directly in words.

Since in gesticulation a speaker may simultaneously present part of an utterance in verbal form and part in gesture, the mental representation of the content of the utterance cannot be exclusively linguistic in format, as has sometimes been maintained. It is thought that the study of how gesticulation is related to speech will help to advance understanding of the nature of mental representation and of the processes by which such representation gets translated into utterance form.

Cultural Variation in Gesticulation

Although all speakers gesticulate, the forms of movement employed and the extent to which it is done are matters of considerable variation, not only among individuals, but also among cultures. A study by David Efron (1941) of European immigrants in New York City established that there were marked differences in gesticulatory style among different cultural groups. He showed that southern Italians made much use of pictorial or pantomimic gesticulations. East European Jewish immigrants, on the other hand, employed gesticulation to portray visually the logical structure of what they were saying but almost never used pictorial illustrative forms (Figure 3). Efron also showed that whereas the Italians had a rich repertoire of standardized, autonomous gestures, the East European Jews did not. By comparing the gestural practices of the descendants of these two groups of immigrants, Efron further showed that the more the descendants were integrated into the mainstream of English-speaking life in the United States, the less these gestural differences became. Thus gestural style is learned as part of the culture.

Since Efron's work, few other investigations have explored cultural differences in gesticulation. However, we may suppose that cultural differences in gesticulation and other gestural usages reflect cultural differences in how members of the culture make use of the information gesticulation can provide.



Figure 3. (*Gesture*) Ghetto Jews: symbolic gestures. From David Efron, *Gesture and Environment*, New York: King's Crown Press, 1941, figs. 32-36.

Autonomous Gesture

Most communities share a repertoire of gestural forms that are more or less standardized in the manner of performance and relatively stable in meaning. Communities differ considerably in the extent to which they make use of such gestures and in the extent and nature of the repertoire at their disposal. A survey of a selected number of distinct gestural forms of this sort undertaken by Desmond Morris and colleagues in forty locations widely distributed from north to south in western Europe showed many differences, both in the number of forms recognized and in the meanings they were said to have. (The gestural forms examined are given in Figure 4.) A few gestures in the sample studied (for example, the "nose thumb" in Figure 4c) were found to be known throughout the region and were everywhere regarded as having the same meaning. Other gestures—for example, the "cheek screw" (Figure 4e)—were found to be quite limited in distribution and restricted in meaning. On the other hand, a gesture such as the "ring" (Figure 4i) was recognized widely but varied sharply in meaning from one part of Europe to another. Thus in southern France and Italy it was said to mean "good" or "OK." In northern France it was said to mean "zero" or "nothing." In Greece and Turkey it was taken as a gesture of homosexual insult.

Although lists of autonomous gestures have been published from several different countries, little is understood about how the gestures are employed in everyday interaction and the conditions that favor their emergence. A comparison of the range of meanings attributed to them suggests, however, that the majority have developed as gestural devices for the regulation of interpersonal conduct and the management of turning points in interaction, such as greetings and farewells. Gestures that serve as a way of making a comment on another's actions or on one's own situation are also very common. Autonomous gestures that are given a meaning like a word, such as a noun or a verb, are quite rare, however. Autonomous gestures of the conventionalized sort are almost always used singly, and they serve as a complete utterance. They are not used in combinations as components of utterances.

Development of Gesture

Studies of infants have suggested that the close relationship between hand movements and speech characteristic of adults is present at birth. Gestures such as lifting the arms as a request to be picked up or pointing as a way of referring to objects develop before speech, but gestures become more complex as speech develops. While older children gesticulate more

than younger ones do, there are important changes in the kinds of gesticulations that occur and how they relate to speech. There is a shift away from elaborate enactments that serve instead of speech toward a more precise speech-concurrent usage in which gesticulation occurs more selectively. There is also an increasing use of abstract, discourse-marking gesticulation. Characterizing gesticulation becomes more symbolic and more restricted in the aspects of meaning it is called upon to display.

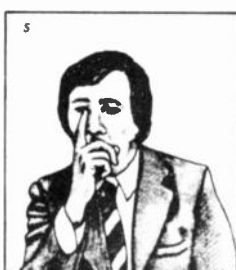
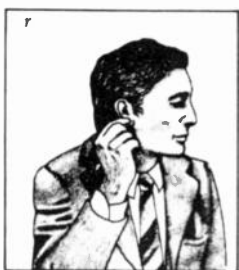
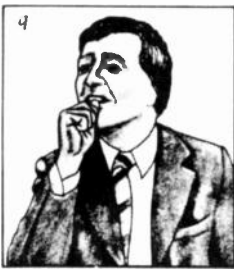
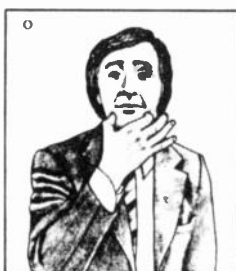
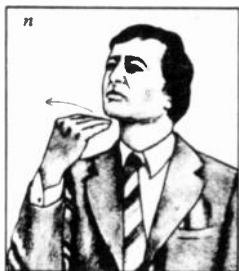
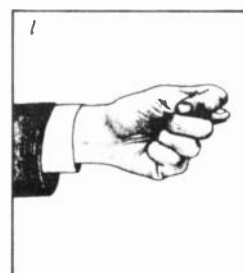
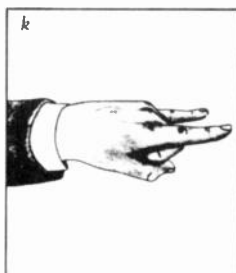
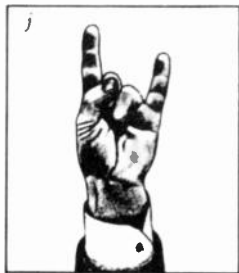
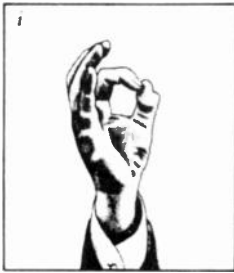
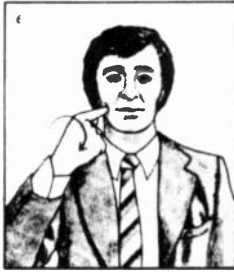
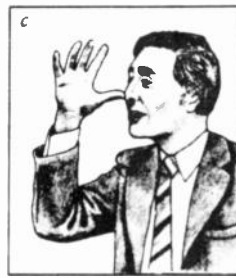
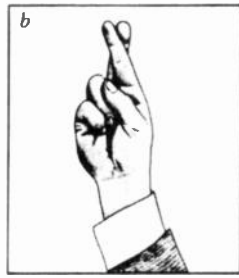
Neurological Bases of Gesture

Clinical neurologists have long recognized that patients suffering from brain damage that impairs speech (left-hemisphere damage in most cases) also show impairment in their ability to use gestures. Some maintain that this impairment is a result of interference with motor control, but other neurologists believe it results from interference with symbolic capacities. Detailed studies of gesticulation in aphasics have suggested that the disorganization in gesticulation observed in these patients parallels closely the kind of disorganization observed in their speech. Studies of hand preferences in gesticulation in healthy people show that, at least as far as characterizing gesticulations are concerned, these are almost always produced by the dominant hand. Since the dominant hand is regarded as being under the control of the same side of the brain as the side controlling speech (left side in right-handed people), this finding has been taken as further evidence that gesticulation and speech are under the guidance of the same fundamental process.

Universal Aspects of Gesture

The employment of gesture, either as gesticulation, in autonomous forms, or (in appropriate circumstances) in gesture systems or sign languages, appears to be a universal feature of human communicative behavior. The principles governing the creation of gestural forms also appear to be universal.

Almost all gestures, no matter how arbitrary, originate as pointings, characterizations, or partially completed interpersonal actions. They do not derive historically from other gestures in the way that words in a language usually derive historically from other words. Probably for this reason similar gestural forms can be found in widely separated cultures. For example, in one study autonomous gestures collected among four tribal groups in East Africa were compared with those that had been recorded among Spanish-speaking urban dwellers in Colombia. Of the sixty-eight East African forms examined, twenty-two were found to be highly similar to the Colom-



a The Fingertips Kiss
 b The Fingers Cross
 c The Nose Thumb
 d The Hand Purse
 e The Cheek Screw

f The Eyelid Pull
 g The Forearm Jerk
 h The Flat-hand Flick
 i The Ring
 j The Vertical Horn-sign

k The Horizontal Horn-sign
 l The Fig
 m The Head Toss
 n The Chin Flick
 o The Cheek Stroke

p The Thumb Up
 q The Teeth Flick
 r The Ear Touch
 s The Nose Tap
 t The Palm-back V-Sign

Figure 4. (*Gesture*) Examples of gestures. From Desmond Morris, Peter Collett, Peter Marsh, Marie O'Shaughnessy, *Gestures: Their Origins and Distribution*, New York: Stein and Day, 1979, p. xxvi.

bian gestures. These similar gestures turned out to be ones that are found in many other parts of the world. They included the use of the headshake for "no," the shoulder-shrug for "don't know," and a hand placed with the palm against the cheek for "sleep."

These worldwide similarities may be accounted for in most cases not so much in terms of diffusion of particular forms but as parallel formations arising from the fact that the means for representing such common activities as sleeping and eating are quite limited. A few widely distributed gestures may share a basis in forms of expression that are biologically inherited. Some writers have included the eyebrow-raise often observed in greeting and the shoulder-shrug for "don't know" in this category.

The widespread occurrence of similar gestural forms in different cultures and communities is one of the main reasons for the persistence of the idea that gestural expression can be more readily understood than spoken expression and that it thus constitutes a sort of universal language. Writers on gesture throughout the eighteenth and nineteenth centuries often took this view, and it was widely supposed that there was but one "sign language" common for all of humanity. However, recent work on sign languages has shown beyond doubt that these differ from one another much as spoken languages do. It is quite clear also from comparative studies of autonomous gestures and gesticulation that there are many differences from one culture or community to another.

Such differences arise for at least three reasons. First, in the creation of a characterizing gesture, the features of the object or activity to be characterized can vary. Second, the object or action depicted can vary in how it relates to the meaning of the gesture. For example, the "horns" hand (Figure 4j) in both Italy and Texas makes reference to the horns of cattle. In Italy horns are associated with a cuckold, and the gesture is highly insulting. In Texas, on the other hand, the gesture is used to show that one supports the Texas Longhorns, a football team associated with the University of Texas at Austin. Third, as a gesture becomes established as a stable, economical form of expression it becomes simplified, often losing its representational character. The way in which this simplification comes about can vary markedly from one community to another. In short, though the principles that govern the formation of gestures appear to be universal, the consequences of the operation of the principles are not predictable, with the result that very different forms become established in different parts of the world.

See also BODY MOVEMENT; CHOREOMETRICS; CONVERSATION; INTERACTION, FACE-TO-FACE; KINESICS; NONVERBAL COMMUNICATION.

Bibliography. David Efron, *Gesture, Race and Culture*, The Hague, 1972; Adam Kendon, ed., *Nonverbal Communication, Interaction, and Gesture*, The Hague, 1981; A. Lock, ed., *Action, Gesture, and Symbol: The Emergence of Language*, London, 1978; Desmond Morris, Peter Collett, Peter Marsh, and Marie O'Shaughnessy, *Gestures: Their Origins and Distribution*, New York, 1979; J. L. Nespoulous, P. Perron, and A. R. Lecours, eds., *The Biological Foundations of Gestures: Motor and Semiotic Aspects*, Hillsdale, N.J., 1986.

ADAM KENDON

GOEBBELS, JOSEPH (1897–1945)

German high-ranking National Socialist politician, Adolf Hitler's close collaborator, and controller of communications in the Third Reich. Paul Joseph Goebbels was born in the industrial town of Rheydt in the lower Rhineland. His father was a factory clerk, his mother the daughter of a blacksmith. As a child he contracted polio, which left him with a crippled foot and a permanent limp. Rejected for military service in 1914, he suffered throughout life from what he regarded as the stigma of failing to serve his country in wartime. The crippled little man with slight frame and black hair had to preach publicly the virtues of a tall, blond, blue-eyed Aryan "race." Nazi colleagues, envious of his intelligence and demagogic brilliance, later ridiculed him (behind his back) as "that bourgeois little mouse-doctor."

After 1918 Goebbels turned to a bohemian lifestyle and wrote poetry and drama. His literary efforts were unsuccessful. In 1922 he became a disciple of Hitler, whose manner and speech he imitated. For the next decade he had two goals: to promote Hitler as Germany's savior from Jews and Communists and to popularize Nazi IDEOLOGY as Germany's salvation. He presented Hitler as "either Christ or St. John," "the greatest German of all time." In 1929 Goebbels emerged as PROPAGANDA leader of the Nazi party. He now functioned as Nazi political campaign organizer, effectively using his powerful, resonant voice, which almost matched that of Hitler, to spread Nazi ideology. He used U.S. ADVERTISING and promotional methods in his own newspaper, *Der Angriff* (The Assault), and in many pamphlets (see PAMPHLET). He followed the editorial capitalization technique of shrieking TYPOGRAPHY favored by U.S. publishing tycoon WILLIAM RANDOLPH HEARST (e.g., "War against profiteers! Peace with the workers! THE GERMAN ALWAYS BEFORE THE FOREIGNER AND THE JEW!"). As master propagandist, Goebbels had a significant role in Hitler's rise to political power.

On March 12, 1933, shortly after Hitler became chancellor, Goebbels was appointed minister for public enlightenment and propaganda. He was empowered



Figure 1. (*Goebbels, Joseph*) Joseph Goebbels giving a speech at a Nazi rally. The Bettmann Archive, Inc.

to use the full resources of the state for National Socialist *Gleichschaltung*, “coordination” of every national institution—the press, MOTION PICTURES, publications, visual arts, the THEATER, RADIO, and SPORTS—for the advancement of Nazi doctrine. In this capacity he controlled the media and entire communications system, including all information, ideas, and attitudes allowed in the closed society of the Third Reich (*see* CENSORSHIP); from 1933 to 1945 he was the supreme arbiter of German cultural life.

In accordance with the Nazi leadership principle (*Führerprinzip*), Goebbels successfully maintained rigid control over German media through indoctrination and socialization mechanisms. His conduct may have been attributable in large part to overcompensation for his lack of physical virtues. Hurling sarcastic barbs at real or supposed enemies, he had an overwhelming need to transfer his own feelings of hatred and rage to the masses. Examples of his modus operandi include a rabble-rousing speech at the symbolic burning of the books on May 10, 1933 (“Spirits are awakening, O century! It is a joy to live!”), and his organization of the flamboyant Party rallies at Nuremberg (“I’m half-crazy with pride that such a genius as Hitler should see eye-to-eye with me toward the future!”). The delirium these produced was tellingly recorded in Leni Riefenstahl’s DOCUMENTARY *Triumph des Willens* (Triumph of the Will), the official Nazi film of the 1934 rally.

During World War II Goebbels made able use of his propaganda machine to maintain public morale by accentuating magnificent German victories, discontent in the Soviet Union, U.S. inefficiency, and the certainty of final victory. This task became more

difficult as the tide of war changed in favor of the Allies. In 1944 Hitler named him general plenipotentiary for the mobilization of the war effort.

Goebbels remained loyal to Hitler to the end and even stage-managed his own death. On May 1, 1945, he and his wife, Magda, after poisoning their six children (“They must not grow up in a non-National Socialist Germany”), committed suicide in Hitler’s Berlin bunker.

Bibliography. Paul Joseph Goebbels, *The Goebbels Diaries, 1942–1943* (in German), ed. and trans. by Louis P. Lochner, Garden City, N.Y., and London, 1948; *idem*, *The Goebbels Diaries* (Joseph Goebbels, Tagebücher, 1945), trans. by Richard Barry, ed. by Hugh Trevor-Roper, London, 1978; Roger Manvell and Heinrich Fraenkel, *Doctor Goebbels: His Life and Death*, New York, 1960; Curt Reiss, *Joseph Goebbels: A Biography*, Garden City, N.Y., 1948.

LOUIS L. SNYDER

GOFFMAN, ERVING (1922–1982)

Canadian-born sociologist whose work was devoted to the study of face-to-face interaction (*see* INTERACTION, FACE-TO-FACE) in various public and institutional settings. The impact of his work on various disciplines, from communication to political science, has grown steadily.

Erving Goffman was born in a small town in the province of Alberta. After three years of general undergraduate education at the University of Manitoba and some time in the artistic milieu of Ottawa, where he worked for the National Film Board, he

completed an A.B. in sociology at the University of Toronto in 1945 and moved to the University of Chicago. There anthropologist Lloyd Warner and sociologist Everett Hughes became his mentors. In 1949 Goffman went to the University of Edinburgh and did fieldwork in "Dixon," on a small Shetland island. The doctoral dissertation that developed from his research, "Communication Conduct in an Island Community" (1953), laid out the major themes of his life's work: the various ways the social order is broken, repaired, and ultimately maintained through face-to-face interaction (a domain of investigation he later labeled the "interaction order").

Goffman found evidence for the organization of social interaction in the many small behaviors of everyday life. For example, in Dixon people were enabled to interact socially with a minimum of uncertainty by a pool of what Goffman called "safe supplies." Such supplies were, among other things, small talk about animals, children, or the weather as well as tasks like eating, smoking, or knitting, which allowed people to keep silent for a while without being considered offensive.

This example shows the kind of empirical evidence Goffman used—everyday life situations that were so common that no social scientist had looked at them systematically until Goffman deprivatized them through his exceptional capacity for observation and analysis. The example also shows that from a theoretical point of view Goffman can be seen as a Durkheimian microfunctionalist (see DURKHEIM, ÉMILE): interactions are "little social systems," as he once phrased it, and the social function of talk and related activities is to keep these systems running efficiently. Goffman kept a delicate balance between a strictly sociological perspective and a more psychologically oriented mode of interpretation. In this respect, the feeling of embarrassment played a key role in his thinking; people were seen as constantly trying to manage their interactions in order to avoid the sanction of embarrassment.

But the scope of Goffman's ideas must be seen in a much wider context: the complex articulation between individual action and the social order set forth in his work. In his early books, such as *The Presentation of Self in Everyday Life* (1959), Goffman used a dramaturgical model to consider all face-to-face behavior as the presentation of the situationally fitted social identity. In later years he moved toward a sophisticated cognitive conceptualization, based on GREGORY BATESON's notion of "frame," defined as a social matrix of PERCEPTION and interpretation of the reality at hand (*Frame Analysis*, 1974, and to a lesser extent *Forms of Talk*, 1981). In this view life appears as loose "strips of activities" that are composed of multiple layers of MEANING.

One only needs to follow the threads of Goffman's career, most of which was spent in the United States,

to realize that he left legacies to several fields. After his dissertation research, his next major project was an ethnographic study of St. Elizabeths Hospital in Washington, D.C. There he tried to observe and understand the lives of mental patients in the wards from their own point of view. The book that followed from this research, *Asylums* (1961), has had a wide-ranging influence on psychiatric practice and policy, contributing to the reduction in size of large mental hospitals and the establishment of community mental health programs during the 1960s in the United States and in Europe.

Goffman joined the Department of Sociology at the University of California, Berkeley, in 1958 and contributed to research then in progress in both criminology and anthropological LINGUISTICS. In 1968 he moved to the University of Pennsylvania as Benjamin Franklin Professor of Anthropology and Sociology. Although he usually worked independently and had few regular graduate students, he ultimately had international influence on a variety of disciplines beyond anthropology and sociology, including linguistics, FOLKLORE, communication, political science, and ETHOLOGY.

Scholars in the field of communication have quoted Goffman extensively, but they have rarely applied his ideas to their work in any systematic fashion. Goffman's approach to communication processes is potentially fruitful not only for interpersonal and health communication specialists but also for mass media researchers, as evidenced by his original analyses of photographic ADVERTISING (*Gender Advertisements*, 1979) and radio announcements (*Forms of Talk*, 1981). He used mostly naturalistic methods and demonstrated how a qualitative approach could lead not only to a descriptive account of behavior but also to theoretical insights about the underlying structure.

It should be said, however, that using Goffman's work is not necessarily easy. It is deceptively simple merely to attach his labels to diverse items. The temptation to do this comes partly from the fact that there is no obvious cohesiveness to Goffman's theoretical frame. Indeed, Goffman can be considered a sort of sociological *bricoleur*, creating numerous terms, reshuffling others, and not always remaining consistent from one book to the next. Because of this, the application of his legacy appears easy at a surface level but is actually quite difficult at a deeper level. Perhaps Goffman's ultimate contribution to the study of communication is the vision of the social world he presents in his superb prose: one of intimate strangeness with one's fellows, achieved through a combination of sympathy and detachment. Only a gradual immersion in Goffman's works, coupled with a similarly estranged yet accepting eye for observation, may bear the fruit of his legacy. Seen this way, Goffman's contribution is neither the creation of a

single school of thought nor a single theoretical insight but a complex attitude toward the world.

Bibliography. Jason Ditton, ed., *The View from Goffman*, London, 1980; Paul Drew and Anthony Wooton, eds., *Erving Goffman: Exploring the Interaction Order*, Cambridge, forthcoming; Dell Hymes, "On Erving Goffman" (621–632), Michael Schudson, "Embarrassment and Erving Goffman's Idea of Human Nature" (633–648), Gary T. Marx, "Role Models and Role Distance: A Remembrance of Erving Goffman" (649–662), Paul Creelan, "Vicissitudes of the Sacred: Erving Goffman and the Book of Job" (663–695), *Theory and Society* 13 (1984).

YVES WINKIN

GOSSIP

Talk about absent others, often talk about those very characteristics and activities they would least like having discussed. Even when its contents are not scandalous, gossip has a somewhat illicit air, as gossipers are telling someone else's story, one to which they have no right. On the other hand, gossip also provides opportunities for the expression of moral values, for making sense out of aberrant or outrageous behavior, and for the creation of a clear definition of who one is by the delineation of who one is glad not to be. It is a complex communicative phenomenon, serving a range of functions, both in-

tended and not. Gossip—or ways of speaking very much like it—is found in many communities worldwide, especially in face-to-face social groups. In this apparently near universal distribution lie one of the reasons for scholarly interest in gossip and also the danger of overgeneralization from any one instance.

Approaches to the study of gossip. Any definition of gossip depends on both its content—what it is about—and its character as a social activity. The four major approaches to gossip are concerned with these two dimensions in different degrees. Many scholars and researchers with a communications perspective have considered it primarily as a means of transmitting and manipulating information. Some researchers concerned with the informational content of gossip have gone further in arguing its role in creating knowledge.

A second approach likewise focuses on content but is concerned with the moral element of gossip and with locating this moral element in general patterns of social process in the community. Some anthropologists argue that gossip, while making moral appeals, is primarily a device used strategically by individuals or groups to advance their own interests. From both these perspectives, the critical element of gossip is its topic; they disagree on how these topics and their implications are to be evaluated. Both approaches find some degree of cross-cultural similarity in the functions that gossip serves.

A third group of scholars—primarily folklorists



Figure 1. (*Gossip*) Two women gossiping. Hellenistic statuette from Myrina, ca. second century B.C.E. Reproduced by courtesy of the Trustees of The British Museum.

and anthropological linguists—have been concerned with gossip as an aesthetic and expressive act, concentrating on its formal and stylistic features and its role in the expressive repertoires of particular communities. In contrast to the preceding approach, this perspective stresses highly variable aspects of gossip. While all are concerned with gossip in terms of cultural notions of verbal art, license, and decorum, the results from Gary Gossen's study of a Mayan Indian community and Roger Abrahams's study of Afro-Caribbean ones depict formally very different phenomena. This approach is inherently very particularistic; gossip takes different forms and is related to other forms of talk in quite different ways in various societies.

A final approach is to study gossip as social interaction, specifically through the application of conversational-analytic techniques to gossip texts. Such work combines a concern for small-scale social process with a detailed methodology for describing the organization of talk. There have been few cross-cultural applications of this approach.

Research findings. Research from these perspectives suggests four general findings about gossip that should be taken into account in such studies. First, gossip is about something and is something in itself; any study of gossip should consider it as both text and social activity. Second, two kinds of social relationships are involved in any gossip event: those between the gossipers and their subject and those between the gossipers themselves. Gossip is both talk about and talk with others. Third, gossip should be considered not as an isolated phenomenon but as part of the expressive and communicative repertoire of a community. Its character and implications are related to those of other ways of speaking. Finally, how gossip is conducted in any community—its style and interactional organization—is as critical for the parties involved as are its topics; indeed, its aesthetic and expressive qualities may make gossip possible as well as satisfying.

It is clear that a unifunctional interpretation of gossip would be misleading. The specifics of how it works and how it influences social life vary considerably from one culture to another. Gossip can serve at the same time to further partisan ends and reinforce group values. Similarly, while it can threaten to disrupt relations with some—those talked about—it also can be an essential way of building and sustaining sociability, of weaving together a social web by weaving words together.

See also CONVERSATION; INTERACTION, FACE-TO-FACE; INTERPERSONAL COMMUNICATION; NARRATIVE; SPEAKING, ETHNOGRAPHY OF.

Bibliography. Roger D. Abrahams, *The Man-of-Words in the West Indies: The Emergence of Creole Culture*, Balti-

more, Md., 1983; Elizabeth Colson, *The Makah Indians*, Manchester, Eng., 1953, reprint Westport, Conn., 1974; Ronald Frankenberg, *Village on the Border*, London, 1957; Gary Gossen, *Chamulas in the World of the Sun: Time and Space in a Mayan Oral Tradition*, Cambridge, Mass., 1974, reprint Prospect Heights, Ill., 1984; John B. Haviland, *Gossip, Reputation and Knowledge in Zinacantan*, Chicago, 1977; Ralph L. Rosnow and Gary Alan Fine, *Rumor and Gossip: The Social Psychology of Hearsay*, New York, 1976.

DONALD BRENNIS

GOVERNMENT-MEDIA RELATIONS

Long before social science began debating questions of media impact, governments had already assumed an effect great enough to merit tight legal controls. At no time in history has any political system ever extended complete freedom of action to any mass medium. Even in the United States, generally regarded as having a very libertarian press system, print and broadcast news organizations are subject to LIBEL suits by government officials (as well as private citizens), PORNOGRAPHY statutes, antitrust legislation (see MONOPOLY), national security regulations, and, in the case of broadcast news sources, regulations requiring "fairness" in news content. All modern nations develop laws, regulations, and procedures for defining the limits of press freedom. See GOVERNMENT REGULATION.

In Great Britain the common law still provides punishment (public reprimand or even jail) for journalists who report defamations about a sitting Parliament or its members, and libel recoveries are allowed even if a defamation is true. In Italy the government plays a formal role in licensing journalists, and the Ministry of Justice is involved in sanctioning reporters who violate the professional code of journalism. Mexico and other countries have established systems in which newsprint is controlled by a public-private corporation. Newspapers are dependent, at least in part, on the government for something as essential as the paper on which their copy is published. In the last analysis all governments establish formal and legal means for ensuring that press-government relations are never totally beyond their control.

Patterns

So obvious is the importance of law and regulation in the ties between government and press that most studies concerning the two have focused on the legal aspects of the relationship. The single most famous typology offered about the press-government relationship focuses almost completely on the role of the governmental system. *Four Theories of the Press* (1956), written by Fred S. Siebert, Theodore Peterson,

and WILBUR SCHRAMM, presents "authoritarian," "libertarian," "communist," and "social responsibility" models of press-government interaction. Past analyses have seldom examined ways in which media organizations tend to look at government and to define their own task of reporting and assessing activities of government. If we survey the range of media perspectives, focusing on societies in which the press and other news sources are not wholly under government control—setting aside regimes in which government has taken over the press functions—six basic patterns seem to emerge. The sources may be (1) antithetical, (2) adversarial, (3) symbiotic, (4) bureaucratic, (5) partisan, or (6) obeisant.

The antithetical press. The antithetical press rejects several of the basic values of the political system and refuses to relate to governmental elites in any ongoing way. In essence, the antithetical press does not "cover" political leaders; it rejects them and their system. Intensely ideological, the antithetical press also disdains partisan ties, something that differentiates it from the obeisant press, a press type that embraces both IDEOLOGY and party.

In antilibertarian societies the antithetical press is outlawed. In liberal societies the antithetical press is often called the underground press, not because it is necessarily illegal but because it is politically radical and clearly outside the power structure. Journalists who work in the antithetical press, like the *Nation* in the United States, prefer not to rely on government officials as sources, but instead to interpret conditions and reflect on events.

In a commercial press system the antithetical press is often small in number and in size, and economically vulnerable. Most antithetical press sources either move toward adversarialism in their relationship to government or, more often, fail to sustain themselves. In fact, owing to their lack of financing through ADVERTISING, party, or government, most antithetical press sources publish infrequently, usually on a monthly basis.

The adversarial press. The adversarial press accepts the basic political values of the system but defines its relationship to political leadership in an aggressive and "negative" way. Adversarial news sources cover politicians but in their reporting focus on the failures and problems of leadership. The adversarial news source also practices investigative journalism, news gathering that emphasizes discovery of facts and deemphasizes the pronouncements and public actions of government elites.

Although the Western press is often described as adversarial in nature, most social scientists believe that the Western media are not particularly adversarial. Most day-to-day commercial news sources in the West do little investigative journalism and give considerable deference to political leaders, relying

heavily on the government for news and quotations.

Le monde in France is one of the more famous examples of an adversarial daily. Begun as an experiment after World War II, *Le monde* has generally had a liberal viewpoint, but compared with most major Western dailies the paper has related adversarially to leaders of all political colorations and has chosen not to practice the sort of "objective reporting" one usually associates with most of the daily press.

In most pluralist democracies, the periodical press is more likely to be adversarial than the day-to-day press. According to some observers, the United States has recently experienced some increase in adversarial treatment of the news. However, press historians regard the late-nineteenth-century newspapers of WILLIAM RANDOLPH HEARST and JOSEPH PULITZER as substantially more adversarial in nature than the contemporary media. *Muckraking*, a higher order of adversarial news reporting, was widely practiced by both newspapers and magazines toward the end of the nineteenth century.

There is a school of thought that argues that adversarialism is, in the daily press, something of an illusion. One contemporary author speaks of a "bounded adversarialism," a modern media system that becomes adversarial only when it believes that the government or its officials have broken the basic rules of the game.

Symbiotic news organizations. Symbiotic sources are those that are more likely to rely on government than to defy government. Symbiotic news organizations practice a form of objective reporting that lends itself to covering what government leaders routinely say and do on a daily basis. Instead of defining their role as oppositional to that of the sitting government, these symbiotic news organs recognize that they need the government at least as much as the government needs them. Relationships are, therefore, transactional and mutually beneficial.

Commercial wire services practice a form of journalism that implies a symbiotic relationship. Typically, wire services remain symbiotic in practice until government action elicits an adversarial response. Media historian David Halberstam argues that the wire services covered the early stages of U.S. involvement in Vietnam by relying heavily on official releases and news provided by the Department of Defense, a practice that Halberstam believes inhibited other news sources from moving to a more adversarial posture during the early part of the war (see NEWS AGENCIES).

Certain types of media seem more likely than others to accept a symbiotic relationship with government. Commercial radio appears more symbiotic in its behavior than commercial print media, at least in the United States. Political scientist David Paletz has

demonstrated a tendency for the local press to be more symbiotic in its relationships with government than are the larger national newspapers. It is generally accepted that all forms of Western media are most likely to behave symbiotically at the outset of a newly elected government, a time during which the press desperately needs access to the new leadership, and little hard news about policy-making is available; hence the "honeymoon" period.

One school of media theory argues that all commercial media are symbiotic in their news practices. These theorists regard press and government elites as so close in background and/or values that the relationship may be even less than symbiotic—in a word, "hegemonic," or given to a single dominant value system in which the press plays the role of safety valve for the ruling elite.

The hegemonist theory is among the most controversial concerning media-government relationships. In fact, the conflict among those who consider the commercial press in democratic societies to be basically adversarial, basically symbiotic, or basically hegemonic has dominated much of the academic debate concerning interactions between press and government.

Bureaucratic. Much of the Western media structure is not commercial. Much of it is actually governmental, which is to say formally tied to the state. Governmental newspeople are themselves of two types: those who are directly employed as part of the nation's press secretariat and those who work as government-funded or subsidized journalists.

To distinguish between the two types—press secretaries and government-linked reporters—one might call the first type government news officials and the second type news bureaucrats. Of the two, news bureaucrats are far greater in number and more related to our concerns.

As a rule, news bureaucrats work in broadcast journalism. Virtually every Western nation has a broadcast news organization that is maintained by government funding, many based on the British Broadcasting Corporation (BBC) model originally formulated during the 1920s.

Even the most commercial news systems inevitably establish some form of bureaucratic press. The United States has no functional equivalent to the BBC, but the U.S. government does operate the United States Information Agency (USIA), a bureaucratic news organization that, by law, disseminates news only outside the United States. USIA is bigger and more heavily funded than the news divisions of the three principal U.S. television networks combined (see RADIO, INTERNATIONAL).

There are print sources, too, that could easily be classified as bureaucratic both in nature and in their relationship with the government. *Al ahram* in Egypt

is a bureaucratic print source, semi-independent of government at the reportorial level but tied to government at the editorial level: the nation's president appoints the editor in chief. In Yugoslavia, a socialist country, the government employs and funds *Borba*, the official daily newspaper. The socialist countries have print sources that meet our definition of bureaucratic; in the West, however, bureaucratic news media are mostly electronic: Canadian Broadcasting Corporation (CBC) in Canada, Radiotelevisione Italiana (RAI) in Italy, Télédiffusion de France (TDF) in France.

Because bureaucratic news sources are funded or subsidized by the state, most media theorists reasonably assume that the relationships between bureaucratic sources and government officials will be comparatively friendly and only rarely adversarial. In the Federal Republic of Germany bureaucratic news sources have been quite unwilling to adopt an adversarial position in covering the major parties or the government. Research indicates that the CBC in Canada (a government-backed system) is considerably less aggressive in its news practices than CBS (a commercial system) in the United States. In France government pressure has kept French television news bureaucrats from behaving as adversarially as commercially sponsored reporters, causing a pattern of resignations and press crises in French television news. The history of recent years does suggest that the commercial media—adversarial or symbiotic—are more likely to cover scandals or to present bad news about government leaders than are bureaucratic news media.

Partisan. The essence of a partisan medium is that it has direct, often formal ties to an active political party. In the nineteenth century, particularly in the United States, those ties were frequently announced in the very name of a newspaper.

For the most part the history of free press often begins with the free but partisan press (see NEWSPAPER: HISTORY). By the late eighteenth century, the partisan press was essentially the only form of press that covered politics and government. In the United States the two original capital newspapers were controlled quite directly by Thomas Jefferson (a Republican) and Alexander Hamilton (a Federalist), each at the time a sitting member of President George Washington's cabinet.

Because partisan sources are tied to or directed by the party, the relationship to the government by a partisan paper is, at once, variable and predictable. Partisan press sources treat government leaders favorably if their party controls the government, negatively if their party does not. Indeed, parties pioneered the newspaper business in the eighteenth and nineteenth centuries in the Western democracies for two reasons: first, in order to win elections, and second,

to ensure themselves favorable coverage once they had succeeded. During the 1800s, a newspaper's reporters were essentially employees of the party that published it, paid either directly by the party or indirectly through patronage-based subsidies. Even as late as the early twentieth century the major Canadian newspapers were so tied to their patron party that the reporters themselves sat in the Parliament galleries in accordance with their party label.

The partisan press has, however, accounted for less and less in all the media systems of the late twentieth century. Even in the most partisan of political systems the majority of daily newspapers have broken their formal ties to political parties. And the newest systems have tended not to adopt partisan news sources or have tended to drop them quickly along the way to political development. Israel, a comparatively young and intensely partisan nation, has not been able to support a partisan press. Between 1948 and 1976 the number of party-affiliated newspapers in Israel dropped by almost two-thirds. The one major daily, which began in the 1940s as a party paper, has since announced its independence from the Labor Party. In Scandinavia and in western Europe, with Italy the major exception, the same pattern holds: the partisan press maintains its significance only rarely, and most of its worth is as press history.

The obeisant press. Extremist parties, however, have not been as willing as centrist parties to accept the decline in party-based journalism. *Humanité* in France and *L'unità* in Italy are the most famous examples of Communist party papers in Western society. But extremist right-wing parties also work hard at preserving their obeisant press organs; the Movimento Socialista Italiano (MSI) in Italy, for example, publishes *Il secolo d'Italia*, a newspaper that is almost as much an official organ as *L'unità*.

Like the partisan press, the obeisant press treats government in a predetermined manner—hostile when the government is the opposition, sympathetic when the government is the sponsoring party. The main differences between partisan and obeisant sources are two. First, the partisan press has a directorate that is *linked* to party; the obeisant press has a directorate *chosen* in large measure by party. Second, obeisant press sources usually represent extremist parties, so by definition their party is less likely to control government. Therefore, obeisant press sources often reflect the same sort of relationship to sitting governments that antithetical press sources exhibit.

Change and Evolution

Scholars disagree about the reasons for a news source practicing one type of journalism or another. Constitution and law play a large part in defining limits

and establishing practices, most especially for bureaucratic news sources, which are tied formally to the government. Perhaps more interesting are those interpretations of why a source (or group of sources) shifts among the three most common commercial types (symbiotic, adversarial, and partisan) or why, for that matter, an entire press system moves from one general approach to another.

Beyond the formality of law, four general interpretations of change exist. First is a historical interpretation, which focuses on cataclysmic events. For example, the BBC adopted a more adversarial relationship with the government of Margaret Thatcher after it was disclosed that during the war with Argentina over the Falkland (Malvinas) Islands in 1982, the government had permitted the sinking of an Argentine naval vessel, the *General Belgrano*, despite the fact that the ship was not in the designated war zone and was moving away from the combat zone. The war did serve to make the bureaucratic British press less bureaucratic. In the United States as well conduct of the war in Vietnam and the Watergate affair (1972–1974) have been considered the two events that helped to shift U.S. news sources away from symbiosis toward “bounded adversarialism” and, in some cases, adversarialism.

Demographics have also been used to explain shifts from one type of system to another. An increasingly educated public may prefer a less symbiotic relationship between its news source and its government; so, too, may an increasingly educated press corps. Indeed, one plausible explanation for the recent shift away from symbiosis in many systems is that reporters have been drawn increasingly from more prestigious educational backgrounds and higher social strata.

Some press theorists invoke political culture to explain systemwide or localized changes in press behavior and media-government relations. In the twentieth century the single greatest change has been the decline in partisan press practices and styles. Some believe that partisanship has become less important in political culture because the parties themselves gave up on the partisan press; the more widely accepted notion is that as partisanship as a cultural force declined, the partisan press approach was incongruent with political culture and therefore doomed to a far less important role in journalism.

Political culture leads directly to the last interpretation of change in media-government relations—the commercial interpretation. One can obviously employ audience tastes to explain the decline of partisan press in the United States: the general public wanted more objective reporting and got it. But one can also use audience tastes to explain the weak and ephemeral nature of the antithetical press: there are too few antisystem readers to buy, and sustain, those sources. Indeed, one can even use commercial pres-

sure to explain one of the most surprising changes in press-government relations, the nearly universal shift during the first half of this century toward a more symbiotic relationship. As technology made possible a closer look at political leaders, and as publics were given greater opportunity for personalized news about those leaders, commercial press organs were themselves forced to draw closer to leadership; personalized information demanded the closer tie. In order to please readers (viewers, too), reporters had to sacrifice adversarial practices to gain moment-by-moment access to politicians.

No matter which interpretation of change is best, one truth seems to hold historically: whoever *pays* for the news organization—be it party, government, or public—plays more than a modest role in determining the way in which that news organization interacts with political elites.

See also CENSORSHIP; ELECTION; NEWSMAGAZINE; NEWSPAPER: TRENDS; POLITICAL COMMUNICATION.

Bibliography. Richard Fagen, *Politics and Communication*, Boston, 1966; Itzhak Galnoor, ed., *Government Secrecy in Democracies*, New York, 1977; Dan Nimmo and Michael W. Mansfield, eds., *Government and the News Media: Comparative Dimensions*, Waco, Tex., 1982; Richard L. Rubin, *Press, Party, and Presidency*, New York, 1981; Colin Seymour-Ure, *The Political Impact of Mass Media*, Beverly Hills, Calif., 1974; Fred S. Siebert, Theodore Peterson, and Wilbur L. Schramm, *Four Theories of the Press*, Urbana, Ill., 1956, reprint Freeport, N.Y., 1973.

MICHAEL J. ROBINSON

GOVERNMENT REGULATION

Governments have regulated the flow and content of information and communication in all societies throughout history, although some societies have valued freedom from such regulation. Governments have imposed systems and bureaucratic structures of CENSORSHIP and control as a way of compelling adherence to religious, social, political, or ideological ends and values. Government regulation has acted as both an enforcer of accepted standards and an eradicator of views deemed to threaten the existing order. Government regulation also exists (1) as a convenience to modern communications industries to ensure that the operations of individuals and companies are confined within rules to their mutual benefit and (2) as a protection of the public against excessive bias in the presentation of a single point of view and excessive emphasis on VIOLENCE, obscenity, or sexual explicitness. Regulation also exists as a protection for government in helping to maintain SECRECY or to shield the powerful from criticism or exposure. No society, even those most firmly committed to freedom of expression, can altogether avoid government regulation of communications.

History

In ancient Rome the censor enumerated and classified the population and assessed its morals. To protect Rome against both immorality and political treason, the institution of public informers was developed. Banishment was imposed by the censor on offending philosophers and teachers, and actors in offending dramas lost their citizenship. The censors regulated the admission of Greek arts and writings into Rome through control of the movement of individuals. In turn, Judaism, Christianity, and Islam confronted the laws of the decaying ROMAN EMPIRE with their different versions of theological exclusivism, all refusing to participate in the pluralistic, idolatrous practice of Rome. Each of these religions created a canon of texts deemed to be authentic and regulated their practice through the listing of schismatic and heretical works.

However, the systems of religious and secular censorship based on centrally authorized prohibition that are still familiar today have more recognizable origins in the conflicts between the new sciences and RELIGION during the twelfth and thirteenth centuries. At that time the universities were the battlegrounds for struggles between new and inherited beliefs. Thus in 1215 the University of Paris banned ARISTOTLE's works on physics and natural sciences (although his logic remained in the curriculum), and the works of Arabic and Persian philosophers were similarly squelched. These regulations occurred while the universities were themselves becoming involved in the new debates about academic freedom. *See* UNIVERSITY.

Even before the arrival of PRINTING, university and educational authorities, operating within broader civil authority, were building systems of control through manipulation of the commerce in and production of texts. Booksellers and stationers were licensed to deal in prescribed categories of material. With the coming of printing in the fifteenth century, systems for licensing presses were backed up by the establishment of both clerical and government censorship of books prior to publication and the prohibition, after publication, of works that had not been censored. These methods of control, under varying degrees of vigilance, lingered on in parts of Europe and Asia until the national revolutions of the nineteenth century. The central texts for these elaborate machineries of intellectual and confessional control were the 1559 Index of Forbidden Books of Pope Paul IV and the Index of the Council of Trent five years later, which set out the methods for the prepublication examination of books and arranged for the inspection of printing presses and stationers' premises. *See* BOOK.

Evolving scientific theories as well as the changing industry of printing exerted great pressure on these systems of control. The coming of the ENCYCLOPEDIA

and the drastically altered nature of state institutions in the seventeenth century also influenced the methods of censorship and regulation. A rash of indexes broke out in various parts of Europe, mutually denunciatory and impossible to enforce. While in earlier times the universities had carried out the task of prejudging manuscripts, with church and state enforcing their judgments, the institution of printing complicated the situation and made the distinction between the manuscript and the printed edition paramount. Gradually the universities lost their power of jurisdiction.

Each system constructed in European societies for limiting and inspecting printing establishments broke down under the sheer pressure of the demand for printing services. Through the Stationers' Company successive English administrations after 1556 attempted to control the entry of apprentices into the printing trade and to ensure their compliance. Censorship by the Privy Council and by means of royal patents had broken down during the reign of Henry VIII. Parliament's increasing difficulty in controlling the stationers during and after the civil war of the 1640s was followed by a period of extreme repression after the return of Charles II in 1660 and then, in 1695, by the abrogation of press licensing altogether.

Censorship in the eighteenth and nineteenth centuries. English governments turned to another form of regulation—industrial—in their pursuit of social order through the control of controversial material. In 1712 the first of a series of Stamp Acts forced newspaper prices dramatically upward by obliging all periodicals publishing news to use only stamped sheets of paper. Newspapers were confined thus to the wealthier classes. The system survived through various transitions until 1865—after decades of struggle between illegal unstamped radical newspapers and the legal stamped middle-class press. A wide variety of other controls was also imposed on the press; these were gradually reduced or removed from the late eighteenth century onward (*see* NEWSPAPER: HISTORY). (The charge of *scandalum magnatum*, or defamation of those in power, was finally removed from common law—although it continues to echo even into the late twentieth century—and evolved into the still stringent civil laws against LIBEL. Controls over obscenity and official secrecy remain in place for all forms of media.)

Different traditions of censorship took root in France and Germany and elsewhere in Europe. In the eighteenth century France acquired a prepublication code, operated by the chancellor with the help of nearly eighty censors, each specializing in a different category of material. A vigorous debate ensued on the disadvantages of a censorship that varied in nature and intensity from one year to the next. Jean-Jacques Rousseau, Voltaire, and others were

published outside France (Holland, Switzerland, England) and secretly imported. In France, perhaps more clearly than elsewhere, censorship was conducted in the name of learning, the censors being acknowledged authorities in the subjects concerned and desirous of protecting the public against the unfamiliar, the damaging, and the inaccurate. Absolutist censorship (as practiced, for example, in the Holy Roman Empire) was not dissimilar in scope and intention from that of twentieth-century totalitarian administrations, in which associations of writers, scientists, and philosophers provide sanction and intellectual cover for a censorship designed to prevent or retard political discussion outside a very small elite.

The French Revolution of 1789 suddenly and briefly opened the floodgates of a totally free press; five hundred publications sprang into existence but were rapidly extinguished as censorship—far more oppressive than that of prerevolutionary decades—was enforced. By the time of Napoléon's empire only a single news publication, edited by the emperor, survived. In England fear of REVOLUTION led to the passage of the Six Acts, by which Parliament attempted to stamp out radical publications and free assembly—a repression that ultimately made establishment of the free press into a basic liberal cause. John Stuart Mill's tract *On Liberty* (1859) was the most widely influential text of the nineteenth-century movement toward intellectual liberty in stable societies, and Henry Jephson's *The Platform* (1894) followed the evolution of the argument for freedom of SPEECH and assembly as the counterpart of a free press.

Some of the ideas and practices of European states spread to the Americas. Both North and South America saw experiments in new forms of absolutism and liberalism. In many societies new state machinery was devised to cope with the paradoxes of postcolonialism: media institutions born of liberal struggle found themselves subjected to the demands of dominant groups and classes identified with new regimes.

The colonies that became the United States carried on a concentrated discussion and practice of censorship that enabled them to pass through and beyond the various stages undergone by European societies. Freedom of speech and publication were not established in the early communities of colonists, fleeing though they were from intolerance and repression. Quakers were persecuted and their publications refused toleration to other sects and religions elsewhere in the colonies. In contrast to the narrow theocracies of other settlements, Rhode Island was established as a center for freedom of worship and speech.

In the eighteenth century there were several celebrated prosecutions of newspaper publishers, but the 1734 trial of JOHN PETER ZENGER for articles of an

allegedly seditious nature published in his *New-York Weekly Journal* failed, and the case helped to mark the rapid development of free-press thinking in America. Common law continued to prohibit treason, blasphemy, sedition, and obscenity (the four universal targets of censorship) as forms of libel, but gradually defenses against the charge of libel became firmly established. Under the 1791 First Amendment to the U.S. Constitution, Congress was prohibited from passing laws prohibiting freedom of speech or publication, and upon this declaration a vast superstructure of libertarianism was gradually created, the amendment having been taken to imply that censorship prior to publication is illegal. In the United States, government controls took the form of preventing distribution (e.g., by forbidding certain kinds of material to pass through the U.S. mail system). However, special laws of a censoring nature—such as the Alien and Sedition Act of 1798 and the Comstock Act of 1873, prohibiting the dissemination of obscene material through the postal services or U.S. Customs—have also attempted to protect the U.S. government or society from malicious publications (see POSTAL SERVICE). Efforts to expand First Amendment rights were undertaken continuously by radical and labor organizations and also by the media industry, which attempted to push back government licensing of the radio SPECTRUM.

Censorship in the twentieth century. The major struggles in the United States in the 1970s and 1980s (paralleled in many other societies) revolved around access to governmental information. The controversy over the publication of the Pentagon Papers during the administration of Richard Nixon helped to establish the importance of freedom of information legislation, based on the (much-disputed) notion that the First Amendment guarantees the right to know as well as the right to speak and publish. Freedom of information acts have been introduced in many countries, including several in Scandinavia, but in Britain the view has remained entrenched in official circles that secrecy of government documents of all kinds must be protected, even to the extent of imprisoning civil servants who reveal politically sensitive material to journalists. U.S. practice inspired a movement throughout the journalism of democratic societies toward more openness of government, but in the mood of the 1980s it experienced more setbacks than progress.

The position of the press in the Soviet Union and its closely allied societies is instructive in comparison with the prevailing doctrines of Western countries. Russia in the nineteenth century modeled its press laws closely on those of France despite Russia's more active secret repressive apparatus. With the 1905 revolution censorship prior to publication was abolished, and after the Bolshevik Revolution a new

Soviet Constitution was drawn up offering a free press of an extreme kind. However, special exceptions (which included the protection of socialism and of the Communist party of the Soviet Union) were quickly applied, amounting to an abrogation of guaranteed rights. Soviet practice, echoed in a large number of developing societies, is based on the idea that the state as representative of the rights of the people, and of the party as the people's instrument, should suppress all forms of dissident literature and news publication. According to the theories of V. I. Lenin news media of all kinds are such crucial tools for the building of a new society that those who flout edicts of the party are guilty of frustrating socialism itself.

After World War II Asia and Africa went through a generation of highly concentrated change. Previously the basic communication systems of those continents, as well as the doctrines of governance, had largely been constructed to suit the needs of imperial powers (see COLONIZATION). Newspapers, RADIO, and other telecommunications tended to be the possessions of private companies located in the imperial countries. The independence movements all were founded on newspapers molded by the traditions of the nineteenth-century European nationalist movements. As colonialism ebbed, particularly after World War II, a host of new nations faced their own regulatory decisions—and often began by sweeping away hated controls, then enacting quite similar systems themselves. The struggle to legitimize and consolidate authority and the quest for national identity played a part in these processes, precipitating struggles still far from resolved. See AFRICA, TWENTIETH CENTURY; ASIA, TWENTIETH CENTURY.

The Debate over Deregulation

The censorship debate has nearly always been part of the larger debate about industrial regulation by government. Since the 1960s government regulation of the communications industry has been explicitly linked in the United States to the issue of how best to preserve and fulfill the principles of the First Amendment.

The historical context is crucial to an understanding of the deregulation debate. Commerce has been regulated by various governmental authorities for many centuries. There are numerous examples. Authorities controlled the prices and quality of medieval markets. The Holy Roman Empire instituted and regulated a messenger service that covered the entire central region of Europe from Turkey and Poland to the English Channel. The early postmasters of the American colonies were obliged to copy and pass on the newspapers to the more distant groups of settlers. Japanese authorities ensured the existence of the tile newspapers of the seventeenth century. The English

Tudor and Stuart administrations established wage levels and price levels for a range of basic goods to protect the public against unwarranted inflation and to ensure the well-being of workmen. In the United States the legislation of the New Deal, under which the 1934 Communications Act was passed and public administration models for the airplane and aviation industries were established, was simply a continuation of practices that had existed throughout the era of industrial capitalism and had long preceded it. The building of canals and railways, the organization of banking, the issuing of currency—all of these commercial undertakings were deemed to require quite sophisticated forms of regulation.

In the United States during the 1970s and 1980s a fundamental debate sprang up about the conflict between regulated industry and the doctrine of the open market. Government-run and government-regulated industries alike were increasingly felt to infringe on the rights of consumers because they were, by virtue of their status, exempted from the rigors of competition. A parallel discussion sprang up throughout western Europe and Australia in the wake of new antisocialist dissent. To many, regulation had been proved inadequate where, as in Britain and France, for example, poor TELEPHONE services could be blamed on the existence of public, protected monopolies. In the United States there was steady pressure to revise the powers and duties of the Federal Communications Commission (FCC). In both national and industrial forums, such as the successive World Administrative Radio Conferences of the International Telecommunication Union (ITU), U.S. spokespersons argued with increasing decisiveness against further governmental and intergovernmental control over the rapidly expanding telecommunications services. U.S. dissent stopped short of outright resignation from the ITU, but within the United States and later in the United Kingdom the administrations of Ronald Reagan and Margaret Thatcher forced the radio, television, cable, SATELLITE, and telecommunications services increasingly into the private sector, reducing the regulatory functions of government to those of essential protection of the public and maximal encouragement of free-market forces. *See also* TELEVISION HISTORY.

The existence of public franchising through the FCC of radio and television stations (justified by the limits of the spectrum as a resource and the consequent need to protect “public interest, convenience, necessity,” in the words of the 1934 Communications Act) led almost inevitably to the FCC’s intervention into the control of content. In the name of public interest the Fairness Doctrine and the equal-time rule were imposed, obliging all controversial issues to be handled with enforced pluralization of coverage. Later the Prime Time Access Rule obliged

networks to allow local stations an additional half hour early in the evening for local programming within peak time. (It quickly proved to be an ineffective regulation, since the time was taken up by programs of pure entertainment rather than local information.) Concern that such regulations were rarely effective helped to defeat the attempts of public-interest groups in the 1970s to force the three networks to offer more and better children’s programming and to reduce or eliminate ADVERTISING aimed at children. Gradually the climate of opinion turned against such interventions and toward free use of the air by those who had acquired *de facto* command of it.

The roots of the U.S. dilemma over television regulation lay in the Sixth Report and Order of the FCC of April 1952, which created allotments of spectrum space to 617 VHF stations and 1,463 UHF stations (both later expanded). Unwittingly the FCC had created the basis for three parallel groups of stations, controlled by three network companies able to dominate, control, and greatly profit from the medium of television. By imposing quite arbitrary and technically unnecessary limits on television coverage of the nation, the FCC had played the role of confining the total number of voices and images actually available to the public. The superstructure of further control and inspection, imposed amid an extraordinary quantity of litigation and cross-litigation, then became inevitable.

In the 1980s context of a wholly new set of technical possibilities—VIDEO, CABLE TELEVISION, satellites, and other systems for distribution of signals—the accepted forms of regulation were questioned. The position of the three networks, allegedly more in control of the FCC than disciplined by it, was challenged. Under President Nixon there had been many threats of interference in the news coverage of the networks, whose supporters tended to argue that the courage of professional news providers rather than the fear of the open market had succeeded in protecting the content of news against political pollution.

By the mid-1980s radio was enjoying drastic reductions in day-to-day supervision by the FCC. Cable television services were permitted greater leeway, since they were not subjected to the same controls as television stations, which were dependent on the FCC-regulated radio frequency spectrum. The growing use of videocassette machines in the home meant that viewers could free themselves from the planned schedule of programs. Successive FCC chairmen agreed that only through greater diversity and more open competition could the consumer be properly served. The process of creating, justifying, and implementing new regulation is so slow, they agreed, that a new rule is often superseded by the time it is enforced.

The FCC's rule making had spread throughout a variety of tangential industries such as that of HOLLYWOOD, whose film companies were barred from direct ownership of television outlets. Gradually, as the deregulation movement spread from industry to industry (airlines, telecommunications), the rules governing television administration and content started to become more flexible. By the end of the century broadcast services, under the impact of technological proliferation and ideological change in Washington, could perhaps become as easy of access and as diverse in ownership as the newspapers of the nineteenth century.

In Europe the ideological backwash of the U.S. debate swept over the discussions about implementing the new technologies. The scarcity of spectrum space had long been among the leading arguments adduced for the retention of monopolies or "duopolies" in the national radio and television services of European societies. This position was challenged repeatedly in the 1970s and 1980s. In Britain the vast national telephone and telecommunications administration, British Telecom, was sold off on the Stock Exchange, its telephone MONOPOLY broken. The existence of nationally regulated or chartered broadcast institutions, such as the BBC in England, RAI in Italy, and ARD and ZDF in Germany, was also challenged. In Italy during the early 1970s the constitutional court broke the monopoly of the RAI, and a totally unregulated swarm of television stations sprang up, to the amazement of other European television administrations. Within a decade, however, France, the whole of Scandinavia, Germany, Belgium, the Netherlands, and Great Britain were all in the midst of political controversy over the allocation of cable stations, radio stations, and satellite channels—and even over whether and how to continue the collection of viewers' television set license fees, the monopoly reception of which had long helped to maintain the power and creative resources of the national television organizations. In every one of these societies new interests, sometimes emerging from the world of the press, sometimes from cinema, were ready to enter the domestic moving-image market.

While the meaning of regulation was fairly clear, the term *deregulation* was seen to have a diversity of meanings. Measures announced to be deregulatory in the context of one country looked very much like the regulatory systems of others. What was happening was the application of the same free-market doctrine to a variety of different circumstances. Under the welter of argument and reform a great restructuring of capital took place from public to private sectors, with government nonetheless retaining a great deal of control over the rate and state of diversifi-

cation and the methods and levels of financing. It will not be possible before the end of the century to see clearly whether government regulation actually increased or diminished as a result of this great international ideological deregulatory project.

Bibliography. Erik Barnouw, *A History of Broadcasting in the United States*, 3 vols., New York, 1966–1970; Michael Botein, David M. Rice, and Edward B. Samuels, *Development and Regulation of New Communications Technologies*, New York, 1980; Asa Briggs, *The History of Broadcasting in the United Kingdom*, 4 vols., London and New York, 1961–1979; idem, ed., *Essays in the History of Publishing*, London, 1974; Benjamin M. Compaine, Christopher H. Sterling, Thomas Guback, and J. Kendrick Noble, Jr., *Who Owns the Media?* 2d ed., White Plains, N.Y., 1982; Margaret Dickinson and Sarah Street, *Cinema and State: The Film Industry and the British Government, 1927–1984*, London and Champaign, Ill., 1985; Elizabeth L. Eisenstein, *The Printing Press as an Agent of Change: Communications and Cultural Transformations in Early Modern Europe*, 2 vols., Cambridge and New York, 1979; Thomas I. Emerson, *Toward a General Theory of the First Amendment*, New York, 1966; Walter B. Emery, *National and International Systems of Broadcasting: Their History, Operation, and Control*, East Lansing, Mich., 1969; Fred W. Friendly, *The Good Guys, the Bad Guys, and the First Amendment*, New York, 1975; Harold A. Innis, *The Bias of Communication*, Toronto, 1951; Hiroshi Inose and John R. Pierce, *Information Technology and Civilization*, San Francisco, 1984; Jeffrey Kieve, *The Electric Telegraph in the U.K.: A Social and Economic History*, Newton Abbot, Eng., and New York, 1973; Ithiel de Sola Pool, *Technologies of Freedom: On Free Speech in an Electronic Age*, Cambridge, Mass., 1983; Anthony Smith, *The Newspaper: An International History*, London, 1979; John Wicklein, *Electronic Nightmare: The New Communications and Freedom*, New York, 1981.

ANTHONY SMITH

GRAMMAR

The study of the structure of words, phrases, and sentences is as old as recorded history. One of the first and most enduring goals of grammarians has been the codification of norms of LANGUAGE usage, especially of WRITING. In modern times linguists have sought to develop scientific theories of language structure and change, concentrating on spoken language. The latter enterprise has had three principal objectives: first, to trace the development of modern languages from ancient languages; second, to describe the differences and similarities among the languages of the world; and third, to gain insight into human psychology through the study of language.

The term *grammar* (from the Greek *grammata*, meaning "letters") refers to the study of linguistic

structure. This may be construed either broadly, to include the investigation of MEANING (SEMANTICS) and sound patterns (PHONOLOGY), or narrowly, covering only the forms of words (morphology) and the ways they are put together into sentences (syntax). Except where explicitly noted, the narrow interpretation will be assumed here.

Among the most central concerns of grammarians are:

- the CLASSIFICATION of words into categories (parts of speech), based on their distributional patterns and semantic functions
- the order of elements in a sentence (e.g., the relative order of an adjective and the noun it modifies may differ across languages, as in the case of English and French)
- variations in the form of a word, depending on the context in which it appears, as in agreement (*He sings* versus *They sing*) and case marking (*Pat saw them* versus *They saw Pat*)

History

Like so much else in Western culture, the tradition of grammatical scholarship began in ancient Greece. PLATO is credited with first making the distinction between nouns and verbs. Dionysius Thrax, author of the oldest surviving systematic grammatical description of Greek (ca. 100 B.C.E.), identified eight parts of speech. Thrax's grammar served as a model for subsequent works on Greek and also for the Latin grammars of the Romans. Because Latin was the language of scholarship in the MIDDLE AGES, grammar in this period was concerned almost exclusively with Latin, the most influential work being Priscian's grammar (ca. 500 C.E.).

Throughout the classical and medieval periods, one major focus of grammatical studies was the identification of "faults" and "barbarisms" in common usage. This prescriptive aspect became increasingly important in later works, which were concerned not with the language of their own time but with the Latin of CICERO and Virgil. The notion that the grammarian's role is to define correct and incorrect uses of language persists into the present, though it has been rejected emphatically by modern academic linguists. *See also* LINGUISTICS.

The RENAISSANCE saw the rise of studies of the vernacular languages of Europe. This work was modeled on the classical Greco-Roman grammars, employing the same grammatical categories and focusing on literary language. Clear evidence of the importance of the normative view of grammar in this period was the establishment in the seventeenth century of the French Academy, whose task it was (and

still is) to define "the art of speaking and writing correctly." The same century, however, also saw the emergence of "rational" grammars, which sought to demonstrate a common logical basis for the structure of human languages. The most famous of these was the *Grammaire générale et raisonnée*, published in 1660 by the teachers of Port Royal. *See also* LANGUAGE REFERENCE BOOK.

A major turning point in the history of linguistics came in the eighteenth century with the discovery by European scholars of the Indian grammatical tradition and the concurrent recognition of the historical kinship among Sanskrit, Greek, and Latin. Grammatical scholarship in India can be traced back to the second millennium B.C.E., the most famous of the ancient Indian grammarians being Pāṇini (probably fourth or fifth century B.C.E.). This tradition developed out of the desire to preserve certain orally transmitted religious texts from the inevitable changes in the language. Despite this normative motivation, the Sanskrit grammarians developed theoretical apparatuses for the description of languages far more sophisticated than anything available in Europe before the nineteenth century. In particular, their superiority in the transcription of pronunciation stimulated interest in the sound systems of languages among European linguists. The discovery that Sanskrit was related to Greek and Latin gave an enormous boost to the study of the history of what we now call the Indo-European languages.

The combination of these two trends resulted in the dominant focus of nineteenth-century linguistic scholarship, namely, determining what sound changes had taken place in the Indo-European language family and reconstructing the evolution of the members of that family. Probably the most famous results to emerge from this line of research are known as Grimm's law and Verner's law. Both were concerned with explaining certain systematic correspondences among the consonants of different languages, such as the fact that Germanic languages often have *f* where other Indo-European languages have *p* (as in English *father* versus Latin *pater*). Jacob Grimm postulated a prehistoric sound change in Germanic to account for these, and Karl Verner showed that a number of apparent exceptions to Grimm's law could be accounted for systematically. Late in the century a group of scholars known as the *Junggrammatiker* ("neogrammarians") argued that all sound changes operated without exceptions and that all apparent exceptions would fall under the scope of further laws.

In describing the history of languages, the grammarians of the nineteenth century turned away from the prescriptivism that had dominated earlier linguistic scholarship. In seeking exceptionless laws, the *Junggrammatiker* attempted to bring to the study of

language the explanatory rigor associated with such fields as physics and chemistry. The twentieth century has been characterized by the extension of this more scientific approach to the synchronic description of languages—that is, to describing the state of a language at a given point in time.

The Swiss linguist FERDINAND DE SAUSSURE is usually credited with establishing the importance of (nonnormative) synchronic studies, but it was in the New World that this goal was most influential. Faced with a myriad of exotic Native American languages lacking any written records, linguists in North America found little in the prescriptivist or historical traditions of European grammatical scholarship that was applicable.

Some influential American linguists in the first half of the twentieth century concentrated on the development and employment of rigorous techniques of data collection and classification. This was in part a reaction to earlier work that had imposed the traditional Greco-Roman grammatical categories on non-Indo-European languages and in part a result of the importance of behaviorism in social science in the United States during that period. Many emphasized the diversity of languages and the importance of analyzing each language in its own terms. While some (notably EDWARD SAPIR and BENJAMIN LEE WHORF) speculated about the underlying thought processes of the speakers of exotic languages (reviving themes raised in earlier centuries by the German scholars Johann Gottfried von Herder and Wilhelm von Humboldt), others followed Leonard Bloomfield in eschewing “mentalistic” notions in their work.

In the 1950s and 1960s the study of grammar changed radically with the development of transformational grammar, first by Zellig Harris and his student Noam Chomsky and then later in a different direction by Chomsky and his followers. A number of factors made the time ripe for the emergence of a rigorous and explicit theory of language structure. These factors included advances in mathematical logic, the advent of computers (sparking interest in machine translation and other natural language applications), and the weakening of the behaviorist hold on the social sciences in the United States. The impact of Chomsky's 1957 monograph, *Syntactic Structures*, has been called revolutionary, and since the mid-1960s generative ideas have dominated grammatical scholarship.

Generative Grammar

The fundamental observation that was the starting point for generative grammar had been made at least as far back as the early nineteenth century by von Humboldt. It was simply that human languages are infinite, in the sense that there is no limit to the

number of sentences in them. Hence, Chomsky argued, the Bloomfieldian emphasis on methods for compiling and organizing finite corpora was misguided, as were the informal heuristics of which traditional grammars are composed. Chomsky advocated the formulation of precise systems of rules that would distinguish sentences of a language from arbitrary strings of words. Much as the axioms and rules of inference in a mathematical theory will generate infinitely many theorems, the rules of a generative grammar should generate all and only the sentences of a language.

Beginning in the 1950s a branch of MATHEMATICS known as formal language theory was developed, based on this conception of grammar. Chomsky defined a hierarchy of types of grammars, differing in the sorts of formal operations permitted in their rules. Some types of grammars proved incapable of generating certain types of languages (where language, in this context, means simply a set of finite strings of symbols). Generative grammarians used these results, together with data from English and other languages, to argue for the inadequacy of some types of formal grammars as theories of natural language structure. Formal language theory has turned out to be important for computer science, in particular for the development of new computer languages and for the theory of compiling.

Having argued against various models of grammar for the description of natural languages, Chomsky put forward his theory, known as transformational grammar. A transformational grammar consists of two parts: a base grammar, which generates a set of abstract structures (called underlying or deep structures in some versions of transformational grammar), and a set of transformations, which are rules that turn the underlying structures into the actual sentences of the language. Among the most widely discussed transformations proposed for the grammar of English are a rule to derive passive sentences (e.g., *Wine was being drunk by children*) from active underlying structures (in this case, the deep structure of *Children were drinking wine*) and a rule to prepose question words (deriving *What did you eat?* from an underlying structure in which *what* follows *eat*). Various formulations (employing several notations) have been proposed for these rules and for the many other transformations that have been posited.

It is important to note that the inputs to transformations are not themselves sentences. Rather they are representations of the phrase structure of the sentences, often containing elements distinct from anything that appears on the surface. In the examples above, for instance, the underlying structures would not specify the inflectional forms of the verbs (e.g., *was* versus *were*), since these are affected by the operation of the transformations.

Chomsky explicitly rejected behaviorism, arguing that the reason for studying linguistic structure is the insight it can provide into the nature and organization of the human mind. Indeed, he uses the term *grammar* ambiguously to mean either the mental representation of a speaker's knowledge of a language or the linguist's codification of the structure of a language.

Chomsky goes on to advocate a rather strong version of nativism, claiming that the only way to account for the speed and ease with which children acquire language is to assume that much of what they appear to learn is genetically determined (*see LANGUAGE ACQUISITION*). Since any normal child will acquire whatever language he or she is exposed to, Chomsky's position entails a commitment to the claim that all human languages share a common core of structure. The goal of generative grammar is to determine what this core—or “universal grammar,” as it is often called—consists of. The search for a common structure shared by all natural languages is reminiscent of the work of the seventeenth-century rational grammarians; indeed, as Chomsky himself has emphasized, modern transformational grammar resembles the earlier rational grammars not only in its general philosophical outlook but also in some of its specific analyses.

Given the enormous variation among the languages of the world in such features as word order, agreement, cases, genders, and word structure, generative grammarians have argued that linguistic universals must be rather abstract. Specific proposals regarding universal grammar have taken the form of general conditions on the form and functioning of grammatical rules. One specific example often cited by Chomsky is the fact that rules are always structure-dependent, in the sense that they are sensitive to the groupings of words in a sentence into phrases. For example, the English rule for forming yes-no questions involves preposing a tensed auxiliary verb, as in *Are you sleeping?* (corresponding to the declarative *You are sleeping*). If there is more than one tensed auxiliary verb in a sentence, it is the one in the main clause that gets preposed. Thus the yes-no question corresponding to *Someone who is working was talking about someone who is sleeping* is *Was someone who is working talking about someone who is sleeping?*, not **Is someone who working was talking about someone who is sleeping* or **Is someone who is working was talking about someone who sleeping*. (An asterisk before an example is used to indicate that it is not a well-formed sentence.) Which element gets preposed can be identified only with reference to the “main clause,” which is a structural notion. No natural language, it is claimed, could have a rule that picked the first tensed auxiliary, regardless of its place in the phrase structure of

the sentence; nor could a language form questions by taking the words of the corresponding declarative in reverse order. Many other, more specific, constraints on the operation of grammatical rules have been proposed in the literature. Such constraints are claimed to provide insight into the nature and organization of the language faculty and hence of the human mind.

Over the years, generative grammarians have divided into a number of schools, each with its own formalism, terminology, and theoretical assumptions. Among the most influential have been generative semantics, relational grammar, lexical-functional grammar, generalized phrase-structure grammar, and government-binding theory. Though they all fall within the generative paradigm, they differ on such issues as the relationship between grammatical structure and meaning, the role of relational notions like *subject* and *object* in grammatical theory, and the need for transformations. Despite this factionalism Chomsky has remained a dominant figure, with his ideas largely defining the mainstream of generative research.

Alternatives to Generative Grammar

Although generative grammar has held center stage in grammatical scholarship since the early 1960s, other approaches to the study of linguistic structure have been pursued as well. Although there are far too many schools of thought to permit a comprehensive list, a few especially influential developments deserve some mention.

One line of research not really entirely separate from generative grammar is Montague grammar, named after the logician and philosopher Richard Montague. He attacked early generative work for its failure to deal with meaning in a serious way. Generativist semantic analyses at that time consisted of providing translations of natural language sentences into representations built up out of elements called semantic markers; no systematic interpretations for these elements were provided. Montague argued that semantic theory must specify a relationship between expressions of a language and things or states of affairs in the world, not just a translation into another language. Drawing on the formal tools of mathematical logic, he developed a rigorous system of rules for simultaneously constructing sentences of English and specifying the conditions under which they would be true. Although linguists were critical of the syntactic naïveté of this work, many were greatly impressed with the precision and sophistication of the semantics. Many of Montague's ideas have been incorporated into subsequent research, both within and outside the generative paradigm, and they have had a lasting effect on the way in which

grammarians think about problems of meaning.

In the area of linguistic universals an approach different from the generative paradigm has been developed by Joseph Greenberg and his followers. Rather than investigating a small number of languages in depth looking for absolute laws of grammar, Greenberg surveyed hundreds of languages looking for strong statistical tendencies in observable distributional patterns. This effort has been extremely fruitful, yielding many previously unknown generalizations and leading to new proposals about the classification and historical relationships of languages. These generalizations have also been used by generativists as a source of evidence for grammatical universals.

Finally, one widespread criticism of Chomskyan linguistics is that it treats language strictly as a matter of individual psychology, failing to consider it as a social institution. Hence it has little or nothing to say about variations in language usage due to class, race, social context, or other external factors. The tradition of dialectology, whose concern with rigorous procedures of data collection and classification culminated in the great dialect atlases of Europe and the United States, was given a deeper theoretical foundation by U.S. linguist Uriel Weinreich. Weinreich's work has been continued in a more explicitly quantitative style by his pupil William Labov. The philosophers John Austin and Paul Grice independently pioneered the investigation of the uses to which language can be put and the mechanisms people employ to achieve various ends with language. These lines of research (as well as other work) have led to an increased appreciation of the ways in which linguistic communication can go beyond the conveyance of the literal meanings of words and sentences, and to the recognition that the structure of language is heavily influenced by its communicative functions. Indeed, even generativists now are aware that grammatical research cannot be confined wholly to intra-sentential relations but must look at the wider context—linguistic and nonlinguistic—to correlate forms of language with facts about who is using them and to what end. *See also* LANGUAGE VARIETIES; SPEAKING, ETHNOGRAPHY OF.

Bibliography. Noam Chomsky, *Language and Mind*, enl. ed., New York, 1972; John Lyons, *Introduction to Theoretical Linguistics*, London, 1968; Frederick J. Newmeyer, *Linguistic Theory in America*, New York, 1980; R. H. Robins, *A Short History of Linguistics*, London, 1967, reprint (Indiana University Studies in the History and Theory of Linguistics) Bloomington, Ind., 1968; Neil Smith and Deirdre Wilson, *Modern Linguistics: The Results of Chomsky's Revolution*, Bloomington, Ind., 1979.

THOMAS WASOW

GRAMSCI, ANTONIO (1891–1937)

Italian theoretician and politician. Born in Ales, Sardinia, the son of lower-middle-class parents, Antonio Gramsci began his studies at the University of Turin in 1911 with the aid of a scholarship. There he was much influenced by the philosophy of Benedetto Croce and at the same time came into contact with the Turin working-class movement. He joined the Italian Socialist party (PSI) in 1913 and wrote for socialist newspapers. In 1919 he helped to establish a new weekly journal, *L'ordine nuovo*, to express the ideas of the factory council movement and to relate them to the Russian Revolution; in 1921 he became one of the founders of the Italian Communist party (PCI). He was arrested by the Fascist government in 1926, sentenced to more than twenty years' imprisonment, but was moved in 1935, critically ill, to a clinic in Rome, where he died in 1937.

Gramsci was one of the most original Marxist thinkers of this century. Many of his most important studies were written in prison and subsequently published as *Quaderni del carcere* (Prison Notebooks). His distinctive ideas concern the role of intellectuals in society and the complex of ideas, interpretations of the world, and social relations that they construct, which he terms *hegemony*. According to Gramsci all human beings are intellectuals in a broad sense, in that they possess rational capacities, but at present only some of them actually have an intellectual function. Those who have such a function he divides into two categories: traditional intellectuals, who expound and develop the body of ideas (e.g., religious ideas) inherited from earlier periods and in general help to sustain historical continuity and the status quo; and organic intellectuals, who are the thinkers and advocates of particular interests—especially class interests—and are particularly needed by a rising class that is trying to enhance its power and to establish a new social order.

Hegemony, for Gramsci, is the element of PERSUASION and consent that helps to sustain the rule of a dominant class. Thus on one side Gramsci defines the state as a system of force plus consent, in which the influence of a "dominant ideology," transmitted through all the institutions of civil society, is a crucial factor in maintaining class rule (*see* IDEOLOGY). On the other side he contests the "economistic" versions of Marxism, which involve "the iron conviction that there exist objective laws of historical development similar in kind to natural laws, together with a belief in a predetermined teleology like that of religion," and asserts the importance for a social group that is striving either to preserve or to establish its supremacy of "intellectual and moral leadership" by means of which it can dominate antagonistic groups and attract allies.

Gramsci's writings provide a major starting point

GRAMOPHONE. *See* SOUND RECORDING.

for studies of the role of intellectuals in modern societies; of the communication of ideas and beliefs that sustain, modify, or undermine an existing form of social life; and of the nature and significance of consent as against coercion in the overall regulation of behavior. Some later critics, however, have suggested that Gramsci overemphasized the element of consent and the influence of a dominant ideology in the modern state.

See also MARX, KARL; MARXIST THEORIES OF COMMUNICATION.

Bibliography. Alastair Davidson, *Antonio Gramsci: Towards an Intellectual Biography*, London, 1977; Quintin Hoare and Geoffrey Nowell Smith, eds., "Introduction," *Selections from the Prison Notebooks of Antonio Gramsci*, London, 1971; Anne Showstack Sassoon, "Gramsci, Antonio," in *A Dictionary of Marxist Thought*, ed. by Tom Bottomore, Oxford, 1983.

TOM BOTTOMORE

GRAPHIC REPRODUCTION

The term *graphic reproduction* refers to any technological process that can copy, duplicate, replicate, multiply, and serve in the distribution of pictures. Graphic reproductions may include copies of paintings intended as framed wall decorations, BOOK and MAGAZINE illustrations based on drawings or paintings, photographs transformed into PRINTING processes for all manner of publication, and even paper prints mounted on stereograph cards. They also include posters (see POSTER), postcards, and other formats for multiplying and distributing copies of original pictures.

Most frequently graphic reproduction refers to some aspect or product of the graphic arts. These involve paper and printers' inks and include the traditional printmaking techniques such as wood engraving, etching, aquatint, mezzotint, and lithography as well as the multitude of photographic technologies developed in the nineteenth century and brought to a high degree of color sophistication in the twentieth (see PHOTOGRAPHY). Among the most common types of photographic technologies, aside from the simple multiplication of prints from an original negative, were heliotype, collotype, photogravure, halftone process engraving, and photolithography, which developed into offset printing. During the transition period between the use of the traditional graphic arts to multiply images and the success of the photographic technologies, experimental graphic reproduction processes bore fanciful names like Artotype and Heliogravure. The transition, lasting from approximately 1870 to 1893, ended with the domination of graphic reproduction processes by photography, even to the extent that the chromolith-

ograph, widely enjoyed as a relatively cheap method of reproducing paintings, gave way to the four-color halftone process and a variety of gravure color techniques.

As major vehicles for the mass distribution of visual information in pictures, the graphic arts and printing processes have influenced the sciences as well as the visual arts. More broadly, analysis of the social impact of the visual media indicates that the graphic processes of reproduction, especially the photographic technologies, revolutionized the ways in which people perceive reality. Permanently altering the relationship between the fine arts and the popular arts, the graphic reproduction processes expanded educational strategies for young people and helped to establish entire new industries of communication. The implications of graphic reproduction processes therefore extend to far more than the study of their technologies and encompass aspects of communications theory beginning with theories of visual perception (see PERCEPTION—STILL AND MOVING PICTURES)



Figure 1. (*Graphic Reproduction*) Title page from Herodotus, *Historiae* (Venice: Gregorii, 1494). Woodcut. The Metropolitan Museum of Art, New York, The Elisha Whittelsey Collection, The Elisha Whittelsey Fund, 1959. (59.508.93)

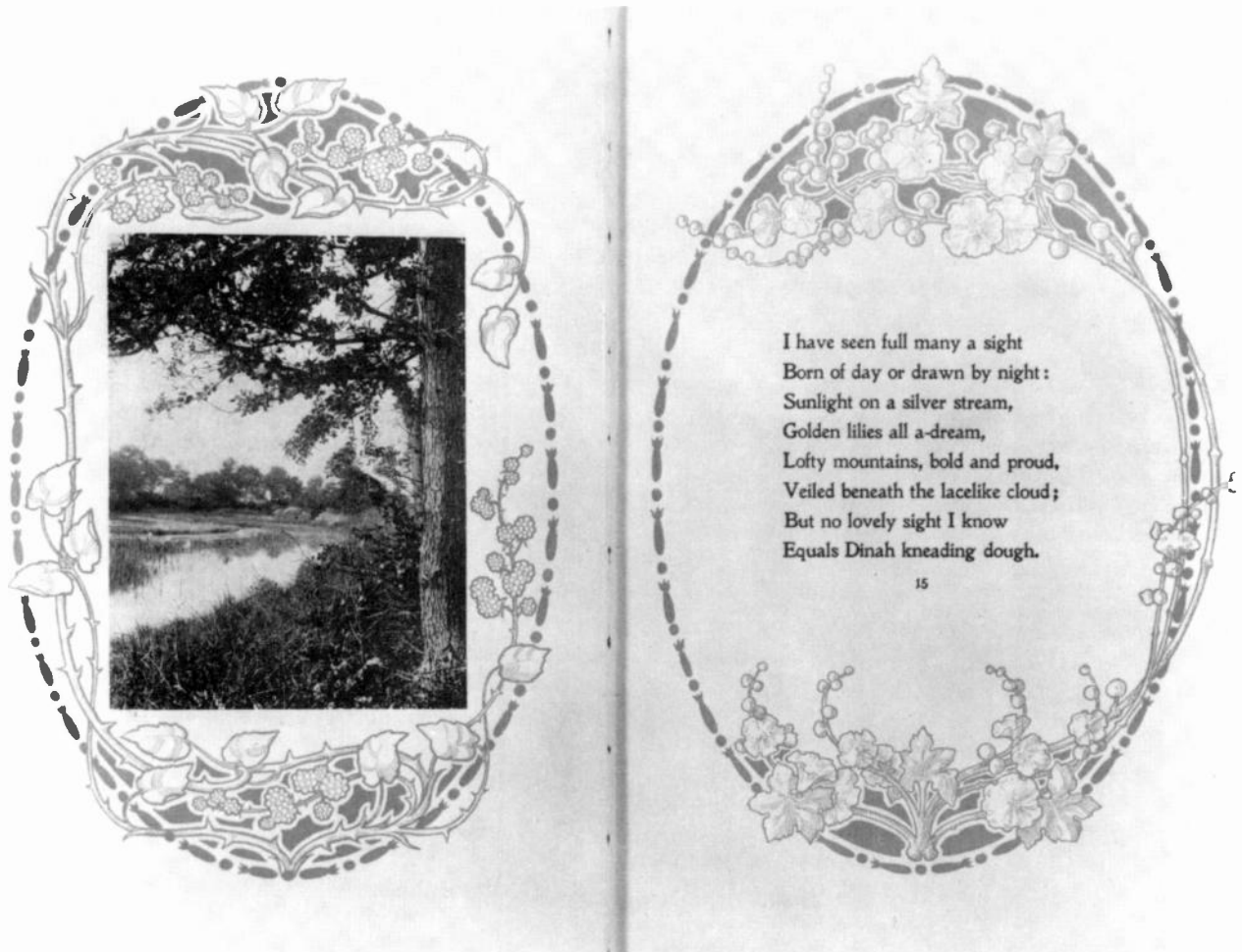


Figure 2. (*Graphic Reproduction*) Paul Laurence Dunbar, *Candle-Lightin' Time*, New York, 1901. Two pages with photograph and poem. Butler Library, Columbia University in the City of New York.

and continuing into mass PERSUASION and symbolic structures.

Considerable human effort has been dedicated to inventing techniques for multiplying pictures. These techniques often paralleled but are considered to have preceded the invention of movable metal type (see TYPOGRAPHY) used for distributing ideas expressed in words, a process ordinarily called printing, although this term applies equally to pictorial processes. Many of the relief processes like woodcut were invented in East Asia as early as the first century B.C.E., along with the paper needed to support ink images (see EAST ASIA, ANCIENT; WRITING MATERIALS). The dispersion of both the idea of a repeatable image and the manufacture of paper can be traced through Central Asia to the Arab centers of culture, finally reaching Europe sometime around the eleventh century. European metalsmiths in the Gothic period probably can be credited with discovering the action of acids on copper and zinc, leading to the

development of the intaglio process of etching. These same smiths had already engraved designs on chivalric armor of the medieval knights and on sword pommels, goblets, jewelry, and seals cut into rings (see HERALDRY). In engraving, as in etching, the DESIGN to be printed was cut into a metal or wood surface so that the ink was below the surface of the printing plate. In the relief process the designs were on the surface of the printing block, with the areas not printed cut below the surface.

The relief processes were predominant in many early RENAISSANCE books, in both illustration and text, simply because woodcut was compatible with the relief metal types invented by JOHANNES GUTENBERG and his colleagues during the mid-fifteenth century. Because they could not be printed simultaneously with type, etchings and engravings had to be printed separately on special intaglio presses and then inserted into the text; sometimes pages had to run through two different types of presses to accommo-

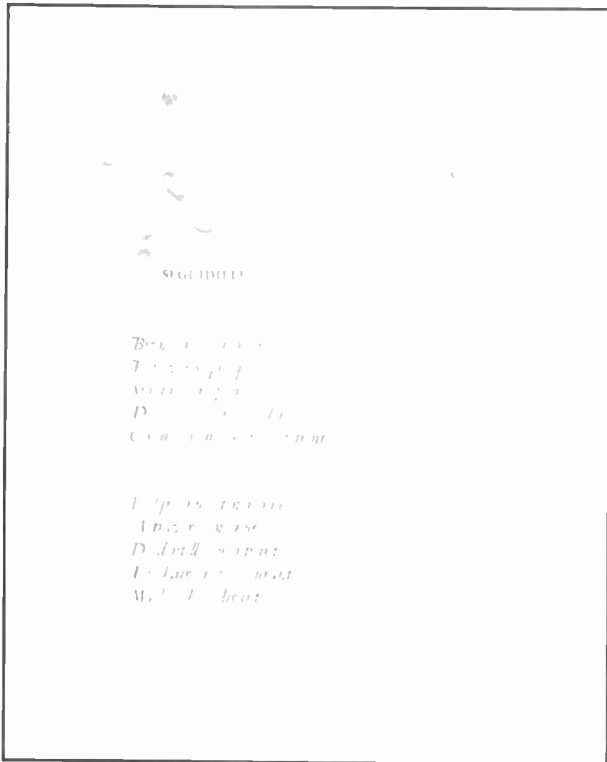


Figure 3. (Graphic Reproduction) Pierre Bonnard, page 27 from *Parallèlement*, by Paul Verlaine (Paris: Ambroise Vollard, 1900). Lithograph, printed in color, page size: 11 1/8 by 9 1/2 in. Collection, The Museum of Modern Art, New York. Louis E. Stern Collection.

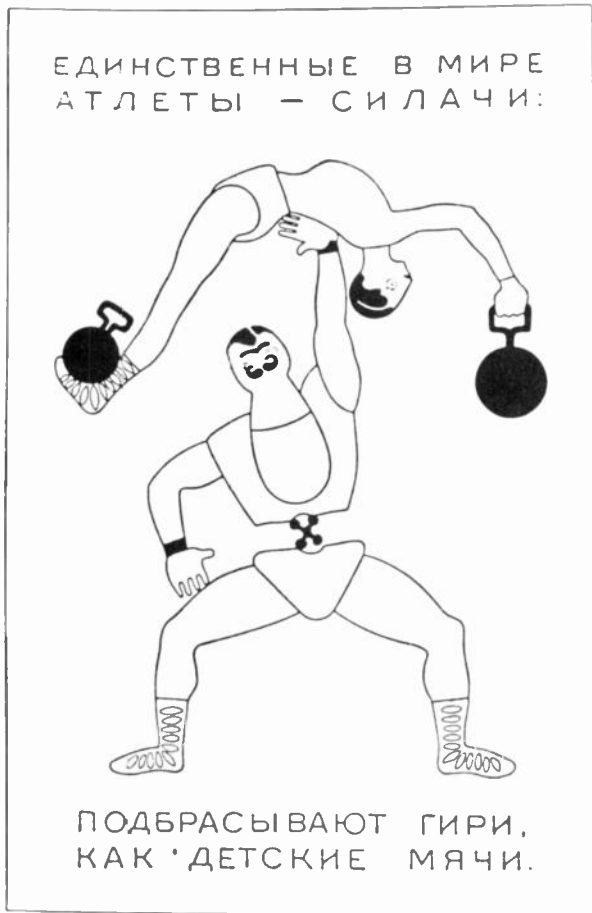


Figure 4. (Graphic Reproduction) Vladimir Lebedev, illustration for *Circus* (1925), a children's book. From Szymon Bojko, *New Graphic Design in Revolutionary Russia*, New York: Praeger Publishers, 1972.



Figure 5. (*Graphic Reproduction*) David Lucas, after John Constable, *Noon*, 1830. Mezzotint. The Metropolitan Museum of Art, New York, Harris Brisbane Dick Fund, 1925. (25.51.14)

date the mode of graphic reproduction. Obviously such double press runs were expensive and not conducive to speed of publication. See PUBLISHING—HISTORY OF PUBLISHING.

The major modern technique for multiplying pictures was invented at the end of the eighteenth century by an enterprising music publisher seeking a way to print and distribute music scores. The process was lithography, based on the discovery that printing ink and water mutually repel. While this planographic method was at first an artist's medium, enjoyed by such masters as Eugène Delacroix and Théodore Géricault, by about 1830 lithography began to be used in the manufacture of books, posters, and illustrations in both Europe and North America. As an illustration medium, lithography had several advantages: artists could draw directly on the prepared lithographic stone, and freshly inked type pages could be transferred to the same stone. There had been developed a reasonably inexpensive method of combining text with picture, an essential characteristic of modern communication.

The number of pictures distributed through the relief, intaglio, and planographic processes, along with their photographic equivalents, must be counted in the millions. The lucrative practice of copying paintings dominated the market, but graphic reproductions included political satires, memento mori of the deaths of royalty, celebrations of important events, religious symbols and stories, architectural drawings, botanical representations, pictures of far-off places both real and fanciful, fashion plates, and other subjects used in educational tracts and commercial catalogs. To keep up with demand a new practice involving a strict division of labor was firmly established by the nineteenth century. An artist or drafts-

man created the original image, a specialist in the selected printing medium transformed that image into lines suited to reproduction in that specific medium, and another specialist printed the final plate. This division of labor eventuated in the cutting up of large boxwood blocks used for illustration in the pictorial press—for example, *Harper's Weekly* in the 1870s—giving sections of the blocks to specialists in cutting various textures for sky, skin, trees, horses, or city scenes. The block was then reassembled for printing.

In studying the complex history of graphic reproduction processes, William Ivins, Jr., formerly curator of prints at New York's Metropolitan Museum of Art, came to the conclusion that the development of specialized textures over the centuries raised issues about what he called "the syntax of visual communication." Ivins's *Prints and Visual Communication* (1953) was the first attempt to document visually the progress of the graphic arts toward what he believed to be the only graphic medium without interfering syntax: photography. If the traditional graphic arts did away with the copying errors of the medieval manuscript illuminators, it was not until the invention of photography in the early nineteenth century that nature could be recorded directly. For Ivins photography's greatest benefit was the elimination of both the artist-draftsman and the transfer specialist, since both represented further removes from reality. With the invention of technologies that enabled photography to become a graphic reproduction medium compatible with metal relief type, Ivins was persuaded that the major technical problems of visual communication had been solved, at least in terms of ink and paper. He was satisfied that photographic reproductions were faithful to originals, despite the

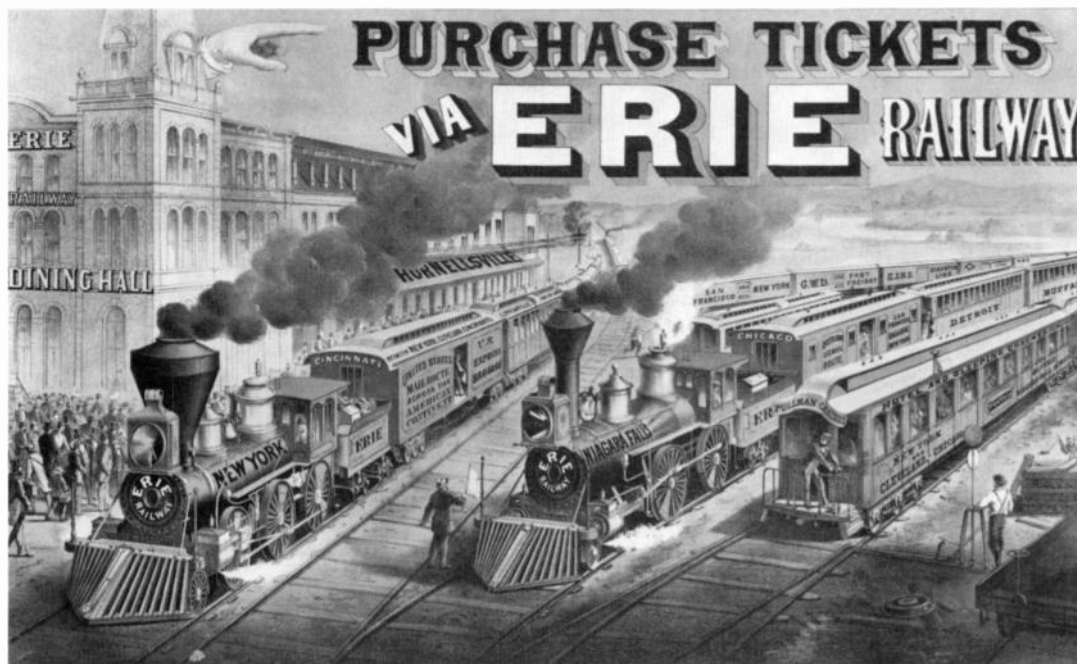
fact that they, like the older graphic arts, suffered considerable losses of scale, color, and the three-dimensionality of painting textures. Further research by other historians suggests that photography too has a visual syntax, as must all media that translate reality into two-dimensional images. See VISUAL IMAGE.

Most important to Ivins was that the advent of photography had altered judgments about reality. As he observed, "Up to that time very few people had been aware of the differences between pictorial expression and pictorial communication of statements of fact." Gradually but inexorably photographic technologies assumed the task of pictorial communication of statements of fact, and photography became the standard for truth in visual communication.

Long before Canadian philosopher of media MARSHALL McLuhan offered similar theories, German critic WALTER BENJAMIN observed that human sense perceptions altered as the MODE of existence of entire cultures changed. For Benjamin the manner in which perception is organized through specific media is determined by historical circumstances. These include the technologies available for the transmission of visual images at any time in the history of a society. In his influential essay "The Work of Art in the Age of Mechanical Reproduction" (1936) Benjamin stated that the mechanization of graphic reproduction destroys the "authenticity" of an object. Authenticity refers to the essence of an object, ranging from its duration in time to the history it experiences as an enduring physical presence. Reproducing

Figure 6. (Graphic Reproduction) *Sioux Chiefs' Delegation in the East Room of the White House, 1877.* Engraving from a photograph by Matthew Brady. From *Frank Leslie's Illustrated Newspaper*, October 13, 1877, p. 81. Courtesy of the Library of Congress.





AN AMERICAN RAILWAY SCENE, AT HORNELLSVILLE, ERIE RAILWAY.
THE GREAT TRUNK LINE AND UNITED STATES MAIL ROUTE between New York City and the Western States and Territories, renowned for its beautiful scenery, its substantial road bed, DOUBLE TRACKED with steel rail, and its well appointed Passenger Trains equipped with the celebrated Pullman Hotel, Drawing Room and Sleeping Coaches.

Figure 7. (Graphic Reproduction) Charles R. Parsons and Lyman W. Atwater, *An American Railway Scene, at Hornesville, Erie Railway*. Chromolithograph. Printed by Currier and Ives, New York, 1874. Amon Carter Museum, Fort Worth, Tex.

an object for mass distribution removes the original ARTIFACT from the crucial social nexus of tradition and RITUAL for whose purposes it was originally created. Benjamin prophesied that many ART objects, including paintings, would be created for the sole purpose of sales as graphic reproductions, thereby substituting commodity mechanization for original authenticity.

Following Benjamin's lead, English art critic John Berger, in *Ways of Seeing* (1972), claimed that modern reproductions do more than diminish the authority of an original object: "For the first time ever, images of art have become ephemeral, ubiquitous, insubstantial, available, valueless, free." While the general illusion is that reproductions make it possible for the masses to appreciate art, the reality is that originals remain high-priced commodities for the elite. Both Benjamin and Berger saw discussions of graphic reproduction as belonging to the realms of politics and class struggle.

French art historian André Malraux was less pessimistic about the influence of graphic reproduction on society, observing in his influential *Musée imaginaire* (Museum without Walls, 1965) that photographic technologies had opened the riches of all cultures to artists and the public alike. Malraux noted that through graphic reproduction the arts of

Oceania, Africa, the Eskimo, and the Australian Aborigine as well as pre-Columbian SCULPTURE and Gothic ARCHITECTURE have become not only available but incorporated into the visual experiences of the twentieth century, just as Chinese and Japanese arts were incorporated into European arts in the nineteenth century, especially through the introduction of the Japanese woodcut. Owing to ever more sophisticated methods of graphic reproduction, art books are becoming the universal substitute for the MUSEUM; they are "the museum without walls." For Malraux the effect of exposure to the multiplicity of cultures would be beneficial to the development of an international consciousness.

Because the photographic print itself is implicated by some critics as a multiplied object having no definable authenticity, photography has come under attack as being nothing more than a graphic reproduction medium, unable to join painting, for example, as having the authority of the unique. As the electronic media and holography enter into the technologies of graphic reproduction, issues such as this will continue to arise. The act of multiplying images as a means of mass visual communication has serious implications for the sociologist, the political scientist, the aesthete, the art historian, and the economist.

See also AESTHETICS.



Figure 8. (Graphic Reproduction) José Guadalupe Posada, *Ballad Sheet for All Souls' Day: The Bicycles*, 1890s. Metal cut. The Metropolitan Museum of Art, New York, Gift of Jean Charlot, 1930. (30.82.112)

Bibliography. Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," in *Illuminations* (Illuminationen, Frankfurt, 1955), ed. with an intro. by Hannah Arendt, New York, 1969; John Berger, *Ways of Seeing*, London, 1972; William M. Ivins, *Prints and Visual Communication*, London, 1953, reprint Cambridge, Mass., 1969; Estelle Jussim, *Visual Communication and the Graphic Arts: Photographic Technologies in the Nineteenth Century*, New York, 1974; André Malraux, *Museum without Walls* (*Musée imaginaire*), trans. by Stuart Gilbert and Francis Price, Garden City, N.Y., 1967.

ESTELLE JUSSIM

GRAPHICS

Means for the visual display and communication of information, including diagrams, networks, matrices, and maps. Through graphics we can exploit the properties of visual PERCEPTION to display and communicate information. Because graphics involves the organization and display of previously given data, it constitutes the rational part of the world of images. The main issues of modern graphics discussed here are matrix theory, the semiology of graphics, and the choice of a graphic construction.

Matrix theory utilizes the notion of information level to define the purpose of graphics. We construct a graphic in order to understand a problem—that is, to simplify it by reducing a vast amount of elementary data to a small number of categories of information that we are capable of taking into account at a given moment.

The semiology of graphics describes the properties and functions of the graphic SIGN SYSTEM. The different visual variables lead to a variety of possible constructions, which with the aid of matrix theory we may analyze and define in terms of their utility. The reorderable matrix offers a solution to most graphic problems. First the data set is represented in

the form of a double-entry table, in which x and y are the orthogonal dimensions of the table and z is depicted by a variation in light energy at each meaningful point in the table. The data on x and y are then permuted to reveal the groups that constitute the pertinent information. However, with certain problems the nature of the data requires other types of constructions.

The choice of a graphic construction thus depends on the number of characteristics involved, the nature of the series of objects to be represented (ordered or reorderable), and the types of relationships existing among the objects. A synoptic table of graphic constructions will be used to show the most appropriate construction for each case.

The Matrix Theory of Graphics

We represent data graphically to better understand a problem, to more readily read the numbers, to more easily attain the highest level of information (i.e., the overall level). This notion of level enables us to determine the most useful construction for a given problem.

Information levels. Information implies the answer to a question. The following simplified example illustrates the nature and level of questions we can ask in approaching a data table.

In 1966 the five ministers of the European Economic Community (EEC) met to discuss meat production. They had numerous statistics at their disposal. Figure 1 shows the production of five types of meat (the columns) in the five countries (the rows); as with any table, we can consider three types of questions:

- questions involving x : A given meat is produced in which country? (a)
- questions involving y : A given country produces which meat? (b)

			a ↓		
	6	6	2	5	3
	32	6	5	45	15
	37	61	69	29	59
b →	16	23	21	9	14
	9	4	3	12	9
	100	100	100	100	100
	BEEF	HORSE	MUTTON	PORK	VEAL
	MEAT PRODUCTION				
	BELGIUM LUXEMBOURG				
	GERMANY				
	FRANCE				
	ITALY				
	NETHERLANDS				

Figure 1. (Graphics) Meat production in EEC nations.

- questions involving z: Where do the highest percentages occur? (c)

For each type of question there are also three levels: elementary, intermediate, and overall. Elementary questions (e.g., What percentage of the total pork production does Italy account for?) can be answered by looking at the number in the box. This is elementary data, the raw material that information processing must work to transform. Our memory cannot retain the multiplicity of elementary data; understanding means reducing, simplifying, discovering similar elements, grouping them, and classing them—that is, processing them. This is the first goal of modern graphics. Intermediate questions (e.g., What kinds of meat production does Italy have?) correspond to all the subsets generated by the data table. Overall questions (e.g., How are the countries grouped?) cannot be answered visually by referring to the data table; we need to look at a construction like that in Figure 2, which displays the essential information. The Federal Republic of Germany and the Netherlands are similar in structure, based on the predominance of pork and beef. They form one group (A), in contrast to another group (B), formed by France and Italy, that has the opposite structure. Consequently, within the framework of these data,

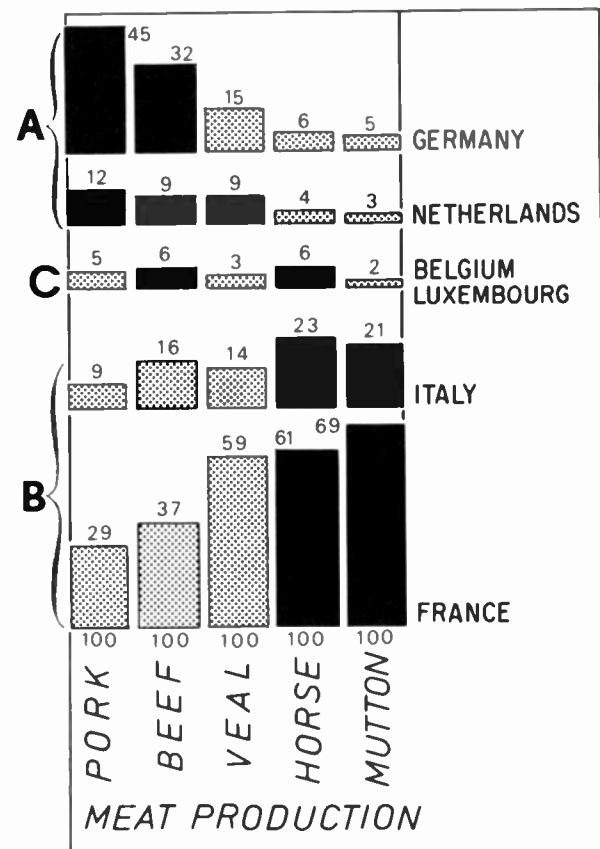


Figure 2. (Graphics) Graphic construction displaying essential information from Figure 1.

the policies of groups A and B can only be opposed or complementary.

Reducing these four countries to two groups makes the most useful information appear. Whether the dimensions of the table are 5, 50, or 500, in every case the goal is to reduce these dimensions to the smallest possible number of groups.

The overall level is the high ground of understanding and responsible decision making. Moreover, when we can answer a question on this level, questions on the other levels also elicit a meaningful answer, one that either confirms the general structure of the data or constitutes a meaningful exception to it. As illustrated in Figure 2, for example, the deciding vote in case of a tie would obviously belong to the Belgo-Luxembourg Union (C), which marks an exception to the main structure defined by A and B. Understanding also means interpreting the exceptions.

Three basic questions. Utilizing a graphic thus involves three successive steps: identifying the data, defining the overall structure, and discovering the exceptions. This amounts to asking three questions:

1. What is the problem? More specifically, what are the x, y, and z components of the data table?
2. What is the information? More specifically, what are the groups formed by the data in x, y, and z?

3. What are the exceptions to these groups?

This approach means that we do not “read” a graphic; we “question” it. The answer to the first question is relatively easy if the graphic arrangement is simple, the writing legible, and the wording precise and concise. The answer to the second question excludes constructions that are not permuted and those that answer only elementary questions. The answer to the third question depends on the definition of the overall structure (i.e., on the answer to the second question). These three basic questions provide the means of determining the most appropriate construction among a variety of possibilities derived from combinations of different visual variables (see Figure 3).

The Semiology of Graphics

Graphics exploits the means and properties of visual perception in order to represent data. Essentially data can be seen as a relation between two elements that takes one of the following forms:

- a simple difference: A is different from B (\neq)
- an order: B is between A and C (O)
- a proportion: A is two times greater than B (Q)

The visual variables. To represent these relations, graphics utilizes the eight types of perceptual variation distinguishing two marks. Not all of these variables can express order or proportion. Figure 4 classes the variables according to their properties.

On the plane formed by the graphic there are three types of marks: the point, the line, and the area. The combination of points and lines produces two types of data representation: the network and the matrix. The network results from representing the elements by points and the relations by lines, as in Figure 5. This construction is appropriate for representing relations among the elements of a single set (Figure 6). However, it will be legible only for a small number of relations. The area can be used to represent relations of inclusion, as in Figure 6.

The matrix results from representing the elements by lines and the relations by points, as in Figure 7. This construction, almost always legible, is appropriate for representing the relations between two different sets. The double-entry table is the most widely used example of the matrix construction, which favors the analysis and transformation of what we shall call the image, the meaningful visual form perceptible in the minimum instant of vision.

Properties and limits of the image. The image has three dimensions. The meaningful form constituting

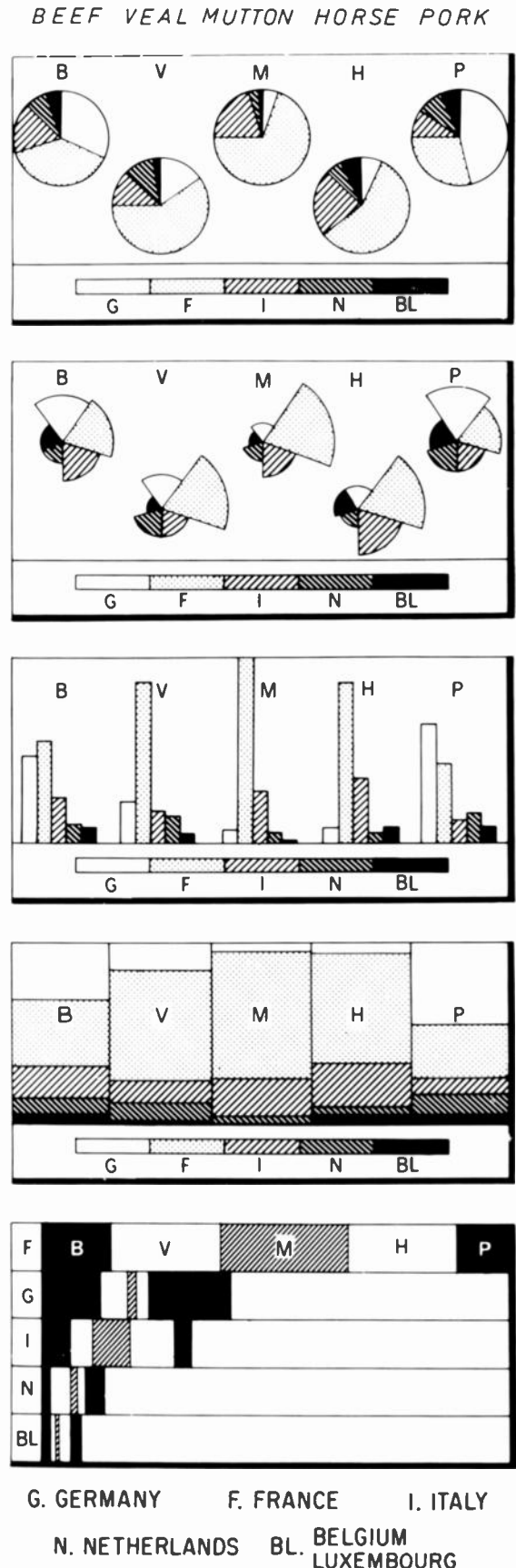


Figure 3. (Graphics) Constructions derived by combining different visual variables. None of these constructions answers the three basic questions.

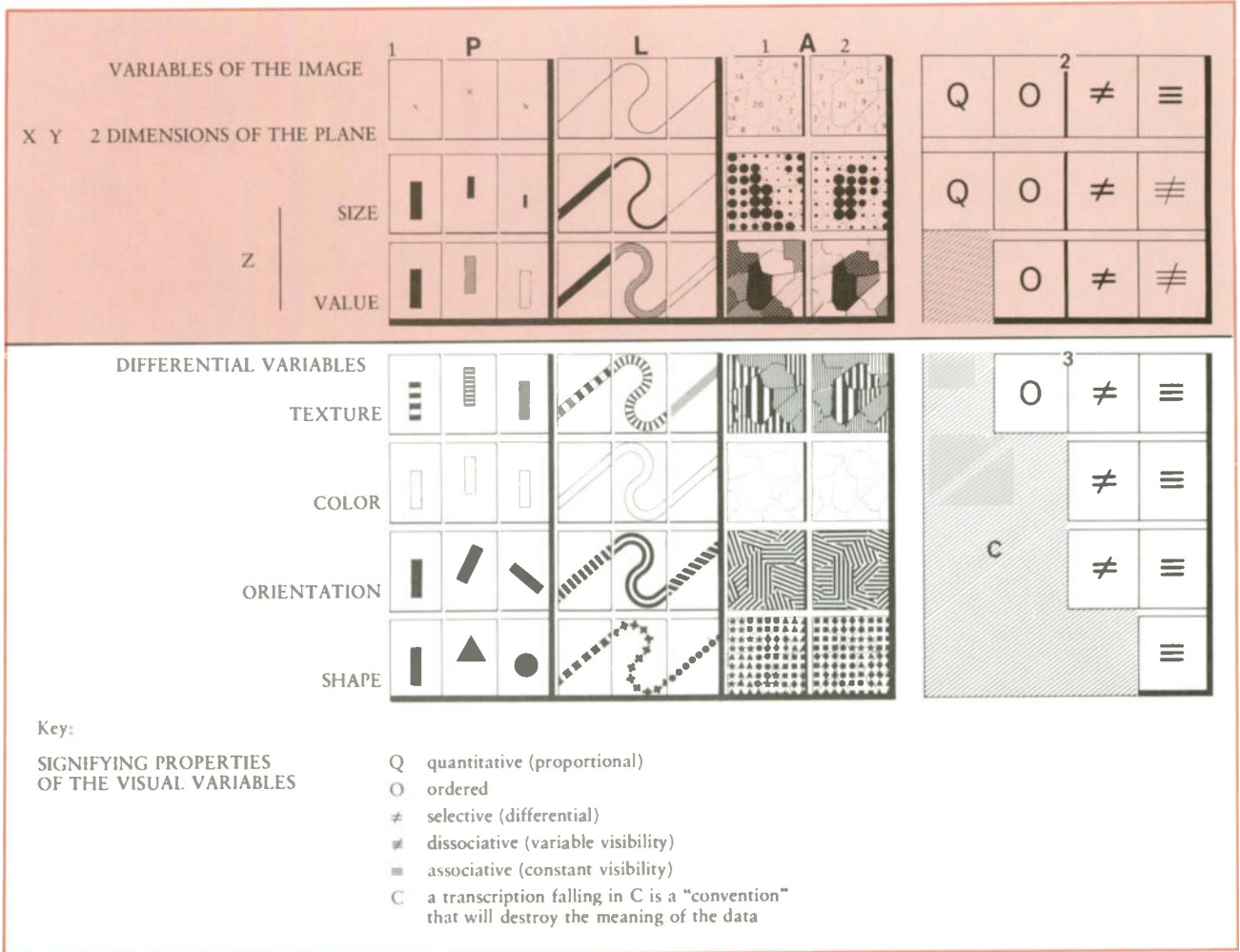


Figure 4. (Graphics) Visual variables and their properties.

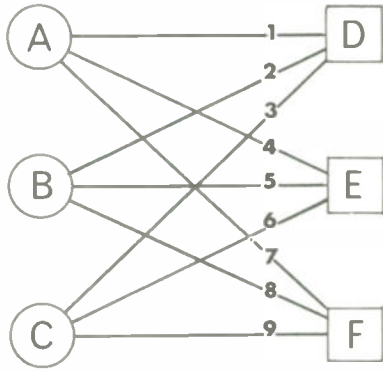


Figure 5. (Graphics; left) Network construction.

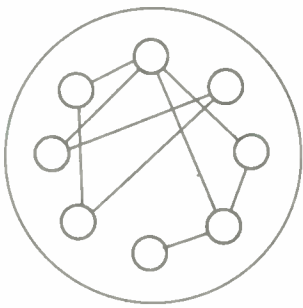


Figure 6. (Graphics; center) Network construction showing relations among elements of a single set.

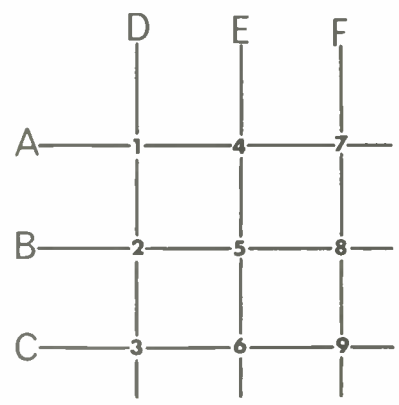


Figure 7. (Graphics; right) Matrix construction.

an image is produced by the x and y (orthogonal) dimensions of the plane and a z variation in light energy obtained by differences in the size and value of the marks (see Figure 4). An image can represent the relationships among three independent sets (Figure 8).

The image has only three dimensions. Individual images (Figure 9) will be destroyed by a superimposition (Figure 10); we see only their sum. If that sum is not meaningful, the overall form is useless. To represent the relationships among n sets, graphics offers three solutions:

- A juxtaposition of images, each with two or three dimensions (Figure 9). We can, for example, establish collections of tables or maps, whose permutation (Figure 11) produces a partial answer, involving x or y , to the second basic question (i.e., concerning the groups formed by the data).
- A superimposition of images (see Figure 10). This will only produce an answer on the elementary level, but that level can be useful, as in the reading of a map. Distinguishing among superimposed images involves the use of differential variables (see Figure 4).
- The reorderable matrix. This construction combines the perceptual properties of the eye with the technical possibilities of permuting rows and columns. The eye can perceive leaves, a branch, or the entire tree; that is, it operates on all three levels of information. The perception of similarities and differences enables us to control the regrouping of elements in such a way as to construct an image that answers all three types of basic questions.

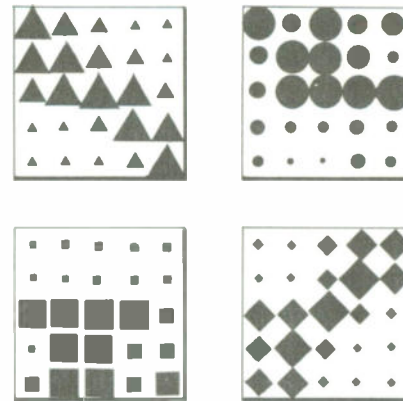


Figure 9. (Graphics) Juxtaposition of individual images.

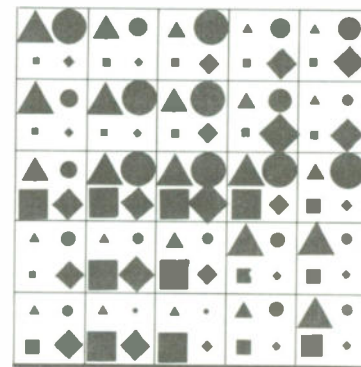


Figure 10. (Graphics) Superimposition of images from Figure 9.

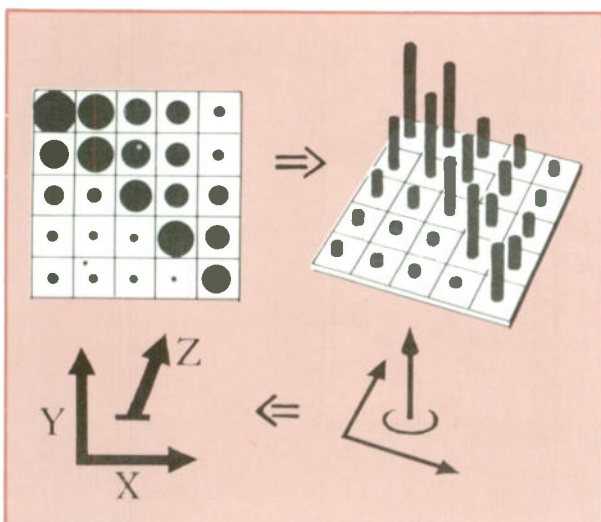
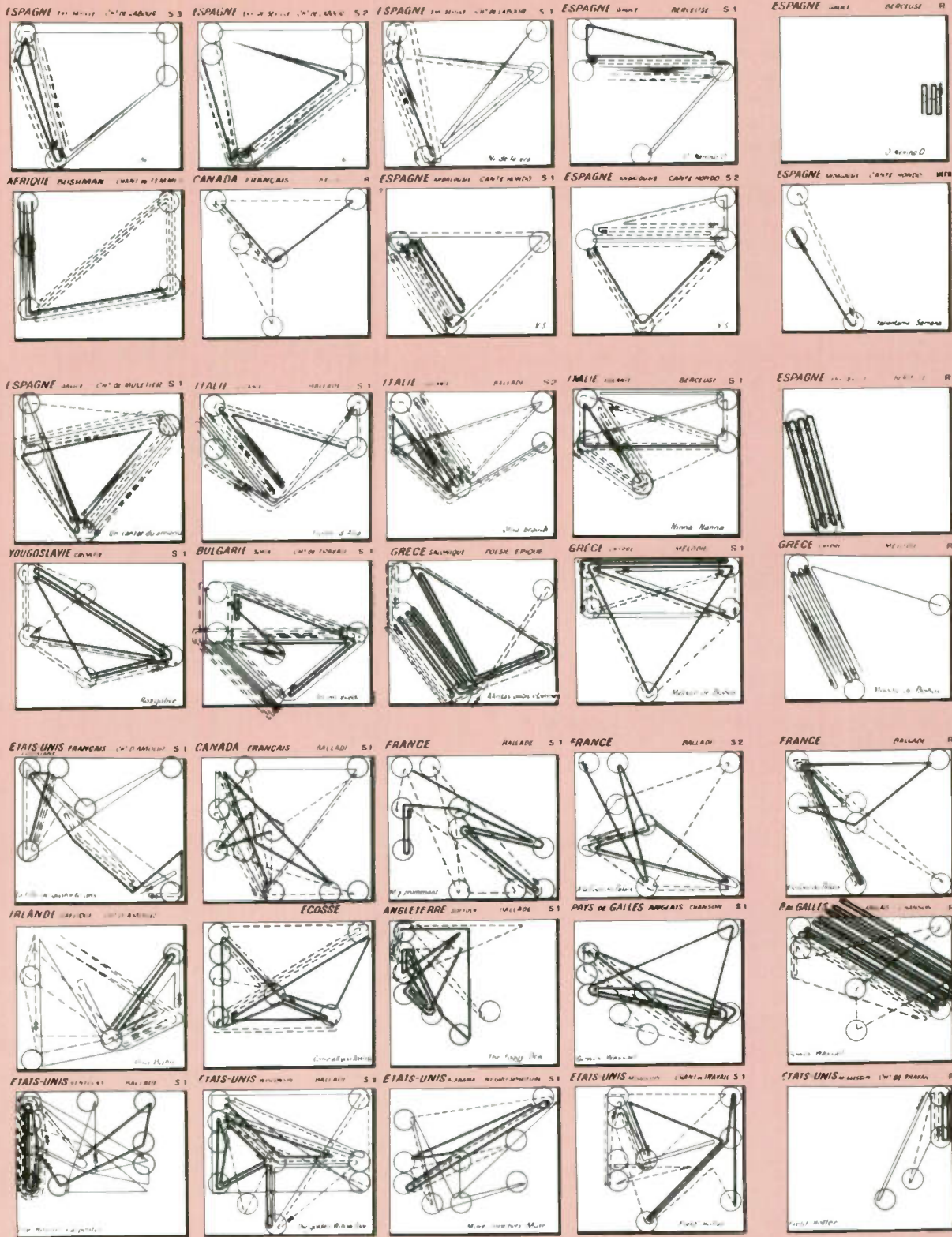


Figure 8. (Graphics) Relationships among three different sets.

The xyz structure of the data table. Before constructing a graphic, we represent the data in the form of a double-entry table whose structure approximates that of the image. The series of objects (individuals, dates, places, products, objects) is on x , the series of characteristics attributed to these objects is on y , and the answer, or relationship of each object to each characteristic, appears in z (i.e., in the boxes, or cells, of the table). This answer can be a quantity, an order (good, average, bad), a yes/no (binary) alternative, an unknown (?), or not applicable. When the data come from different tables, we must rework the tables in order to utilize a single xyz structure. This is termed the *matrix analysis of the data*.

Construction of the reorderable matrix involves reproducing the xyz structure of the data table, representing the z dimension by a variation in size or value, and permuting rows and/or columns to discover groups, thus displaying the overall information. This permutation of rows and columns can be done by simply cutting out the various forms on pieces of paper so that they can be rearranged. Although larger matrices obviously require special equipment, the personal computer has made permutation a routine matter. Whatever the equipment, we



N	A	N	A	N	A
1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

a

◁ Figure 11. (Graphics) Permutation of collections. In order to compare various folk songs, the vowels are used as the basis for a "vocalic map" (a). The succession of vowels in each stanza of a given song traces a characteristic image of the song on the map. This classification reveals three levels of complexity among the songs and displays the refrains on the right. From Alan Lomax and E. Trager, *Phonotactique du chant populaire*, Paris, 1954.

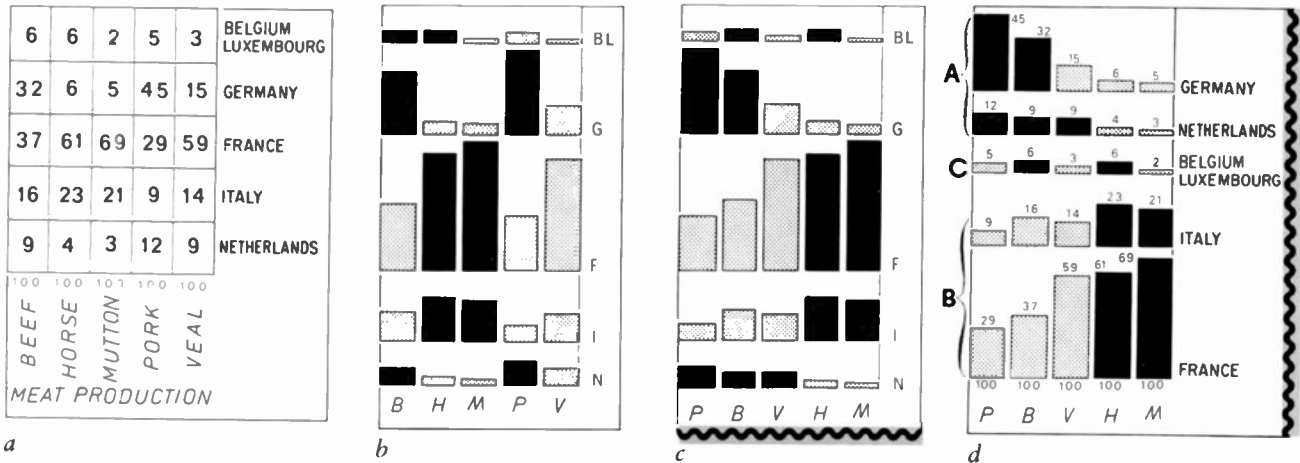


Figure 12. (Graphics) (a) Data table; (b) construction of image based on order of table; (c) regrouping of similar columns; (d) regrouping of similar rows.

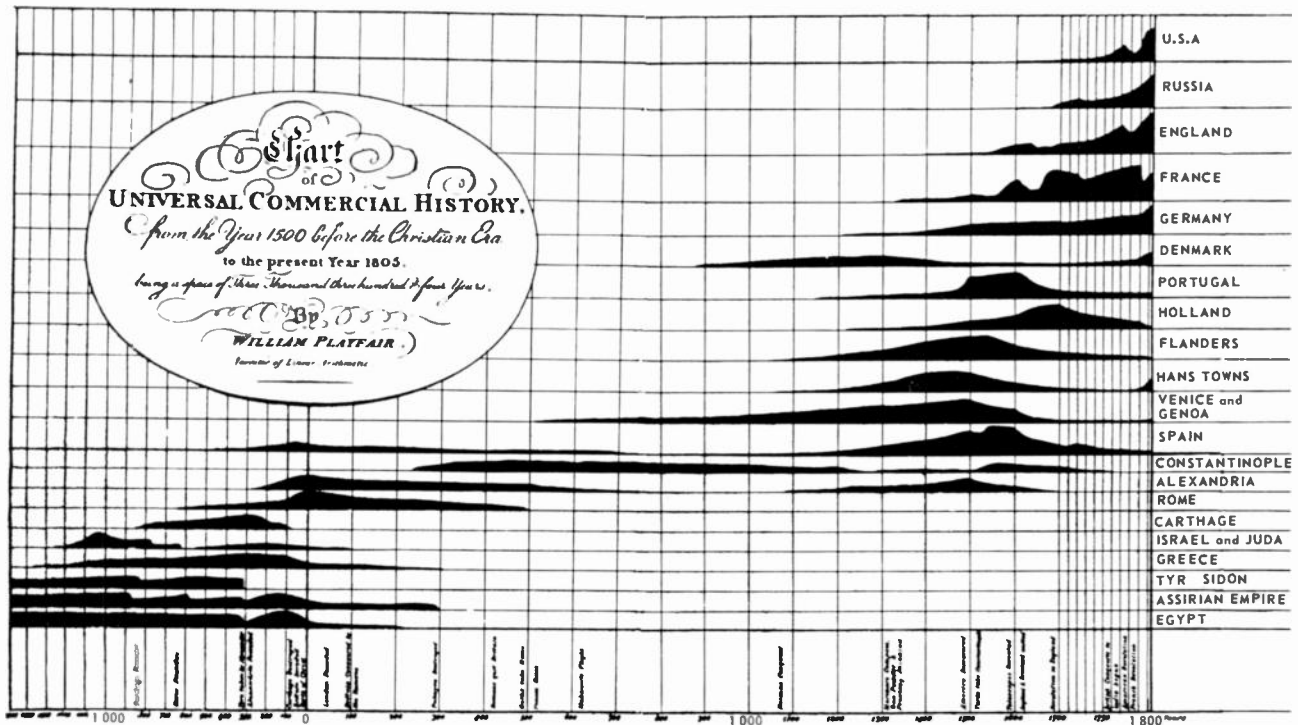


Figure 13. (Graphics) Playfair's reclassification of civilizations according to era and longevity. From William Playfair, *An Inquiry into the Permanent Causes of the Decline and Fall of Powerful and Wealthy Nations*, London, 1805.

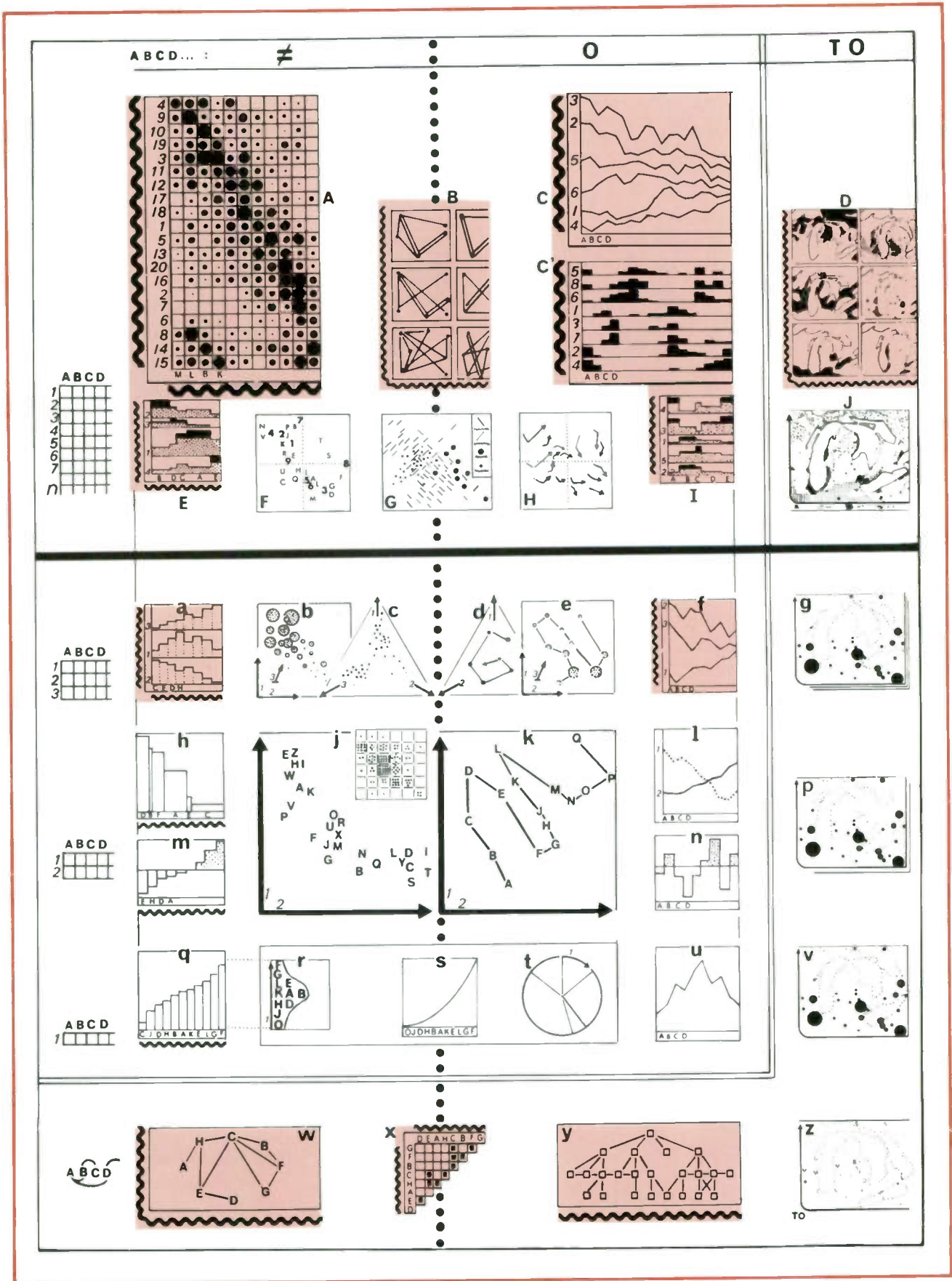


Figure 14. (Graphics) Main types of graphic constructions.

first construct, based on the order of the table (Figure 12 [a]), the image (b). Next, exercising strict visual control, we regroup the similar columns (c), then the similar rows (d). This process of reclassing is the classic concept of information processing; it adds to the classic concept of the immutably constructed graphic image the notion of the transformable, mobile image that characterizes modern graphics. This notion is by no means of recent invention: as early as 1805 William Playfair reclassified various civilizations according to their era and longevity (Figure 13). If the data table is extensive, we have to use some automated means of permuting, but there are hundreds of methods with different results, thus posing the

problem of interpretation. The reorderable matrix then becomes the basis for this interpretation.

The Choice of a Graphic Construction

The synoptic table in Figure 14 shows the main types of graphic constructions. The choice of a construction depends primarily on the structure of the data table, that is, on the number of characteristics and the properties—ordered (O), reorderable (\neq), or topographic (TO)—of the series of objects.

If the table has more than three characteristics, the solution stems from the transformable nature of the modern graphic image. The standard construction is

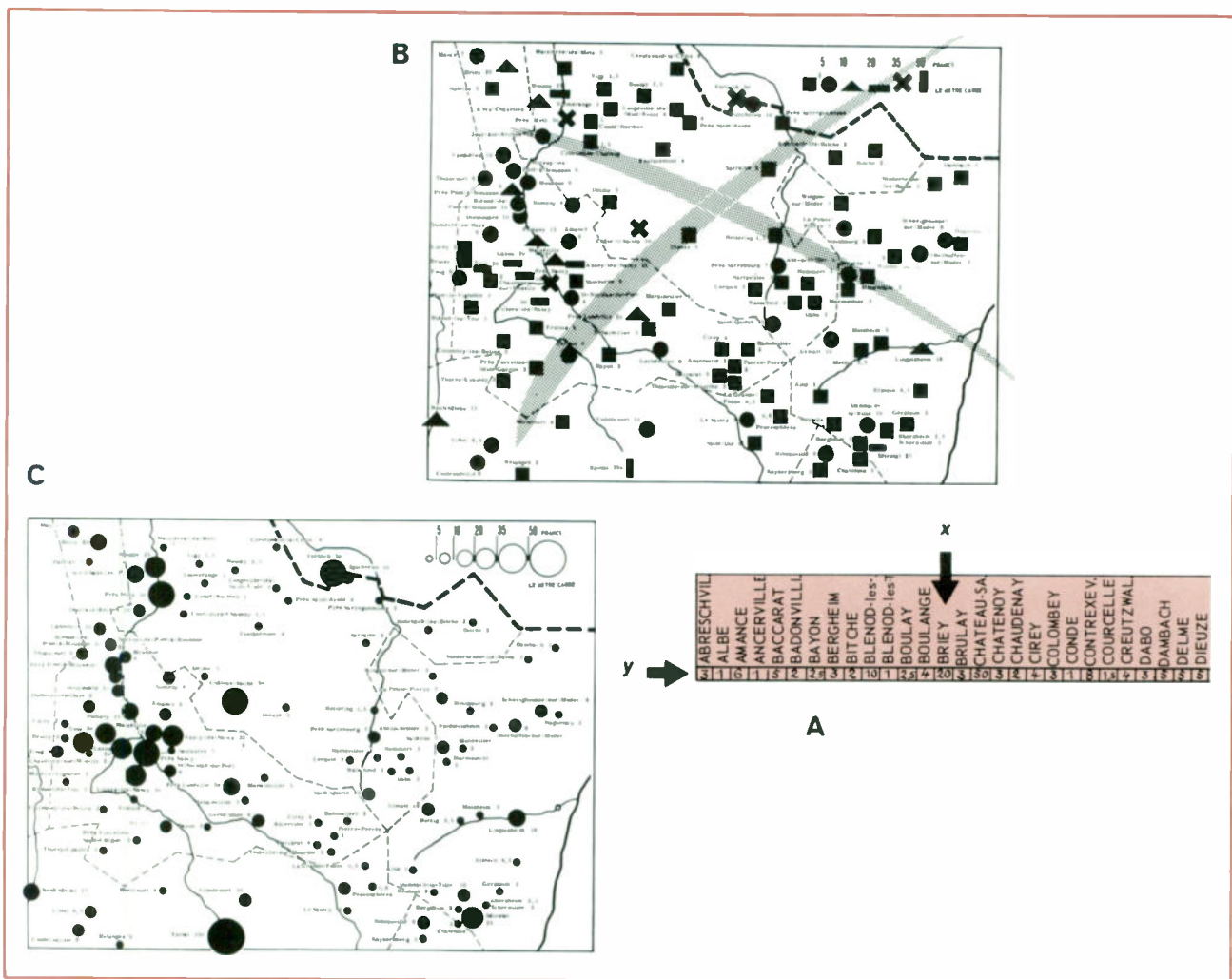


Figure 15. (*Graphics*) Maps with one characteristic. Maps B and C display the information in table A, where *x* lists cities and the single row in *y* shows land prices. Map B, which represents the prices by a variation in shape, answers only questions involving *x* (“What is the case for a given place?”). This map must be “read” point by point. Map C, which represents the prices by the size of the marks—that is, by a variation in light energy—also answers questions involving *y* (“Where do we find a given case?” and “Where are the expensive areas?”). Because this map can be “seen,” it answers questions of all types and levels.

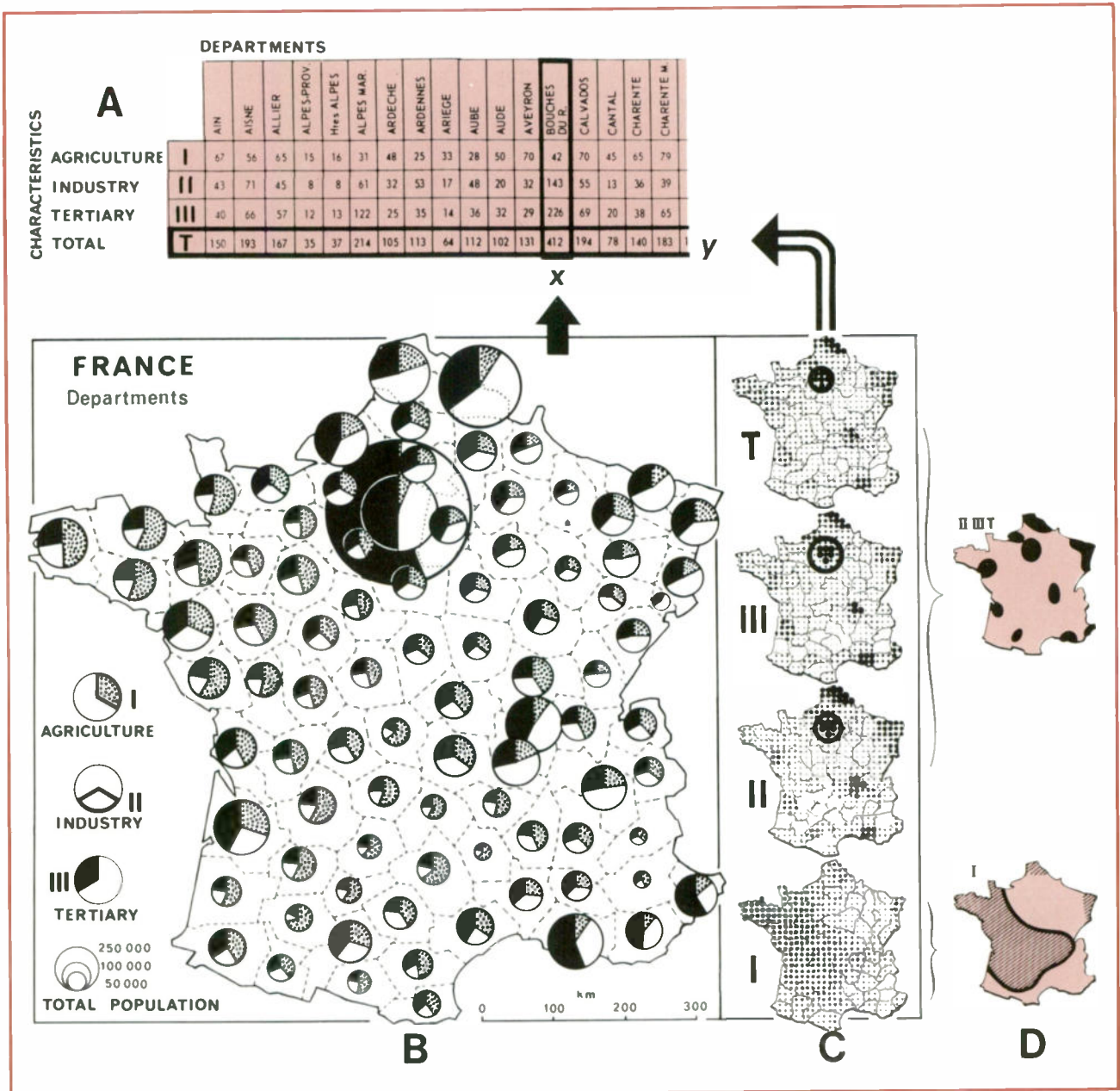


Figure 16. (*Graphics*) Maps with several characteristics. When the data table has several rows (A), a superimposition map answers questions involving x ("What is the case for a given place?"). A superimposition is useful whenever the map is to function as a precise reference instrument (e.g., tourist maps, architectural drawings, industrial plans). In these instances we use the differential variables—texture, color, orientation, or shape—to distinguish each characteristic. But such a map will not answer questions involving y ("Where do we find a given case?"). Only maps with a single characteristic can answer all such questions, and they alone can make groups appear (D). When both types of questions are pertinent, we use a collection (C) along with a superimposition (B).

the reorderable matrix (A), which can take the following forms:

- the array of curves (C) and the image-file (C'), when the objects are ordered
- the weighted matrix (E) and the weighted file (I), when the overall total of the data table is meaningful
- the collection of tables (B) and the collection of maps (D), when the best discrimination is produced by either two ordered characteristics or topographic order

Factorial clusters (F, H) can represent the results of various mathematical classings. The superimposition of tables (G) or maps (J) is appropriate with a small number of characteristics but involves a problem of visual differentiation.

If the table has fewer than four characteristics, each is represented by one of the dimensions of the image, and the relations will appear directly, without reclassing. The standard construction is the scatterplot with two characteristics (j), which takes the form of (k) when the objects are ordered. Depending on the problem, we can use (b) and (e), scatterplots with three characteristics, or (c) and (d), triangular constructions (generally appropriate when the sum of the three characteristics is meaningful). A small number of objects will lead to matrix constructions—(a), (f), or (l)—or to a histogram (h). A meaningful difference between two characteristics will lead to (m) or (n).

If the table has only one row, the standard constructions are the distribution diagram (r) and the time series, or "chronogram" (u). The repartition, or "cumulative curve" (q), and the concentration (s) respond to specific questions. With a very small number of objects, we can use a pie chart (t).

If the relations involve the elements of a single set, we use a reorderable network (w) or an ordered network whose order is based on a single dimension of the plane (y). A network can also take the form of a matrix (x).

A map is an ordered network whose order is based on both dimensions of the plane (z). The nature of the order is determined by that of the object being represented (e.g., geographical space, the heavens, a human being, a piece of furniture). A map represents relations of proximity among the elements of an object (see CARTOGRAPHY). This is accomplished by using the *xy* dimensions of the plane, which means that if the *z* dimension of the image is used to represent quantities, there are no further dimensions available for representing *n* characteristics. In topography it is advisable to distinguish maps with one characteristic (Figure 14 [v] and Figure 15) from those with *n* characteristics (Figure 14 [j] and Figure 16). The properties of color enable us to superim-

pose two maps (p) or three maps (g), each with one characteristic. Beyond that, we need to use a collection (D) coupled with a superimposition (J) to answer all the pertinent questions.

Graphics and the Computer

Graphics owes a great deal to the computer. By minimizing the constraints of traditional drafting and facilitating the permutation of rows and columns, the computer enables us to cross the three-dimensional barrier imposed by the image and tackle problems with *n* dimensions (see COMPUTER: IMPACT). But the computer also owes a great deal to graphics, which constitutes its most powerful language for processing and communicating information, provided of course that the universal laws governing visual perception are understood, respected, and exploited.

Bibliography. Jacques Bertin, *Graphics and Graphic Information-Processing* (La graphique et le traitement graphique de l'information), trans. by William J. Berg and Paul Scott, Berlin and New York, 1981; idem, *Semiology of Graphics: Diagrams, Networks, Maps* (Sémiologie graphique), trans. by William J. Berg, Madison, Wis., 1983; Serge Bonin, *Initiation à la graphique*, Paris, 1975; Willard C. Brinton, *Graphic Methods for Presenting Facts*, New York, 1914; Otto Neurath, *Basic by Isotype*, London, 1937; William Playfair, *The Statistical Breviary*, London, 1801; Edward R. Tufte, *The Visual Display of Quantitative Information*, Cheshire, Conn., 1983; Howard Wainer and David Thissen, "Graphical Data Analysis," *Annual Review of Psychology* 32 (1981): 191–241.

JACQUES BERTIN
(Translated by William J. Berg)

GREELEY, HORACE (1811–1872)

U.S. editor and publisher. Horace Greeley began his career as a youth setting type for small New England newspapers and PRINTING houses. After his father failed at farming and went west, Greeley moved to New York. He ran a printing house for several years before becoming associated with Thurlow Weed and William Seward as publisher of various political newspapers such as the *Constitution*, the *Jeffersonian*, and the *Log Cabin*, all of which were intended to advance Whig candidates. He also published the *New-Yorker*, a weekly miscellany that borrowed its contents liberally from other publications. His first attempt at a "cheap-for-cash" newspaper was as printer in 1833 for the *New York Morning Post*, which failed to attract a mass readership and folded.

Greeley issued the first copies of the *New York Tribune* in 1841 and with it began his rise to fame as a newspaper publisher at a time when the new



Figure 1. (*Greeley, Horace*) Thomas Nast, caricature of Horace Greeley, 1866. Historical Pictures Service, Chicago.

sensational penny press was beginning to capture the interest of New York readers. Journalism historian Frank Luther Mott notes that the *Tribune* was nicknamed the “Great Moral Organ” because of Greeley’s high moral and ethical standards and his expressed aversion to “the immoral and degrading police reports, advertisements and other matter which have been allowed to disgrace the columns of our leading Penny Papers.” Yet he soon found that to compete for circulation he must use crime stories, advertisements, and even theatrical reports.

Greeley’s greatest impact came through the pages of the *Weekly Tribune*, which he founded about six months after the daily version by combining the *New-Yorker* and the *Log Cabin*. This weekly publication, which eventually reached over two hundred thousand in circulation, led U.S. historian Samuel Eliot Morison to observe that “under Greeley’s editorship, the *Tribune* became a liberal power of the first magnitude” and caused English visitors invari-

ably to remark, and often to deplore, the fact that “shop clerks, mechanics and even common laborers subscribed to newspapers.”

Greeley became the best-known U.S. newspaper editor during the first half of the nineteenth century because his paper reflected, and at times advocated, most of the social reforms of the time. Greeley concerned himself with such reform efforts as the labor movement, limited socialism as advocated by French philosopher Charles Fourier, women’s rights, prohibition, a protective tariff, abolition of hanging, and the use of fertilizers as a form of scientific farming. Greeley’s two greatest causes were westward expansion and the abolition of slavery (*see also* SLAVE TRADE, AFRICAN). He may have been one of the first to express the concept of U.S. manifest destiny after he visited Europe and noted what he thought was corruption and decay in those countries. His constant espousal of the U.S. system and the democratic process, his belief in the people of the United States, and his overwhelming concern for the poor, the unemployed, and degraded and underpaid workers led the average citizen to support him. According to one quip, the typical Midwesterner would not decide on any issue before reading what “Uncle Horace” had to say.

Ironically, Greeley himself was a frustrated politician who supported the Whig party originally and eventually the new Republican party. He was unsuccessful in eight attempts for public office, including an 1872 race for the presidency (as a liberal Republican endorsed by the Democrats) against the Republican incumbent, Ulysses S. Grant. But in a day of personal journalism, when newspapers supported the causes and reflected the beliefs of the editor, Greeley was the model. The *Tribune* was what it was because of Greeley.

See also ETHICS, MEDIA; NEWSPAPER: HISTORY; POLITICAL COMMUNICATION.

Bibliography. James Parton, *The Life of Horace Greeley*, New York, 1855, reprint Boston, 1896; Don C. Seitz, *Horace Greeley: Founder of the New York Tribune*, Indianapolis, Ind., 1926, reprint 1970; Glyndon G. Van Deusen, *Horace Greeley: Nineteenth-Century Crusader*, Philadelphia, 1953.

PERRY J. ASHLEY

GRIERSON, JOHN (1898–1972)

British filmmaker. Scottish-born John Grierson exerted a pervasive influence on the development of DOCUMENTARY film and gave the GENRE its most enduring short definition: “the creative treatment of actuality.” Trained as a moral philosopher, Grierson saw film and other popular media exerting a public



Figure 1. (Grierson, John) John Grierson in the early days of the National Film Board of Canada.

influence that had formerly been the unchallenged domain of church and school. He viewed the cinema as a pulpit; through film he believed he could dramatize social issues and lead citizens to a more active, participatory role in democracy. Recognizing that there were many audiences outside those in cinemas, he initiated the exhibition of films in union halls, church basements, and school meeting rooms, reaching targeted audiences for his film messages. His vision of the documentary film was influenced by the cinema-poetics of ROBERT FLAHERTY, the editing technique of SERGEI EISENSTEIN, and the storytelling skills of HOLLYWOOD narrative films. See MOTION PICTURES.

Grierson directed his first film, *Drifters*, in 1929. Produced for the Empire Marketing Board, whose role was to knit together the far-flung British Empire by promoting trade and unity, *Drifters* saluted the

teamwork of people and machines in the herring fisheries. It typified the Grierson documentary—the short film with a commentary articulating a socially relevant point of view. This tendentiousness differentiated Grierson documentaries from those of Flaherty. Both men believed that documentary film had to be based on the actual, on real people playing out their life roles, not on the use of actors and scripts, and they shared each other's distrust of Hollywood and commercial cinema. But Grierson was indifferent to the art of film except insofar as it made his message more persuasive and provided insight into the social consequences of the industrial world.

Grierson's strategy for securing an economic base for documentary was to organize talented filmmakers into production teams motivated for public service and sustained by enlightened government or corporate sponsorship. He designed and developed the



Figure 2. (*Grierson, John*) John Grierson. Photograph by Virginia Haggard Leirens.

prototype Empire Marketing Board Film Unit in 1929, the General Post Office Film Unit in 1933, and the National Film Board of Canada in 1939, and drafted proposals leading to the establishment of the Australian Commonwealth Film Unit and the New Zealand Film Unit.

The POLITICIZATION of documentary was a world phenomenon during the 1930s, but no one in the West better understood how to make films of social concern a government enterprise than Grierson. A talented politician in his own right, he served as a buffer between his filmmakers and their corporate and government sponsors, successfully lobbying for support of liberal (some would say socialist) films from a Tory administration. *Housing Problems* (1935), by Edgar Anstey and Arthur Elton, focused on London slums, with on-location testimony by slum occupants talking directly to the camera, pointing to the horrors around them—anticipating a technique that would later be used extensively in television. Grierson persuaded the Gas Light and Coke Company to sponsor this film by assuring them that the construction of new housing would be a boon to the gas industry. Basil Wright's *Song of Ceylon* (1935), which was sponsored by the Ceylon Tea Propaganda Board, reflected the filmmaker's admiration of the Ceylonese and their culture while simultaneously making clear the role of the colony's tea in the imperial economy. Such ambiguity was also present in films that gave dignity to British workers while serving to render that labor force more amenable to industrialization. Grierson's commitment to securing

institutional support for documentary production often conflicted with his urge to promulgate a radical notion of documentary. In such instances he tended to subordinate his theoretical interests to practical concerns, tempering public pronouncements in order not to arouse the documentary movement's enemies or disturb its sponsors.

Although he urged his staff to avoid the "aestheticky"—reminding them that they were propagandists first and filmmakers second—Grierson nevertheless selected people steeped in montage and eager to experiment with film form. He attracted a diverse assortment of talented artists: the classic film *Night Mail* (1936), directed by Harry Watt and Wright, was a collaborative enterprise enlisting the services of poet W. H. Auden, composer Benjamin Britten, and Brazilian-born filmmaker Alberto Cavalcanti, whose experiments with sound were a major contribution of the British documentary. An unconventional, daring, and charismatic administrator, Grierson inspired the careers of Wright, Paul Rotha, Humphrey Jennings, Norman McLaren, Colin Low, Tom Daly, and many others. His most enduring organizational achievement was the National Film Board of Canada, which he headed until 1945 and which remained a world leader in documentary and ANIMATION during the following decades.

See also CINÉMA VÉRITÉ; NEWSREEL.

Bibliography. Gary Evans, *John Grierson and the National Film Board: The Politics of Wartime Propaganda*, Toronto, 1984; John Grierson, *Grierson on Documentary*,

ed. by Forsyth Hardy, London, 1946, reprint 1979; Forsyth Hardy, *John Grierson: A Documentary Bibliography*, London, 1979.

D. B. JONES

GRIFFITH, D. W. (1875–1948)

The first great U.S. film director, David Wark Griffith remains controversial. His innovations in film technique are unchallengeable: between 1908, when he directed his first one-reeler, *The Adventures of Dolly*, and 1914, when he directed his three-hour epic of the Civil War and Reconstruction, *The Birth of a Nation* (released 1915), he established virtually all the conventions of film grammar still in use today. Although no longer credited with the first close-up or crosscut, Griffith was the first to reveal the full dramatic potential of film form. There is, however, little denying that Griffith's ideology remained that of an anti-Reconstruction Southerner and that his sense of dramatic conflict remained at the level of low melodrama (rising, at its best, to Dickensian verve).

Griffith grew up in Louisville, Kentucky, and aspired to theatrical fame through ACTING or writing but had only limited success in either. After acting briefly in MOTION PICTURES from 1907, he became the principal director for the American Biograph Company the following year, turning out more than 450 one- and two-reelers by late 1913. (Even more astonishing, all but 8 of those Biograph films survive, in contrast to his lost Paramount features of the late 1910s.) Arguably this rapid output contains his greatest work—concise, technically innovative, socially conscious dramas, as early as *A Corner in Wheat*, *The Lonely Villa*, and *The Country Doctor* (all 1909). Near the end of the Biograph period are films with previously unseen sophistication in filmic (as opposed to theatrical) acting—among them *The New York Hat* (1912), with Mary Pickford and Lionel Barrymore, and *The Battle at Elderbush Gulch* (1913), with Lillian Gish. For his heroines Griffith regularly preferred resourceful child-women—Pickford, the Gish sisters, Blanche Sweet, and Mae Marsh.

Only in a literal sense was Griffith the founding father of HOLLYWOOD. From 1910 on, he did take summer trips from New York to the sunshine of Los Angeles with his cameraman and collaborator, G. W. "Billy" Bitzer, and the Biograph players. However, Griffith was never able to accommodate himself to the regimented production patterns of Hollywood (in the sense of the community of film studios that flourished there from the late 1910s). In 1919 he joined with Pickford, Douglas Fairbanks, and CHARLES

CHAPLIN to found United Artists, but that was essentially a distributing organization. For production space Griffith built his studio that year in Mamaroneck, New York. But his debts prevented true independence.

Griffith's ongoing financial woes had begun with the commercial failure of the \$2.5 million *Intolerance* (1916). The single greatest film in the view of some filmmakers (Vsevolod Pudovkin, King Vidor) and critics (Pauline Kael), its complex intercutting among four historical epochs baffled most audiences at release. Perhaps holding up better today are such less ambitious features as *True Heart Susie* and *Broken Blossoms* (both released in 1919 and starring Lillian Gish). And at least three of his films from the early 1920s must be counted among the great works of silent filmmaking: *Orphans of the Storm*, set amid the French Revolution; *Isn't Life Wonderful*, shot on location in the ruins of postwar Germany; and *Way Down East*, a bravura melodrama with an astonishing chase across an ice floe, and Griffith's only film since the foundation of United Artists that did not lose money. Forced into the Hollywood studio system, he thereafter produced undistinguished silents and two sound films that were ridiculed and quickly forgotten. But notwithstanding his troubling provincialism and sad decline, there is no more significant figure in the history of U.S. filmmaking.



Figure 1. (Griffith, D. W.) D. W. Griffith on the set. The Bettmann Archive, Inc.

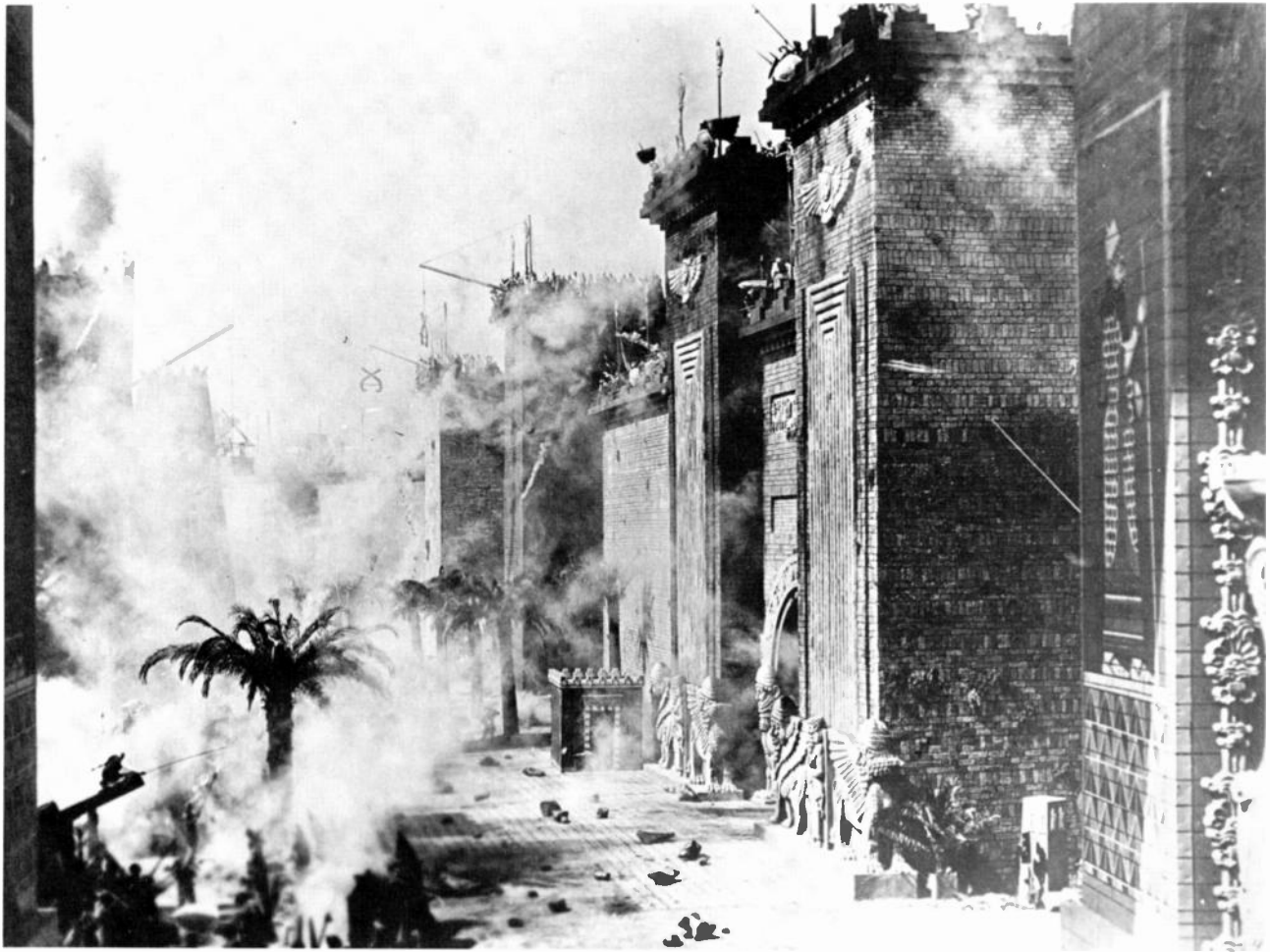


Figure 2. (Griffith, D. W.) The destruction of Babylon, from *Intolerance*, 1916. The Museum of Modern Art/Film Stills Archive.

Bibliography. Karl Brown, *Adventures with D. W. Griffith*, New York, 1973; Robert M. Henderson, *D. W. Griffith: His Life and Work*, New York and London, 1972; Richard Schickel, *D. W. Griffith: An American Life*, New York, 1984.

SCOTT SIMMON

GROUP COMMUNICATION

The study of the process of group communication traces its origins to the fourth and fifth centuries B.C.E. in Greece and the study of dialectics, a process of arriving at agreement through the exchange of opinions and dialogue. During the twentieth century the “group” came into its own as the most pervasive unit of sociological analysis. Probably the greatest single influence in directing scholarly thinking about groups was KURT LEWIN’s application of field theory to the social psychology of groups. This approach

reached its greatest popularity during the 1950s and spawned the term *group dynamics*. Inquiry into group phenomena during this heyday of small-group research focused on environmental influences on groups, the internal structure of groups, and compositional characteristics of groups based on differences among members. Scholarly inquiry in subsequent decades has focused on the central role of communication in the formation, maintenance, and performance of small groups.

The centrality of communication is explicit in the standard definition of group that has come into general use. U.S. social psychologist Marvin Shaw defines a group as “persons who are interacting with one another in such a manner that each person influences and is influenced by each other person.” The unit of analysis, sometimes called “small group,” occasionally has been defined in terms of its size. Group usually refers to a social system comprising a minimum of three members. Dyad typically refers to

a sociological unit of two persons. With the addition of a third person to the dyad, the complexity of sociological and communicational variables increases markedly. The upper limit on the size of a group, however, is indefinite. Although scholars typically limit the group to a maximum of fifteen to twenty persons, the crucial definitional limitation on a group's size is the extent to which each member interacts with every other member so that mutual influence is possible among all members.

The nature of communication in groups has also been redefined during scholarly inquiry of the past several decades. The traditional approach has been to visualize communication in terms of its *transmissional* properties: direction of information flow and number of messages sent and received among group members, who are seen as nodes in a communication "network." The more recent conceptualization of group communication emphasizes its *pragmatic* properties: multiple functions performed by communicative actions, sequences of interactive functions within the conversational flow, and social relationships among group members created by the sequencing of interactive functions. The key difference between these two conceptualizations of communication is the emphasis on the linear quality of transmission of messages contrasted with the emphasis on the functional quality of pragmatic properties of communicative actions or events. Both conceptualizations of communication are necessary for an understanding of the sociological properties of a group.

Leadership

Perhaps the most widely researched phenomenon in group communication is leadership. Traditionally leadership has been identified with certain transmissional properties of communication. The leader most often emerges in a central position in the network, a node that requires the fewest number of transmissional relays to disseminate information to all other members. Leaders also were typically found to be those members who sent and received the most messages, a natural consequence of the centralized network position. Leaders also serve a gatekeeping function in information dissemination and are thus subject to the problems associated with information overload (receiving a number of messages exceeding the capacity to process them).

More recent communications research has examined the functions of leaders and the communicative properties of acts most typically performed by them. Such research has shown that leaders often initiate more themes or topics than other members, engage in more frequent orientation behavior, and are perceived to demonstrate more goal-directedness, to give more directions and summaries, to be more assured,

and to exhibit more argumentativeness in their communicative behaviors. Despite such findings, functional dissimilarities idiosyncratic to specific leaders and specific groups abound. Consequently, a definitive list of leadership functions has eluded scholars in the field.

Recent exploratory research into the pragmatic properties of leaders' communications suggests that leadership is more likely to be a social relationship between leaders and followers created through group interaction than a leader's independent performance of specific functions directly attributed to leadership. This social relation between leaders and followers is probably a function of the greater complexity of communicative behaviors displayed by leaders. That is, leaders, interacting with followers, tend to exhibit the greater variety of communicative functions compared with nonleaders, and they continue to exhibit the greater complexity of communicative functions throughout a group's interactional history. Leaders also tend to employ different communicative strategies with different group members, thereby creating different social relationships. By contrast, nonleaders tend to interact very similarly with every other member throughout the group's history. Only with leaders do followers tend to vary their communicative styles. The pragmatic properties of communication associated with leadership, then, emphasize the social relationship between leaders and followers created by communication and are probably more important than the transmissional properties of a leader's central position in an information-flow network.

Leadership itself is a phenomenon that appears in a variety of social systems other than the group. Within the group, however, a distinction is often made between leader and leadership. *Leader* typically refers to the high-status role or position occupied by a member who achieves that role in a variety of ways, principally through appointment or designation by some external authority. The emphasis on communication often distinguishes the designated or legitimate leader from an emergent leader—a member who, as a result of interaction, earns the recognition of other group members as having achieved the role of leader. The process of leadership emergence occurs during and is a direct outgrowth of communication among group members.

Leader emergence is often viewed as a multistage process of contention for the leadership role. The emergent leader, unlike the legitimized leader, occupies the position only as a result of recognition and acceptance by followers. Maintaining an emergent leader's role requires maintaining that acceptance. Emergent leadership thus implies a relationship between leader and followers that is not necessarily present in (and is less stable than) the status of the legitimate leader. The emergent process of group

leadership is similar to the creation of an informal role structure in larger social organizations. *See also* ORGANIZATIONAL COMMUNICATION.

Decision Making

Groups serve a number of functions within a society, but the one that has attracted the most scholarly interest has been the process of social decision making. This process traditionally has been viewed as a step-by-step progression to social agreement. This linear progression toward consensus emphasizes the influence of human rationality. The epitome of the rational linearity of group decision making is embodied in social philosopher JOHN DEWEY's stages of reflective thinking: (1) a difficulty is felt or expressed; (2) the nature of the problem is defined; (3) the problem is analyzed; (4) possible solutions are suggested; (5) the best solution is selected by testing each solution against selected criteria; and (6) the best solution is implemented. This linear approach views group decision making as identical to problem solving and is typically prescriptive in that it outlines an agenda to guide groups along an orderly path toward achieving consensus.

Some lines of inquiry are based on the assumption that groups evolve or develop cumulatively toward achieving consensus but do not necessarily do so in a certain standard fashion. U.S. social psychologist Robert Bales probably initiated this kind of inquiry when he studied the pragmatic properties of communicative acts performed by group members during discussions. He concluded that groups accomplish decision-making tasks through a cumulative but non-linear process.

Subsequent inquiry employing a similar descriptive approach to communication has emphasized the sequential properties of interactional functions and the temporal connectedness among communicative acts, and has expanded upon Bales's three-phase model. Although idiosyncratic variations occur among different groups, the descriptive approach to group development has emphasized that group decision making appears less rational than individual decision making, at least in the sense of linear path-goal progress toward solutions. The group decision-making processes appear to reflect the influence of the social relationships among group members on their interaction.

Other Functions of Groups

Groups perform many functions in society in addition to decision making. For example, groups are established for brainstorming (generating a variety of new ideas), personal improvement (such as interpersonal awareness groups), therapy (treatment of mental illness), and social support (such as helping

ex-alcoholics adjust). Other groups exist as units within larger organizations. The groups vary not only in purpose but also in susceptibility to influences from the larger environment.

The pragmatic functions of communication are related to the group's reason for existence. The most significant pragmatic functions of communication in therapy groups, for example, are quite different from the primary functions performed by members of decision-making groups. Although the transmissional properties of communication are quite similar in groups with different goals, the pragmatic properties of communicative functions performed by group members are closely aligned with and directly relevant to the group's goal.

Approaches to the Study of Groups

The group has, of course, been an object of interest in many social science disciplines. Sociologists and psychologists have long exhibited interest in a variety of group processes without considering their relevance to communications. A typical mode of social scientific inquiry asks group members to provide paper-and-pencil responses after a period of interaction, and these perceptions, associated with compositional or structural properties of the group, become the information on which most claims about group actions are based. Among others in the social sciences, U.S. social psychologists Joseph McGrath and Irwin Altman have lamented that group research was becoming a "science of the independent variable." Knowledge claims based on this input-output model of inquiry emphasize the impact of a group's structural or compositional variables on outcomes of group interaction (defined as perceptual responses of members after interaction) and virtually ignore characteristics of interaction itself. The current emphasis in group communication study on the pragmatic properties of communicative functions has added new dimensions to many of the traditional sociological approaches to groups. Furthermore, the emphasis on communicational pragmatics has also alleviated much of the criticism of past group research, namely, that it tended to trivialize understanding and confirm the obvious.

Sociologists typically have defined deviance within a "labeling" perspective. That is, the deviant is the group member who is labeled or perceived by other group members as being a deviant, the one who has violated the group's norms. In terms of the transmissional properties of communication, deviant members usually appear in one of two places in the communication network: on the periphery (an outcast who exchanges fewer messages with other group members) or in a central position (the object of social pressure from other group members). Viewing communication in terms of its pragmatic functions has

shed new light on the concept of deviance. Deviance from this perspective is a communicative act performed by one or more group members. During the normal process of group interaction, nearly all group members exhibit deviant behaviors and thereby violate the social norms of the group. Furthermore, many of the functions associated with leadership have also proved to be deviant behaviors. Deviant behavior may be detrimental to the group's overall functioning when it impedes progress toward a goal, but it may also enhance group functioning when it allows an innovation that furthers progress toward a goal. In addition, innovation is frequently associated with leadership functions.

Group members form coalitions or temporary alliances, it has been argued, in order to increase their relative power within the larger social system. Viewed in terms of communication, coalition formation involves far more than the unequal distribution of power. Transmissionally, members of a coalition send and receive more messages among themselves, while the number of messages between members of differing coalitions is significantly fewer. Pragmatically, functions of intracoalition communication include positive reinforcement—coalition members agree with and support one another. Interaction between members of different coalitions is more likely to be argumentative and to reflect social conflict. In the normal course of group development, however, coalitions typically dissipate as the group nears its goal.

Conflict, when viewed as a purely sociological or psychological variable, can be defined in personal or social terms, but when viewed communicationally, conflict is exclusively social, that is, between group members. The functions served by conflict messages are not entirely negative. In its pragmatic sense, social conflict is what occurs in the interaction of incompatible activities, such as an argumentative sequence between group members who favor and oppose a specific idea.

Many scholars view conflict as important and even necessary for achieving consensus on a decision-making task. Those who have studied conflict in groups from a communicational perspective have also found that conflict is likely to be a normal and inevitable part of the evolutionary development of a group. The communicational view thus has shifted the focus from the need to resolve conflict (because it impedes the group's progress toward goals) to the importance of managing conflict (determining whether the conflict is beneficial to the group's functioning and to be encouraged, or detrimental and to be resolved).

Social-psychological research during the decades of the 1950s and 1960s contained the implicit assumption that the group was a unique sociological entity, worthy of study in its own right. The emphasis in group communication in subsequent years has been increasingly to treat the group as only a setting

in which human communication occurs. Group is a level of sociological complexity existing between the social systems of dyad and organization. The group is the smallest social system in which a communication network can appear. In a two-person system only one link (A-B) exists. Three links are possible in a three-person group (A-B, B-C, and A-C). A transmissional network is possible only when members of the social system have a choice when sending and receiving messages, and this requires that there be a minimum of three nodes (A, B, C).

Understanding of group communication has been based on inquiry devoted almost exclusively to face-to-face communicative situations. However, modern technological advances in electronically mediated linkages among individuals signal a potentially new mode of group communication, a form of electronic decision making. The use of computer terminals and modems among geographically separated individuals and its effect on our understanding of communication processes are likely to become important topics for communication scholars.

See also FAMILY; INTERACTION, FACE-TO-FACE; INTERPERSONAL COMMUNICATION; NETWORK ANALYSIS.

Bibliography. Robert F. Bales, *Interaction Process Analysis: A Method for the Study of Small Groups*, Reading, Mass., 1950; Dennis S. Gouran and B. Aubrey Fisher, "The Function of Human Communication in the Formation, Maintenance, and Performance of Small Groups," in *Handbook of Rhetorical and Communication Theory*, ed. by Carroll C. Arnold and John Waite Bowers, Boston, 1984; Paul A. Hare, *Handbook of Small Group Research*, 2d ed., New York, 1976; Randy V. Hirokawa and M. Scott Poole, *Communication and Group Decision Making*, Beverly Hills, Calif., 1985; Marvin E. Shaw, *Group Dynamics: The Psychology of Small Group Behavior*, 2d ed., New York, 1976.

B. AUBREY FISHER

GUTENBERG, JOHANNES (1390/1400–1468)

German inventor, credited with developing the process of PRINTING from movable, precisely cast, and fitted metal types—a process that revolutionized BOOK production and has had an immense cultural impact. Johannes Gensfleisch zur Laden zum Gutenberg's invention was a confluence of the elements necessary to produce multiple, identical copies of text emulating the quality of careful scribal writing. The key element was a hand-held, adjustable mold for casting, from inserted matrices, individual types, one at a time, of uniform height and perfect alignment for use on the bed of a press. Other elements were the adaptation of a screw-operated winepress or binder's press; use of an alloy of lead, tin, and antimony for

the types; and preparation of an oil-based ink of the kind used by some artists. The casting process, with the press, set Gutenberg's system distinctly apart from the woodblock printing and metal stamping already known in Europe, China, and Korea.

Details of Gutenberg's life and activity are traced largely through scattered legal documents and the scholarly study of types, inks, paper, presswork, and hand illumination of the period. Statements made shortly after he died by persons who knew him assert that it was indeed he who originated the process of printing from movable type. Trained in the skills and exacting standards of a goldsmith and craftsman in metals, Gutenberg was a member of the goldsmith's guild and belonged to a patrician family. About 1430 civil strife in Mainz forced him into exile in Strasbourg; he returned to Mainz permanently no later than 1448.

Meanwhile he was teaching gem polishing and other "arts" to a craftsman, Andreas Dritzehn, and in 1438 formed a partnership with him and two others to teach them further "secrets." Litigation after Dritzehn's death in 1438 cites purchases of lead and other metals; use of a word, *Formen*, denoting "types"; description of what must have been the casting mold; and payment for "that which pertains to printing." After returning to Mainz, Gutenberg obtained several loans, beginning in 1448, to continue his work. One of these was for eight hundred guilders from a lawyer, Johann Fust. Gutenberg later mortgaged all his tools and equipment to Fust and accepted him as a partner for another eight hundred guilders.

What emerged, not later than 1456, was the superb forty-two-line Latin Bible, which had two columns per page and 643 leaves and was set in type copied

from the best black-letter script. Some sets were printed on vellum, some on paper; at least forty-seven survive in substantial form.

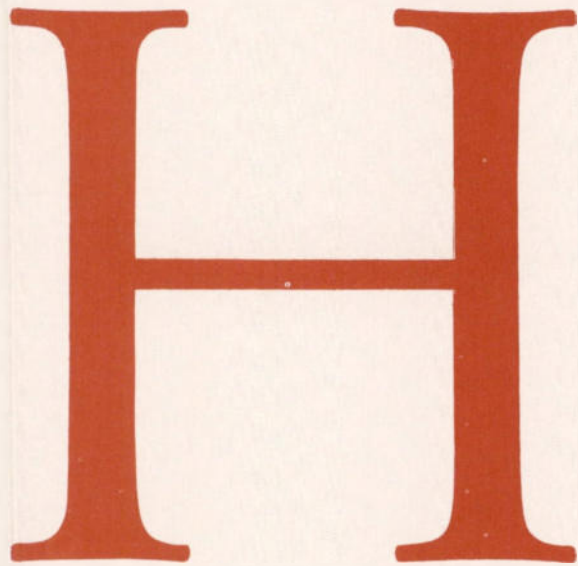
Late in 1455 Fust sued for repayment of the entire debt and interest; the inventor could not pay. Fust took over the business and continued it, with Gutenberg's foreman, Peter Schöffer. Gutenberg is believed, however, to have had a part in the beautiful Latin Psalter, which was the first printed book to bear a date (August 14, 1457) and the names of the printers (Fust and Schöffer).

A Mainz official lent Gutenberg printing equipment, but what, if anything, he produced with it is uncertain. Gutenberg may have printed the thirty-six-line Bamberg Bible and perhaps the undated *Misale Speciale Constantiense* and the 1460 *Catholicon*. Several grammars, indulgences, and a PAMPHLET are attributed to him. In 1465 he was granted a court sinecure with allowances and tax exemption. By 1471 his system of printing was sweeping Europe, and by 1500 presses had been established in 242 cities.

See also PUBLISHING; TYPOGRAPHY.

Bibliography. Warren Chappell, *A Short History of the Printed Word*, New York, 1970, reprint Boston, 1980; Elizabeth L. Eisenstein, *The Printing Revolution in Early Modern Europe*, Cambridge and New York, 1983; Hellmut Lehmann-Haupt, *Gutenberg and the Master of the Playing-Cards*, New Haven, Conn., 1966; Victor Scholderer, *Johann Gutenberg: The Inventor of Printing*, 2d ed., London, 1970; S. H. Steinberg, *Five Hundred Years of Printing*, 3d ed., Harmondsworth, Eng., and Baltimore, Md., 1974; Margaret Bingham Stillwell, *The Beginning of the World of Books 1450 to 1470: A Chronological Survey of the Texts Chosen for Printing . . . with a Synopsis of the Gutenberg Documents*, New York, 1972.

CHANDLER B. GRANNIS

Two large, red, serif capital letters 'H' and 'H' are positioned side-by-side on the left side of the page. The letters are rendered in a classic, slightly stylized font with a warm red color.

(ērf), the eighth letter of the Roman alphabet, ancient and modern, representing historically the Semitic **𐤃**, *hbeth* or *kbeth*, through the Greek **Η**, *heta*, *eta*, originally the eighth [letter], but, in the later Greek alphabet, after the omission of *Ϝ* . . . , the seventh letter.

HEARST, WILLIAM RANDOLPH (1863–1951)

U.S. publisher who built a successful chain of newspapers through “yellow journalism”—an emphasis on the sensational, lurid, entertaining, and scandalous in news coverage. William Randolph Hearst’s father, Senator George Hearst of California, had made a fortune from the Comstock silver lode in Nevada and other mining interests. Senator Hearst launched his son’s career in 1887 by making him a present of the San Francisco *Examiner*, a struggling paper he had bought some seven years earlier. Until then the younger Hearst had shown little talent for anything, having dropped out of Harvard in his sophomore year. On frequent trips to New York he had been fascinated by JOSEPH PULITZER’s New York *World*, and he decided not only to imitate this paper but also to surpass it. Pulitzer had carried JAMES GORDON BENNETT’s earlier formula of sensationalism in the news columns and strong convictions on the editorial page to new heights, but Hearst thought he could do it better.

He was right. His *Examiner* was even more flamboyant because it lacked the *World*’s idealism. Arthur McEwen, the chief editorial writer on Hearst’s brilliant staff, summed up the owner’s method when he said that readers should look at the front page and say, “Gee whiz!”; look at the second page and say, “Holy Moses!”; and look at the third page and exclaim, “God Almighty!” The emphasis was always on mass appeal, the human-interest story, and, most important, the sensational.

This was the formula Hearst brought to New York in 1895 when he took over the New York *Morning Journal* and pitted it against the *World*. It was a battle of the giants, with Hearst and Pulitzer trying

to outdo each other. Hearst adopted his rival’s ideas wholesale, carrying them a step further in extravagance and boldness, meanwhile hiring away some of Pulitzer’s best staff members. In an effort to boost circulation Hearst decided to create a Sunday supplement that would surpass Pulitzer’s. He lured Richard Outcault, creator of the immensely popular comic cartoon “Yellow Kid,” away from Pulitzer and made extensive use of color. Soon both the comic strip (see COMICS) and color had become indispensable. Hearst’s editorial page, like Pulitzer’s, carried on crusades, but in time Hearst traversed the entire political spectrum from radical left to radical right.

The climax of the Hearst-Pulitzer conflict was the Spanish-American War, which Hearst was popularly credited with starting; it was even said that he had conspired to sink the *Maine*. However, Hearst’s was only the most strident voice in a general clamor for war by the press. Hearst covered the war in Cuba himself, with a staff he brought along in a tramp steamer he had chartered. Among U.S. newspapers the *Journal*’s coverage of the war was arguably the most flamboyant. Other newspaper editors and publishers were incensed at what they considered Hearst’s exploitation of the conflict, but by the end of the war Hearst’s *Journal* claimed a circulation equal to that of Pulitzer’s *World*.

Another controversy—this one adversely affecting Hearst’s standing with the public—was the assassination of President William McKinley. Because of the frequent and vitriolic anti-McKinley editorials that had run in Hearst’s papers, some accused him of being behind the president’s assassination, and the *Journal* was burned in public and removed from libraries. Hearst survived the furor and went on to



Figure 1. (*Hearst, William Randolph*) William Randolph Hearst, drawn by cartoonist Oliver Herford as a spider with political ambitions: one hand is on the governorship of New York state, and another is reaching for the Capitol in Washington, D.C. The Bettmann Archive/BBC Hulton.

play an equally controversial role in World War I, staunchly opposing U.S. entry into the conflict and maintaining a marked anti-British bias.

Hearst frequently used his PUBLISHING concerns to propagate his own constantly shifting political views. Candidates for public office whose opinions diverged from his could expect to be vilified in Hearst's publications, while those with whom he agreed were glowingly praised. Hearst also entertained political ambitions of his own. From 1903 to 1907 he served in the U.S. House of Representatives, from which he was mostly absent. He also made two unsuccessful runs for mayor of New York City (in 1905 and 1909) and one for governor of New York (in 1906).

At their peak Hearst's properties constituted one of the most remarkable publishing empires the country had seen, comprising a string of newspapers extending from coast to coast; magazines (see MAGAZINE), including *Harper's Bazaar*, *Cosmopolitan*, and *Good Housekeeping*; and allied news services such as King Features Service, International News Service, and International News Photos (see also NEWS AGENCIES). On Sunday Hearst's papers reached more than three million readers; on weekdays, twice that. It was an empire that began to decline in the early years of the depression, however, and some holdings had to be sold or consolidated.

Together, Hearst and Pulitzer ended the era of personal journalism that had dominated the nineteenth century. In its place they created a pattern of sensationalism that has persisted, chiefly in less reputable publications and in segments of the London press.

See also NEWSPAPER: HISTORY.

JOHN TEBBEL

HELLENIC WORLD

Although Greek was spoken in the region that is now Greece (Hellas in the Greek language) before 2000 B.C.E. and was written by perhaps 1600 B.C.E., there is little that can be said about communication before the destruction soon after 1200 B.C.E. of civilizations now conventionally called Minoan (in Crete) and Mycenaean (on the mainland). The only attested use of WRITING in the earlier period was restricted to very short documents on clay tablets recording various aspects of the domestic economy in the palaces. The scripts employed were clumsy and suitable only for their special purpose, evidently a kind of code learned within a closed circle of professional scribes, and the practice disappeared with the palaces, as did the scribes themselves.

When the art of writing returned to this area about 800 B.C.E., it was in the highly advanced form of an ALPHABET, borrowed from the Phoenicians but fundamentally improved by the introduction of vowel signs. The rapid diffusion of this alphabet was one

of the greatest cultural revolutions in history. Its importance is virtually self-evident in its detailed manifestations. Yet it is essential to define carefully the limits of the Greek revolution.

The role of written communication. In all premodern societies there were two severely limiting conditions to written communication. The first was the lack of cheap WRITING MATERIALS and of PRINTING (movable type). Hence the number of copies of any written work available for circulation was rigidly restricted. Distribution was limited to copies prepared by hand and passed by hand from person to person. This method of production and distribution also reduced the ability of the authorities to prevent the dissemination of "objectionable" matter, but that is insignificant against the limits within which any copies were available.

The other limiting condition was widespread illiteracy. No valid statistical picture is available except for the last two centuries or so of the modern era, and historians have commonly clouded the picture by defining LITERACY as the ability to sign one's name. In reply it is essential to note how little occasion most ancient Greeks had to read (or write) seriously at any time in their lives. This is symbolized by a story told by Plutarch in the *Life of Nicias*, that of the many thousands of Athenian soldiers captured in the unsuccessful invasion of Syracuse in 413 B.C.E., a few were released because they could recite some of the choruses of Euripides. For the Sicilians, Plutarch comments, "had a passion for his poetry greater than that of any other Hellenes outside Greece proper. They committed to memory the little samples and morsels brought to them by visitors, and then shared them delightedly with each other." The tale may not be true, but it is at least *ben trovato*: the Sicilian Greeks depended on snatches quoted by visitors, not on the copies of the text of Euripides, which were simply too scarce.

The situation in classical antiquity with respect to literacy, and therefore within the whole field of communications, was filled with paradoxes. There was widespread use of writing once the alphabet had been invented, though there is a tendency in the modern historical literature seriously to exaggerate its indispensability in all disciplines. One contrast is illuminating: although it is the case that science and philosophy could not have advanced as they did without the use of writing, the law had become relatively sophisticated during centuries when it was deliberately kept unwritten. Only popular demand eventually forced the Roman pontiffs and similar functionaries to relinquish their monopoly of legal knowledge by the production of written codes, with undoubted consequences in further refinement of legal analysis; yet in classical Athens, to give a particularly revealing example, the bulk of private legal transactions continued to be conducted orally, with-

out a scrap of paper from beginning to end of the affair, whereas in Ptolemaic and Roman Egypt, everything, even a receipt for a paltry sum, was recorded. That distinction reflects the difference in the bureaucratic structure of the regime, not a distinction in the substantive needs of the legal system as such.

It is, perhaps surprisingly, not easy to give a proper account of genuine literacy in the Hellenic world. Those who read and wrote occupationally—scribes and notaries—were a feature of Egypt and other eastern areas conquered and brought within the Greek sphere by Alexander, but they were neither numerous nor important in the old Greek world. All intellectuals of course read and wrote fluently. But how regularly? Personal correspondence, letter writing, offers one test, but we simply do not know enough about the practice outside Egypt, where all sorts of letters have been preserved on papyrus: appeals to officials, letters home from soldiers, instructions to business agents, and so on. However, the total number of known letters is infinitesimal, and it is a serious question whether the letters were written because there were professional scribes available, not the other way around. Collections of literary letters, a small number of which are known though not always with certain authenticity, prove nothing. It is perhaps more revealing that the messenger, whether in a political role or in private affairs, is regularly a transmitter of oral communications. The Roman *tabellarius*, the courier in the literal sense, seems to have been virtually unknown. Who, outside the Egyptian sphere, would have penned a letter for an illiterate soldier, and who would have read it to his mother in her native village?

The difficulties go deeper still. It is undeniable that all Greek intellectuals were literate (at least from the sixth century B.C.E.), that they possessed and read books—poetry, scientific treatises, history. But what did that mean in practice, in real life? What are we to make of PLATO's notorious attack on books in the *Phaedrus*, that they destroy the memory and replace self-knowledge and the further advance of knowledge by the illusion of permanent and unchanging data? Is that just one more, especially extreme instance of Platonic "archaism," or does it reflect a fundamental conviction that the true learning process depends on the dialectic, which can only be conducted orally in a face-to-face situation? Does it reflect what the distinguished classicist Georg Rohde asked in a 1951 lecture, "On Reading in Antiquity," in the rhetorical question, "Can we imagine Socrates reading?"

A *time of change*. Although the evidence is very sparse and lends itself to contradictory interpretations, there seems little substantial reason for denying the view that a radical change came in the later fourth century, symbolized by ARISTOTLE, the man who invented research, so to speak, of a kind that



Figure 1. (*Hellenic World*) Life-size bronze warrior B from Riace. Mid-fifth century B.C.E. National Museum at Reggio Calabria, Italy. Alinari/Art Resource, New York.

depended heavily on the written word. It was only thereafter that we have evidence for silent reading, of enough copies of (some) books to warrant speaking of a knowledge among intellectuals of books much more widespread than one can imagine at the time Herodotus and Thucydides were writing. Books in their day have been tellingly described as prompt

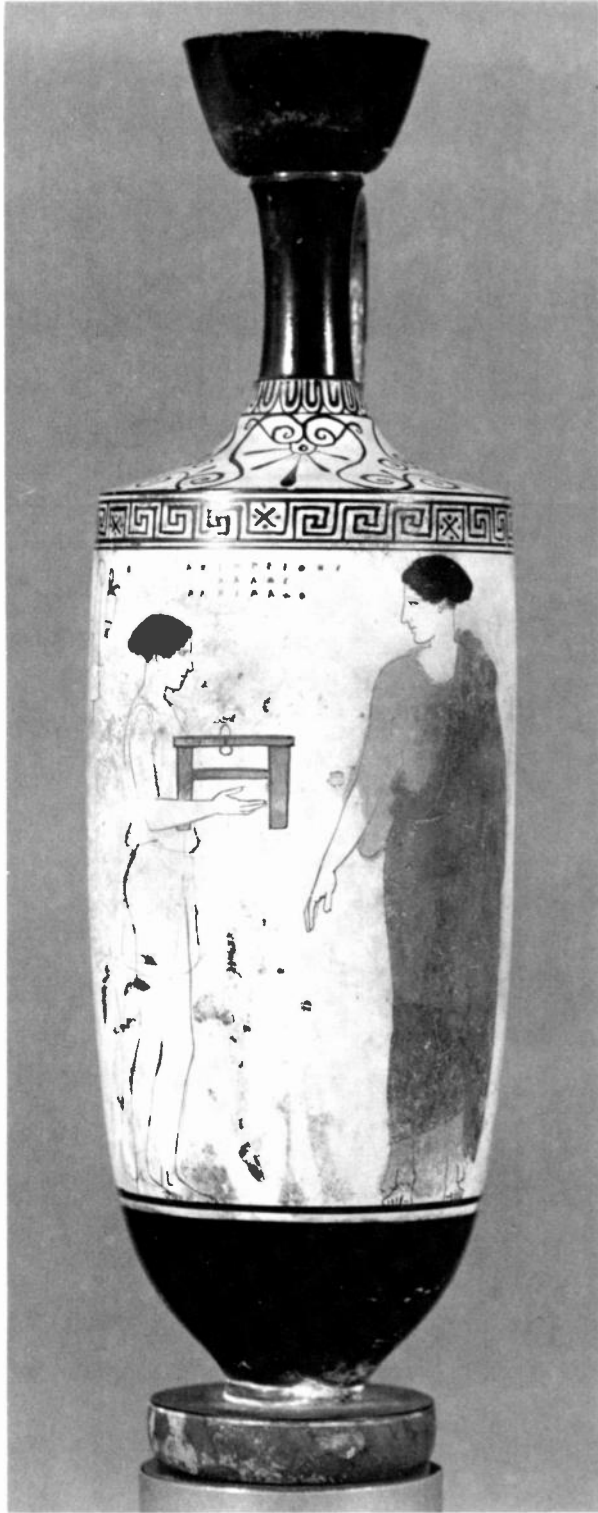


Figure 2. (*Hellenic World*) White-ground lekythos in the style of the Achilles Painter, 440 B.C.E. Courtesy, Museum of Fine Arts, Boston. Francis Bartlett Fund.

Figure 3. (*Hellenic World*) The portico of the Temple of Minerva Polias, Athens. A drawing from *The Antiquities of Athens. Measured and Delineated by James Stuart F.R.S. and F.S.A. and Nicholas Revett, Painters and Architects*. London, 1787, vol. 2, chap. 2, pl. 8, reprinted New York: Benjamin Blom, 1968.

copies, aide-mémoire. And even in the Hellenistic, and then the Roman, world, books remained the preserve of a small minority with a scientific or philosophical interest or with enough skill, money, and interest to read (and first to possess) poetry, books of travel, and novels for entertainment or edification.

The story of technical literature—of manuals of rhetoric, grammar, medicine, agronomy, architecture, horsemanship, military science—is particularly revealing. The beginnings go back to the later fifth century, notably with the earliest Hippocratic writings in medicine, and to Aristotle's *Politics*, in which he could refer interested readers to agronomic writers, of whom he named two (whose works, like all the rest in this genre, have failed to survive). However, this kind of writing was in the overwhelming bulk post-Aristotelian, the product of the Hellenistic and Roman ages. What is less clear is the extent to which such works circulated, in particular among practical men as distinct from "professional" scientists and philosophers like Aristotle himself. That the small cultivators, whether free or slave, landowners or tenants, never saw, let alone read, a manual on farming cannot be doubted, and there appears to be no evidence that the wealthier ones—Xenophon, for example—did so either. Or that master builders, architects, or even doctors normally learned their trade otherwise than by experience, by apprenticeship (whether within the family or through outsiders). In the history of communications, oral transmission of knowledge was the rule until very recent time, virtually without exception, and that applied among the Hellenes to social and political activity as much as to the practical skills by which people gained their livelihood. That is the significant measure of literacy in any society, not the conventional one of whether individuals could write their own names, a test that had no visible bearing on behavior within the society. Fluent literacy, Eric Havelock has acutely observed, going one step further, depended "on the mastery not of the art of writing by a few, but of fluent reading by the many."

An important indicator of the failure of fluent reading by the many to develop was the absence of the simplest devices for the assistance of readers. This was not a matter of genuine technological advance, such as the invention of either cheap paper or movable type, but of rudimentary steps that we take

Fig. 3.

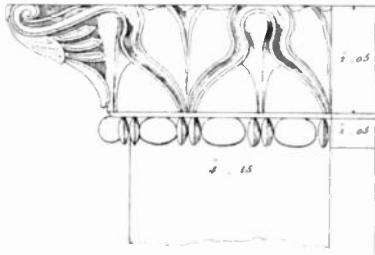


Fig. 4.

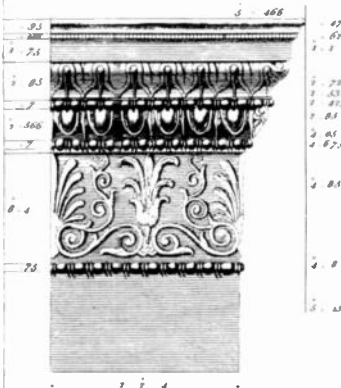
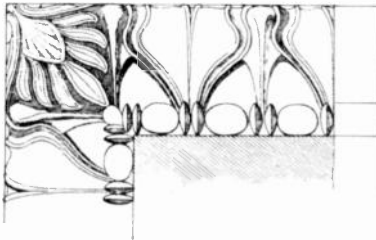


Fig. 2.

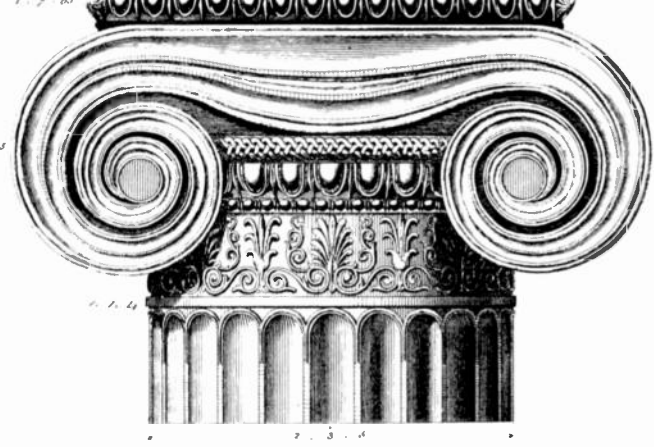
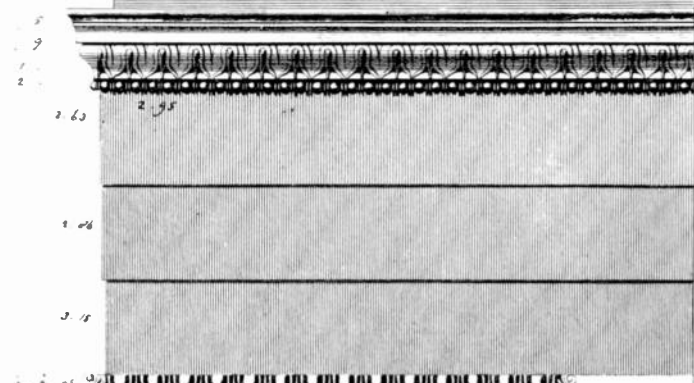
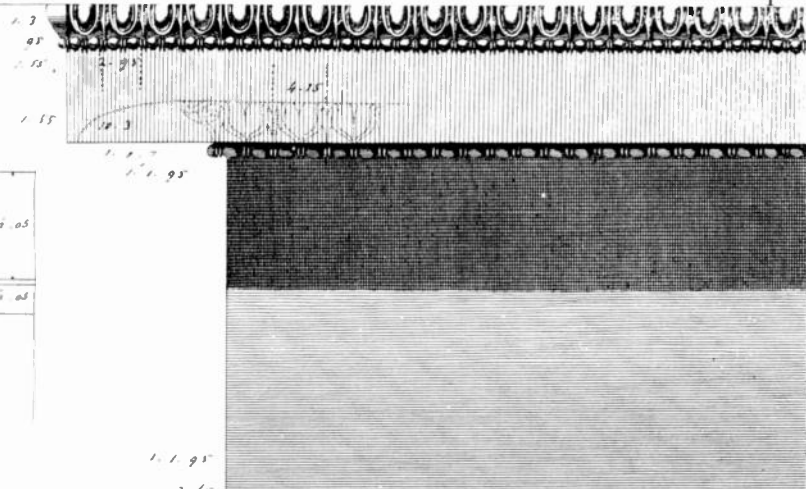
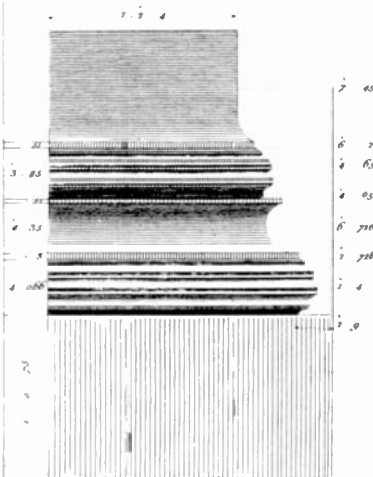


Fig. 1.

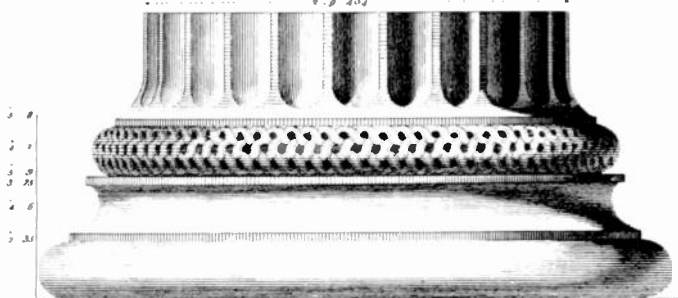




Figure 4. (*Hellenic World*) Epitaph for the Athenians who fell in the battle of Potidaia, 432 B.C.E. Reproduced by courtesy of the Trustees of The British Museum, London.



Figure 5. (*Hellenic World*) Vase stand in black-figured style, with signatures of Ergotimos (the potter) and Kleitias (the painter). The Metropolitan Museum of Art, New York, Fletcher Fund, 1931. (31.11.4)

for granted. Punctuation hardly existed, nor even separation of words. The evidence for a genuine cursive script, necessary for rapid writing, is also negligible. These “inventions,” it need hardly be said, required even less imagination or creative originality than the invention of the vowel sign, which had been the decisive step in the creation of a “true” alphabet by the Greeks. Nor was it only the many, the marginally literate, who suffered. It was, for example, impossible to cite a passage in a longer work, and it was even cumbersome to look up an earlier passage for one’s private study before the papyrus roll was replaced by the book (the codex). For complicated reasons that shift was achieved only among the Christians, so that it did not occur on any scale before the Byzantine period. Pagan Greeks, not sur-

prisingly, tended to quote the printed word from memory rather than rewind a papyrus roll in search of a passage or data.

Recordkeeping. Related were the paucity of records and the low level of recordkeeping, though it is hard to establish a clear cause-and-effect relationship. In the private sphere accounting practices were rudimentary before the invention of double-entry bookkeeping at the end of the MIDDLE AGES, and recordkeeping was unknown for analytical purposes, as distinct from the mere “police” function of checking on crude inputs and outputs. More significant were the poor state of public records and the fairly close link between the political regime and the publicity given to public acts. The situation is illustrated by the relatively detailed account in Thucydides of the difficulties faced by the Athenians in acquiring elementary knowledge about the various Sicilian cities with which they were negotiating (or which they thought of attacking), not only because of “diplomatic” obstacles but equally because information was not readily available in documentary form. In another passage Thucydides reports that, during negotiations in 413 B.C.E. with emissaries from Chios who were preparing a revolt from the Athenian Empire, the Spartans sent someone to inquire whether Chios actually had sixty warships in readiness and generally whether the island-state deserved its reputation. Nor does the change that set in with the Hellenistic age, already noted, seem to have produced any qualitative change in the public sphere, as is evident from a reading of the knowledgeable second-century-B.C.E. historian Polybius. The mountainous *paperasserie* of Greco-Roman Egypt is illusory in this respect: the vast quantity of documentation did not bring about any qualitative change in the archives.

One must ask, then, what control the Spartans had over the reliability of the report brought back in 413 B.C.E. by their emissary to Chios. Reliability is of course a crucial question in all communication, foreign or domestic, but it is always more acute when

the transmission is oral, as was regularly the case in antiquity. Oral communication was normal at all times; even when the final step in the chain was in writing, the basis was a verbal one. That was of course true for most of history, even in the centuries after governments began the practice of more or less permanent, identifiable embassies abroad. The historian of communication must distinguish, in looking at the millennia since the early Greek period, between on the one hand developments that rested on technological change—the introduction of cheap paper and movable type, then of steam navigation, the telegraph, and the telephone—and on the other hand changes attributable to the social structure and the nature of politics.

Social and political context. There was nothing in antiquity comparable, in the public sphere, for instance, to the detailed day-by-day instructions and records of the Consiglio of Venice in the late Middle Ages pertaining to Venetian possessions in Greece and the Aegean; or to the diplomatic reports sent to Italian governments by their “ambassadors” in various European capitals; or, in the private sphere, to the accounts and the correspondence with agents abroad of the Fuggers in Germany or the Medici in Florence. Without any technological advance a revolution in communication had occurred in Europe in the later Middle Ages; the employment of writing, of documents, of recordkeeping, had taken a qualitative leap forward. The proceedings of the Roman Senate were not recorded until the dictatorship of Julius Caesar, by which time Rome ruled a large part of the known world. But the affairs of the republic of Venice or of the duchy of Milan at the end of the Middle Ages were recorded in minute detail, as was the information on which governmental decisions were based. That is a measure of the new complexity of public affairs, including a new notion of public accountability.

Even when communication was purely oral at all stages, some machinery, or at least particular circumstances, was indispensable if information and ideas were to be communicated. The basic distinction was obviously between communication within the community and external communication. Internally the smallness of the population that mattered and the narrowness of the space involved were permanently decisive factors. During the city-state period, Athens and Syracuse, the most populous communities, never numbered more than thirty-five or forty thousand adult males, and there were not a dozen city-states with more than ten thousand. In the vast majority of the communities, in other words, the whole citizenry could literally be assembled in one place at any one time. Even in the Hellenistic period, when some of the cities grew to unprecedented size, the numbers involved in the public affairs of the no longer inde-

pendent cities remained small enough to permit retention of the illuminating phrase, a “face-to-face society.” And behind the formal, institutional channels of communication there lay a whole network of smaller, informal channels—daily intercourse in the markets and public squares; at temples, shrines, and altars; in the gymnasia, public baths, and fountains.

Externally, across political boundaries, more complicated distinctions have to be drawn. In the field of public affairs formal machinery was largely restricted to ad hoc ambassadors (including military negotiators) and spies, backed up by the men called *proxenoi* who in a private capacity performed what today would be called consular services. In the cultural fields—literature, philosophy and science, architecture, and the crafts—there was a large amount of more or less formal communication through direct personal contacts. Travel was common in these circles, and there were schools, public lectures, and debates. This was clearly the area in which communication was most rapid and most extensive. A third group of activities consisted of business affairs, the communication of information about harvests, prices, markets, industrial techniques (to speak loosely) through agents, associates, friends, or accidental sources. And finally there was the vast range of informal, unofficial, unclassifiable means of communication not immediately directed to any of the three categories already mentioned, through casual voyagers, merchants, and soldiers. The volume of such communication was considerable, but its reliability is doubtful and not measurable. No one could depend on it for public or private decision making. The contrast between the documentation available in the Hellenic world and the records of either the Roman Senate from the time of Caesar or the Venetian Council of the later Middle Ages reflects the “backwardness” of the ancient Greeks in the field of communication, and it shows that major advances did not necessarily require technological change.

See also COINS; HISTORIOGRAPHY.

Bibliography. Moses I. Finley, “Censorship in Classical Antiquity,” in *Democracy, Ancient and Modern*, 2d ed., ed. by Moses I. Finley, New Brunswick, N.J., and London, 1985; Stewart Flory, “Who Read Herodotus’ *Histories*?” *American Journal of Philology* 101 (1980): 12–28; E. A. Havelock, *Origins of Western Literacy*, Toronto, 1976; idem, *Preface to Plato*, Oxford, 1963; F. G. Kenyon, *Books and Readers in Ancient Greece and Rome*, 2d ed., Oxford, 1951; Friedmar Kuhnert, *Allgemeinbildung und Fachbildung in der Antike*, Berlin, 1961; Diego Lanza, *Lingua e discorso nell’Atene delle professioni*, Naples, 1979; Ododone Longo, *Tecniche della comunicazione nella Grecia antica*, Naples, 1981; Gianfranco Nieddu, “Alfabetismo e diffusione sociale della scrittura nella Grecia arcaica e classica,” *Scrittura e civiltà* 6 (1982): 233–261; Georg

Rohde, "Über das Lesen im Altertum," in *Studien und Interpretationen zur antiken Literatur, Religion und Geschichte*, Berlin, 1963.

MOSES I. FINLEY

HERALDRY

Derived from the word *herald*, dating from the MIDDLE AGES and designating a professional who served as an ambassador, a messenger of war and peace, or a proclaimer or announcer at court gatherings and tournaments of arms. The herald thus had to be able to recognize the personal markings or coats of arms of individuals and nations.

Origin of Heraldry as a System

During the Crusades (*see* CRUSADES, THE) the need to distinguish friend from enemy on the battlefield led to the development of a system of markings making it possible to identify individuals whose features were obscured by helmets and armor. The social structure of feudalism was thus mirrored in the equipment of combatants, expressed through the size and form of buntings carrying markings, colorful designs on shields and helmets, and types of helmet crests. *See also* BODY DECORATION; CLOTHING.

Between the First and Second Crusades national capacities for waging warfare were exercised and tested by means of tournaments, displays of military skill that proceeded according to certain rules and regulations. As the court personnel who made a specialty of identifying tournament participants, heralds attained great status, and the range of their activities continued to expand. Heralds served as court recordkeepers, provided eyewitness accounts of battles, and kept official lists of casualties. At a time when most of the population was illiterate (*see* LITERACY) heraldry and its practitioners were of central importance.

Both on the European continent and in England a rivalry arose between heralds and other court members such as minstrels. The great significance of military arms and indicators of rank in feudal society eventually resulted in the greater influence of heralds as bearers of ORAL CULTURE and ORAL HISTORY. They performed a valuable service by centralizing the information they gathered, resulting in registers or rolls of armorial marks that are vital to the modern science of heraldry. Regional or local rolls were incorporated into general rolls that included the coats of arms of real sovereigns as well as those of legendary historical figures such as Adam and Eve, the seven Roman kings, or Alexander the Great. Some general rolls even provide fictional coats of arms for God the Father, the Holy Trinity, or Christ. Such examples are generally quite unheraldic, indicating

that early collectors were aware of their historical invalidity. "Occasional rolls" were often compiled for specific events such as tournaments or military actions. Heralds frequently produced rolls of arms as part of their apprenticeships or as gifts for royal patrons.

Early heroic ART and literature indicate that by the second quarter of the twelfth century the use of heraldic emblems for identification was firmly established. One of the first surviving examples is the monument of Geoffrey Plantagenet, later count of Anjou (Figure 1). During the ceremony in which he was knighted by his stepfather, Henry I of England, he received a shield decorated with heraldic lions that can still be seen on his enamel tomb-plate (*see* ART, FUNERARY).

In the feudal system the inheritance of power and wealth by successive generations consolidated the status of heraldry. Coats of arms indicated one's FAMILY, rank, and holdings and could reflect adjustments in these over time, as through marriage, inheritance, and knighthood. The practice of securing ownership with written documents led to an increase

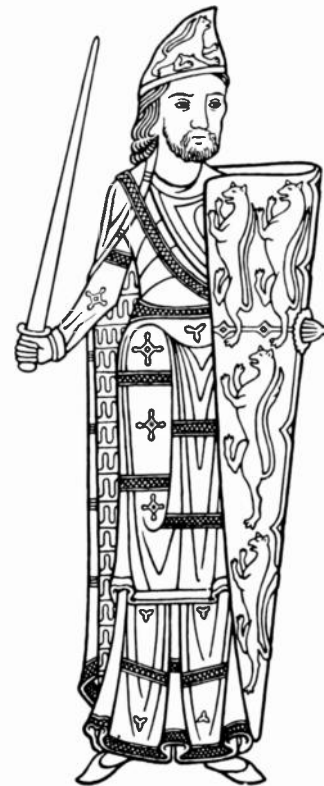


Figure 1. (*Heraldry*) Geoffrey of Anjou. From *Boutell's Heraldry*, rev. ed., London: Frederick Warne, 1978, p. 5. Revised by J. P. Brooke-Little (Frederick Warne & Co., 1950, 1983), copyright © Frederick Warne & Co., 1983. Reproduced by permission of Penguin Books Ltd.

in the use of seals, which up to that time had been a privilege accorded only to royalty. Seals were used in ancient Egypt, Babylonia, Assyria, and China to mark private property. Seal engraving was established as an art in these cultures because there was a need for devices that could not be easily forged. Seals affixed to official parchments often featured monarchs in a characteristic pose, perhaps seated on a throne. The medieval knight was usually pictured on horseback and in full armor, bearing the heraldic markings identifying him even in the thick of battle (Figure 2). When not engaged in military activities the knight was entitled to use his heraldic emblems for other, civic purposes. As they became more common, seals were used almost exclusively as legal signatures. Much knowledge about heraldry in the Middle Ages has come from the study of armorial seals.

Development of the Heraldic Style

The effective use of *cognizances*, a term usually replaced today by *coats of arms* or *achievements*, was derived from the conditions and technology of early warfare. In order to protect the body from injury during sword fights and long-distance combat using projectiles, especially arrows, soldiers wore armor covering most of the body and carried shields attached to the left arm by straps. The shield's relatively large, firm surface provided a particularly suitable place for mounting easily visible markings.

The choice of such markings was arbitrary, although it was important to select patterns that were clearly identifiable and unique within a surveyable geographic area. Two types of graphic designs predominated: abstract geometrical divisions of the shield into two or more colored areas (giving rise to the development of what are known in modern heraldry as the "ordinaries"; Figure 3); and decorative figures ("charges") from the environment or the cosmos (Figure 4). These charges include living beings (people, animals, birds, fish, reptiles, and chimeric beasts), plants (trees, branches, leaves, and flowers), heavenly bodies, and implements of all kinds. One characteristic of the heraldic style is to fill all available space with detailed ornamentation: the hairy part of a lion's mane; animal tails, claws, beaks, and tongues; a fish's fin; rose petals; the stamen of a fleur-de-lis. Some charges were particularly preferred, such as the lion and eagle among animal figures and the rose and ornamental lily among plants.

The choice of colors and charges was also governed by particular considerations. Canting arms, for example, play upon the bearer's name in the form of a pun or rebus (e.g., sheaves of oats for *Candavène* [in modern French, *Champ d'Avoine*] in the French province of Artois; in Spain, a winged hand for



Figure 2. (*Heraldry*) Seal of Thomas de Beauchamp, third earl of Warwick, 1344. From *Boutell's Heraldry*, rev. ed., London: Frederick Warne, 1978, p. 7. Revised by J. P. Brooke-Little (Frederick Warne & Co., 1950, 1983), copyright © Frederick Warne & Co., 1983. Reproduced by permission of Penguin Books Ltd.

Manuel, from the Latin *manus-ala*). Some coats of arms were designed as variations on the coat of arms of one's feudal lord (resulting, for example, in the lion group of the Netherlands and the lower Rhine region). Others were variations on the coat of arms of a highborn ancestor. Avoiding the duplication of heraldic arms was possible only within a circumscribed geographic area, which explains how identical coats of arms could develop independently in different regions (e.g., those of Flanders, the margravate of Meissen, and the county of Mahlberg in southern Baden all featured a black lion on a golden background).

Tinctures. The easy recognition of emblems from a distance was made possible by the use of a few contrasting tinctures, either metals, colors, or furs. English blazons, or technical descriptions of heraldic devices, are based on old French models: yellow (or gold) is known as *or*; white (or silver), *argent*; red, *gules*; blue, *azure*; black, *sable*; and green, *vert*. The metals gold and silver are usually represented by the colors yellow and white, respectively. Colors appear in a particular order of frequency: red, blue, black, and green.

The two most common furs used in heraldry are ermine (represented by black on white) and vair (silver or white and blue, representing gray squirrel; Figure 5). Furs were introduced into heraldry during the Middle Ages as the result of far-reaching cultural and trade connections. Heraldic terminology reflects

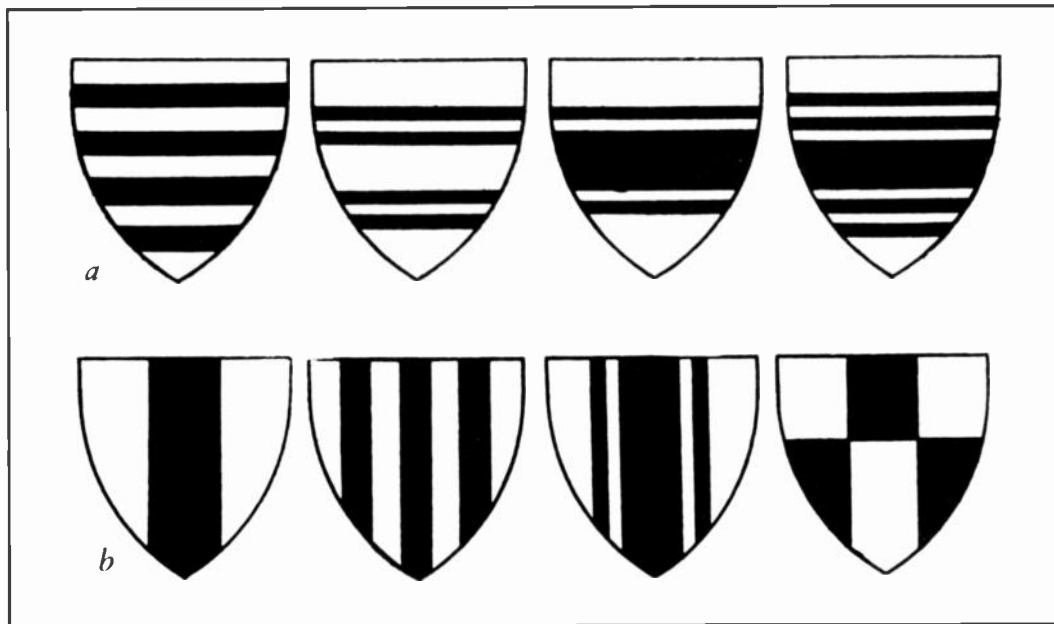


Figure 3. (*Heraldry*) Examples of ordinaries: (a) bars, bars gemelles, fess cotised, fess double cotised; (b) pale, pallets, pale endorsed, pale counterchanged. From *Boutell's Heraldry*, rev. ed., London: Frederick Warne, 1978, pp. 40 and 41. Revised by J. P. Brooke-Little (Frederick Warne & Co., 1950, 1983), copyright © Frederick Warne & Co., 1983. Reproduced by permission of Penguin Books Ltd.

the influence of Middle Eastern languages dating from the time of the Crusades. This military origin can also be seen in the way blazons assume that the achievement is described from the bearer's own point of view. Thus what one sees on the left is described as being on the right or, in heraldic terms, *dexter*; what is seen on the right is actually on the bearer's left and is known as *sinister*.

Graphic characteristics. In early heraldry coats of arms were used in ways such that colors could not be shown, as on tombstones or in seals. During the fifteenth century PRINTING made possible one solution to the problem by allowing letters indicating color to be placed in or next to fields or figures. Early in the seventeenth century this method was replaced by the more efficient technique of hatching, a means of indicating color by patterns of dots and lines. This meant that particular heraldic devices could be appropriately interpreted in different countries, transcending the language barrier. See also GRAPHIC REPRODUCTION.

Role of the Coat of Arms

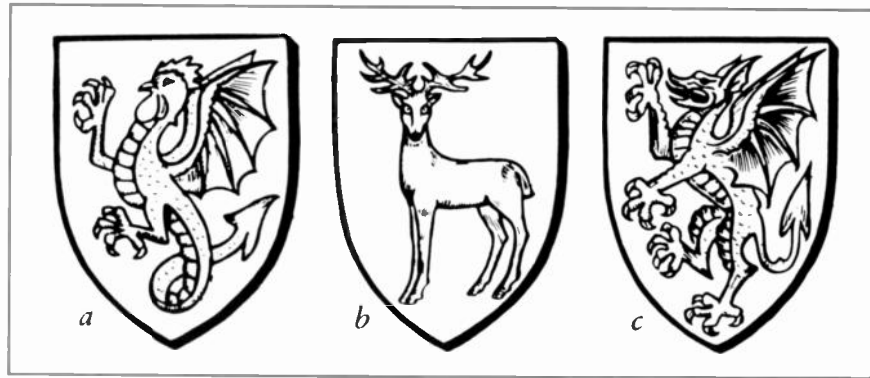
An important element of medieval armor was the helmet covering the wearer's skull and eyes. The combination of shield and helmet shown by the bearer when on horseback and the way they hung on a hook after being removed built the basics for the design of a complete achievement. Patterns originally painted onto the surface of the helmet were eventu-

ally replaced by more easily visible three-dimensional structures called heraldic crests. Elements other than the shield in the complete coat of arms were influenced most by developments in the arts. The helmet as featured in heraldic emblems of the Middle Ages corresponded to actual armorial models. Mantlings or lambrequins, pieces of cloth extending from the top of the helmet to shield the metal from the hot eastern sun, at first functioned merely as protection against climate and temperature changes. In the coat of arms they developed into a decorative framework allowing the heraldic artist to display his skills when drawing or painting the ornamental panels of fabric. To the shield, the helmet, the crest, and the mantling may be added in the modern coat of arms such features as a wreath, an insignia of an order of knighthood, supporters (often human or animal figures bearing up the shield of arms), and a motto (Figure 6).

In the sixteenth century crowns or coronets became an important component of the coat of arms. Before that they had been used solely by monarchs as an insignia of rank in paintings as well as on shields (see PORTRAITURE). Crowns eventually replaced the helmet and even the mantling in some achievements, particularly in Latin nations, and coats of arms began to follow the architectural and DESIGN features of RENAISSANCE art (see ARCHITECTURE).

The heraldic style developed differently in different regions, so that typical features of an achievement often reveal its specific area of origin. Coats of arms

Figure 4. (Heraldry) Examples of charges: (a) cockatrice, erect; (b) deer, at gaze; (c) English dragon, rampant. From Hubert Allcock, *Heraldic Design: Its Origins, Ancient Forms, and Modern Usage*, New York: Tador Publishing Company, 1962, p. 18.



designed (or redesigned) in Britain, Scandinavia, Middle Europe, Italy, Spain, Portugal, Poland, or Hungary may differ in terms of the preponderance of two- or three-dimensional drawings, the shape of the shield, the division of the shield's area, a preference for certain motifs, the skill of the mantling design, or the type of crown or coronet depicted.

Quartering. The practice of dividing the surface of the shield into several parts can be traced to early Spain. The union of the two Iberian kingdoms, Castile and León, around 1230 was expressed in the "marshaling" of their coats of arms—Castile's a golden castle in a red field, León's a purple lion in a silver field—into a single quartered shield. A quartered shield is divided into at least four sections by vertical and horizontal partition lines, each section displaying a complete coat of arms. Eleanor of Castile brought this method with her when she married King Edward I of England in 1254. In the same manner the later English monarchs combined the coats of arms of England and France, calling themselves rulers of both countries from 1337 to 1801.

During the fourteenth century the number of quartered coats of arms increased considerably throughout Europe. The practice made possible the display

of inheritances and inherited titles; even tokens for specific persons or items could be designed and placed in the second or third quarter of a shield. When appropriate a second helmet with crest might be added to the coat of arms. Quartering flourished in Germany and especially in England (Figure 7), where several dozens of quarterings could accumulate for each shield based on ancestral coats of arms. This system reflected the class-based structure of European society, a structure that remained basically stable until the mid-eighteenth century and the turmoil giving rise to the French and American revolutions. Classic heraldic rules and graphics thus functioned as a SIGN SYSTEM for the communication of institutionalized power and privilege.

National coats of arms. The equation of ruler and state in many early political hierarchies was reflected in the identical coats of arms of nation and sovereign. When a ruler was head of more than one state or even a number of smaller territories such as dukedoms, a separate coat of arms could be used for each. These achievements were usually shown as a group, but after the invention of quartering they were incorporated into a single shield. The escutcheon (shield) of pretense gained importance in cases in which

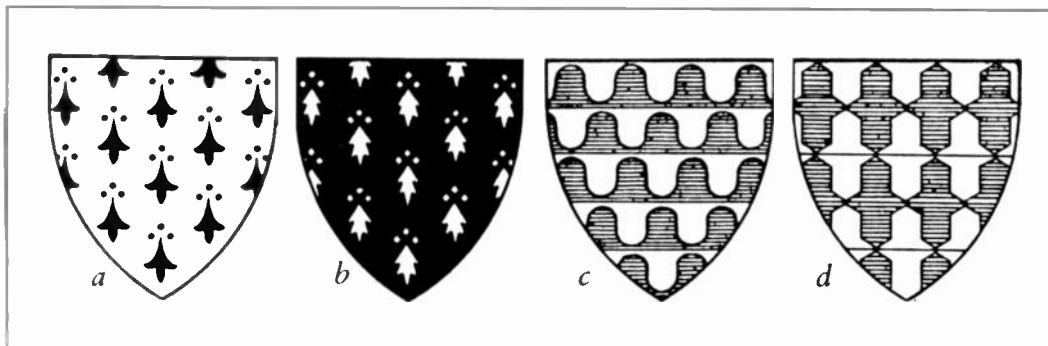


Figure 5. (Heraldry) Examples of tinctures: (a) ermine; (b) ermines; (c) vair; (d) countervair. From *Boutell's Heraldry*, rev. ed., London: Frederick Warne, 1978, p. 28. Revised by J. P. Brooke-Little (Frederick Warne & Co., 1950, 1983), copyright © Frederick Warne & Co., 1983. Reproduced by permission of Penguin Books Ltd.



Figure 6. (*Heraldry*) Spanish coat of arms. From El Marqués de Avilés, *Ciencia heroyca reducida a las leyes heráldicas del blasón*, Madrid, 1780. Facsimile, Barcelona: Círculo del Bibliófilo, vol. 2, 1979, frontispiece.

foreign monarchs or commoners attained positions of national leadership. In this way it became possible for the coat of arms of a reigning family to differ from that of the country, especially in new nations that arose from the division or defeat of old states. Paralleling this development is the still-observed medieval custom in which each member of a ruling dynasty (e.g., those of twentieth-century Britain, Sweden, and the Netherlands) has additional devices, or marks of cadency, incorporated into his or her coat of arms.

Many republics established after the late eighteenth century have attempted to create coats of arms based on historical events or designated national symbols (e.g., animals, trees) rather than monarchical emblems such as crowns (Figure 8). A seal consisting of pictures or images not at all related to heraldry often performs the same function as a state coat of

arms. Most socialist republics avoid the use of a shield as a background for figurative emblems. Instead the frame usually consists of plants (often ears of grain), twigs, and an inscribed ribbon or band. The function of national representation is now often taken over by the national flag, which in many cases is geometrically divided into rectangular planes just as in traditional heraldry. As the number of independent nations increases, so does the range of patterns and designs. This has resulted in the explosive growth of one aspect of the study of heraldry—vexillology, or the study of flags. See also POLITICAL SYMBOLS.

Civic heraldry. The practice of ascribing heraldic achievements to individual communities is increasing in popularity. Up to the early twentieth century only cities or towns were customarily entitled to coats of arms, but now in some areas (as diverse as Switzerland, Finland, or the state of Rhode Island in the United States) every community, however small, is equipped with its own coat of arms. Almost every European city or town has long had its own achievement. Elsewhere the granting of coats of arms may be a more confusing matter dependent largely on colonial developments; in much of Latin America, for example, they are the result of grants by Spanish kings (see COLONIZATION).

Civic heraldry generally follows the rules of conventional heraldry. However, while a family may freely choose its coat of arms, a civic or municipal achievement must be granted or at least approved by some authority. In the late twentieth century it is usual for civic heraldic emblems to consist only of a shield, although there are exceptions that make use of historical themes. In socialist countries civic heraldry has developed quite differently. Hungarian examples employ progressive applied graphics similar

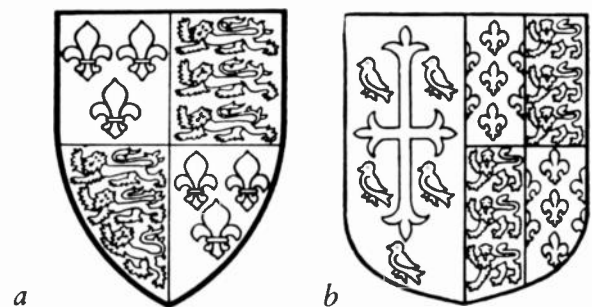


Figure 7. (*Heraldry*) Examples of quartering: (a) the royal arms of the house of Plantagenet, ca. 1400–1603; (b) the arms of Richard II. From *Boutell's Heraldry*, rev. ed., London: Frederick Warne, 1978, p. 209. Revised by J. P. Brooke-Little (Frederick Warne & Co., 1950, 1983), copyright © Frederick Warne & Co., 1983. Reproduced by permission of Penguin Books Ltd.

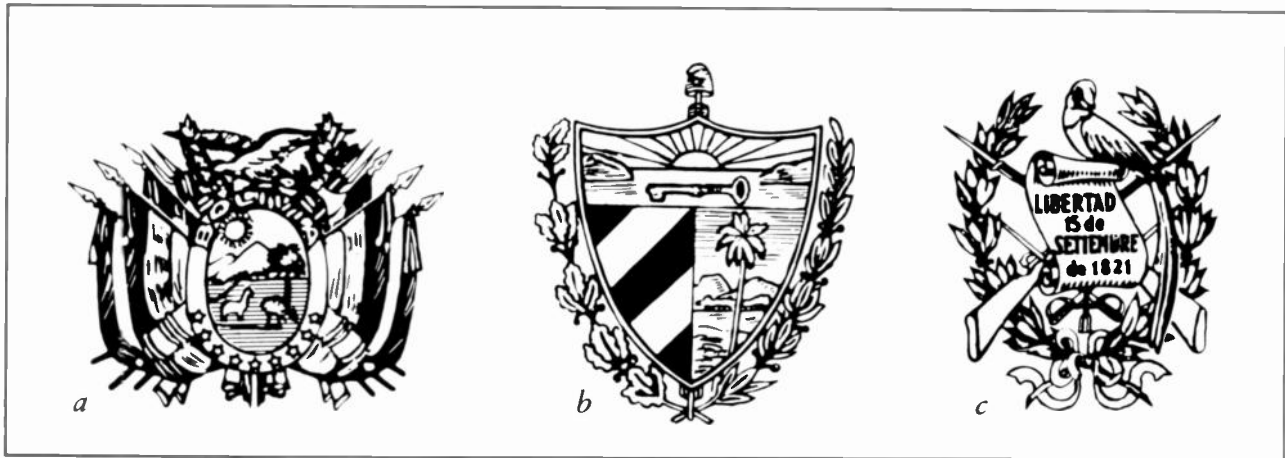


Figure 8. (*Heraldry*) Coats of arms of republics, ca. 1960: (a) Bolivia; (b) Cuba; (c) Guatemala. From Hubert Allcock, *Heraldic Design: Its Origins, Ancient Forms, and Modern Usage*, New York: Tudor Publishing Company, 1962, pp. 76 and 77.

to those commonly used in the design of contemporary badges or buttons. There is even an increasing interest in national heraldry, in a conservative way, in Poland and the Soviet Union.

Political and social circumstances directly influence the observance of heraldic rules and regulations as well as the form of heraldic insignia. In societies in which nobility constitutes a social class, institutions are established just to enforce these rules. When civic coats of arms are created, such institutions are relied on for their knowledge of heraldry, a task that exceeds their original duties. In Britain this function is performed by the College of Arms, also known as The Herald's College; in the Netherlands, by the Hoge Raad van Adel. In some countries civic heraldry is the province of a special department in the state's records office.

The legacy of classical heraldry can be seen not

only in personal and national coats of arms and in the revival of interest in heraldry but also in the long-standing use of heraldic emblems and devices on COINS and currency, on STAMPS, and in the symbols adopted by SPORTS clubs, schools and universities (Figure 9), Masonic lodges, military bodies, and groups of all kinds to proclaim identity by means of a unique VISUAL IMAGE. Even traffic signs and signals reflect the influence of graphic techniques first devised for heraldic purposes. Perhaps most apparent is heraldry's contribution to the widespread use of ADVERTISING logos and corporate trademarks that prompt immediate recognition (Figure 9).

See also ICONOGRAPHY; REPRESENTATION, PICTORIAL AND PHOTOGRAPHIC; SIGNAGE.

Bibliography. Alan Beddoe, *Beddoe's Canadian Heraldry*, rev. by Strom Galloway, Belleville, Ont., 1981; Charles



Figure 9. (*Heraldry*) Examples of the use of heraldry in advertising. From Hubert Allcock, *Heraldic Design: Its Origins, Ancient Forms, and Modern Usage*, New York: Tudor Publishing Company, 1962, pp. 40–42.

Boutell, *Boutell's Heraldry*, rev. ed., rev. by J. P. Brooke-Little, London and New York, 1983; Richard Marks and Ann Payne, eds., *British Heraldry from Its Origins to c. 1800*, London, 1978; Ottfried Neubecker, *A Guide to Heraldry*, New York, 1979; Ottfried Neubecker with John Philip Brooke-Little, *Heraldry: Sources, Symbols and Meaning* (Heraldik), New York, 1976; Michel Pastoureau, *Traité d'héraldique*, Paris, 1979; Gustav A. Seyler, *Geschichte der Heraldik*, Nuremberg, 1890, reprint Neustadt an der Aisch, FRG, 1970; Karl-Alexander von Volborth, *Heraldry: Customs, Rules and Styles*, Dorset, Eng., 1981; Anthony Richard Wagner, *Heralds and Heraldry in the Middle Ages* (1939), 2d ed., London, 1956.

OTTFRIED NEUBECKER

(Translated by Barbara G. Potzka)

HERMENEUTICS. See INTERPRETATION.

HISTORIOGRAPHY

The writing of history. The term derives from two Greek words, *historia* ("inquiry") and *graphein* ("to write"), marking it as a communicative activity that renders an account of the past to present and future generations. Initially a general inquiry into the phenomena of the world, *historia* later became a systematic inquiry into the past. The course of human affairs had always threatened to limit each generation's perception of the world to the here and now unless a link with the past could be established. Historians made possible communication between past and present when they compiled historical accounts—oral or written—and, in doing so, tempered change with the other basic aspect of human life: continuity. The identification of stable or recurrent features in different historical periods made possible a connection between the account of the past, the experience of the present, and the resultant expectations for the future. In this sense history is communication on the grandest scale, spanning centuries of human life, informing and transmitting.

There have been numerous varieties of historiography, although, particularly from the viewpoint of communication between past, present, and future, two broad types can be discerned: traditional and modern. They differ sharply in what they have tried to convey from generation to generation as well as in their methods and goals.

Traditional Historiographies

The traditional model of historiography was characteristic of societies that stressed continuity over change; looked to the past for guidance, ideals, and legitimacy; and did not envision a radically different

future. They emphasized tradition (from the Latin *tradere*, "to hand on"), which could only function through uninterrupted communication of an accepted view of the past. Traditional historiography spoke most strongly of the human origin and the early past, linking authority in knowledge and government to that period. With continuity prevailing over change the critical and innovative ingredients were commensurately small, limited to guarding the purity of tradition.

Ancient Asia. The traditional histories of ancient India, China, and Japan evoked a deep sense of continuity as they communicated to successive generations a shared sense of the past and its lessons for human conduct (see EAST ASIA, ANCIENT; SOUTH ASIA, ANCIENT). The Indian story of the remote period of human origin was told by the historical material in the Vedic literature, the *Itihāsa*. It spoke of a steady decline in four stages from a perfect to a corrupt stage and communicated unvarying lessons for proper human conduct. Chinese historiography lacked the ample mythological base and the story of decadence of its Indian counterpart, but the crucial fifth-century *Spring-and-Autumn Annals*, in the version of CONFUCIUS, also told its story of states and power struggles with clear lessons for human conduct. The influence of these annals can be discerned in both Chinese and Japanese examples.

These traditional historiographies tended to encourage respect for the existing order, especially the legitimacy of the rulers. Many Indian histories, often composed by court historians, gave genealogies of ruling dynasties that reached well back into mythological times, carrying a clear message of legitimacy. In Chinese historiography the concept of a mandate from heaven provided a cosmic-mythological sanction for the ruling dynasty but also justification for the revolt against it when the dynasty did not preserve the proper social order. Japanese historiography traced the lineage and authority of the imperial line back to the Sun-Goddess. Not surprisingly, the sources for these stories of the past were frequently official or quasi-official records. In China the History Office (*shi kuan*) produced accounts of the life of the empire. A similar historiography, stimulated by the Chinese example, began in the eighth century C.E. in Japan (the *Kojiki* and the *Nihon Shoki*); here, however, the anchor of stability and continuity was the divine origin of the emperors. When in feudal Japan (eleventh to seventeenth centuries) imperial rule was at a low ebb, histories reflected the shifting power centers in the *Historical Tales* and the *Military Tales*. The sense of uneasiness of that turbulent period was best conveyed in the *Gukansho* (1219) with its mix of the Shinto concern with the imperial order, the Buddhist concept of cycles of growth and decay, and

the Confucian insistence on order and harmony. The renewal of a quasi-official national history under the Tokugawa shoguns (1600–1868) signaled the return of centralized order although not of a true imperial rule (see TOKUGAWA ERA: SECLUSION POLICY).

The emphasis on the preservation of the traditional order, on the communication from generation to generation of a shared image of the past, prevailed over any aspiration to assess and revise historical accounts critically. The three Asian historiographies were eventually challenged by an alternative account, the Buddhist account of the past (for the period after the Buddha), but none of them found it a serious rival.

Ancient Greece and Rome. Western civilization's traditional historiographies differed in many ways from those of Asia. As early as the sixth and fifth centuries B.C.E., in a decisive development, Greek historiography broke the hold of mythological interpretations on the past. Into the place of tales about gods and heroes Greeks put the stories of ordinary human beings. By the time of Herodotus and Thucydides (both fifth century B.C.E.), the link to the mythological past had become insignificant. Accounts of the polis (city-state) provided a sense of historical continuity until Alexander the Great and the subsequent Hellenistic monarchies introduced another sharp break in the Greek tradition. While local and regional histories continued in Greece proper, these accounts of the pre-Alexandrian past communicated little of value to the large non-Greek populations. In the non-Greek regions, scholars cultivated the Homeric past in critical text studies or searched for a unity of history beyond the monarchies. Studies in text criticism yielded many insights into the Homeric texts, but their rationalistic approach undermined much of the force of the Homeric tradition; attempts to write history with a wider focus never really succeeded until Diodorus Siculus (first century B.C.E.). See HELLENIC WORLD.

Roman historiography evolved from several historical traditions. In part it was linked to the venerable Homeric tradition through the story of Aeneas, fleeing westward from the burning Troy and becoming the ancestor of Rome. Coexisting with the Aeneas narrative was the native tradition of Romulus and Remus. And a nonmythological account of the early past, the *Annales Maximi*, prompted by the needs of the Roman state, consisted of records of officeholders, events, and religious functions kept by the high priest. Attempts to synchronize these varied accounts of the earliest past into a coherent tradition continued until the age of Augustus.

Roman historiography proper began late in the third century B.C.E. Reflecting Greek cultural dominance, its early works were written in Greek, thus

barring communication with most Romans. This Greco-Roman historiography—its peak achievement being Polybius's *Histories* (second century B.C.E.)—met eventually with resistance from Romans who wished their history to be communicated in Latin and from a Roman perspective. Marcus Porcius Cato the Elder (234–149 B.C.E.) began that work, although Greek models never lost their impact. Subsequently the aims, character, events, concerns, and decline of the Roman Republic were all recounted by Roman historians in annals (a favorite Roman genre since the *Annales Maximi*); compilations of traditional lore (*antiquitates*), especially those by Marcus Terentius Varro (116–27 B.C.E.); and monographs, such as the strongly moralistic or sociocritical works of Sallust. There were also exhortations to a proper civic life in biographies and memoirs; the analysis of historical works as a special genre by rhetoricians such as CICERO (106–43 B.C.E.); and accounts by outsiders, mostly Greek scholars. The subsequent transition from the republic to the empire was recorded in the works of both Livy (59 B.C.E.–17 C.E.) and Tacitus (56–120 C.E.), which were characterized by sympathy for the “Old Rome.” Other histories attempted to diminish the distance between the Roman and Greek histories (Dionysius of Halicarnassus, first century B.C.E.); to show the corruption of the emperors (Suetonius, second century C.E.); and to celebrate great individuals (Plutarch, 46?–?120). By the fourth century little genuine appreciation of the Roman past remained, as illustrated in the account by Ammianus Marcellinus and the increasingly popular “brief history” genre, which communicated the bare essentials of the continuous Roman past to a people, including emperors, who no longer had either a true reverence for or a sufficient knowledge of the republican past—a past that was shared by only a minority of the empire's population. See ROMAN EMPIRE.

Christian historiography. After the fourth century C.E. Christian historiography radically changed the substance of what was communicated about the past. The ancient history of the Homeric tradition or of the Roman tales was replaced by the story of the Jewish people. Earlier stories about the rise and fall of states yielded to accounts of the path from the Creation to redemption, the world acquired a definite end in the Last Judgment, and time acquired a particular structure based on the historical and religious role of Jesus. Yet the style of written histories changed much less radically than the substance. Even though Christian writers insisted on using the *sermo humilis* (the artless speech of daily life), many of the Greek and Latin models with their sophisticated array of literary forms and rules endured.

Jews and Christians began the counting of years

with Creation, but this scheme was replaced, beginning with the sixth century, by that of Incarnation years (*anno Domini*, “in the year of the Lord”). Since the seventeenth century this system was also used for years prior to the Incarnation (B.C.). Thus time had been anchored in the Christian historical framework. However, historical accounts continued to incorporate other, more secular themes and institutions. For example, the continuity between past, present, and future was thought to be guaranteed by the anticipated survival of the Roman Empire. Of course, those who saw in the Catholic Church the only visible, divinely willed institution of continuity opposed such views. In the *City of God*, St. Augustine (354–430) denied the claim by any institution of this world (the Earthly City) to represent the purity of the City of God. Even so, medieval chroniclers regularly claimed divine sanction for partisan secular matters when they employed spiritual arguments to endow rulers with legitimacy, to integrate ethnic groups into Latin Christendom, and to support political causes.

Despite its universal and spiritual tenor, much of medieval history remained local or regional in scope because historians, faced with an ill-developed network of communications, wrote about those events that fell within their range of experience and interest. This tension between the universal message of Christianity and local or regional interests pervaded all of medieval historiography, which included annals, chronicles, *gesta*, and biographies of rulers and saints. Annals and chronicles were typically year-by-year accounts, whereas *gesta* referred to the story of deeds by one or a series of officeholders (e.g., abbots, bishops, or the rulers of a dynasty). As the centuries went on, ever fewer histories began with an account or a digest of the biblical story, often choosing to begin with the birth of Jesus. Nevertheless, the biblical authority was used to affirm the continuity of history through divine providence and prophecy, which interpreted events described in the Bible as prophecies and explanations of future events. The structural element most often used as an argument for universal continuity, prevailing even in local and regional accounts, was the endlessly repeated cycle of human sin and divine retribution. Such a history was congenial to monks, the authors of most chronicles well into the thirteenth century, who wrote for the greater glory of God and the edification of their fellow monks. Because they assumed that the chaos of this world was part of a divine order invisible to human beings, they did not feel the need to strive for an overall interpretation of events for accounts that supplied explanations of causes.

From 1200, the ever-accelerating increase in knowledge created problems for medieval historiog-

raphy. Higher levels of mastery and organization were required, and historians found the earlier, non-interpretive styles of historical writing to be of little help. As late-medieval universal chronicles overflowed with material, various solutions were attempted: new encyclopedic works (Vincent of Beauvais’s *Mirror of the World*, ca. 1250); rudimentary methodological categories for structuring accounts (Ranulf Higden’s *Polychronicon*, fourteenth century); grand, most often tripartite order schemes (Joachim of Fiore’s three ages of Father, Son, and Holy Spirit, twelfth century); the revival of St. Augustine’s dualistic structure; and the pre-Christian concept that all of world history was encompassed by four consecutive empires with Rome being the last (Otto of Freising, twelfth century); and, finally, chronicles in digest versions, the *florilegia*. See MIDDLE AGES.

Modern Historiographies

In the fifteenth century there began a radical change that over the next three hundred years ended traditional Western historiography. Its main elements were the development of text criticism, which subjected texts, formerly revered for their age or sacred origin, to critical analysis; the interpretation of history as the story of the development of secular ideals; the emphasis on a continuous, well-organized, and well-written narrative that attempted to interpret and explain causes; the discovery of archaeological materials as sources; the view that the past was a source of knowledge about life; and the replacement of the spiritual meaning and universal scope of history by a secular framework that expressed the interests of the state. While these innovations first appeared during the RENAISSANCE, the Reformation furthered their development by ending the ecclesiastical and spiritual unity of the West.

Although elements of traditional history remained—particularly the history fashioned after rhetorical patterns that provided lessons for life and a narrative in good style (such as Lord Bolingbroke’s view of history as the teacher of philosophy by examples)—they were not the building blocks of future historiography. Instead, under the impact of the above innovations, there began in Western civilization a search for a new way of interpreting history, one that no longer could assume a well-established and generally shared view of the past.

New methods and sources. Text criticism, viewed as guarantor of historical truth, supported the methodological views characteristic of the seventeenth- and eighteenth-century erudite historians (Jean Mabillon, the Bollandists, and the Maurists), who collected and critically assessed primary sources. The

range of historical methods and subject matter was widened by the Göttingen scholars of the eighteenth century, typified by Leopold von Ranke (1795–1886), who helped bring about scientific history (*Geschichtswissenschaft*) as an ordered, methodologically structured, and critical inquiry with close ties to philology. The most influential legacies of that school are a sophisticated body of historical methods and the great nineteenth-century text editions (*Monumenta Germaniae Historica* and the Rolls Series).

The universal manner of history writing, so dominant in Christian historiography, provided, in a secularized mode, a path to a new synthesis for historians. The need for a new synthesis was made more urgent by the great geographical discoveries, but the integration of ever new peoples and areas into historical schemes tailored to traditional Latin Christendom proved difficult. Traditional attempts included accounts written by Sir Walter Raleigh (ca. 1552–1618) and Jacques-Bénigne Bossuet (1627–1704); a more modern, geographically oriented approach was written by George Hornius (1620–1670).

The role of progress. In eighteenth-century Europe some French philosophes proclaimed the general progress of humanity (see UTOPIAS). History acquired a new driving force—the growth of rationality—and a new future—the triumph of reason. It meant, however, that interpretations of the past and the present were based on a constant devaluation of the past and a perceived ideal state of human existence in the future. Generations no longer communicated to their successors the wisdom or lessons of the past but measured the authority of the past and all actions in the present by an ideal future to be achieved. Change toward such a future dominated some grand nineteenth-century interpretations of history. Georg Wilhelm Friedrich Hegel (1770–1831) constructed a grand philosophy of history in which change and continuity were merged into a process, the self-realization of the Absolute Idea in time, whereas KARL MARX (1818–1883) viewed history as a process driven by economic changes that transformed all of life and led to the ultimate redemption of human beings from history itself. In a less speculative way American history, too, accepted this view: from the Puritan image of America as the shining “City upon a Hill,” a model for humanity, to John Adams’s insistence on the universal import of the American Revolution and the American mission in human history, to George Bancroft’s (1800–1891) fusion of God’s Providence and America’s democratic mission.

Connected with the scheme of progress were the attempts to see past, present, and future linked by the gradual emancipation of the masses. In a speculative mode, Thomas Carlyle, Jules Michelet, and John R. Green emphasized that message, and so did

the twentieth-century American Progressive historians with their vision of the future universal victory of liberal democracy. In contrast, twentieth-century historians of “the people” preferred the soberly empirical approach that characterized the rise of social history in contemporary historiography, one of its most noted schools being the *Annales* group—Lucien Febvre (1878–1956), Marc Bloch (1886–1944), Fernand Braudel (1902–1985), and Emmanuel Le Roy Ladurie (1929–).

Scientific history’s rejection of the speculative and grand style of historical writing in favor of empirical and more narrowly focused studies, along with the surging tide of nationalism, diminished the possibility of a universal history. Yet the aspiration to explain the whole sweep of history has remained alive and has resulted in two approaches: the continued belief in history as the story of progress, especially linked to the growth of science and technology; and cyclical views in which history was presented as a sequence of separately developing cultures or civilizations. This latter model had its best-known advocates in Oswald Spengler (1880–1936) and Arnold Toynbee (1889–1975).

By 1900 the existence of many conflicting views on history as well as the trend toward a “scientific” history with a strictly empirical verification helped to erode the philosophical and religious certainties about the world that had been shared and expressed in historical writings for centuries. In the absence of an accepted synthesis change in historical writing as well as in world events prevailed over continuity, posing the question of what of lasting value could be communicated from generation to generation. On the answer depended the feasibility of a “scientific” history and, for some, the relevance of history to the modern world. One group of historians followed the precepts of Comtean positivism and tried to establish long series of objective facts tied together by cause-and-effect chains in order to arrive eventually at a verifiable historical synthesis. Although the early “scientific” historians in the United States affirmed the older Rankean precepts, they were also inspired by the English positivist historians H. T. Buckle (1821–1862) and William E. Lecky (1838–1903). Their opponents objected that the positivist approach was too mechanical and distinguished insufficiently between the human and natural realms. They included the U.S. New Historians, most notably James H. Robinson (1863–1936) and Charles A. Beard (1874–1948), who were inspired by pragmatism and progressivism and advocated an activist historiography based on the continuing affirmation of progress. German historians such as Wilhelm Dilthey (1833–1911) searched for a theory of history without metaphysical elements while still affirming a human cos-

mos safely separated from that of nature. Finding such a theory elusive, they generally adhered to an approach in which each historical period is appreciated and studied on its own terms (historicism).

Since the 1940s other attempts at a positivist historiography included Carl Hempel's attempt to introduce the scientific requirements of general laws into history (the Covering Law Theory), while a broad group of scholars, the so-called narrativists, have tried to preserve the difference between natural and historical sciences. They considered the narrative form as central and indicative of the autonomy of history. The debate on the proper reconciliation of past, present, and future continues, with the theoretical discussions accompanied by ideological controversies (particularly the various Marxist views), and, outside Western culture, with attempts to master the historiographical aspects of nation building among developing countries.

See also IDEOLOGY; ISLAM, CLASSICAL AND MEDIEVAL ERAS; ORAL HISTORY; RELIGION.

Bibliography. Ernst Breisach, *Historiography: Ancient, Medieval, and Modern*, Chicago, 1983; Peter Gay, *Style in History*, New York, 1974; Michael Grant, *The Ancient Historians*, New York, 1970; John Higham, *History: Professional Scholarship in America*, Baltimore, Md., 1983; Michael Kraus and Davis D. Joyce, *The Writing of American History*, rev. ed., Norman, Okla., 1985; Savoie Lottinville, *The Rhetoric of History*, Norman, Okla., 1976; Beryl Smalley, *Historians in the Middle Ages*, London, 1974; Haydn V. White, *Metahistory: The Historical Imagination in Nineteenth-Century Europe*, Baltimore, Md., 1973.

ERNST BREISACH

HITCHCOCK, ALFRED (1899–1980)

British-born film director. Known for technically innovative and morally and psychologically complex thrillers, Alfred Hitchcock earned critical respect and wide recognition as the “master of suspense.” His aim, he said, was to arouse audiences through “pure film,” and his contributions to the language of cinema include an entire movie—*Rope* (1948)—shot without dissolves, in ten-minute takes. Also seminal are such arresting depictions of terror as Janet Leigh's shower murder in *Psycho* (1960) and Cary Grant being chased by a crop duster in *North by Northwest* (1959). But more than his genre's consummate craftsman, Hitchcock was the artist who stretched its limits (see GENRE). Beyond style (for Hitchcock, indistinguishable from subject), his more than fifty MOTION PICTURES—from *The Pleasure Garden* (1925) to *Family Plot* (1976)—share macabre humor and a

disturbing personal vision: good and evil are proximate, guilt is nebulous, and chaos lurks beneath a veneer of social order.

Hitchcock's career was divided between the studios of England and HOLLYWOOD. During both periods he achieved a remarkable independence, usually choosing his own writers and STARS and, from the early 1950s on, producing his own work. His success within the system as well as his transcendence of genre served as a model for personal filmmakers everywhere.

Born a Catholic grocer's son in Edwardian London, Hitchcock studied engineering and then art before devoting himself to film. His first movie job (1921–1922) was as a designer of silent-film titles for the London office of Famous Players-Lasky. By 1922 he had begun writing scripts, and soon—at Michael Balcon's Gainsborough Studios—he was directing as well. With his 1926 *The Lodger*, the formula for a Hitchcock plot was set: there must be the threat (or fact) of murder, at least one morally suspect character, and a vulnerable woman (preferably a blonde). The major British films followed: *The Man Who Knew Too Much* (1934), *The Thirty-nine Steps* (1935), *The Lady Vanishes* (1938). Though influenced by EXPRESSIONISM, these films were also earthily realistic in style.

In 1938 producer David Selznick invited Hitchcock to Hollywood, where together they made *Rebecca* (1940). Though their partnership dissolved, Hitchcock remained in the United States, producing over the next four decades what many consider his greatest works. Ranging from the stylized clarity of *North by Northwest* to the surrealism of *Vertigo* (1958), their styles varied, as did their subjects: seething small-town America in *Shadow of a Doubt* (1943), voyeurism in *Rear Window* (1954), obsessive passion in *Vertigo*. Always, though, there was the issue of physical danger and the fascination with evil.

Almost always, too, there was popular success, and along with it both critical acclaim and inquiry. Genre experts questioned the plausibility of Hitchcock's plots, whereas for scholars the issue was his seriousness. Some, such as new wave critics Claude Chabrol and Eric Rohmer, found Hitchcock a profound—and also profoundly Catholic—moralist who used the metaphor of criminal transgression to pursue the themes of metaphysical guilt (the transfer of guilt was, for them, Hitchcock's most consistent theme) and redemption. Others rejected the influence of the Catholic impulse but concurred about Hitchcock's metaphysical subtext. Detractors—often pointing to his cool humor, “happy endings,” and “McGuffins” (his characteristic plot-triggering devices)—insisted that Hitchcock was a technician and entertainer first, if not exclusively.



Figure 1. (Hitchcock, Alfred) Alfred Hitchcock directing *The Thirty-nine Steps*, 1935. National Film Archive, London. By courtesy of The Rank Organisation PLC.

Undisputed, though, is Hitchcock's tremendous iconographic and stylistic impact, particularly on the French NEW WAVE FILM and on the U.S. cinema of the 1970s and 1980s. His transformation of the thriller into a vehicle for personal expression influences both how genre films are made and how they are perceived.

Bibliography. Eric Rohmer and Claude Chabrol, *Hitchcock: The First Forty-four Films* (in French), trans. by Stanley Hochman, New York, 1979; Donald Spoto, *The Dark Side of Genius*, Boston, 1983; Robin Wood, *Hitchcock's Films*, London and New York, 1965.

DIANE JACOBS

HOLLYWOOD

Place name referring to the main production center of the U.S. film industry in southern California, but also conveying various other meanings. To some the term more readily signifies the oligopoly of major studios that have long dominated theater and television screens in many parts of the world and have controlled related enterprises. It also connotes for many a dreamworld revolving around STARS and a legendary way of life projected through fan magazines and other media and exercising a hegemony over fashions, hairdos, and life-styles worldwide. To some it suggests a modern Babylon, a world of titillation and moral danger to be combated by CENSORSHIP and the PRESSURE GROUP. The word also

functions as a shorthand for standardized culture and may be used by some critics as a synonym for kitsch. Behind all these meanings, all connoting influence, lies the fact of economic power, often monopolistic in nature, that has evolved throughout film and TELEVISION HISTORY and has been strengthened by numerous developments.

Beginnings

The industry did not begin in Hollywood. It began across the continent in greater New York, where projected motion pictures were introduced to U.S. audiences in 1896, first appearing in vaudeville houses, amusement parks, club halls, and improvised screening rooms and later in storefront theaters known as nickelodeons. As exhibition spread, film production likewise erupted in a host of small units in and around New York, Philadelphia, Chicago, and elsewhere. Competition was chaotic and sometimes violent, with much improvisation of equipment and charges of patent piracy. But quick profits were possible. See MOTION PICTURES—SILENT ERA.

MONOPOLY trends made an early appearance. In 1908 ten of the pioneer units led by two of the largest, Edison and Biograph, tried to win industry control through their patents by forming the Motion Picture Patents Company, soon known as the Trust. Producers and exhibitors licensed by the Trust, using equipment covered by patents it controlled, were to do business only with each other, freezing out independents using unauthorized equipment, who were



Figure 1. (Hollywood) David Butler, *Thank Your Lucky Stars*, 1943. The Museum of Modern Art/Film Stills Archive.

constantly accused of patent infringement. The Trust was eventually ruled illegal and in any case never won complete control. But meanwhile some independent producers trickled to southern California. As movie tastes veered toward action films, especially westerns (see *WESTERN, THE*)—and after 1914 to feature-length spectacles of the sort favored by D. W. GRIFFITH and others—the westward trickle became an increasing migration of people and companies. A grand choice of terrain, year-round good production weather, and room for expansion welcomed them. The migration became “Hollywood.”

Rise to Power

World War I furthered the rapid growth of the industry. Before the war a number of countries had been film exporters. France, which in 1895 had been the first to show films commercially, had generally been the export leader, followed by the United States, Italy, England, and Germany. But the war brought French, Italian, and British production almost to a

standstill and isolated the German industry, while audiences far and wide remained ravenous for film. Hollywood proceeded to fill the vacuum, as one of the most spectacular booms in history began under the California sun. Such emerging stars as Mary Pickford, Douglas Fairbanks, and CHARLES CHAPLIN became international legends, of incalculable value to their studios, and able to command such unheard-of salaries as \$10,000 a week. Their fame soon affected trade practices. By 1915 a European theater wanting to obtain a Chaplin film from its distributor, Essanay, found it had to contract for the entire Essanay output. Block-booking thus entered the film world and became a factor in Hollywood’s international status. After the war European film industries, reactivating production, found it difficult to win reentry into their own domestic markets, as leading theaters were block-booked in extended contracts. Audiences seemed untroubled—by now, films meant Hollywood. Some countries adopted import barriers and exhibition quotas for cultural as well as financial

reasons, but the efforts did not greatly impede the U.S. industry; economics favored its continued hegemony. Because the U.S. domestic market included a third of the world's theaters, Hollywood features regularly earned back their investments at home and could undersell local products almost anywhere. Meanwhile the U.S. market seemed impenetrable to foreign producers. Many of the leading theaters had become producer owned, while others were under block-booking contracts. Hollywood, scarcely a decade old, was already an entrenched power.

Industry consolidation. By the 1920s the leading elements of the long-defunct Trust—Biograph, Edison, Essanay, Kalem, Kleine, Lubin, Gaston Méliès, Pathé, Selig, Vitagraph—had vanished from the top hierarchy, replaced by such names as Fox, Loew, Paramount, Universal, and others. With growth came huge new corporate mergers and realignments aided by Wall Street interests. Producers sought market security by acquiring chains of theaters; large chains of theaters sought to assure themselves of films by acquiring production companies. Out of the maneuvers emerged an industry dominated by giants. As they came under attack—from religious groups that increasingly saw films as an immoral influence, and independent producers and distributors contesting the amalgamation process—the giants grew close together.

Sound film. The advent of sound, which might have loosened the industry structure, in the end hastened its consolidation. Experiments to link sound and image had long been in progress, with leading studios only cautiously interested because fortunes were being made with silents. But when a lesser studio, Warner Brothers, ventured into sound to improve its precarious industry position and in 1927 won a reverberating success with *The Jazz Singer*, starring Al Jolson, the events precipitated an industry upheaval. The large companies with Wall Street connections had little difficulty financing the changeover to sound, and did so with remarkable speed, but many smaller producers and exhibitors simply closed down or sold out to the giants. By 1930 the transformation of the industry into a virtual oligopoly had been completed. Warner, having in the process become one of the giants, was part of it. The oligopoly now consisted of eight companies, which for the next two decades would constitute the aristocracy of Hollywood. This was the era of the big studio, which would give Hollywood its global image, one that would prevail even after the reality had changed. *See* MOTION PICTURES—SOUND FILM.

Studio World

Most powerful of the eight were the “Big Five”: Loew's (including MGM), Paramount (formerly

Famous Players-Lasky), Twentieth Century-Fox, Warner, and RKO (an amalgamation of various production and exhibition interests). These five companies were fully integrated; that is, they produced motion pictures, distributed worldwide, and owned theater chains where their pictures were guaranteed showings. In alliance with them were the “Little Three”: Columbia, Universal, and United Artists. Columbia and Universal were producer-distributors that supplied the Big Five mostly with low-cost pictures for double features; United Artists, which had been created in 1919 by Pickford, Fairbanks, Chaplin, and Griffith, was solely a distributor for a small number of independents. These eight constituted the majors.

“Poverty Row” existed on the periphery. Small studios such as Monogram, Republic, Grand National, and Producers' Releasing Corporation serviced theaters in small towns and rural areas. As a group they had a marginal impact on the industry.

Corporate headquarters for the industry remained in New York, close to sources of finance; production was centered in Hollywood, which by now had fine-tuned an efficient means of mass production: the studio system. Double features had become an exhibition standard, and Hollywood produced two classes of pictures to fill the need: class A, with name stars, big budgets, and high production values; and class B, economy films needed to meet distribution commitments. Each studio aimed to release an average of a feature film per week, plus short subjects. In terms of variety, studios produced a range of genres including crime films, musicals (*see* MUSICAL, FILM—HOLLYWOOD GENRE), westerns, melodramas, and screwball comedies (*see* COMEDY). Production was hierarchically organized and highly departmentalized, with a complex web of controls.

Censorship

The industry had long been troubled by multiplying censorship systems. Several U.S. states, a number of cities, and many foreign countries had set up official censors or censor boards, who sometimes banned films outright or required specific excisions before films could be shown. Their criteria varied widely. Some boards charged a fee for their review “services.” To combat these distribution obstacles, the majors in 1930 adopted a Motion Picture Production Code, proclaiming moral principles they pledged to observe. The hope was that this “self-censorship” would arrest and even reverse the censorship trend. But two years later the Roman Catholic church, declaring compliance with the code to be too lax, created the Legion of Decency, which established its own rating system. Catholics were pressed to boycott films condemned by the Legion. To counter this economic threat the majors put teeth into their own

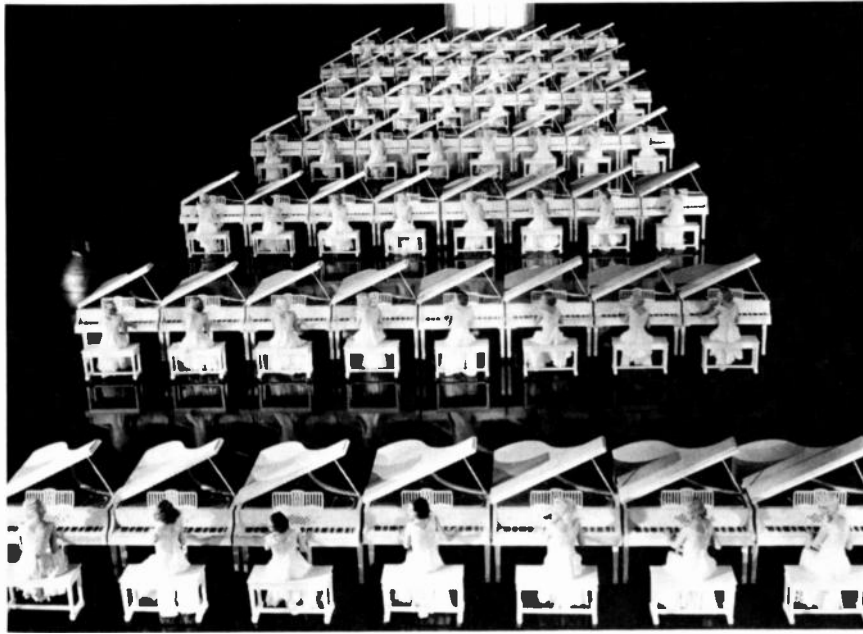


Figure 2. (*Hollywood*) Busby Berkeley, *Gold Diggers of 1935*, 1935. The Museum of Modern Art/ Film Stills Archive.

code by setting up a Production Code Administration under Joseph I. Breen, with power to penalize any of the studios overstepping the code or violating Breen office rulings on permissible topics, plotting, dress, lovemaking, language, and other matters—including ADVERTISING. Strict as the system was, it did not replace other censorship systems; in fact, new layers of supervision were added by World War II. With war films in demand, the studios looked to the federal government for cues on subject matter and treatment and received crucial support in facilities, consultants, and uniformed extras, resulting in a close collaboration. Soon after the war the cold war began, bringing a “red scare” to the major U.S. media. Film industry leaders, prompted by accusations in congressional hearings—especially those of the House Committee on Un-American Activities (HUAC)—instituted secret personnel blacklists that for years influenced production planning. Safe topics were the order of the day. Throughout this era films from Hollywood appeared to be the most censored of media. Yet working within the web of controls, the men and women of big-studio Hollywood—an extraordinary international assemblage of artists and technicians—were able to mass-produce work that defined for much of the world what a motion picture could be. Many observers have looked on the big-studio period as Hollywood’s golden age.

Crises

But suddenly it all seemed to unravel. Around mid-century Hollywood encountered three devastating, virtually concurrent crises. Coming on the heels of

years of prosperity, the reversals seemed almost unbelievable and for a time seemed likely to overwhelm Hollywood. The Hollywood that eventually emerged from the crises was, in fact, very different.

Antitrust. The first blow came from the U.S. Supreme Court. In 1948, climaxing a historic antitrust suit against the eight majors—*United States v. Paramount et al.*—the Court ruled that the companies had formed an illegal combination to control film exhibition. The Court ordered the integrated companies to divest themselves of their theater chains, which had been an important element in their control of the industry. It also outlawed block-booking and other trade practices that had kept independent exhibitors in a subordinate position and had virtually barred independent producers, including foreign producers, from leading U.S. theaters.

In the upheaval that followed the ruling, a new mode of production gradually replaced the studio system: independent production. As the majors retrenched, scrapping production plans and paring studio payrolls, many of the actors, directors, and others set adrift by the process turned to independent production. They saw the possibility of market access and welcomed the fact that the majors, having lost control of the market, had lost their power of censorship. (An advisory rating system eventually replaced the Hollywood code and its enforcement machinery.) The majors too shifted into a different role. Following procedures in effect at United Artists, they began functioning mainly as financiers and distributors of films rather than as producers. The independents became the source of much of Hollywood’s creative initiative; but, crucially dependent



Figure 3. (*Hollywood*) Cecil B. DeMille directing a scene in *Triumph*, 1924. The Museum of Modern Art/Film Stills Archive.

on finance and effective distribution, they tended to become satellites of the old majors. Most of these leading companies, as financiers and distributors, ultimately proved able to retain their central power, but in a more loosely structured industry.

Television. About the same time as the Supreme Court decision, another devastating crisis struck Hollywood. Box-office attendance had begun a decline, and it continued for a decade; in the United States attendance dropped by 50 percent during this period. The reason was clear: television was rapidly replacing movies as the dominant LEISURE activity. Theaters closed; profits plummeted. Hollywood was close to panic and had reason to make further retrenchments.

It tried various competitive strategies. Television appearances by contract stars were vetoed. The majors barred their films, old and new, from television. (The films of *Poverty Row* were, however, earning a bonanza on the tube.) To lure the audience back, Hollywood tried 3-D and such wide-screen processes as Cinerama, Cinemascope, and Vistavision (see CINEMATOGRAPHY). The innovations succeeded, but audiences did not resume their former ways. They flocked to the occasional blockbuster, then back to television. The mid-1950s brought a reversal of strategy. One after another, leading studios contracted with the networks to produce filmed series—mainly westerns at first—for commercial network sponsorship. On the heels of this move they began releasing their backlog of features for television use, earning lifesaving cash infusions. While transforming Hollywood, they also transformed television. By 1960 U.S. television schedules, which had been three-quarters

live, were at least three-quarters film. The television industry had made Hollywood its main production center. The move and its timing had even wider significance: television was beginning or about to begin in scores of other countries. The filmed series might have worldwide markets. In midcrisis Hollywood began to glimpse a new and different future, one that would actually extend its power. But it would also involve new hurdles.

Trade barriers. In the devastation left by World War II, many nations sought to protect their economies by new means. The freezing of funds was one of these measures. Many European and Asian nations, while giving Hollywood free access to their screens, limited the earnings that the industry could remit. As a result, the majors acquired large foreign bank accounts in foreign currencies, which they could not convert into dollars or transfer to the United States. But the funds could buy local goods and services, so Hollywood had reasons to produce abroad, creating the phenomenon of runaway production. Blocked funds were thus turned into international assets—for theatrical and television distribution. Authentic locales, low labor costs, and tax advantages were additional incentives. Many countries were also using subsidies to boost local production; the U.S. companies, through their foreign subsidiaries, became eligible for such subsidies. The films could also be included in the quotas widely imposed on theaters, which mandated a minimum proportion of domestic productions. The various protective devices thus stimulated a greatly increased U.S. involvement abroad. Hollywood became truly international in scope, producing films on every continent and tailoring its

products to world markets. Its distribution activities were meanwhile expanding in other ways, challenged by new technologies. The potentialities of CABLE TELEVISION, SATELLITE transmission, VIDEO in its various uses, the laser videodisc—all offered new vistas and possible crucial gambles. Hollywood saw the need to move into all. As costs mounted, it explored marketing strategies involving the entire leisure field. Amusement park exhibits, soundtrack tapes, book tie-ins, and the merchandising of toys, games, and clothing all created profit centers to amortize rising development and production costs. But uncertainties likewise mounted.

Conglomerate Era

During these postwar decades the expanding involvements and risks stimulated a trend toward the formation of conglomerates. Film companies diversified into other fields or merged with or were absorbed by corporations in other businesses. In the 1960s Paramount was acquired by Gulf and Western, which had holdings in steel, hydraulics, mining, plastics, and other industries. United Artists was absorbed by Transamerica Corporation, Warner Brothers by Kinney Services. In the 1970s MGM was taken over by Kirk Kerkorian Enterprises, and Columbia Pictures became part of Coca-Cola. A reason for such moves was the quest for security. A downturn in any one line of business could be offset by involvement in others. Conglomeration appeared to have a stabilizing effect, giving Hollywood room to maneuver in a difficult time. But it also heightened concerns about the widening hegemony of the U.S. media abroad. Consumption of Hollywood's products had grown worldwide, and cries of "cultural imperialism" were increasingly heard as relationships between media and society came everywhere under closer scrutiny.

Bibliography. Tino Balio, ed., *The American Film Industry*. 2d ed., rev., Madison, Wis., 1985; Michael Conant, *Antitrust in the Motion Picture Industry*, Berkeley, Calif., 1960, reprint (ed. by Garth S. Jowett) New York, 1978; Thomas H. Guback, *The International Film Industry: Western Europe and America Since 1945*, Bloomington, Ind., 1969; Benjamin B. Hampton, *A History of the Movies*, New York, 1931; I. C. Jarvie, *Movies and Society*, New York, 1970; Garth S. Jowett, *Film: The Democratic Art*, Boston, 1976; James Monaco, *American Film Now*, New York, 1979; Robert Sklar, *Movie-made America: A Social History of American Movies*, New York, 1975.

TINO BALIO

HOMILETICS

The science of liturgical ORATORY. The word *homiletics* is derived from the Greek *homilētikos* ("of conversation") and *homilia* ("converse or dealings

with another"). In ancient Christian usage *homilia* denoted a religious discourse adapted to concerns of the people assembled for worship. Homiletical discourse and the science of homiletics are to be distinguished from several related speech acts: exegesis (philological analysis), catechesis (instruction), kerygma (evangelistic proclamation), *paranesis* (ethical admonition), prophecy, theology, apologetics, hermeneutics (science of INTERPRETATION), and catechetics (science of instruction).

Homiletics prescribes methods for effective preaching. Paradoxically, the effectiveness of the preaching is attributed not to the method but to the initiative of God, who speaks through the SPEECH of the homilist. This paradox is fundamental for an understanding of the Abrahamic religious traditions, particularly Judaism and Christianity, which conceive of God as a transcendent personal being who communicates with humanity in a way that invites and allows free response. The divine-human relationship resulting from this communication is understood to be a historical dialectic generating scriptures as well as communities for whom those scriptures are sacred and reality defining. Other religious communities, most notably the Buddhist, have also developed a tradition of preaching, especially after contact with the West. Neither Buddhist nor Hindu preaching, however, is mandated scripturally or confined within a RITUAL. Because homiletical exposition is an act of worship meant to enable ancient texts to continue to function as contemporaneous words of God, homilists need authorization. Some denominations restrict the power and privilege of homiletical discourse by law to the ordained and by custom to those whose personal morality lends credibility to their speech. See RELIGION.

Historical overview. Christian homiletical history begins with Jesus and his companions, who themselves stood within a well-established Hellenistic Jewish tradition of discussing the SCRIPTURE in the synagogues. The Jewish and Christian canons provide models for their own homiletical interpretation. The Book of Deuteronomy (or "second law") is a series of discourses, attributed to Moses, explaining the Law. In the Gospel of Luke, Jesus begins his career in the Nazareth synagogue by delivering a homily on the Book of Isaiah, while the Acts of the Apostles describes the preaching of the first generation of Christians. By contrast the Qur'an (or Koran, meaning "recital") takes the form of a direct personal address by God, through the Prophet Muhammad's mouth, confirming and giving an authoritative interpretation of previous scriptures. Being itself an extended homily, the Qur'an has seemed to its adherents to be less in need of contemporizing interpretation than the Hebrew and Christian scriptures have seemed to theirs. See also ISLAM, CLASSICAL AND MEDIEVAL ERAS.

Since the homily is an interpretation of text, the homilist must be able to read. The high LITERACY rate in the Hellenistic world supported a rich homiletic tradition in Christian antiquity. Influential in the third- and fourth-century Mediterranean world were Origen, John Chrysostom, and Cyril of Jerusalem; the Cappadocian church fathers Gregory of Nyssa, Basil the Great, and Gregory of Nazianzus (all speaking Greek); and the Latins Ambrose of Milan and Augustine of Hippo, whose death in 430 closed an era (see HELLENIC WORLD; ROMAN EMPIRE). The subsequent decline in EDUCATION brought a decline in the quality and in some places the frequency of preaching in the early MIDDLE AGES. Many homilists had difficulty reading the scripture, particularly as Western Christians forgot Greek and Hebrew and found their native tongues diverging from the Latin into which the scriptures had been translated.

To overcome the language difficulties and to help integrate the in-migrating tribal peoples into the settled Christian populations in and around the territories of the old empire, monasteries fostered bilingualism by taking in Christian and tribal children and raising them together. This did facilitate vernacular preaching. However, homiletic themes were more likely to be drawn from marvelous tales of divine miracles and punishment than from the canonical texts. Collections of model homilies and edifying anecdotes were circulated in a move to improve preaching; those anthologies are considered precursors of European FICTION. Numerous collections of them survive, although works of homiletical theory are less common.

Better homilies were not forthcoming until the general educational level of western Europe improved, around the twelfth and thirteenth centuries. Medieval homilists of note included Bernard of Clairvaux, Francis of Assisi, and Dominic. Their era saw the organization of preaching orders, whose friars were more literate and articulate, centrally administered, and commissioned to travel widely to garner support for consolidation of church power. Among the causes these preachers regarded as contemporary implications of the scriptural word of God were the identification and persecution of heretics, the solicitation of funds for local and Vatican projects, and the launching of military campaigns in which civilians as well as soldiers would be sacrificed to the cause.

Ironically, then, both the tactical success of such preaching and its failure to effect a feeling of relationship between God and hearers led to the Reformation of the sixteenth century, a watershed in the history of Christian homiletics. Protestant Christianity, aided by the PRINTING press, restored the primacy of scripture in the ritual celebration, reemphasizing

the word as medium of contact with the divine. MARTIN LUTHER, Philipp Melancthon, and many other reformers wrote theoretical or practical works of homiletics, which attained the critical methodological self-consciousness of a science for the first time since Augustine. Catholicism and Orthodoxy (the Eastern church) saw God's address through scripture within a larger context in which church traditions, the nonverbal aspects of the cult, and other created things became means of contact with the divine through homiletic interpretation.

Secular influences. Historically Islamic expansion and Christian missionizing have at times allowed the homily to escape its traditional place within the liturgy and also inside religious buildings. This may be observed in the "electronic church," a term that identifies the sense of intimacy and gathering experienced by millions who hear televised or radio sermons while alone (see RELIGIOUS BROADCASTING). The homily has also gone beyond its scriptural frame of reference and has become a political address; but even as political address it celebrates the nation's transcendent values and promotes fidelity to national traditions. In this sense, the nineteenth- and twentieth-century RHETORIC of U.S. national destiny may be seen as neither purely secular nor purely religious.

This interplay of secularizing and religious factors has been a controlling feature of the development of the science of homiletics and its articulation of objectives. Principles of effective preaching have been debated extensively, but generally they have paralleled secular rhetorical principles. Persuasive speech was a political and diplomatic tool prized in the ancient world. Egyptian and other Near Eastern principles of statecraft, including oratory, found their way into the Hebrew Wisdom literature. Hellenistic TEACHING and rhetorical forms were already present in the Christian scriptures and increasingly gave structure and content to Christian address in the first few centuries of the common era. For example, Origen and Augustine adapted allegory as a key to the meaning of Jewish and Christian texts. Platonism shaped the preachers' quest to find God's communication as a transcendent meaning hidden by the literal meanings of texts.

By medieval times Christian liturgical address itself was informing secular oratory. The Jewish and Christian notion that free human decision affects history and that speech precipitates decision shaped the Western view that people—first monarchs, then the masses—could make history by communicating. This conception may be deemed the survival of the Greek idea of democracy but with a difference: human decision here is prompted by God's invitation, so historical events may be seen to bring about a transcendent or divine purpose.

In medieval and modern times the divine purpose often has been linked with or displaced by a military or political interest. Preaching mobilized Europe for expeditions (crusades) against the Muslim administrations in Eastern territories (see CRUSADES, THE). The COLONIZATION of the Americas, the continental expansion of the United States, several nonviolent liberation movements, and the foundation of the modern state of Israel all illustrate the secularization of the homiletic dynamic: a transcendent purpose receives oratorical expression so that people are moved to try to achieve what has become through communication their mission. This view may be distinguished from both capitalist and dialectical-materialist paradigms, which emphasize inevitable laws of economic and historical process operating independently of communication (see MARXIST THEORIES OF COMMUNICATION—ORIGINS AND DEVELOPMENT). However, works of homiletical theory and practice written from a denominational perspective generally do not credit the interdependence of the homily and secular political rhetoric but instead hold that a pure presentation of God's scriptural word without admixture of pagan or secular techniques is both possible and desirable.

See also PUBLIC SPEAKING.

Bibliography. Henry Ward Beecher, *Yale Lectures on Preaching* (Lyman Beecher Lectureship, 1st–3d series), New York, 1872–1874; Sacvan Bercovitch, *The American Jeremiad*, Madison, Wis., 1978; Yngve Brilioth, *A Brief History of Preaching* (Predikans historia), trans. by Karl E. Mattson, Philadelphia, 1965; Abraham Cohen, *Jewish Homiletics* (Sieff Lectures on Preaching, 1936), London, 1937.

MARIANNE SAWICKI

HORROR FILM

Cinematic GENRE that seeks to bring delight through a therapeutic use of fear. Its characteristic themes and motifs lend themselves to sensationalism and exploitation, but it has deep roots in human psychology, social life, FOLKLORE, and literature. The horror film draws strength from humanity's universal fear of its dead; from dread of the unknown, the deformed, the deviant; from sadistic and masochistic impulses; and from the need to face these and other fears in the safety of ART.

The horror film may articulate our apprehensions of those above or below us in social position, tensions within the FAMILY situation, the consciousness that things have gone wrong in the way we have ordered our lives, and the suspicion that we are at the mercy of powers over which we have no control—together with the desire to achieve such control. It draws on familiar elements from folktales and ballads—devils,

demons, ghosts, vampires, and lycanthropes. The genre reworks themes familiar from a vast literature and subliterate of terror, including the English Gothic novel, German and French romantic tales from Ludwig Tieck and E. T. A. Hoffmann to Charles Nodier and Théophile Gautier, and the American uncanny tale from Nathaniel Hawthorne and Edgar Allan Poe to Henry James (see FOLKTALE; LITERATURE, POPULAR). Although some of the masterpieces of cinematic art—from the works of SERGEI EISENSTEIN to those of INGMAR BERGMAN—contain elements derived from the horror film, the most characteristic representatives of that genre lean more toward folktales and pulp fiction. It is an art form of the grotesque in which the terrible is in constant danger of being submerged by laughter, a danger that masters of black humor from James Whale to Roman Polanski have turned to their advantage.

The first classics of the horror film appeared in Germany just before and after World War I: *Der Golem* (1915) and *Der Student von Prag* (1913), both remade several times, and especially Robert Wiene's *Das Cabinet des Dr. Caligari* (1920). Wiene's film brings together structures, themes, and motifs that would henceforth be the staples of the genre—the confusion of waking and dream states, the tension of pursuit ending in a terrible revelation, hypnotists imposing their will, men and women forced into actions and situations the conscious mind denies but the unconscious may desire, strangers invading our personal space, sexual tensions leading up to the climactic moment in which a dark “monster” bends over or carries off a woman in white, and sinister shadows suggesting dark deeds. Other German films of the silent period add the doppelgänger, or double, a feature particularly suited to the trickery of the fantastic film; the golem, or monster of human creation; and the vampire, whose most famous silent avatar is portrayed by Max Schreck in F. W. Murnau's *Nosferatu* (1922; Figure 1). See MOTION PICTURES—SILENT ERA.

In the United States the developing genre was shaped and enriched by Lon Chaney, whose ability to combine grotesque physical deformity with pathos in such films as *The Hunchback of Notre Dame* (1923) and *The Phantom of the Opera* (1925) paved the way for the art of Boris Karloff. Some of the German masters of the uncanny (Paul Leni, Paul Wegener, Murnau) also found their way to HOLLYWOOD and helped to forge links between the silent horror film and its early successors in the sound era (see MOTION PICTURES—SOUND FILM). The era began in the early 1930s with the release of Carl Dreyer's *Vampyr* (1932) in Europe and Tod Browning's *Dracula* (1931) and James Whale's *Frankenstein* (1931) in the United States. U.S. films soon came to dominate the field. Although their themes—vampiric pos-



Figure 1. (Horror Film) Max Schreck as the vampire in *Nosferatu*, 1922. The Museum of Modern Art/ Film Stills Archive.

session, witchcraft or voodoo, the dangers of science, humans usurping the place of God—recalled those of their German, Danish, and French predecessors, the trend was now toward more realistic presentations. However stylized the horror films of Universal Studios may have become, they were far from the distortions of decor and gesture that films like *Das Cabinet des Dr. Caligari* and *Waxworks* (Leni, 1924) shared with German expressionist theater (see EXPRESSIONISM). *Frankenstein* and *Dracula*, soon joined by werewolves (*The Werewolf of London*, 1934; *The Wolf Man*, 1941), zombies (*White Zombie*, 1932), and new versions of *Dr. Jekyll and Mr. Hyde* (1932, 1941), spawned a host of sequels and imitations. Saturation caused their terrors to evaporate until they were played for laughs as horror figures encountered comedic characters like Abbott and Costello, the Dead End Kids, and Old Mother Riley. This left the field free for a team led by Val Lewton at RKO to experiment with films whose sometimes sensational titles belied their tendency to suggest rather than to show (*Cat People*, 1942; *I Walked with a Zombie*, 1943).

Until the end of World War II most horror films used black-and-white photography, although some early examples had been released on tinted stock and some works had experimented with color sequences. In the 1950s and 1960s, however, two new ventures broke away from the reticence the Val Lewton team had shown in the actual depiction of horror and made graphic use of the red of blood and the green of putrescence (see CINEMATOGRAPHY; SPECIAL EF-

FACTS). One of these was Hammer Films, a British company that began its color series with remakes of old Universal classics featuring *Dracula*, *Frankenstein*, and the *Mummy*. The other was U.S. director Roger Corman, who took his cue from such black-and-white classics as Edgar Ulmer's *The Black Cat* (1934) and Lew Landers's *The Raven* (1935), giving his films titles culled from the writings of Poe (e.g., *The Fall of the House of Usher*, 1960; *The Pit and the Pendulum*, 1962) while deviating further and further from Poe's texts. These films brought to the forefront a number of actors—Peter Cushing, Christopher Lee, and Vincent Price—who became as closely linked in the public imagination with horror films as Karloff and Bela Lugosi had been in the 1930s.

Sexual taboos were increasingly ignored in the 1960s and 1970s, especially in a series of vampire films derived from the works of Irish novelist Sheridan Le Fanu rather than Bram Stoker, and in such elegant exercises in European devilry as Mario Bava's *The Mask of the Demon* (1960), distantly based on the work of Russian writer Nikolay Gogol. Once again, familiarity bred laughter rather than fear. Corman turned to black humor, as in *The Raven* (1963), which brought together Karloff, Price, and Peter Lorre, while the cinema-going public was given stronger meat in a series of sadistic horror films beginning with *The Texas Chainsaw Massacre* (1974) and *Rabid* (1976). Significant innovations in the genre included George Romero's *Night of the Living Dead* (1968), a remarkable symbolization of middle-American anomie (Figure 2); Peter Bogdanovich's

Targets (1967), in which such anomie confronted the conventions and STARS of traditional horror movies; and exercises in modern Grand Guignol from Robert Aldrich's *Whatever Happened to Baby Jane?* (1961) to John Carpenter's *Halloween* (1978). Filmmakers in Japan, Mexico, and Spain made contributions to the genre; socialist filmmakers generally avoided it.

Trends in the history of the horror film have often been linked with social issues and concerns. For example, what some saw as a deep disturbance in family relationships was felt by some critics to be reflected in such films as *Rosemary's Baby* (1968), *The Exorcist* (1973), and *The Omen* (1976), which centered horror on demonically possessed children who turn against the adult world. Another trend may be seen in the confluence of SCIENCE FICTION and horror, epitomized in such films as *Godzilla* (1956), *The Invasion of the Body Snatchers* (1956), and *Alien* (1979). There has been much speculation linking the monsters portrayed in these films with the social and political fears of the time, but the connection of science fiction and the horror film itself has a long history dating from the earliest attempts to bring to the screen nineteenth-century novels like Mary Shelley's *Frankenstein* and Robert Louis Stevenson's *Dr. Jekyll and Mr. Hyde*. The horror film is an abiding genre whose further development seems assured by the human needs to which it answers.

See also MYSTERY AND DETECTIVE FICTION.

Bibliography. Lotte Eisner, *The Haunted Screen*, London, 1969; William K. Everson, *Classics of the Horror Film*, New York, 1974; idem, *More Classics of the Horror Film*, Secaucus, N.J., 1986; Siegfried Kracauer, *From Caligari*

to Hitler, Princeton, N.J., 1947; David Pirie, *The Vampire Cinema*, London, 1977; S. S. Prawer, *Caligari's Children: The Film as Tale of Terror*, New York, 1980.

SIEGBERT S. PRAWER

HOVLAND, CARL (1912–1961)

U.S. pioneer in communications research. During World War II Carl Iver Hovland, an experimental psychologist at Yale University whose work dealt with problems of conditioning and learning, was appointed chief psychologist and director of experimental studies for a research branch of the War Department. His assignment was to study the nature of morale in the army—specifically, to evaluate the effectiveness of a series of army orientation films entitled *Why We Fight*. The effect of communication on ATTITUDES was a relatively new field, and the army needed reliable guidance in dealing with its use.

After the war Hovland returned to Yale, where he became chair of psychology, Sterling Professor, and director of the new Yale program on communication and attitudes. It was a remarkable research program both because of its rigor and because of the extraordinary group of young psychologists and psychology students Hovland assembled. The new program used the detailed, practical findings of Hovland's army research to derive broad, theoretical conclusions. He insisted on tightly controlled experiments, testing a few variables at a time, varying one and holding the others constant. In this way he was able to illuminate, one by one, many of the questions that had puzzled students of communication.

The program addressed many long-standing ques-

Figure 2. (Horror Film) George Romero, *Night of the Living Dead*, 1968. The Museum of Modern Art/Film Stills Archive.



tions concerning the processes of PERSUASION. Is giving one side of an argument more effective than giving two? Is a direct approach more or less effective than an indirect one? Is a communicator who is perceived as trustworthy more effective than one who is not? What makes a communicator credible? Is it possible to "inoculate" audiences against undesired attitudes? How effective are fear appeals and emotional appeals? How does belonging to a group affect the kind of attitude change a person will accept?

Hovland and his group also studied the nature of persuasibility, addressing such topics as the advantage of a certain order of presentation and the effect of changing one component of a person's attitude on the whole pattern of his or her attitude. The matter of "cognitive consistency" was thus brought into focus (see COGNITIVE CONSISTENCY THEORIES). Hovland also worked out some remarkable computer simulations of thinking and made an impressive "communication analysis" of concept learning.

When the American Psychological Association gave Hovland its medal for distinguished scientific contributions, the award said, "His work has been of central importance in advancing attitude research from the early stage of merely demonstrating that changes can be produced to the point of being able to predict when and where they will occur. His work has provided a convincing demonstration of the values of a sustained and integrated program of research."

See also COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT.

Bibliography. Carl I. Hovland, Irving L. Janis, and Harold H. Kelley, *Communication and Persuasion*, New Haven, Conn., 1953; Carl I. Hovland, Arthur A. Lumsdaine, and Fred D. Sheffield, *Experiments on Mass Communication*, Princeton, N.J., 1949; Wilbur L. Schramm, *The Science of Human Communication*, New York, 1963.

WILBUR SCHRAMM

HUMAN-ANIMAL COMMUNICATION

The belief that animals have LANGUAGE and that people and animals can talk to each other is widely held among the world's cultures. The popular interest in the purported ability of primates to learn and conduct SIGN LANGUAGE with a grammatical context reflects a belief that communication with animals is both possible and somehow desirable.

In experimental work with animals words are used as conditional stimuli to produce an emotional state or response (whether the animal is responding to the word or to some other vocal quality such as intonation patterns is another question). Following the response will be a reward or punishment, which can also be a word or words. These uses of words are studied through conditioning techniques that exam-

ine the ability of the animal to discriminate among different signs and to learn and remember contingencies (rewards or punishments) associated with different verbal signs.

Outside the experimental setting people talk to their pets, and to work and farm animals as well. This talk is associated with behavior that is reinforced by the talk; for example, a person speaks to a dog, the dog wags its tail (as if in response to what the person has said), and the person then "replies" to the dog's behavioral response by speaking to it again. However, this informal discourse and accompanying behavior cannot be resolved into a defined series of signs and rewards or punishments. Instead it has to be examined as communication in which both person and animal are using species-specific behavior to maintain a rewarding interaction. How people talk to animals and sustain affectionate or playful interaction with them has been poorly described. The only reliable information consists of ethnographic accounts of human-animal interaction in nonindustrialized societies and recent research that focuses on interactions between urban residents and their pets. There is no reliable published information on how rural residents talk to farm animals.

Interaction with pets. In industrialized countries pet ownership varies greatly. For example, dog ownership ranges from 3.9 per 100 people in Japan to more than 15 per 100 in the United States, France, and Australia. Of subjects surveyed in these countries, almost all urban owners talk to their pets. Frequency of discourse has not been reliably studied, although subjects report spending as many as four hours a day in close interaction with their animals. The talk occurs during periods in which the owner is engaging in affectionate interchange, playing with, walking with, or working with the animal—shepherds, police dogs, and seeing-eye dogs, for example. It also occurs at other times when the owner seeks to establish a "human" dialogue. As it has been observed in public places using ethological techniques and in controlled laboratory conditions using experimental techniques, the dialogue has a form that sets it apart from discursive SPEECH between adults.

In affectionate interactions with pets, people talk to and touch their animals. The physical interaction takes the form of stroking, patting, holding, grooming, and directing attention by controlling the animal's head. The forms of these tactile interactions are not influenced by the presence or absence of human speech. When speech occurs it is distinctive. Voice volume is lowered, and pitch is raised. Phrases are short and are terminated with rising intonation. Pauses are inserted between phrases, or questions are framed, permitting the talk to assume the form of a dialogue. The person either waits for the animal's behavior to serve as a reply or answers for the



Figure 1. (*Human-Animal Communication*) A 114-year-old man on Shima Island in Japan. United Nations photo 148561/Bruno J. Zehnder.

animal. The style of the discourse changes when the affectionate behavior lapses into PLAY, and voice volume and rate of utterance increase and pitch changes become less pronounced. Similarly, when the animal exhibits unwanted behavior, the person will lapse into harsher, louder, and lower-registered voice sounds associated with verbal command or punishment.

The distinctive affectionate speech is also associated with typical facial expressions. Subjects exhibit more subtle smiling, less wrinkling of the eyebrows, and more relaxation of the eyelids when talking to their pets than when talking to relative strangers (the experimenters). The head is frequently tilted to one side. When subjects are seeking face-to-face interaction during a period of dialogue, the jaw is moved forward and the eyes are more completely closed. *See also* FACIAL EXPRESSION; INTERACTION, FACE-TO-FACE.

When other people are present, subjects will shift rapidly between talking to the person and talking to the animal, changing pitch and voice volume as well as style of discourse appropriately. *See also* CONVERSATION.

The verbal style used with animals resembles the dialogue style caregivers use with young infants. This verbal style probably enhances the value of the animal as an intimate companion because the human can use more of his or her repertoire of intimate and affectionate behavior with it.

Some have suggested that pets can evoke affectionate behavior from people who cannot interact affectionately with other humans. Pets have been used in

therapy with prisoners, inpatients and outpatients with mental disorders, and the institutionalized aged. However, there is only anecdotal evidence suggesting that contact with pets facilitates changes in behavior toward other humans.

Future research. There is now a renewed interest in RHETORIC and form of dialogue. The relationships between humans and animals permit the investigation of affectionate verbal behavior that has a stylized form. Moreover, the phenomenon is easy to study, as most subjects in the United States are relatively unselfconscious about interacting with animals under observation. Unfortunately, we have almost no well-recorded or well-documented studies of such interactions from other societies. *See also* COGNITION, ANIMAL.

Bibliography. Alan M. Beck and Aaron H. Katcher, *Between Pets and People: The Importance of Animal Companionship*, New York, 1983; Aaron H. Katcher and Alan M. Beck, eds., *New Perspectives on Our Lives with Companion Animals*, Philadelphia, 1983; Thomas A. Sebeok and Robert Rosenthal, *The Clever Hans Phenomenon: Communication with Horses, Whales, Apes, and People*, New York, 1981.

AARON H. KATCHER AND ALAN M. BECK

HUMOR

A significant amount of human communication is devoted to humor. Humor influences listeners' views and persuades them to accept or reject ideas; it gives

pleasure, creates playful moods and an atmosphere of conviviality, induces feelings of social solidarity, permits venting of aggression, and relieves tension. It is also used for criticism and ridicule. In short, it is one of the most powerful tools available to humans in their communicative endeavors. Yet its nature has been a mystery and a subject of fascination since antiquity, and efforts to analyze it have often foundered.

Historically there has always been a great interest in understanding the nature of humor. Scholars have investigated its antecedents, form, content, use, and consequences since ancient times. Literary critics have explored the nature of COMEDY, a dramatic form of humor with a long tradition.

During the twentieth century, humor has been subjected to rigorous empirical scrutiny by social scientists, especially by psychologists, who have conducted various kinds of experiments to determine its nature and role in human social interaction. Attention has also been focused on the evolutionary and developmental aspects of humor, with particular emphasis on the relationship between humor and PLAY and the emergence of the concept of a sense of humor.

Conceptualizations of Humor and Theoretical Perspectives

Since humor is basically a mental experience, it is difficult to pin down its exact nature. No single definition in the history of humor research has included all its essential attributes or has been acceptable to all scholars. Some researchers even refuse to define it.

Originally the term *humor* meant body fluid or moisture, and it was used in this sense in premodern physiology. It was believed that the four fluids in the human body—phlegm, blood, yellow bile, and black bile—determined a person's overall disposition. This linkage to disposition gradually led to the associated meaning of mood or state of mind in general, which finally led to the current primary usage of the term, namely, a mirthful state of mind caused by some events, ideas, or objects perceived as being comical, absurd, incongruent, ludicrous, and so forth.

The concept of humor overlaps many others such as fun, amusement, joking, wit, laughter, and play. These share some attributes of meaning with humor, but the denotational and connotational range of each is difficult to determine.

While no single definition of humor can cover its complex nature, there is a consensus in the scholarly literature that humor generally includes three phases: (1) some event in the external world acts as a trigger for a specific mental response; (2) a cognitive and intellectual process receives and evaluates the event, resulting in a mirthful state of mind; and (3) there is

an immediate overt behavioral reflection of the mirthful state—smiling or laughter. The nature of the triggering antecedents generates the most debate and controversy, but there is also disagreement over what psychological and physiological conditions cause smiling and laughter, what exactly these expressions reflect, and whether or not either is required to express a humorous state of mind.

Given the elusive nature of humor, it is not surprising that many theories have been proposed to explain it and the reasons for its occurrence. No single theory, however, has thoroughly explained the complex nature of humor. Existing humor theories reflect biological, physiological, sociocultural, linguistic, cognitive, literary, aesthetic, and philosophical perspectives, among others. Broadly speaking, three major approaches can be discerned, but many theories appear to be a combination of two or more.

Intellect-based theories. The premise common to these theories is that the human mind recognizes accidental or deliberately evoked incongruity, ambiguity, and/or oppositional dualism in external events and tries to resolve them by finding new relationships or by mediating among them. The success of such mental activity provides satisfaction and mirth. Implicit in the intellect-based theories is the premise that the logic in potentially humorous experiences is peculiar to them and contrasts with the logic underlying normal situations and messages, requiring creative and unusual ways of comprehending it.

Emotion-based theories. Theories in this category link humor to such preexisting feelings and emotions as hostility, aggression, disparagement, superiority, or malice toward others. These emotions then create a humorous state of mind when others suffer from various kinds of misfortunes, such as mental defects, physical deformity, suffering, and punishment. Many of these theories appear to be extensions of the theory of English philosopher Thomas Hobbes, who argued that laughter was nothing but "sudden glory" as the mind compares one's eminence with the follies and infirmities of others.

Theories of cathartic release and relief. According to these theories humor permits the release of pent-up energy or suppressed impulses, producing a mirthful state of mind. It is relief from the strain of excess energy or repressed impulses that leads to mirth. Humor and the resulting laughter lead to a psychological or physiological state of equilibrium. The most prominent exponent of the release-relief theory of humor was SIGMUND FREUD.

Humor in Communication

The relationship of humor to ongoing social interaction has fascinated scholars in many disciplines. Just as communication is a two-way process, so is humor. The act of communication requires a sender,

a receiver, a medium, and a message. So does humor, which can be on occasion both the medium and the message. Humor is overt when it is directed solely at creating mirth but is covert when it occurs as part of general social interaction, and it may include such motives and emotions as aggression, resentment, ridicule, solidarity, and criticism. Much depends on the social context, the predisposition or the mental state of the listener, and the ways in which a message is interpreted. Humor is generally a cooperative venture, not only in face-to-face communication but also across time and space. Since individuals differ in their perceptions of humor in both verbal and nonverbal events, humor may be intentional or unintentional either from the speaker's or from the listener's point of view.

Sociocultural Determinants of Humor

Sociocultural factors that influence the occurrence, form, content, and function of humor as a communicative act are the time, place, and nature of the social event; the participants and their respective backgrounds and roles; the topics involved in the interaction and the resulting verbal exchanges; and the participants' cultural values and expectations concerning appropriate behavior in a particular social situation. Some general observations can be made, however, regarding the influence of the abovementioned factors on the occurrence of humor.

Social situations range from small-group interactions to events in which most members of a community get involved. Social events can be public or private and can center around work, leisure activities, religious functions, political activities, feasts, SPORTS, and games, among others. The atmosphere at social events can be formal or informal.

Institutionalized humor generally is found in public social situations, although its occurrence depends on cultural norms about humor initiation and its appropriateness in different contexts. In general, types of institutionalized humor have relatively fixed topics, genres, and contexts, and audiences for them have definite expectations about what will take place. An example of institutionalized humor in the United States is the "roast," at which a famous person (often a politician) is subjected to ridicule and mockery by his or her friends and cohorts in front of a crowd of spectators. Institutionalized humor in mainstream U.S. culture is generally considered inappropriate in the context of religious ceremonies such as church services, weddings, and funerals; however, initiation ceremonies, funerals, and calendrical rituals celebrating seasonal changes have been used as public occasions for ritual clowning and humor development in many African, Asian, and American Indian societies. In many societies institutionalized humor involves group activities or PERFORMANCE by well-

established humorists; examples are pantomime, burlesque, impersonation, CARICATURE, parody, clowning, joke telling, and comedy.

Small-scale, private social gatherings are appropriate settings for individualistic, impromptu, or extemporaneous kinds of humor (teasing, joke telling, banter, repartee, punning, etc.). There is much leeway for creativity in this setting, as individuals are relaxed and the social occasion includes other activities such as CONVERSATION, eating (*see* FOOD), and drinking.

In certain social situations participants use humor to reduce boredom, tension, and other similar feelings. When a job is tedious, mechanical, or dangerous, for instance, individuals often establish joking relationships, play practical jokes, or engage in obscene banter, horseplay, and name calling (*see also* INSULT).

Factors such as the age and sex of participants affect the nature of humor in social situations. The form and content of humor in CHILDREN's social interaction, for example, is different from that in adult interaction. When children get together they often combine play and humor; many games become the source of humor initiation, such as riddling, verbal duels, tongue twisters, and practical jokes. At a certain age children are also very interested in scatological humor. They often engage in outrageously exaggerated imitations of adult activities and roles. Many of the types of humor mentioned here suggest children's concern with the acquisition and mastery of their language and of appropriate behaviors commensurate with different social roles (*see also* LANGUAGE ACQUISITION).

Cultural notions of politeness and decorum apply to many situations in which both men and women participate. Activities that involve members of only one sex, however, are often free from such constraints. For example, scatological and obscene humor is generally considered inappropriate in mixed-sex social situations. In men's interaction, however, such humor is quite common. In some preliterate societies men generally gather in the men's hut when they are not hunting, eating, or otherwise engaged. The relaxed atmosphere in these huts is conducive to Gossip, teasing, obscene joking, banter, and horseplay, much as one hears in clubs and bars in the West. In rural India a village well is commonly the site where women gather to fetch water or to wash clothes and in the process engage in teasing, gossiping, joking, banter, repartee, and so on.

In many societies women seem to be under greater constraints than men in their use or enjoyment of humor as part of social communication. In such societies notions of modesty and passivity associated with what is considered appropriate behavior for women may lead to their exclusion from public social events at which only men may engage in humor. As

women get beyond the reproductive age, however, these restrictions are often relaxed.

In situations involving competition, antagonism, alienation, and schism, humor is frequently used to convey group solidarity and to reinforce group identity. Humor developed for such purposes is disparaging because it ridicules members of groups other than one's own and portrays them as possessing negative attributes. Much ethnic humor is of this nature because it is based on pejorative stereotypes of members of other cultures. Another type of humor is in-group humor, based primarily on knowledge shared by members of a group, who could be persons in the same profession, the same work place, the same religious or political group, and so on.

Norms of appropriateness for humorous communications are not always explicit and may vary not only cross-culturally but also from individual to individual within a society. Institutionalized humor, however, thrives because a majority of the people in a society accept the norms surrounding its form, content, occurrence, and usage in certain social situations.

Genres of Humor

Works on LITERARY CRITICISM, POETICS, and LINGUISTICS generally include descriptions of humor genres. The existing typologies of humor use different classificatory criteria, such as form, technique, content, subject matter, intentionality, and performance, which often overlap. For instance, the category *ridicule* is based on the intentionality of the speaker, whereas the category *pun* is based on the technique of deliberate ambiguity. The genres of *joke* and RIDDLE are identified on the basis of both form and content, but a category such as *obscene humor* is based entirely on content. Some genres of humor seem restricted only to certain modalities—for instance, burlesque or vaudeville, which are based on the criterion of performance onstage or in a movie.

A major dichotomy among genres of humor is verbal versus nonverbal, although such genres as comedy combine both. Pantomime and practical jokes are examples of nonverbal humor, whereas language structure is the primary underpinning of such genres of verbal humor as pun, malapropism, and spoonerism. Tall tales are examples of humor based on breach of cultural norms or exaggerated actions.

A pun sets up an ambiguity in meaning because of a play on words. What is said can be understood literally or as having a more subtle INTERPRETATION. The speaker may intend the pun or may form it accidentally. In either case the onus of interpretation is on the listener, who may or may not choose to recognize the subtle meaning.

A malapropism involves the misuse of a word because of its confusion with a similar-sounding word.

Such a misuse results in an utterance that does not make sense and is comprehended only by the invocation of the appropriate word; for example, "Capital punishment is a detergent to crime." Malapropisms can occur in the initial stage of learning a foreign language because of inadequate knowledge of the vocabulary.

A spoonerism occurs when sounds in words or words in a sentence are transposed, resulting in an utterance different from that intended by the speaker. The result may make sense but be incongruent in the social situation in which it is produced (see SLIPS OF THE TONGUE).

Humor can be as pleasant as well as very effective form of communication in a variety of settings. In many situations direct communication is not possible, but communicating through humor is acceptable. Humor reflects the human mind's creative abilities and helps to ease the burdens of human sociocultural existence.

Bibliography. Mahadev L. Apte, *Humor and Laughter: An Anthropological Approach*, Ithaca, N.Y., 1985; Antony J. Chapman and Hugh C. Foot, eds., *It's a Funny Thing, Humour* (International Conference on Humour and Laughter, Cardiff, Wales, 1976), Oxford and New York, 1977; Evan Esar, *The Humor of Humor*, New York, 1952; Sigmund Freud, *Jokes and Their Relation to the Unconscious* (Der Witz und seine Beziehung zum Unbewussten, Vienna, 1905), trans. and ed. by James Strachey, New York, 1960; Paul McGhee, *Humor: Its Origin and Development*, San Francisco, 1979; Paul McGhee and Jeffrey H. Goldstein, eds., *Handbook of Humor Research*, New York, 1983; D. H. Monro, *Arguments of Laughter*, Melbourne, 1951; Elliott Oring, ed., *Humor and the Individual*, Los Angeles, 1984; Victor Raskin, *Semantic Mechanisms of Humor*, Boston, 1985; Christopher Wilson, *Jokes: Form, Content, Use and Function*, New York, 1979.

MAHADEV L. APTE

HYMAN, HERBERT H. (1918–1985)

U.S. sociologist and social psychologist who introduced theoretical and methodological innovations that have become part of the academic heritage of PUBLIC OPINION and communications research. Herbert H. Hyman is best known for his contributions to the study of reference groups, POLITICAL SOCIALIZATION, PUBLIC OPINION, survey research methods, and secondary analysis of sample surveys.

Born in New York City, Hyman graduated from Columbia College in 1939 and earned an M.A. (1940) and a Ph.D. (1942) in psychology from Columbia University. His doctoral dissertation, *The Psychology of Status* (1942), provides early examples of his conceptual innovation, namely, *reference groups* and *reference individuals*, terms Hyman coined to signify

the groups or individuals that people use for self-comparisons in assessing their own status. Subsequently the concept of reference groups (and to some extent, reference individuals) was further developed and refined and became widely accepted in social psychology and sociology. In the field of communications it has been applied to studies of mass communication producers and mass media audiences, for example.

After earning his Ph.D., Hyman held research positions with several government agencies engaged in applied survey research related to World War II. These early experiences provided a practical background for his later methodological contributions to both academic and applied survey research. After the war he became affiliated with the University of Chicago's National Opinion Research Center (NORC), working there with Paul B. Sheatsley and others on a full- or part-time basis from 1945 to 1957. His best-known publication in communications from this period is "Some Reasons Why Information Campaigns Fail," written with Sheatsley in 1947. This widely cited work was one of the first empirical studies of psychological barriers to mass communication information campaigns.

At NORC Hyman also directed a large-scale collaborative inquiry into the process of interviewing as a method of data collection. The report on this six-year series of studies on interviewer effects, *Interviewing in Social Research* (1954), became a methodological landmark in survey research.

In 1951 Hyman accepted an appointment to Columbia University's graduate department of sociology, joining such well-known sociologists as Edmund de S. Brunner, PAUL F. LAZARSFELD, Robert S. Lynd, and ROBERT K. MERTON. He also participated in Columbia's Bureau of Applied Social Research, becoming an associate director in 1957. At Columbia he wrote his influential treatise on the principles of survey research, *Survey Design and Analysis: Principles, Cases and Procedures* (1955), which soon became the standard work for graduate training in survey research methods and later served as an important reference work on the logic of survey analysis.

Hyman's monograph *Political Socialization: A Study of the Psychology of Political Behavior* (1959) introduced political socialization as a potentially fruitful area for social research. The term *political socialization*, another Hyman coinage, referred to those processes of political learning that are shared by most members of a group or society and that contribute to regularities, uniformities, and stability in political systems. Hyman explicitly addressed the role of the mass media in political socialization in a 1963 paper ON POLITICAL COMMUNICATION in developing societies. Consistent with his earlier view of socialization

as a social process, the focus was on the socializing influence of *patterns* of communication shared by members of a society, rather than on individualistic political learning. The concept of political socialization has since been broadened, and its study has developed into an academic specialty, particularly in political science and communications research.

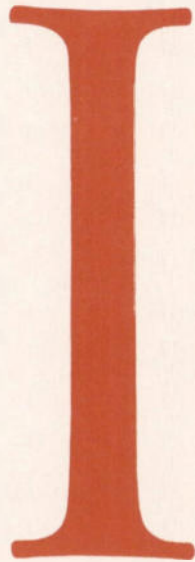
In 1969 Hyman left Columbia to join the sociology department at Wesleyan University, where he continued to explore the subjects of communications and socialization, moving beyond politics to consider, for example, the role of mass communications in affecting social sentiments. His best-known work during this period, however, is his methodological development and scholarly use of secondary analysis—the strategy of reanalyzing social sample survey data originally collected for one purpose in order to study another problem, such as the long-term impact of EDUCATION or the relations between communications behavior and social structure. Hyman's *Secondary Analysis of Sample Surveys* (1972) was the first book to codify the methodological principles of secondary analysis, a research method now widely used in social science.

Hyman completed three major secondary analyses of national sample survey data while at Wesleyan. *The Enduring Effects of Education* (1975) reexamined data from more than fifty U.S. national sample surveys to investigate the lifelong impact of schooling on people's knowledge and receptivity to new information from the mass media and other sources. *Education's Lasting Influence on Values* (1979) investigated the impact of schooling on a range of values held by nationwide samples of U.S. adults, including views on freedom of information and communication. The third study, *Of Time and Widowhood: Nationwide Studies of Enduring Effects* (1983), examined the long-term social and psychological consequences of widowhood.

Hyman staunchly advocated the application of survey research to studies of social problems and social change at home and abroad, especially in developing societies. He taught survey research methods and conducted applied social surveys in a variety of countries. Hyman died in the People's Republic of China on December 18, 1985, while participating in a conference on the uses of sociology.

Bibliography. Herbert H. Hyman, *Political Socialization*, New York, 1959, reprint 1969; idem, *Secondary Analysis of Sample Surveys: Principles, Procedures, and Potentialities*, New York, 1972, reprint 1986; idem, *Survey Design and Analysis*, New York, 1955, reprint 1960; Hubert J. O'Gorman, ed., "Herbert H. Hyman: His Life and Work," in *Surveying Social Life: Papers in Honor of Herbert H. Hyman*, Middletown, Conn., 1986.

CHARLES R. WRIGHT

A large, bold, red capital letter 'I' is positioned on the left side of the page. It has a classic, slightly flared top and bottom, and a uniform red color.

(*ἰ*), the ninth letter and third vowel of the Roman alphabet, going back through the Greek *iota* to the Semitic *yod*.

The simple form I of the character in Greek from about 500 B.C., and in the Roman alphabet, was reduced from a more complex Early Greek form Ϛ , which originated in the Phœnician 𐤏 In the Latin alphabet, . . . it was used with . . . values . . . of *i* vowel (long and short) and *y* consonant, as in *ibīdem*, *ibis*; *iacui*, *Iupiter*, *Iouis*.

ICONOGRAPHY

Branch of the history and study of the VISUAL IMAGE that, according to its classic formulation by U.S. art historian Erwin Panofsky in 1939, “concerns itself with the subject-matter or meaning of works of art, as opposed to their form.” So understood, iconography implies an approach to ART objects, and especially those of the western European tradition, in which specific, intended meanings can be identified to some extent independently of the form or style of their expression. Simply to describe the subject of a work of art by naming what is shown in it—the martyrdom of a saint, a particular episode in history or myth, the representation of the ancestors of Christ in the form of the Tree of Jesse—is iconography in a limiting sense only. To go further is to enter into the play of symbolic meanings and how they have been understood, which is commonly termed *iconology* for distinction’s sake. Typical topics of investigation would then be the role of light as a symbol of divine grace in the paintings of Jan van Eyck (Figure 1) or the different emblematic images and subjects used throughout history to underscore the theme of death (*see* ART, FUNERARY).

The distinction here corresponds to the semiological distinction between icon and symbol (*see* SEMIOTICS). While icons are related to what they represent by virtue of some denotational quality of resemblance, symbols are related to what they signify in an arbitrary sense only, by virtue of the connotations with which they are invested. And if the topic of study embracing both of these processes is taken to be the systems of visual signification prevailing in a particular CULTURE and period (rather than the contributions of individual artists), then its pursuit can be extended to non-Western traditions, such as the representation of Buddha in East Asian art (Figure 2).

As an account of the workings of SYMBOLISM, however, this definition needs to be extended. Critical objections are that it leaves out the relationships of analogy and substitution that enable artists to deal in symbolic objects of a made-up kind (as in Hieronymus Bosch’s *Garden of Earthly Delights*), to suggest resemblances between things (fire screen and halo, nose or mouth and sex organ), or simply to introduce patterns of GESTURE or behavior that are understood as saying something in themselves (the swearing of an oath, the manner in which Judas betrays Christ with a kiss). It also schematizes artificially the processes of apprehension. Today semiology and cognitive psychology deal in their separate ways with the bases on which one arrives at a grasp of MEANING that entails the recall of earlier images, built-in references of a special or condensed kind, and a layering of implications. Recognition and identification of a direct kind, as in a child’s response to the appearance

of a horse, may well serve as a preliminary step toward that apprehension, but it cannot be that they are the precondition of it in any universal sense applying to all media. The delimitation of the iconographic branch of study must therefore arbitrarily seek to separate content from formal organization and presentation for the purposes of analysis in a way that would hardly be possible if the cultural ARTIFACT being considered were a textile, an illuminated manuscript page, or a carved stone.

When *iconography* was first introduced into critical terminology in the nineteenth century, it connoted



Figure 1. (*Iconography*) Jan van Eyck, *Madonna in a Church*, ca. 1426. Light coming through the church windows and infusing the interior is used to convey the Virgin Mary’s role as instrument of the divine purpose and vessel of grace. Gemäldegalerie, Staatliche Museen Berlin-Dahlem. © Bildarchiv Preussischer Kulturbesitz, Berlin (West). Photograph by Jörg P. Anders.



Figure 2. (*Iconography*) Śākyamuni Buddha, Wei dynasty, China, 477 c.e. The Metropolitan Museum of Art, New York, Kennedy Fund, 1926. (26.123)

a classificatory process of study that was typologically oriented in scope (*see* CLASSIFICATION). Such a usage survives today in one area, the study of face masks in PORTRAITURE, which represent distinctive versions of a basic physiognomic structure from which further or secondary images are then seen to derive. Examples of motifs in art that are simply classifiable, like church-screen decorations, include subjects, such as the Annunciation, that are depicted in a schematized form; the emblems of saints or emperors; and heraldic devices (*see* HERALDRY). The fact that stan-

dard elements or features are shown in these cases in a changing fashion means that particular instances can be compared and contrasted, according to type, with earlier representations. An extension of the same principle allows for the study of how everyday themes and genres are represented, as in Dutch art of the seventeenth century (Figure 3), and how they are transformed over time. The idea of a series entailed here applies also to artists' self-portraits and to group portraits such as those of company or family members. These examples lead in an obvious way toward psychological or content forms of explanation to account for change and development in a particular artist. New stimuli from outside or new internal sources of inspiration provide the bases for such explanation.

Iconology has been distinguished from iconography in the twentieth century on the ground that it consists of iconography turned interpretative so that it goes deeper into intrinsic meanings or content. German art historian Aby Warburg, in reviving the term in 1912, explained it as the study and INTERPRETATION of historical processes through visual images, and it has been increasingly recognized that such a reading of visual evidence from the past makes



Figure 3. (*Iconography*) Jan Vermeer, *A Girl Asleep*, 1650s. The painting on the wall, the objects in the still life, the mirror, and even the pose of the girl are all details open to interpretation in emblematic terms, although their primary role is to set the scene. The Metropolitan Museum of Art, New York, bequest of Benjamin Altman, 1913. (14.40.611)



Figure 4. (*Iconography*) Sandro Botticelli, *The Calumny of Apelles*, ca. 1498. Uffizi, Florence. The allegorical content reflects the intellectual influence of the Medici court and its humanist scholars. Alinari/Art Resource, New York.

for a relationship to IDEOLOGY as embodied in the conventions, beliefs, or assumptions of a society. The standard art-historical practice of iconography has tended to trace these connections through texts, a method suited to works of art that were addressed in the first instance to learned humanists, men and women of the church, or members of a court or privileged circle. The work then counts as evidence of a program, its presumed aim being to communicate in equivalent visual form values read into those texts, or spiritual and intellectual significances found in them (Figure 4), which may be so general that they are independent of period.

But a relationship to ideology can equally be found in gestures, costume (*see CLOTHING*), ornament, or building types (*see ARCHITECTURE*). The visual stimuli or cues that the eye receives here are not simply the expressive accompaniment to a preconstituted message or embellishments in its rendition (as with an actor going through a familiar speech); they are its communicative vehicles. Structuralists recognizing this (CLAUDE LÉVI-STRAUSS, ROLAND BARTHES) have widened the terms of discussion accordingly to in-

clude such purely physical features as the contributions of texture and color, relationships of shape, and formal contiguities, as well as overall qualities such as atmosphere and mood (*see STRUCTURALISM*). The parallel that this implies to forms of THEATER or SPECTACLE leads to the idea of a broad-based form of cultural study focusing on particular performances (*see PERFORMANCE*). Topics such as court masques or the decorations for triumphal entries, Jacques-Louis David's enactment of a shared spirit of purpose in his Oath subjects, and Francisco de Goya's responses to the loss of liberty in Spain show how this way of thinking about art in its socially mediated aspects proves true to what Warburg later in life conceived of as the study of "expressive human communication and the transformation of its language."

We move here, in fact, to what is sometimes called *imagery*—namely, subject matter and its presentation in visual form. Traditionally this term referred to or included in its scope popular art forms, in which the relation of image to text is different from that previously described: more complementary, as in the case of printed images of MARTIN LUTHER from the

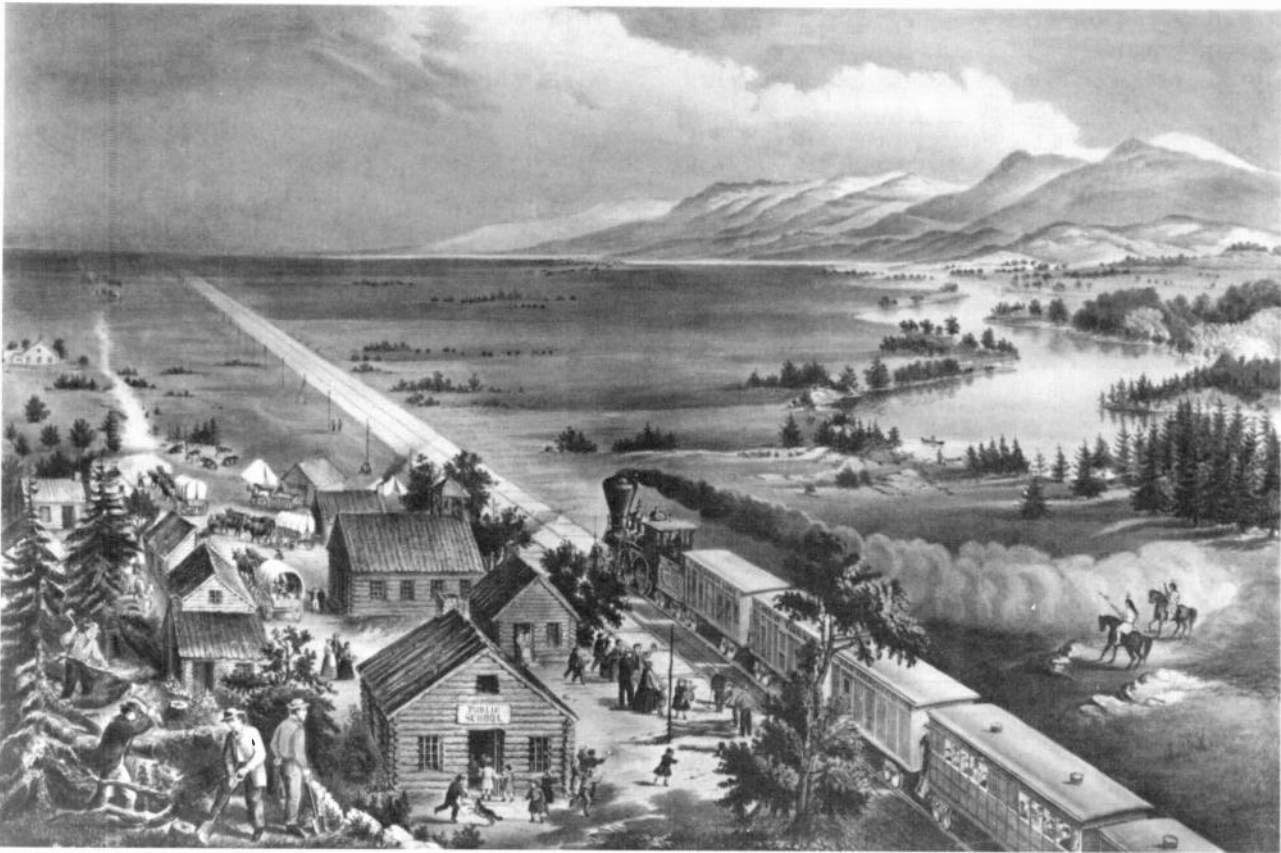


Figure 6. (*Iconography*) Currier and Ives, *Across the Continent*. "Westward the Course of Empire Takes Its Way," 1860. The Harry T. Peters Collection, Museum of the City of New York.

Alternatively there is a narrower, contextual version of iconography that focuses on such factors as the circumstances of patronage, the physical context of a work's display, or the functional adaptations that the work undergoes. The religious, social, and political dimensions seen in this way as entering into the creation and apprehension of visual imagery are conducive to what may be thought of as a "reconstruction of intentions." But reconstruction need not be taken here as implying a finite set of ideas and purposes, as in the classic definition of iconography. Rather, different meanings to different audiences or in different periods form part of the identity that is studied. The work of art represents a special kind of cultural object, physically unchanging for the most part and persisting as a constant through differing approaches to its character. The attempt to recover the work's identity must necessarily remain speculative, however systematic methods of re-creative description and hermeneutic linkage to external data (such as BIOGRAPHY) may have become. Since the early modern period the fact that the visual image has become generally more private in character opens up the possibility of personal and psychoanalytic

readings of the artist's mental and physical processes (*see* PSYCHOANALYSIS). These are often distinct from readings that the *artist* would formulate or endorse. But it is still possible within the scope of iconography to chart on more than one front the artistic response to such a development as the cold war or to consider to what extent at a given time different modes of expression such as POETRY and painting parallel one another (*see* MODE).

Bibliography. Ernst H. Gombrich, *Symbolic Images*, 2d ed., Oxford, 1978; Robert Klein, *Form and Meaning: Essays on Renaissance and Modern Art* (La forme et l'intelligible), trans. by Madeline Jay and Leon Wieseltier, New York, 1979; Erwin Panofsky, *Meaning in the Visual Arts*, Garden City, N.Y., 1955, reprint Chicago, 1982; Mark Roskill, *What Is Art History?* London and New York, 1976.

MARK W. ROSKILL

IDEOLOGY

Patterns of ideas, belief systems, or interpretive schemes found in a society or among specific social groups. ✓

Traditionally those who study ideologies want to know, among other things, how ideologies arise and how they are disseminated and transformed. They want to know how to identify and analyze ideological structures and whether they necessarily distort, falsify, or bias our thinking. They are interested in the nature of ideas: Are ideas determined by their material or social basis, or are they autonomous? Do ideologies correspond to class, GENDER, or ethnic identities? Some have studied the functions of ideology and have speculated about its role in shaping consciousness, legitimating a particular set of power relations, or producing consent to a specific type of social order.

Since its inception MASS COMMUNICATIONS RESEARCH has been concerned with how the meanings and messages of the media influence social thought (or, more accurately, how media content influences individual behavior, perhaps by influencing opinions, ATTITUDES, or values). In this general sense mainstream media research can be said to have always implicitly addressed ideological questions. However, the explicit analysis of ideology as such has been absent for much of its history, especially in the more behavioristic, empirically oriented types of research that have dominated the field. This absence has been paralleled in sociological theory in the United States more generally. The concept of ideology has had more consistent treatment in European social theory, and in recent years ideological questions have once again come to play a more central role in both U.S. and European media studies, especially among practitioners employing a "critical" approach. Any account of the role of ideology in media research must therefore try to explain this uneven visibility of the concept itself as well as the significant contrasts between U.S. and European emphases.

The critique of RELIGION and of superstitious or prescientific ideas was integral to the rise of rational and scientific thought in the West. Niccolò Machiavelli (1469–1527) argued that the way people understand things depends on their "appetites . . . interests . . . standpoints"; he connected their ideas with the use of force and fraud to secure and maintain power. In his *Novum Organum* (1620) Francis Bacon defined positive science as a critique of the "ideas of the tribe." These emphases on the unmasking of false or distorted thinking and on the links among ideas, interests, and power are sustained in varying ways by such thinkers as Thomas Hobbes (1588–1679), Claude-Adrien Helvétius (1715–1771), Paul-Henri-Dietrich d'Holbach (1723–1789), and others into the Age of Enlightenment. During the French Revolution Antoine-Louis-Claude Destutt de Tracy (1754–1836) first coined the term *ideology* to mean the "science of ideas."

Certain critical formulations concerning the social

determination, class origins, and illusory character of ideology first appeared as part of the elaboration of historical materialism by KARL MARX (1818–1883). Marx used the term *ideology* negatively, to characterize the influence of idealism in German philosophy (e.g., G. W. F. Hegel, 1770–1831) and as an aspect of the critique of religion (e.g., Ludwig Feuerbach, 1804–1872). Marx and Friedrich Engels set out deliberately to invert idealism. Material processes and socioeconomic relations, they argued, form the "bases" and ideas only the "superstructure" of society: "It is not the consciousness of men that determines their being, but . . . social being that determines consciousness." In his subsequent critique of bourgeois society Marx linked ideas to class position and class interests. Political economy is the commonsense ideology of the capitalist. Ideology therefore legitimates capitalist exploitation. Ruling classes maintain their position through their MONOPOLY over the cultural institutions that produce "ruling ideology." Subordinate classes, whose ideas do not reflect their "true" class interests, have been deceived into "false consciousness."

Later developments of the Marxist conception of ideology can be found, for example, in works by V. I. Lenin; in the work of György Lukács (1885–1971), who analyzed how the "world visions" of different classes are expressed in literature; and in the much-expanded and antireductionist conception of ideology and CULTURE that underpins ANTONIO GRAMSCI'S (1891–1937) theory of "hegemony" (i.e., how a dominant social bloc wins social, moral, and intellectual "leadership" and authority over a whole society). Elsewhere, in the (non-Marxist) German "sociology of knowledge" tradition, theorists like Wilhelm Dilthey (1833–1911) and Karl Mannheim (1893–1947) analyzed different "world outlooks" (*Weltanschauungen*) as expressed in philosophy, ART, and social thought. MAX WEBER'S *The Protestant Ethic and the Spirit of Capitalism*, which examined the role of Puritan ideas in the rise of capitalism, was a founding text of modern sociology. In France the positivist social theorist Auguste Comte (1798–1857) divided the progress of rational enlightenment into an ascending sequence of "thought stages." Another founding father of sociology, ÉMILE DURKHEIM (1858–1917), studied the social basis of the ideas and religions ("collective representations") of different groups and the normative function of these ideas in organizing social behavior, as well as the classificatory systems found in primitive societies.

In the 1920s and 1930s THEODOR ADORNO, Max Horkheimer, Herbert Marcuse, and others belonging to what became known as the Frankfurt school (which was much influenced by Hegel, Marx, and SIGMUND FREUD) began to theorize about the manipulative role of ideology and the mass media (the "cultural

industries") as key factors in the tendency of modern mass societies to collapse into authoritarianism. Members of the school emigrated from Nazi Germany to the United States, where their theses provided the first critical theories of ideology that the emerging science of mass communications felt obliged to test, confirm, or reject.

The first major phase of mass communications research in the 1940s was shaped by the attempt to test these hypotheses empirically in a U.S. setting. Some of the studies done during this period dealt with the influence of the media on electoral choice (e.g., *The People's Choice*, by PAUL F. LAZARFELD, Bernard Berelson, and Hazel Gaudet, 1948), the creation of "fantasy worlds" (e.g., studies of HOLLYWOOD and of the daytime radio SERIAL, reported in *Communications Research 1948-1949*, edited by Lazarsfeld and Frank Stanton), and the shaping of PUBLIC OPINION. The communications researchers concluded that the media's impact on values, attitudes, and beliefs tended to be consensual. Media influence was a more mediated process—less powerful and direct in shaping attitudes, when examined empirically—than had been hypothesized. Thus the Frankfurt school's critique of the manipulative role of the mass media was rejected as being too elitist, too pessimistic, too speculative, and overly ideological.

This early work on the mass media gave U.S. communications research its distinctive stamp for three decades. During this period ideology was diffused into the looser concept of "values," redefined in terms of individual attitudes, or reduced to immediate behavioral effects. It lost its theoretical advantage and historical specificity and for some time effectively disappeared as an issue in its own right. For example, in an influential paper on "The Structure and Function of Communication in Society" (1948) HAROLD D. LASSWELL, analyzing media content in terms of its effects on values, listed power, wealth, respect, well-being, and enlightenment as the key values, adding that "with this list . . . we can describe . . . the social structure of most of the world."

ROBERT K. MERTON has accurately traced the transition that occurred in this period from a European-style sociology of knowledge, with its emphasis on "systematic ideological analysis," to U.S.-style empirical mass communications research. In *Social Theory and Social Structure* (1949) he said: "The American variant . . . studies the isolated fragments of information . . . the European variant . . . thinks about a total structure of knowledge (systems of doctrine)." Parallel with this shift, critical modes of inquiry were replaced by a more rigorously empirical methodology based on survey, questionnaire, and audience research data and quantitative CONTENT ANALYSIS. Par-

adoxically the pioneer of the new empirical methodologies—Lazarsfeld—had himself been loosely associated with the Frankfurt school. In influential works summarizing these trends (e.g., *Personal Influence*, by Elihu Katz and Lazarsfeld, 1955; *The Effects of Mass Communication*, by Joseph T. Klapper, 1960) the concept of ideology played no significant role.

The most notable—but partial—exception to this trend was the mass communication and public-opinion-conducted research within political science. Here a concept of ideology (meaning rigid, well-formulated but "biased" systems of political belief) remained, alongside an interest in PROPAGANDA and PERSUASION and what earlier (1927) had been described as "the management of collective attitudes by the manipulation of significant symbols." However, by the 1960s political scientists like Seymour Martin Lipset and sociologists like Daniel Bell had declared "the end of ideology" in the Western liberal democracies, and the term ideology was reserved largely for the analysis and decoding of political propaganda in the context of the cold war. Quantitative content analysis procedures became considerably sophisticated in this period. In general Lasswell observed (in 1964) that "political scientists are increasingly aware of the strategic significance for arenas of power of the control of communication."

The virtual silence on the topic of ideology in mainstream communications research was broken by two developments, one internal and one external. Interactionist sociological models (in U.S. social science research in the 1960s), with their focus on microsocial interactions and the power of the media to "define situations" and to label groups and individuals as deviant (as well as by their commitment to more qualitative methodologies), began to challenge the dominant positivistic or behavioral perspectives in media research. More generally the social and political unrest in the United States in the late 1960s and early 1970s, which increased ideological polarization, brought the consensus model of American pluralism into question. The turmoil drew attention once more to the role played by the media in interpreting situations of conflict and in the exercise of symbolic or interpretive "power" as a form of social and ideological control. With the reintroduction of these questions of power, legitimation, and social control, the paradigm of ideology once more appeared in U.S. communications theory and research, alongside more mainstream approaches.

Simultaneously in Europe in the 1970s new theoretical developments in LINGUISTICS (especially in France) and in cultural studies (especially in Britain) revived the study of ideology in the humanities and social sciences and at the same time transformed many of its earlier emphases. Ideologies now were conceptualized less as discrete messages with a de-

terminated content and more on the model of LANGUAGE itself. Ideologies were the underlying interpretive frameworks that generated meanings through the operation of different codes or sign systems (see CODE; MEANING; SIGN SYSTEM). Thus, for example, CLAUDE LÉVI-STRAUSS and ROLAND BARTHES, influenced by the structural linguistics of FERDINAND DE SAUSSURE (1857–1913) and the Prague school, developed a semiotic approach to the analysis of myths and other ideological phenomena (see SEMIOTICS; STRUCTURALISM). Ideologies were understood to be organized within distinct discursive chains or forms of narration. They did not reflect one preestablished meaning, already fixed in the activity or event in the real world, that the media merely reported to the audience (the notion of “content” embodied in traditional content analysis). Instead, depending on which ideological framework was being used, different, often conflicting or contradictory, meanings (interpretations) could be produced, using the practices of signification (signification). Cultural studies analyzed media content in terms of the ideological codes used by producers to encode a specific meaning and effects in terms of the codes that audiences used to decode. It redefined culture in terms of the inventory of interpretive frameworks or systems of representation distributed within any one society (see INTERPRETATION). Both approaches redefined media influence as operating symbolically rather than in a directly behavioral fashion (i.e., mediated by language, signs, symbols, ideas) and treated texts not as the transparent bearers of meaning and influence but as arenas in which meaning was socially and symbolically constituted and contested.

These theoretical approaches restored the theoretical centrality of ideology to the analysis of cultural and communicative forms and gave greater autonomy to ideology than it had been accorded in traditional (e.g., Marxist) formulations. The new approaches mounted an extensive critique of the tendency toward class and economic reductionism in classical Marxist theories of ideology. Using semiotic and structuralist approaches, Barthes analyzed mass media and popular cultural forms as modern myths or “fragments of ideology” (mythologies). Louis Althusser retained a classic Marxist interest in how ideology reproduces the social relations of domination and in the media as “ideological apparatuses” but described ideology, according to the semiotic or discursive model, as consisting of “concepts, symbols, images . . . systems of representation.” MICHEL FOUCAULT, who took discursive analysis furthest (dropping the term ideology altogether), nevertheless restored the classical stress on the indissoluble link between power and knowledge—the way ideological discourse both constructs what we know about the world and validates its own truth claims (“regimes

of truth”). Influenced by the same linguistic trends and by feminism, psychoanalytically informed critical theories began to study how individuals are constructed as subjects of—and for—ideology and how they are set into positions of knowledge or recognition in relation to dominant ideological discourses (e.g., the influence of Jacques Lacan’s rereading of Freud on film, television, and GENRE theory and criticism). See also PSYCHOANALYSIS.

The political upheavals of the 1960s and the theoretical developments of the 1970s thus provoked a rupture in the models of society, influence, and effects around which mainstream empirical mass communications theory and research had consolidated (both in the United States and elsewhere). This prompted a renewed interest in (1) the influence on audience behavior, attitudes, and belief in the “pictures of the world” that the media circulate; (2) the question of which representations, whose interpretations or definitions of the situation prevailed, and thus the links among the media, power, and social conflict; and (3) the role of media-circulated images and ideas in legitimation, securing consent to social order, and the exercise of social and symbolic control by powerful or dominant groups over subordinate, marginal, or so-called deviant social groups. This opened the door to a renewed concern with ideology within media research.

In the 1970s the impact of these new, more ideologically oriented paradigms of theory and research can be seen in, for example, (1) large-scale, “mainstream” studies like *Violence and the Media: A Staff Report to the National Commission on the Causes and Prevention of Violence* (U.S., 1969) and the Surgeon General’s Scientific Advisory Committee on Television and Social Behavior, *Television and Growing Up: The Impact of Televised Violence* (U.S., 1972); (2) a broader, more symbolically oriented or culturally informed approach among senior communications research specialists (e.g., U.S. scholar George Gerbner’s work on CULTURAL INDICATORS, 1970); or (3) the numerous studies of news (see TELEVISION NEWS), entertainment shows, soap operas (see SOAP OPERA), and domestic serials and the representations of different groups (class, ethnic, gender) or issues (Palestine, the Third World, TERRORISM) that began to appear in the expanded media studies field. These were all characterized in their different ways by more systematic attention to the underlying ideological structures of media discourse.

In the 1980s the continuing development of semiotic, structuralist, psychoanalytic, and poststructuralist theories has provided more sophisticated critical models for the analysis of mass media texts and institutions, which are seen as having their primary societal effect symbolically—that is, in the realm of ideas through the production and transformation of meaning—thereby strengthening the emphasis on their

ideological character. Other critical approaches, influenced by a return to a "political economy of the media," deal with questions of ideology through economic and institutional analysis of media ownership and control and through the use of such concepts as *international flow* and *cultural imperialism*. Together these have constituted the basis for more critical approaches in mass communications theory and research, both in the United States and elsewhere, and in a grounding of the field in the wider framework of cultural studies, as an alternative to the more empirical and behavioral emphases of mainstream theory and research.

See also COMMUNICATIONS, STUDY OF; COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT; MARXIST THEORIES OF COMMUNICATION; MASS MEDIA EFFECTS.

STUART HALL

INDUS SCRIPT

Script used in the Indus Valley around 2600–1800 B.C.E. It is little understood, but it is important for the history of communication as one of the oldest systems of WRITING, created by a great urban civilization that had well-established contacts with the ancient Near East.

Historical background. A stone seal with the image of a unicorn bull and a text in an unknown script was published in 1875 in an archaeological report about the ruin mounds at Harappa in the northern Indus valley. In the 1920s large-scale excavations were undertaken at the site and at Mohenjo-Daro, six hundred kilometers to the south on the Indus River. The urban civilization discovered there had been completely unknown. It is not even mentioned in the earliest historical records of India—the hymns of the *Rig Veda*—which are believed to date from the last quarter of the second millennium B.C.E.

Later archaeological research has located about one thousand Harappan settlements over a large area that extends from Shortugai in Afghanistan to Daimabad near Bombay, and from Sutkagen-dor near the Iranian border of Pakistan to Alamgirpur near Delhi (see Figure 1). The Indus civilization, which developed from Early Harappan Neolithic cultures that are several millennia older, flourished around 2600–1800 B.C.E.

The Indus script apparently came into being around the beginning of this period, or even earlier. It is thus older than the oldest known purely syllabic script (linear Elamite), which dates from around 2350 B.C.E., and the oldest alphabetic script, which dates from about 1600 B.C.E. Its appearance at such an early date suggests that the Indus script represents the earliest type of real writing, the logosyllabic (or morphemographic) script, in which each sign stands

for a word or a morpheme of one or more syllables.

Many artifacts—including seals bearing Indus script—found in contemporary strata in Mesopotamia and the Persian Gulf attest to the existence of well-established trade and communication links between the Indus civilization and the Near East (see ARTIFACT). From the Old Akkadian period (2350–2150 B.C.E.) onward these contacts were probably carried mainly over the sea route. Many scholars contend that the realm of the Indus civilization was in fact the country of Melukha mentioned in the CUNEIFORM texts of the twenty-fourth to nineteenth centuries B.C.E.

Evolution and texts. The Indus script is a distinctive writing system. It cannot readily be related to any other known script. The "potter's/owner's marks" on the ceramics of Early Harappan Neolithic cultures (at Damb Sadaat, Amri, and Rahman Dheri) may represent a forerunner which, in combination with influences from the West, developed into actual writing. It is also possible, because the art of the nearby and contemporaneous Proto-Elamite culture (ca. 3100–2900 B.C.E.) had a strong influence on Harappan carvings, that the vaguely similar Proto-Elamite script was a model for the Indus script.

Fully developed Indus script first appears in the miniature tablets that are characteristic of the early levels of Harappa, tentatively dated about 2600 B.C.E. Some of the signs differ slightly from the later forms. Also, the direction of writing varies, unlike later examples in which the writing runs almost invariably from right to left.

The great majority of the preserved Indus texts are on stamp seals made of steatite. Some seals are rectangular and contain text only, but most are square with a pictorial motif—usually a naturalistic animal figure—on the lower part. Occasionally, there are scenes with humanlike deities which give some insights into the Harappan religion. Ancient seal impressions on clay were used for sealing merchandise; packing materials have left their traces on the reverse of these clay labels (see Figure 2).

Other principal sources of text include molded tablets of terra-cotta or faience that may have been used as amulets, graffiti on pottery fragments, ivory sticks of unknown use, and inscriptions on axes and other items. Financial records—perhaps written on palm leaves as they were later in India—probably existed, but they have perished.

In late Harappan times seals with nothing but geometric patterns—like the swastika—became common. After the collapse of the urban civilization in the Indus valley, the Indus script gradually fell into disuse. The latest example is from Daimabad, dating from about 1600 B.C.E. The oldest known script of India, the Brahmi (attested ca. 250 B.C.E.), is not descended from the Indus script but from the Semitic consonantal ALPHABET.



Figure 1. (*Indus Script*) Ancient sites in the Indus Valley.



Figure 2. (*Indus Script*) Seal impressions, Mohenjo-Daro, ca. 2600 B.C.E. National Museum, New Delhi.

Obstacles to decipherment. Ancient scripts of unknown languages usually have been deciphered by comparing them with existing translations and/or by identifying the proper names of gods or kings that are known from other sources. However, there are no bilingual texts, that is, texts that provide two versions—one in Indus script and one written in a known script. And since nothing is known from external sources about the political history of the Indus civilization, no names of gods or kings, let alone of ordinary people, are available to help in the task of decipherment. Moreover, the texts are limited in scope. There are altogether about thirty-five hundred texts, but all are extremely short, comprising five signs on the average. The longest text has twenty-six signs on three sides; the longest single side has seventeen signs divided among three lines. In addition, the nature of the underlying language is completely unknown. For all these reasons the Indus script is very hard to decipher; some scholars consider it an impossible task unless bilingual texts are found.

Tools for decipherment. Techniques that can assist the task of decipherment—once the type of writing has been established—include the rebus principle and the contextual use of the signs. If Indus script was in fact logosyllabic, it must also have employed the rebus principle, as did the other logosyllabic scripts such as Sumerian and Egyptian. According to the rebus principle, each sign symbolized not only the object it represented pictorially but also linguistic units that were phonetically similar to the word naming the depicted object. Because this principle is dependent on phonetic values—which are, of course, language-specific—the use of the rebus principle may make it possible to identify the language underlying the script and, therefore, to decipher individual signs. Four conditions are necessary for this method to succeed: (1) the object depicted by a given pictogram (pictorial sign) must be recognizable, (2) this pictogram must also have been used phonetically, that is, in a meaning different from the pictorial meaning,

(3) the intended (phonetic) reading must make sense in context, and (4) linguistically satisfactory homonyms (phonetically similar words with different meanings) are found in a likely language.

Unfortunately, very few signs are pictorially clear. The great majority are so simplified and stylized that their pictorial meaning is likely to remain a permanent enigma. However, the fact that most of the Indus texts are seals and that some of them have been found in the Near East gives a valuable clue to their contents. The inscriptions engraved on Indus seals can be assumed to be largely parallel to Mesopotamian seal inscriptions, which have been deciphered. The latter consist mainly of proper names and official titles, with or without attributes and dedicatory formulas. Consistent with the Mesopotamian seals, and also based on later Indian studies of proper and place names, it is probable that names of gods and priestly titles occurred on the Indus seals in large numbers.

Underlying language. The language underlying the Indus script is uniform throughout the area and the duration of the Indus civilization. This is shown by the sign sequences, which remain uniform throughout this period. By contrast, several Indus seals found in the Near East, especially those with a form resembling the local seal form (cylindrical or round), have totally different sign sequences; they may record Sumerian or Semitic names of acculturated Indus merchants.

It is not certain what language group is the most direct successor to the language of the Indus civilization. One possibility is Indo-European, particularly Indo-Aryan. However, this is not supported by some of the cultural evidence, such as the absence of horses among the animals depicted on the Indus seals and attested by bone remains. Studies in historical LINGUISTICS suggest that Dravidian (still spoken in Baluchistan and Afghanistan) is the most likely successor to the underlying language of the Indus script.

See also CLAY TOKENS; WRITING MATERIALS.

Bibliography. Kimmo Koskenniemi and Asko Parpola, *Corpus of Texts in the Indus Script, Documentation and Duplicates of the Texts in the Indus Script, A Concordance to the Texts in the Indus Script*, Department of Asian and African Studies Research Reports, nos. 1–3, Helsinki, 1979–1982; Iravatham Mahadevan, *The Indus Script: Texts Concordance and Tables*, New Delhi, 1977; Asko Parpola, "The Indus Script—A Challenging Puzzle," *World Archaeology* 17 (1986): 399–419; idem, "Tasks, Methods, and Results in the Study of the Indus Script," *Journal of the Royal Asiatic Society* (1975): 178–209.

ASKO PARPOLA

INFORMATION SCIENCE. See LIBRARY.

INFORMATION THEORY

A calculus capable of accounting for variation and information flow within systems regardless of whether they are biological, social, or technical. Information theory is characterized by a few axioms from which many measuring functions, accounting equations, theorems, limits, and, above all, its notion of information and communication can be derived. The information theorist treats quantities of information much like a physicist traces energy uses and losses within a mechanical system or an accountant measures cash flows and capital distributions within a company. Although quantities of information do not behave like energy and matter and have little to do with truth or value, once information flows are assessed they can be related to and shed light on other organizational features of the system in which such flows are observed.

Origins

The idea of information theory emerged in the late 1940s and came to several researchers virtually independently. NORBERT WIENER, the founder of CYBERNETICS (the theory of communication and control in humans and machines), came to it while working on statistical aspects of communication engineering. Soviet mathematician A. N. Kolmogoroff came to it from probability theory, and CLAUDE SHANNON of the Bell Telephone Laboratories in the United States developed it while working on problems of coding and deciphering messages. Earlier, British statistician R. A. Fisher, known for his analysis of variance, suggested a quantitative expression for the amount of information an experiment provides. Nearly a century before all four of them, Austrian physicist Ludwig Boltzmann had measured thermodynamic entropy by a function that resembles the one now used in information theory. However, it was Shannon who published the most elaborate account of

the theory in 1948, offering proof of the uniqueness of its form and twenty-one theorems of considerable generality. WARREN WEAVER anticipated that any theory clarifying the understanding of information and communication was certain to affect all fields of knowledge. He gave a popular account of Shannon's work and coauthored with him *The Mathematical Theory of Communication* (1949). Subsequently, U.S. statistician Solomon Kullback linked information theory to statistics, and British cybernetician W. Ross Ashby generalized it to many variables.

Historically, information theory was a major stimulus to the development of communication research. It made the heretofore vague notions of information mathematically tractable, liberated it from the conflicting claims by diverse disciplines concerned with knowledge and communication technology, and legitimized research on communication and information processes whether they occurred in society, in electronic information systems, or within the human brain.

Three versions of the theory are discussed here: the possibilistic and semantic theory of information, the probabilistic or statistical theory of communication, and its extension to a method for testing complex models of qualitative data.

Semantic Information

The semantic theory quantifies information in ways similar to ordinary uses of the term: we might judge one report to be *more* informative than another, we might experience *how little* we can say in a telegram, and we might admit to having *not enough* information to decide how to resolve an issue. To obtain information we may ask questions. Questions admit uncertainty and are designed to elicit answers that help the questioner decide among several uncertain possibilities. The knower selects an answer from a repertoire of possible responses. The questioner decides what that answer means and which uncertain alternatives it thereby excludes. Information is always selective among a set of preconceived alternatives, and the theory quantifies this selectivity in terms of the number of questions we need to have answered.

The semantic theory presupposes a distinction between two sets of elements, languages, or symbol repertoires, connected by a code. One contains the set of messages, answers to questions, statements, or meaningful actions exchanged; the other contains the set of meanings, referents, things, people, ideas, concepts, or consequences the former refer to, indicate, or are about. The semantic theory suggests that information is manifest in what the elements in one set imply about those in the other set. From the point of view of the questioner or receiver the theory

expresses the amount of information, I , a message conveys as the *difference between two states of uncertainty*, U , before and after that message became known:

$$I(\text{message} \mid \text{state of knowledge}) = U(\text{before receipt of message}) - U(\text{after receipt of message})$$

The message is an element in one set; the uncertainties concern elements in the other set, for example, the interpretations such messages could have; and the amount of information indicates the selectivity that a message induces within the domain of possible interpretations.

Accordingly, information is *positive* when a message, answer, or report reduces the receiver's uncertainty about what he or she wishes to know. A sequence of informative messages, such as would be received during an interview or a conversation, reduces the receiver's uncertainty or enhances his or her state of knowledge stepwise and results in *additive* quantities of information associated with each message. A message whose content is already known does not alter the receiver's uncertainty and is *redundant*, simple repetition being one example. A message that says something unrelated to what the receiver needs to know is *irrelevant*. A message that denies what previously appeared certain and thus increases the receiver's uncertainty conveys *negative* amounts of information. Except for some syntactic limitations, the formal complexity or material composition of the message does not enter the definition of information and does not affect what or how much it conveys. Semantic information measures not what a message is but what it does in someone's cognitive system of distinctions.

The unit of measurement in information theory equals the amount the answer to a yes-or-no question conveys and is called one *bit* (for *binary digit*). Since N alternatives can be exhaustively distinguished by $\log_2 N$ yes-or-no questions, the state of uncertainty becomes simply $U = \log_2 N$ bits. Thus, if U is an integer, U equals the number of times N alternatives can be divided in half until only one alternative remains. The remainder is elementary algebra:

$$\begin{aligned} I(\text{message} \mid \text{state of knowledge}) &= \log_2 N_{\text{before message}} - \log_2 N_{\text{after message}} \\ &= -\log_2 \frac{N_{\text{after message}}}{N_{\text{before message}}} \\ &= -\log_2 P_{\text{after}|\text{before}} \end{aligned}$$

Thus information—the difference between two states of uncertainty—is seen to be a *measure of the con-*

straint a message imposes by singling out a subset of the initial number of uncertain possibilities N . With P as the logical probability of this subset, it may also be interpreted as a *measure of the difficulty of selecting* among a set of alternatives *by chance* and thus becomes equated with that message's surprise value. For example, because ignorant students can answer 50 percent of all yes-or-no questions correctly merely by choosing at random, teachers expect that knowledgeable students will perform significantly above that logical probability. Therefore, the semantic theory can also be seen to equate information with choices that deviate from what would be expected under conditions of ignorance.

When the alternatives are enumerable, information theory offers a precise instrument for quantification. The answer to the question "Did she have a boy or a girl?" conveys one bit of information. To make appropriate choices among eight different subway trains requires three bits of information. To locate one criminal among, say, a million Bostonians requires nearly twenty bits of information, which is the minimum amount that Boston's police department has to process per individual crime. A Hollerith card with eighty columns by twelve rows, whose positions may be either punched or not, can store up to 960 bits of information. Two such cards can store twice as much. According to Bremmerrmann's Limit, which states that no computer can do better than 10^{47} bits per second and per gram of its mass, the limit on computability on earth is about 10^{72} bits and is not achievable in practice.

When the alternatives are less clear or known only in relation to each other, the theory offers possibilities of quantitative comparisons. The statement "She plays a stringed instrument" conveys three to four bits less information than one asserting that "She plays the viola," because the former leaves uncertain which stringed instrument she plays. For the same reason, "about noon" conveys less than "at 12:03 P.M.," although the additional quantity conveyed by minutes may be irrelevant in a particular situation. Information quantities can also be associated with the logical structure of complex messages. For example, two statements connected by an inclusive or convey less information than either statement does by itself; when the logical conjunction *and* is used to connect them, they are more informative together than either is alone.

Note several properties of the semantic theory. First, quantities of information are not tied to physical entities. The length of the silence between the signals of the Morse code is as critical as the absence of a letter from a friend is informative to the usual receiver.

Second, quantities of information are always expressed *relative to someone's cognitive system of*

distinctions, including the distinctions an "objective" measuring instrument makes for a scientific observer. An X-ray photograph may be more informative to the physician than it is to the patient precisely because the former tends to have a more elaborated conceptual system and language for interpreting such images. It follows that one can observe that person A said X to person B, where X is a vehicle of communication or the material form of a message, but it is only when the codes relating the cognitive systems of A and B to X are known that one can assert how much semantic information A communicated to B.

Third, quantities of information are always *contextual* measures. They are not attributable to a single message but express what this message does in the context of all possible messages or conditions. The larger this repertoire, the greater the amount of information a particular message may convey and its receiver needs to process in order to make an appropriate selection. Where there are no options there is no information. When the context of communication is not clearly understood, quantities of information may become at best approximate.

Fourth, a valuable oddity of the theory is that paradoxical or contradictory messages turn out to convey quantities of information that are infinite, indicating the logical inadequacy or powerlessness of a cognitive system to cope with such messages. This is particularly true when messages are *self-referential*. For example, "Ignore this command" asserts how it is to be taken, its illocutionary force or its truth value, and is impossible in a system that insists on the distinction or asymmetry between language and action or between statements and what these statements refer to. See also SEMANTICS.

Statistical Theory of Communication

In the mathematical theory of communication the statistical analog of uncertainty is called *entropy* and is defined by the famous Shannon-Wiener formula:

$$H(A) = - \sum_{a \in A} p_a \log_2 p_a$$

where the variable A consists of mutually exclusive categories, values, or symbols *a*, and p_a is the probability with which *a* is observed in A. The entropy is a measure of variability or diversity not unlike the statistical concept of variance, except that it does not require variables to express magnitudes and is hence entirely general. When all observations fall into one category the entropy is zero; otherwise it is a positive quantity whose maximum depends on the number of distinctions drawn within a sample.

In social research, entropy measures have served

to assess occupational diversity in cities, the variability of television programming, the consensus on preferences for political candidates, the specificity of financial reports, the diversity of opinions, and the richness of vocabularies. Entropy measures may be used comparatively, for example, to differentiate between different genres of literature (newspaper English is low in entropy compared with avant-garde poetry); or they may be correlated with other variables, for example, to ascertain how diversity of opinion is related to number of newspapers serving a community or to predict the reading ease of a text. However, taking full advantage of the additivity of entropy and information quantities, the theory's most important contribution is the calculus it defines on top of such entropies. Already the relationship between entropy and the aforementioned uncertainty is instructive in this regard.

When there are N_A alternatives *a* and each is observed the same number of times, that is, $p_a = 1/N_A$, then in this special case, the entropy equals the uncertainty, $H(A) = U(A) = \log_2 N_A$. When *n* individual observations are differentiated into mutually exclusive classes $a = 1, 2, \dots$, so that $n = n_1 + n_2 + \dots$ and $p_a = n_a/n$, then

$$H(A) = \sum_{a \in A} \frac{n_a}{n} (\log_2 n - \log_2 n_a)$$

in which $\log_2 n$ is the quantity of uncertainty in the sample of size *n* with each observation considered unique, $\log_2 n_a$ is the quantity to which the uncertainty reduces after knowing an observation to be of type *a*, and $\sum n_a/n$ renders the expression as an average reduction of uncertainty. Thus the entropy $H(A)$ is the average uncertainty or diversity in a sample when its *n* observations are considered in categories. The entropy formula is the same whether one considers the entropy in one variable, A, in a matrix of two variables, say, A and B, or in a cross-tabulation of many variables A, B, C, . . . , Z:

$$H(ABC \dots Z) = - \sum_a \sum_b \sum_c \dots \sum_z p_{abc\dots z} \log_2 p_{abc\dots z}$$

The mathematical theory of communication relates a sender, who emits symbols *a* from a set A with a certain entropy $H(A)$, to a receiver, who receives symbols *b* from a set B with a certain entropy $H(B)$, by means of a channel that converts input symbols *a* into output symbols *b* and associates a probability with each transition. In the ideal channel, symbols sent and symbols received are related one-to-one (Figure 1a). Variation at the receiver for which the sender does not account is called *noise* and is manifest in one-to-many relations (Figure 1b). Variation at the sender omitted by the receiver is called *equivocation* and is manifest in many-to-one relations

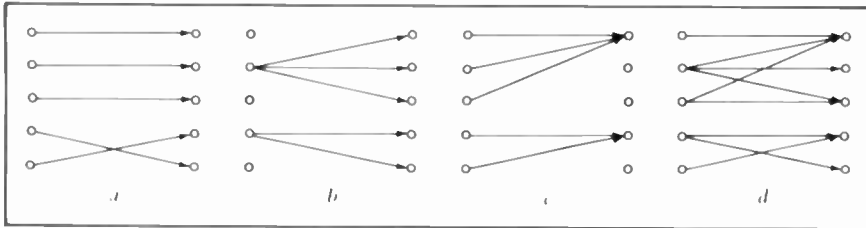


Figure 1. (*Information Theory*) Four examples of symbol-transition diagrams: (a) error free; (b) noise only; (c) equivocation only; (d) mixed.

(Figure 1c) with the most typical example being a mixture of these (Figure 1d). Noise and equivocation distract from perfect communication but in different ways. The term *noise* is borrowed from acoustical distortions and is generalized here to cover all kinds of random alterations, blurred images, and uncertainties about how a sent symbol is received. Equivocation shows up in a receiver's simplification of what has been sent or the ambiguity about the sender's intentions. The theory has three ways of expressing the *amount of information transmitted*, $T(A:B)$, through a channel:

- (1) $T(A:B) = H(B) - H_A(B)$
- (2) $T(A:B) = H(A) - H_B(A)$
- (3) $T(A:B) = H(A) + H(B) - H(AB)$

The first expresses communication as the difference between the entropy at the receiver and that part of its entropy that is noise, $H_A(B)$. The second expresses communication as the difference between the entropy at the receiver and that part of its entropy lost as equivocation, $H_B(A)$. Both formally resemble the expression for the semantic information by being the difference between the entropy without and the entropy with reference to a second variable. The third expresses communication as the difference between the entropy that the sender and the receiver would exhibit if they were entirely unrelated and the joint entropy, $H(AB)$, that is in fact observed. It follows that noise and equivocation can be obtained algebraically by $H_A(B) = H(AB) - H(A)$ and $H_B(A) = H(AB) - H(B)$, respectively. Communication is symmetrical, $T(A:B) = T(B:A)$, can be interpreted as *shared variation*, and the quantities involved may be depicted as in Figure 2.

Although communication always involves some kind of covariation, it speaks for the generality of the theory that senders and receivers need not share the same symbol repertoire. Indeed much of communication proceeds by conversions of mental images into verbal assertions, of sound into electrical impulses, of temporal representations into spatial ones, of expressions in one language into those of another, and so forth, during which some patterns are retained.

Regardless of the nature of the media involved, *the amount of communication possible is limited by the number of options available*. More specifically,

no channel can transmit more information than its weakest component. For the simple channel between a sender and a receiver $T(A:B)_{\max} = \min[H(A), H(B)]$.

Considering that messages can take many material forms and information can be carried by rather different symbols, much of early information theory was concerned with the construction and evaluation of appropriate codes for efficient and/or error-free communication. The coding function may be part of the communicator (e.g., a natural language) or part of the medium (e.g., a microphone or loudspeaker) (Figure 3).

In his fourth theorem Shannon shows that, given enough time, it is always possible to encode a message for transmission even through a very limited channel. However, with C as the channel capacity (in bits per second) and H as the entropy in the source (in bits per symbol) no code can achieve an average rate greater than C/H (symbols per second). In other words, different languages, different signaling alphabets, and different media may make communication more or less efficient, but none can exceed C/H .

Redundancy is another important concept provided by the theory. Redundancy is measured as the difference between the amount that could be and the amount that is in fact transmitted:

$$R = T_{\max} - T$$

Redundancy may be caused by duplication of channels of communication, repetition of messages sent, or a priori restrictions on the full range of symbols or symbol combinations used for forming messages (by a GRAMMAR, for example). Although redundancy appears to measure the inefficiency of transmission, in human communication it is a valuable quantity because it can compensate for transmission errors and the effects of selective inattention. For example, the detection of misspellings in a written text, the simplifications used in forming a telegram, and speed reading are all possible only because of redundancy. Shannon estimated that the English language is about 50 percent redundant; subsequent researchers revised his calculation to nearly 70 percent. Shannon's tenth theorem states that the effect of noise in a channel of communication can be compensated for by an amount of redundancy equal to or exceeding the amount of noise in that channel. This redundancy

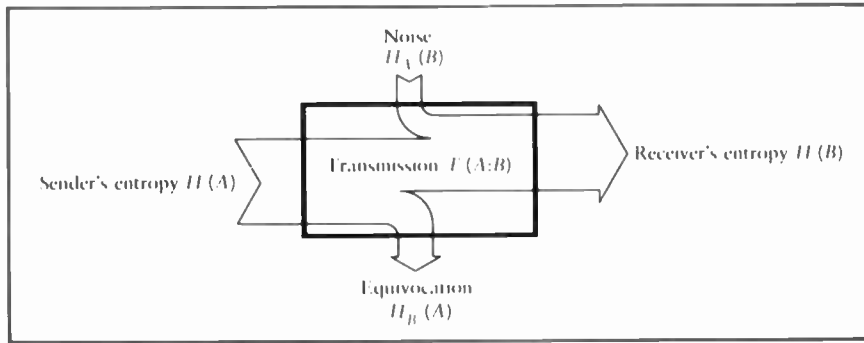


Figure 2. (Information Theory) Informational account for simple communication channels.

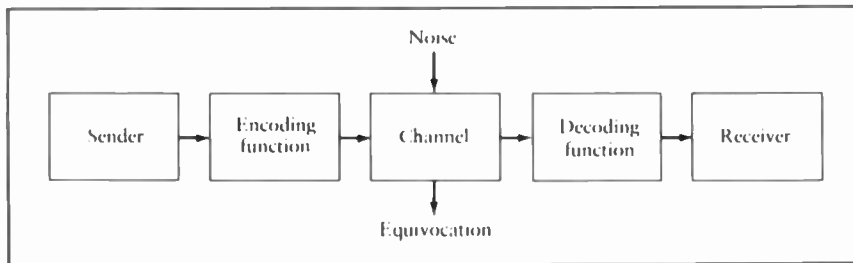


Figure 3. (Information Theory) Multicomponent communication process. (After Claude Shannon.)

may stem either from an additional correction channel or from a suitable coding of the messages transmitted.

In complex systems of many variables the total amount of information transmitted within it is

$$T(A:B:\dots:Z) = H(A) + H(B) + \dots + H(Z) - H(AB\dots Z)$$

To analyze this quantity, various equations are available. For example,

$$T(A:B:\dots:K:L:\dots:Z) = T(A:B:\dots:K) + T(L:M:\dots:Z) + T(AB\dots K:LM\dots Z)$$

decomposes this total into two quantities within and one quantity between the subsystems $AB\dots K$ and $LM\dots Z$. Or

$$T(A:B:\dots:Z) = T(A:B) + T(AB:C) + T(ABC:D) + \dots + T(AB\dots Y:Z)$$

expresses the total as the sum of the amounts transmitted between two variables plus the amount between the two and a third, the amount between the three and a fourth, and so on.

$$H(Z) = T(A:Z) + T_A(B:Z) + T_{AB}(C:Z) + \dots + T_{AB\dots X}(Y:Z) + H_{AB\dots Y}(Z)$$

explains the entropy in Z in terms of the amount of information transmitted from A plus the amount of information transmitted from B controlled for by A , and so on, plus the unexplainable noise in Z . In this manner complex information flows within a system may be analyzed.

Structural Models

Structural modeling searches for models of qualitative data that represent an optimum balance between structural simplicity and the insignificance of their errors of information omission. Thus models may be found that fit the data best and model the flow of information throughout a system with the least amount of error. Shannon's originally chainlike conception is just one such model.

In the previous examples the total amount of information found in the multivariate data about a system is seen as defined by two kinds of quantities. The sum $H(A) + H(B) + \dots + H(Z) = H(m_{ind})$ can be interpreted as the maximum entropy that a model m_{ind} exhibits whose variables A, B, \dots, Z are statistically independent. The quantity $H(AB\dots Z) = H(m_o)$ is the entropy actually observed within a model m_o capable of representing all complexities contained in the data. If the two quantities were equal, the data could be said to fit the model of independent variables and show no structure. The total amount, $T(m_{ind}) = H(m_{ind}) - H(m_o)$, can be seen to express the amount of information by which the model m_{ind} is in error. Between the two models, m_o and m_{ind} , on which classical information theory is based, a host of other models could be constructed and tested. Consider four structurally different models within six variables each (Figure 4).

Just as for m_{ind} , each model m_i can be used to generate its own maximum entropy distribution, yielding $T(m_i)$ (for models with loops, as in m_1 , this quantity must be obtained by iterative computation,

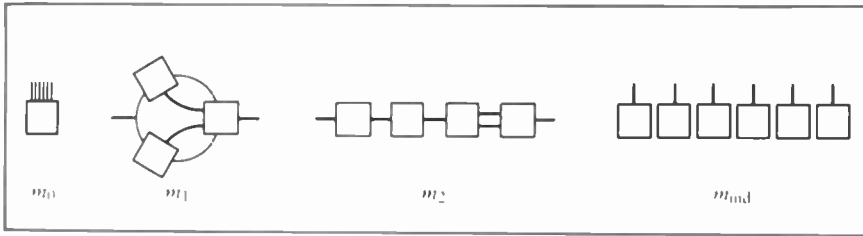


Figure 4. (Information Theory) Four examples of structural communication models in block diagrams: (from left to right) undifferentiated whole; with circularities; linear chain; with independent components.

whereas for other models algebraic techniques are readily available). In these terms the total amount of information in the data can be decomposed by

$$T(m_{ind}) = T(m_i) + [T(m_{ind}) - T(m_i)]$$

where $T(m_i)$ is the amount of information the model m_i fails to capture, whereas $[T(m_{ind}) - T(m_i)]$ is the amount of information represented by m_i .

Limitations of Information Theory

Some writers have argued that information theory is biased by its early applications in engineering, that it is unable to account for semantic aspects of communication, and that it is limited to linear models (allowing no feedback). None of these arguments is correct.

According to Shannon's second theorem, whose proof is corroborated by many others, the form of the entropy and the information functions is unique, given the axioms of the theory. This puts the theory on a rather unquestionable basis. The critics' burden is to reveal possible inadequacies of the theory by showing the unreasonableness of its axioms, which may be stated here as follows:

- (1) $H_2(p, 1 - p)$ is continuous for $0 \leq p \leq 1$ and $H_2(1/2, 1/2) = 1$
- (2) $H_r(p_1, p_2, \dots, p_r)$ is a symmetrical function of its arguments, $\sum_{a=1}^r p_a = 1$, and
- (3) for any $0 \leq \lambda \leq 1$: $H_3(\lambda p, (1 - \lambda)p, 1 - p) = H_2(p, 1 - p) + p H_2(\lambda, 1 - \lambda)$.

Inapplicabilities of the theory could be encountered, for example, when probabilities do not add to one—a condition that would already fail the first axiom. This condition may arise when the universe of events is undefined, observations in a sample are nonenumerable, or distinctions are fuzzy (do not yield mutually exclusive categories). Information theory presupposes the applicability of the theory of probability (logical possibility, relative frequency, proportion or percent), which is a rather basic demand. The second axiom would become inappropriate, for example, when the ordering of the events

1, 2, ..., r would make a difference in the amounts the whole set carries. This condition may arise when data are nonqualitative (magnitudinal, for example), in which case the information contained in these proximities is ignored. The third axiom would fail when information quantities are nonadditive and/or probabilities are not multiplicative—for example, when two messages jointly convey more information than the sum of what they convey separately. This situation may arise in irony or when metacommunications and communications are mixed up. The fact that information theory cannot reflect its own context and is, hence, *morpheostatic* in character is common to most social theories and not unique to this one.

Extensions of Information Theory

The basic idea of information theory—equating information with selectivity—may be extended. Effective decisions, one could argue, organize the world, create unusual material arrangements. Messages ranging from blueprints, computer programs, and DNA to political speeches and votes convey information to the extent that they bring about thermodynamically nonentropic pattern, like the assembly of a piece of equipment, a network of computations, the biological structure of an organism, or new forms of social organization. Thus information could be conceived as a measure of the organizational work a message can do, selection being a simple case of this. Information in this sense can be processed (combined, transformed, or encoded in different media) or duplicated at comparatively little cost. Information creates its own context of application. When it organizes an information-processing system it may become amplified, elaborated, and expanded beyond its original scope. Information also becomes part of any living organization, social or biological, that maintains its structure against natural processes of decay or organizational infringements from its environment. Because the thermodynamic laws and the economic costs of production and dissemination apply only to its material carriers, which are largely arbitrary, information is not a commodity. It provides relatively independent accounts for the escalating organizational changes in contemporary society. Information controls a society's rate of thermodynamic decay and directs its economic developments

while escaping many of the traditional socioeconomic constraints.

See also MODELS OF COMMUNICATION.

Bibliography. Klaus Krippendorff, *Information Theory: Structural Models for Qualitative Data*, Beverly Hills, Calif., 1986; Claude E. Shannon and Warren Weaver, *The Mathematical Theory of Communication*, Urbana, Ill., 1949, reprint 1964.

KLAUS KRIPPENDORFF

INNIS, HAROLD (1894–1952)

Canadian political economist and geographer, author of several influential works on communications. Harold Adams Innis devoted most of his scholarly life to producing detailed studies of aspects of Canadian commerce and industry (e.g., fisheries, the fur trade, and railways). As an outgrowth of these studies, he undertook during the last decade of his life an extensive analysis of forms of communication and produced two major works, *Empire and Communications* (1950) and *The Bias of Communication* (1951). His focus was on power and how it is exercised through control of areas of space and periods of time. He saw communications technology as the key to this economic and political process, for such technology determines the social coordinates of space and time—the forms of social organization that are possible, the distribution of power among social groups, and the forms of knowledge possessed by a people.

After studying at the University of Chicago, where he became interested in the work of U.S. economist and sociologist Thorstein Veblen, Innis attacked the “frontier hypothesis”—the belief that the source of inspiration and action in Western culture was not at its center but at its margins. Every frontier, Innis pointed out, was controlled by a “back tier.” The back tier drained away the products of the frontier, and the interests of the back-tier economy constituted the dominant force in geographic expansion. The first back tier of North America was Europe, and to that extent North American economic and communications development was part of the trajectory of European history. With the gradual decline of European influence the back tier shifted to North American metropolitan centers, particularly Washington and New York. Innis’s studies of the confrontation between American Indian oral culture and the European literate tradition, of the exploitation of Canadian timber resources to fuel the growth of North American newspapers, and of the ease with which these same newspapers penetrated Canadian life led him to examine the progression from oral to print/literate and then to electronic civilizations.

Innis argued that the ways in which communica-

tion systems structure (or “bias”) relations of time and space are at the base of social institutions. He divided communication and social control into two major types: those achieved through space-binding media and those achieved through time-binding media. Because they are easy to transport, space-binding media, such as print and electronic communication, are connected with expansion and control over territory and favor the establishment of commercialism and empire. Because they are more difficult to transport, time-binding media, such as the manuscript and human speech, favor the cultivation of memory, a historical sense, relatively small communities, and traditional forms of authority. For Innis the tragedy of modern culture is the intrinsic tendency of the PRINTING press and electronic media to reduce both space and time to commercialism and expansionism. The bias of modern technology is its reduction of signaling time (the gap between when a message is sent and when it is received). Print solved the problem of producing standardized communications rapidly and in sufficient quantities to administer large areas. Although it allows for efficient production, print does not possess an efficient distribution system and depends on ship, rail, and air transportation to gain rapid and widespread circulation. The development of electronic communication—beginning with TELEGRAPHY and culminating in RADIO and television (see TELEVISION HISTORY)—solved simultaneously the problems of rapid production and distribution. These technologies not only eclipsed space but transformed time, eventually obliterating memory and reducing message duration to the hour, minute, second, and microsecond.

There is always a price, Innis believed, for technological advance. Modern media widen the area of distribution but narrow the range of response. Large audiences receive but are unable to respond directly or to otherwise participate in vigorous discussion. Innis’s remedy was always the same: reduce the control of modern technology, reestablish the oral tradition, create avenues of fuller democratic discussion and participation, reawaken memory, cultivate an interest in time and history, restore the roots of a genuinely republican tradition.

Though his work was somewhat overdrawn, Innis provided a theory of communications that is historical and materialistic; that accounts for the effects of economics, geography, and politics; and that is profoundly liberal and humanistic in outlook. His ideas influenced, and ultimately were transformed by, his University of Toronto colleague MARSHALL McLuhan.

Bibliography. Donald Creighton, *Harold Adams Innis: Portrait of a Scholar*, Toronto, 1957; Harold A. Innis, *The Bias of Communication*, Toronto, 1951; idem, *Empire and*

Communications (1950), rev. by Mary Q. Innis, foreword by Marshall McLuhan, Toronto, 1972; William H. Melody, Liora Salter, and Paul Heyer, eds., *Culture, Communication and Dependency: The Tradition of H. A. Innis*, Norwood, N.J., 1981.

JAMES W. CAREY

INSECTS, SOCIAL

The social insects include all the termites, all the ants, and certain species of wasps and bees. Most of the communication is by means of odors—usually species-specific chemicals known as pheromones—and most of the rest is tactile, including vibrations that humans perceive as SOUND. The best understood of the social insects is the temperate-zone honey bee, *Apis mellifera*. Because its signaling behavior is the second most complex known in the animal kingdom (only human speech can carry more information), and because the other elements of its communication illustrate the general patterns in the social insects, the discussion here will concentrate on honey bees.

A typical temperate-zone honey bee colony consists of twenty thousand to fifty thousand worker bees, a single queen, and (in the spring and summer) some hundreds of drones. The colony lives in a hollow cavity, usually in a tree, and constructs a series of parallel combs that hang as vertical sheets. The cells in the comb are used to rear new bees and to store food; the food consists of pollen (the bees' protein source) and honey (the carbohydrate store), which is made from nectar. The interior of the hive is dark. Unlike all other social bees and wasps in the temperate zone, the colonies overwinter (as opposed to being started anew each spring by overwintering females, as is the case with bumble bees, yellow jackets, and so on). The overwintering is possible because the cavity provides insulation and the bees store massive quantities of honey, which they "burn" throughout the winter to keep warm.

The queen produces a variety of pheromones, of which two are especially important. One, which is secreted onto her body and ingested by her attendants as they constantly groom her, is spread to all members of the hive through bee-to-bee food exchange (trophallaxis). This pheromone represses the vestigial ovaries of the workers (all of whom are females) and prevents the rearing of new queens. When the queen dies or the colony grows so large or so crowded that the pheromone cannot be distributed effectively, workers begin rearing new queens and initiating preparations for swarming.

Swarming, during which the old queen and about half the population of the hive depart in search of a new cavity, will occur when the new queens are ready to hatch and the weather is favorable. The readiness

of the new queens is monitored by acoustic communication. From time to time the old queen presses her body against the honeycomb and vibrates the muscles normally used for flight. This sets up a vibration in the comb with a frequency of about two thousand hertz, which is pulsed according to a particular pattern. Any developing queen mature enough to respond replies with another pattern of pulses. These sounds are detected with vibration detectors located in the hollow legs of the workers and queens. As soon as the weather is acceptable, swarming is triggered by another acoustic signal, this time produced by a worker running over the crowded combs.

The other pheromone serves to attract drones for mating. Once a new queen has hatched she locates the other developing queens by odor and by sound (they respond to the pulsing of the new queen) and kills them; then she leaves the hive to mate. Mating takes place in special drone congregation areas, where drones from many different hives circle, waiting for virgin queens. How drones and queens agree on where these mating areas should be located is not known; the areas are the same year after year, yet no drones survive the winter, and queens only mate just after birth. In any case, the queen flies through the drone cloud, emitting her species-specific pheromone, and the drones give chase. A queen will make several passes through the drone area, mating five to ten times, before returning to the hive to begin several years of egg laying.

Young workers tend the queen and developing larvae, recognizing each class by odor. Later they guard the hive entrance, admitting only those bees that carry the hive odor; this odor is a combination of genetically determined scents and odors permeating the hive as a result of the various sorts of food being stored. The odors cling to waxy hairs on the bee's body. Intruders are attacked and stung, a process that is facilitated by other pheromones. One pheromone, released from the sting apparatus itself when stinging takes place, draws other bees to the site of attack and encourages further stinging. Another, less well understood, is released from the mouth and seems primarily to alarm other bees.

Most of the communication in the hive concerns foraging for food. Scout bees search the area around the hive for several hundred meters (though up to fourteen kilometers at times) looking for undiscovered patches of flowers. Especially high-quality patches are advertised on the scout's return by means of a dance (Figure 1). The dance is generally in the form of a figure eight, with the straight runs crossing in the center emphasized by a "wagging" of the body from side to side at thirteen hertz and a series of sound pulses at about two hundred eighty hertz bursted thirty times a second. In the darkness of the hive both the wagging and the bursting are detected

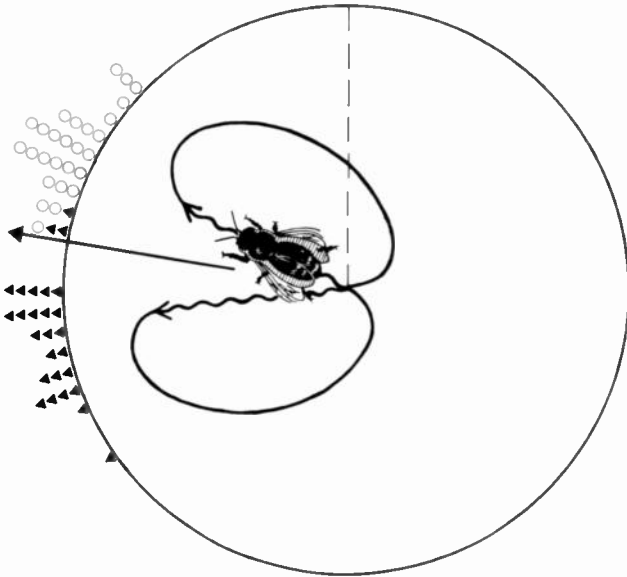


Figure 1. (*Insects, Social*) The dance of forager honey bees consists of a straight, wagging run, followed by a turn and a semicircular return, another wagging run, a turn in the other direction, a return, and so on. At distances less than about one thousand meters, the runs tend to alternate left and right of the true direction, this angular divergence declining with distance. In the example shown here, the orientation of the runs after right-hand turns is indicated by filled triangles, runs after left-hand turns by open circles. The direction of the food is given by the angle between vertical and the dance: "up" is taken as the direction of the sun, so that a dance oriented (as is this one) eighty degrees to the left of vertical corresponds to food eighty degrees left of the sun's direction. Distance is given by the duration of the waggle run or one of the dance features that correlate with run duration. Courtesy of James L. Gould.

with the antennae by potential recruits attending the dance.

The radial coordinates of the food are specified by the wagging runs. The direction is indicated by the orientation of the dance on the vertical comb: a dance with wagging runs pointing directly up indicates food in the direction of the sun; wagging runs aimed eighty degrees to the left of vertical indicate that the food is eighty degrees to the left of the sun's direction. When the food is nearby, the waggle runs alternate left and right of the true direction; at greater distances this divergence declines, reaching essentially zero at about one thousand meters.

The distance to a food source correlates with the duration of the wagging run, though whether recruits measure duration or count either waggles or sound pulses is not known; any of these measurements would suffice, and each varies slightly from

one waggle run to the next in the same way. Different races of *Apis mellifera* have different distance "dialects" (Figure 2), reflecting differences in foraging ranges that correlate with the severity of the local winter. The three species of honey bees in the tropics have their own dialects as well. The dialects are entirely genetic: rearing a short-dialect Egyptian bee (*A. m. fasciata*) in a long-dialect German hive (*A. m. carnica*) has no effect on either dialect, and misunderstandings inevitably result. The up-is-the-direction-of-the-sun convention essential to direction communication is also innate. Food very close to the hive is indicated by dances with no waggles at all; these maneuvers are known as round dances.

The information content of the dance can be calculated by considering the accuracy of the dance and therefore the number of different locations (messages) that can be specified. The divergence in dance direction and the variability in distance indication from cycle to cycle make the dance "noisy"; the tendency of recruits to attend several cycles and average them partially compensates for this problem. Careful experiments indicate that the dance noise has evolved to spread out recruits in a controlled manner, a strategy well adapted to exploiting food found in patches. (In the tropics, where the flowers are usually in trees rather than in fields, the dance noise is much smaller.) The decreasing angular divergence of the dance exactly compensates for increasing distance, and the distance scatter precisely matches the amount of direction scatter (Figure 3).

In addition to the radial coordinates of the food

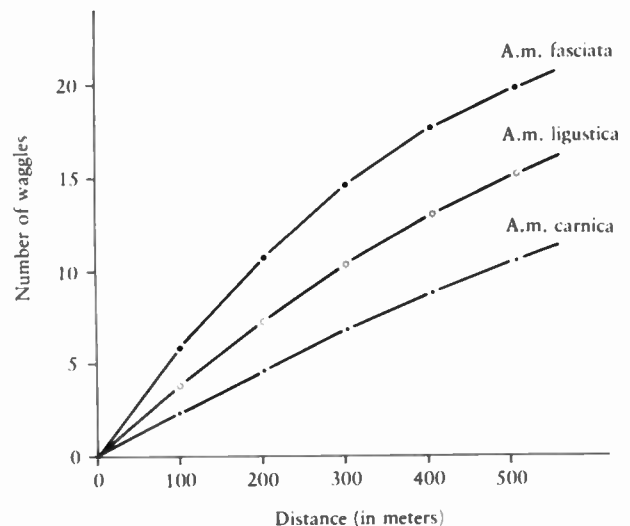


Figure 2. (*Insects, Social*) The conversion from run duration (or number of waggles or sound bursts) depends on the species and race. The dialects for three of the fifteen or so races of the temperate-zone honey bee are shown here. Redrawn after James L. Gould.

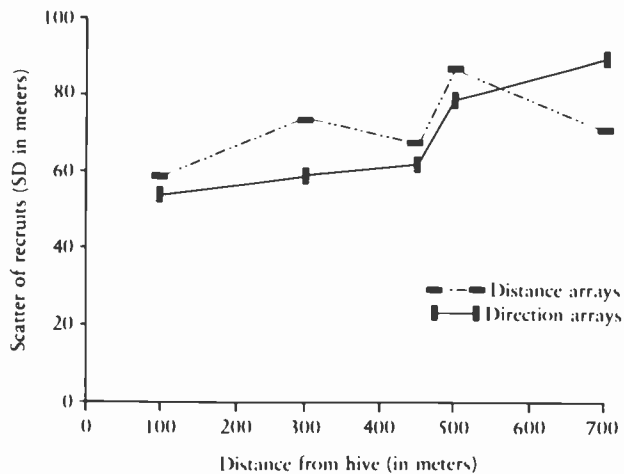


Figure 3. (*Insects, Social*) The decreasing angular divergence of the dance at greater distances results in a constant degree of recruit spread and just matches the spread caused by the constant amount of scatter in distance indication. As a result, recruits are dispatched to a general area of fixed size around the discovery; this area reflects the tendency of temperate-zone flowers to grow in patches. Redrawn after James L. Gould.

patch the dancer returns with several other important pieces of information. Waxy hairs on the dancer's body carry the odor of the food, which will be very important in the recruit's subsequent search once she reaches the general area of the food. The odor is detected by receptors on the attenders' antennae. The quality of the food is also signaled by the intensity of the dance and (if it is nectar) by actual samples of the food, which the dancer provides when signaled by means of a short sound pulse at about three hundred thirty hertz for about one-quarter second. During these food transfers, as during all trophalaxis, the antennae of the two bees move rapidly, tapping each other repeatedly; this behavior is thought to serve some communicatory function. The dance may also advertise pollen (available for inspection in the "pollen baskets" on the dancer's rear legs), water (used to cool the hive on hot days), propolis (tree sap used to strengthen comb in hot climates, entomb foreign matter too large to eject from the hive, polish the inside walls, narrow the entrance, and so on), and, during swarming, suitable new nest sites. At especially rich sources of food and at potential nest sites foragers often release yet another pheromone from a gland in the abdomen, which helps attract other bees. Altogether a dance can transmit one of perhaps three hundred million messages.

The dance behavior of the three species of tropical honey bee casts some light on the evolution of this remarkable communication. The Indian honey bee, *Apis cerana*, is very similar to the temperate-zone honey bee though noticeably smaller; it nests in dark

cavities and dances on vertical sheets of comb in the dark. The giant honey bee, *A. dorsata*, builds a large single sheet of exposed comb under large, high, overhanging structures like thick tree limbs and projecting rocks on cliffs. The dance is performed on the vertical surface of the comb, using the same dance conventions but with two interesting differences: the dances are silent, and the attenders do not crowd behind the dancer but rather stand back in a circle; because these dances occur on exposed comb, the attenders can actually see the dancer.

The dances of the dwarf honey bee, *A. florea*, also occur in the open. This species, however, builds its single sheet of exposed comb up and over a narrow branch, and the bees dance on the horizontal top surface of this structure. The dances, exposed as they are to the sky overhead, point directly at the food source. Like the dances of *A. dorsata*, they are silent, and the dancer holds her abdomen high in the air as though to make the dance easier to see. The dance probably evolved in this horizontal form as part of a takeoff maneuver, became ritualized into a figure eight with the distance correlation, and then was modified for use on a vertical surface by adding the sun-to-gravity conversion; indeed, many insects spontaneously convert sun angles to gravity angles while walking. Sound probably evolved as an adaptation to dancing in the dark and must now communicate at least distance.

Some species of social bees have a system for locating food involving a generalized rousing by an excited forager, who carries on her body the odor of the food but provides no information about that food's location. Successful ant foragers frequently lay a pheromone trail. Wasps, however, generally lack any mechanism of food recruitment.

Bibliography. Karl von Frisch, *The Dance Language and Orientation of Bees* (Tanzsprache und Orientierung der Bienen), Cambridge, Mass., 1967; James L. Gould, *Ethology: The Mechanisms and Evolution of Behavior*, New York, 1982; James L. Gould, F. C. Dyer, and W. F. Towne, "Recent Progress in the Study of the Dance Language," in *Experimental Behavioral Ecology and Sociobiology* (Fortschritte der Zoologie, Vol. 31), ed. by Bert Hölldobler and Martin Lindauer, Stuttgart and New York, 1985; Thomas D. Seeley, *Honey Bee Ecology: A Study of Adaptation in Social Life*, Princeton, N.J., 1986; Edward O. Wilson, *The Insect Societies*, Cambridge, Mass., 1971.

JAMES L. GOULD

INSULT

Originally a figurative jump over someone else; hence, later, a triumph over someone, an attack intended as an affront. Today insult is used somewhat more broadly to refer to a range of rude or insolent ex-

pressive acts which, intentionally or not, create animosity.

The study of insults. Those who study language in social contexts approach insults as units of ongoing speech that are contrived acts of rudeness or personal challenge intended to intensify a conflict relationship between the insulter and those to whom the insult is directed. In Western speaking systems, which value the appearance of spontaneity, the study of such turns of phrase shows them to be conventional and learned, part of a practiced conversational repertoire, like proverbs and other traditional examples of verbal art (see also PROVERB; SPEAKING, ETHNOGRAPHY OF).

In speaking systems that value formality and eloquence more highly, insults serve—along with curses, charms, personal praises (*encomia*), and boasts—as powerful expressive acts used by performers as weapons under conditions of high intensity in conflict. Insults actively manipulate symbolic objects and actions regarded as good and bad, pure and impure, clean and contaminated, within a specific culture's system of order and values. An insult identifies its target with an unclean or impure object or activity, or, even more powerfully, with an anomaly in the system, something that challenges the order of the culture because of its unclassifiability. The most powerful and most common insults categorize a person as a cannibal, carrion eater, coprophage or coprophile, or an incestuous person or the child of such a union—that is, one who does not live by the rules of membership within the human community. Also very common are accusations of not fitting into the system at all, as in insults equating humans with amphibians—snakes, toads, lizards—because such creatures live neither wholly on land nor in water, and while they are animals, they are cold-blooded and have scales rather than skin.

Insults are primarily improvised, fixed-phrased formulas and are most powerful when they are employed at points of greatest stress in community life. Insulting is usually a responsive activity, arising in verbal competition. Indeed, with many groups the competition of insults is an obligatory prelude to other agonistic activities: games of strength and skill or physical combat. This is, of course, precisely how insults enter into cheering at an athletic contest, where the strengths of one's own players are paralleled in verbal formulas with the insufficiencies of the others. Traditional rivals have often developed an extensive repertoire of insults that are called forth under licensed conditions when members of the two groups meet, a practice called *blasons populaires* in the folklore literature.

In some cultures, there is such a strong relation between skill in battle and skill in invective contests that official "shouters" are appointed to sing the

praises of past victories and to curse as well as insult the enemy. Such singers of praise, whom we know best through the figure of the bard, scop, skold, and nidpoet of northern European tradition, were regarded not only as purveyors of powerful agonistic language but also as court entertainers; many remnants of their combative shows revealing their invective skill can be found in the manuscript literature. Thus, some of the most important studies of invective have been written about the singers of insults rather than the insult system itself. Because these extemporizers are also the singers of praise and thus the composers of epics, the literature on ritualized abuse is often found in studies of epic composition.

Insults and other performance traditions. Two other important areas of scholarship in which insults are central are discussions of joking relationships and reports of PERFORMANCE traditions featuring the trading of verbal abuse. Both of these areas focus on the playful rather than the bellicose character of invective contests.

A joking relationship is a term used by anthropologists to describe an obligatory relation of familiarity, expressed usually in ribald, licentious, playfully abusive forms of reference or address. Insults arise as a matter of convention between individuals characterized by their group identification. These groups may operate wholly within one culture, such as a sister's son and a mother's brother. (Teasing might be the better term, were the badinage not so abusive.) In other cases, the formal joking has become a means of accommodation between peoples who in the past have gone to war against each other.

The earliest description of such abuse within conventional relationships was made by the British social anthropologist A. R. Radcliffe-Brown, pursuing a functionalist line of argument: such joking occurred in relationships that contained both divergent interests that could lead to hostility and conflict and convergent interests that required the maintenance of friendly relations. An example of such a relationship would be one between a husband and his mother-in-law. Recent studies of such relationships have viewed joking as an activity within an expressive economy, operating in the same range of interactive relationships as greetings and other matters of a formal, ceremonial sort, though joking calls for a special license to use obscenity and insult playfully. Those standing in such categorical social relations have greater expressive flexibility; abusive joking is not obligatory but is only one option among many that can be chosen in interaction. Similar licensed abuse has been widely found among those in less formally structured relationships: age-mates who have formalized palships or members of a special-purpose group (such as a funeral society) in which the insulting may go on during the specially marked and

framed ceremony with which the group is associated.

Folklorists and sociolinguists have devoted special study to occasions that produce performances calling for the invention of artful abuse. These range from the spur-of-the-moment encounters between Afro-American youths called most commonly *playing the dozens* to the hours-long singing improvisations of "the warrior" abuse singers found in many parts of Latin America. Equally artful are the festival and funeral verses improvised throughout the Mediterranean. Because there are stray literary remnants of such *flytings* and *scoldings* between bards in many places, and because of the association of this kind of activity with specific social types (e.g., shepherds, horse traders, barbers), the future study of insults is likely to call on complementary research by comparative linguists and literary historians, sociologists and ethnographers, folklorists, sociolinguists, and other students of heightened and stylized communication.

See also HUMOR; SPEECH PLAY.

Bibliography. Donald L. Brenneis, "Fighting Words," in *Not Work Alone*, ed. by Jeremy Cherfas and Roger Lewin, Beverly Hills, Calif., 1980; Robert C. Elliot, *The Power of Satire: Magic, Ritual, Art*, Princeton, N.J., 1960; Thomas Kochman, ed., *Rappin' and Stylin' Out: Communication in Urban Black America*, Champaign-Urbana, Ill., 1972; A. R. Radcliffe-Brown, *Structure and Function in Primitive Society*, New York, 1952, reprint 1965.

ROGER D. ABRAHAMS

INTERACTION, FACE-TO-FACE

The primary form of communication for humans, the one from which all other forms have developed. Both intuition and the work of investigators indicate that face-to-face interaction is essential in the development of individuals and in the maintenance and transmission of CULTURE. Interaction is generally accepted as the vehicle for such crucially important and interrelated functions as establishing the parent-infant bond, nurturing and guiding the social and cognitive development of the child, defining and sustaining cultures and subcultures, and providing a medium for transactions between individuals—the CONVERSATION, PLAY and games, religious and secular RITUAL, commercial exchanges, greetings, and the like that make up everyday life.

The term face-to-face interaction most immediately suggests occasions when people join together in talk or otherwise jointly sustain a single focus of attention. However, also pervasive in everyday life is less focused interaction in which participants make adjustments in their actions in response to the presence of others, such as changing one's course on the sidewalk to avoid an oncoming pedestrian, changing

one's position in a theater seat to let another move across the aisle, or standing in a certain position and with a certain body tonus in the presence of others in an elevator.

Phenomenologically, face-to-face interaction may be said to come into being when each of at least two participants is aware of the presence of the other, and each has reason to believe the other is similarly aware. In these conditions interaction may be said to have occurred even if there is no perceptible communicative action by either participant. This is because, given a state of reciprocal awareness, interaction might have occurred, and thus even its absence becomes meaningful.

However, investigators cannot rely on a phenomenological definition. Participants' states of awareness are not readily accessible for direct observation. For research purposes we must focus on participants' overt actions. From this viewpoint, interaction occurs as soon as the actions of two or more individuals are observed to be mutually interdependent. Through detailed studies of films or videotapes of interactional events such as greetings, it has been possible to show how people engage in an elaborate process of mutual adjustment of their actions, including their bodily orientations, movements in space, and direction of gaze. In typical, everyday interactions, participants' actions appear to embody strong regularities that lend themselves well to systematic research.

A full analysis of interaction would include many different kinds of action. Use of LANGUAGE is a frequent component: the way words are pronounced, elements of intonation or prosody, syntax, and semantics. In addition to intonation there is quality or manner of speaking, such as variations in loudness and pitch beyond that involved in intonation, tempo, resonance, pauses, and nonfluencies, as well as non-language sounds such as laughing and sighing. Non-speech actions include FACIAL EXPRESSION and bodily movements such as posture and GESTURE; the way in which interactants space themselves and orient their bodies to one another and how they arrange themselves in relation to the physical layout of the environment; and the part played by TOUCH and SMELL and the use of cosmetics, CLOTHING, and artifacts such as pencils, pipes, and canes. *See also* BODY DECORATION; BODY MOVEMENT; INTERPERSONAL DISTANCE; PROXEMICS; SPEECH.

Traditions of Research

One of the earliest attempts to analyze the process of interaction was undertaken by U.S. psychologist Eliot Chapple in 1939. He proposed that any instance of interaction could be treated as a sequence of actions and inactions by the participants. In a conversation, for example, periods of talk by a par-

ticipant could be treated as stretches of action and periods of silence as stretches of inaction. The patterning of these periods could be subjected to quantitative analysis. To facilitate data gathering, Chapple developed the interaction chronograph, a device on which investigators could record the length of speech and silence or other actions and inactions by pressing keys. Chapple used such information to investigate the process of interaction and the characteristic interaction styles of the participants. Chapple also proposed that social structure could be analyzed in process terms as a complex system of interaction. His emphasis on objective analysis of interaction events was highly influential in the great expansion of work on face-to-face interaction that took place shortly after World War II, especially in the United States.

Beginning in the early 1950s considerable interest developed in what has come to be known as **NON-VERBAL COMMUNICATION**. This term draws attention to the complex and subtle ways in which people provide information for one another in interaction through what they do and how they do it, in addition to what they say and how they say it. Much research on nonverbal communication has been carried out by experimental social psychologists intrigued with the possibility that certain nonverbal actions might be used as indicators of other phenomena, such as type of interaction, attitudes or feelings of the participants, their hidden motives, and the like; or of other personal characteristics, such as individual differences. Most of this work has been concerned with measurement of just one or two nonverbal actions at a time. Gaze direction in interaction has proved a particularly popular object of investigation (*see also EYES*).

More relevant to the issue of the process of face-to-face interaction has been another line of research that has examined how participants are able to accomplish a given interaction. Normal everyday interaction is governed in part by a system of rules known by all participants that renders action intelligible, gives rise to a set of mutual expectations regarding appropriate conduct, permits routinely coordinated action by the participants, and—of particular interest to investigators—introduces strong regularities in participants' actions. The research focus here is on the organization (or structure) of interaction, including as far as possible all the actions relevant to that organization. Emphasis is also placed on analyzing sequences of actions involving all participants in the interaction, thus centering on interactive regularities rather than regularities in messages produced by individual participants.

Certain investigators, including **GREGORY BATESON**, Ray Birdwhistell, **ERVING GOFFMAN**, Norman McQuown, and Albert Scheflen, were particularly instrumental in the development of this approach

during its formative period in the early 1950s. Bateson and Birdwhistell were trained as anthropologists, Goffman as a sociologist, McQuown as a linguist, and Scheflen as a psychiatrist. Given this diversity, the intellectual influences on these founders cannot be briefly summarized. However, two authors are prominently cited by almost all of them. Sociologist **GEORG SIMMEL** emphasized interaction as a basic constituent of society and thus an activity of central importance to sociology. Linguist **EDWARD SAPIR** similarly stressed the centrality of interaction to society, as well as the importance of nonlinguistic elements of interaction. Sapir's work was influential in giving current structural work on interaction its strong linguistic cast.

Bateson, Birdwhistell, and McQuown were among the participants in a year-long study group in 1955 that focused on the systematic and comprehensive investigation of interaction. "Natural History of an Interview," a two-volume manuscript resulting from that collaboration, was essentially completed in 1959 but never published. Nevertheless, this work and the contributors to it have exerted considerable influence on the shape of research on face-to-face interaction. In addition, Birdwhistell brought the study of body motion to the attention of investigators; his term for the area—**KINESICS**—is widely used.

Several lines of structural research have been pursued, distinguishable mainly by differences in methodology rather than in underlying conceptual frameworks. Greatly influenced by the contributors to "Natural History of an Interview," Scheflen developed context analysis. This was an attempt to adapt for interaction research the methods developed by structural linguists in the United States. Scheflen's substantive work began with detailed analyses of rather unorthodox approaches to psychotherapy but expanded to include general treatments of interaction and territoriality.

Goffman was perhaps the most prominent writer on interaction. An innovative and influential sociologist, Goffman firmly established the study of small-scale interactional processes as a legitimate area of research. Drawing on his own participant observation and on examples derived from many sources, including news reports and books of etiquette, Goffman was unexcelled at articulating the subtlety, complexity, and diversity of interaction and at illuminating the order underlying it.

Conversation analysis, though deriving from the school of sociology known as ethnomethodology, is very similar to the previously mentioned approaches in its conceptual framework. As implied by its name, primary emphasis is on the study of conversation. Under the early leadership of U.S. sociologists Harvey Sacks and Emanuel Schegloff, conversation analysts have focused on the linguistic elements of conversa-

tions, although there are notable exceptions. Among the many contributions of conversation analysts are discussions of the design features of interaction systems and demonstrations of the complex ways in which syntax is used in the service of interaction, as well as of the ways in which interaction process can affect the production of linguistic utterances.

Components of Interaction

There is more to interaction than structure, however. A complete description of an interaction would have to range beyond signals, rules, and other structural elements. At least two other major components would also have to be included: strategy and situation. Each of the three components—structure, strategy, and situation—is closely linked to the other two.

Situation or context involves an apparently large set of cultural categories that applies to the participants, their relationship, the social setting of the interaction, and other factors. A participant's definition of the situation—that is, the assignment of values to relevant categories—for a given interaction permits choice of appropriate conventions. This matching of convention to situation is possible because each convention carries a set of situational requirements specifying the categories and their respective values that must apply in order for the convention to be appropriately used.

Work on forms of address provides an interesting example of research on situation. In one study U.S. linguist Susan Ervin-Tripp, observing her own rules of address, sought to identify the categories and values underlying the use of such forms as title-plus-last-name, Mr.-plus-last-name, and first name. Using a dichotomous category system, she found, for example, that she used first name in several situations, one of which was when the setting was not status marked and the partner was a friend or colleague who was neither of higher rank nor fifteen years older.

Because of the situational requirements of conventions, the use of a given convention by participants provides information on the categories and values respectively assigned by them. When one participant first uses a convention in an interaction, thus disclosing an attendant set of situational information, it becomes an interactional issue whether or not the partner chooses to ratify or join in the enactment of the convention, thereby tacitly agreeing to the participant's definition.

Strategy, the third major component of a description of interaction, derives from the choices participants make regarding both structure and situation. In either case, strategy involves choice among legitimate alternatives and failure to act appropriately (violation of applicable rules). In its relation to struc-

ture, strategy is roughly analogous to the notion of strategy in games. If structure is similar to the rules of a game, then strategy is the way the participants operate within or break the rules. A move in a chess game would be a single element of strategy: the exercise of an option when more than one move is available within the rules. One cannot operate within a structure without simultaneously engaging in a strategy. At the same time, it is structure that makes the choice of actions meaningful.

Strategy becomes involved in situation through a participant's choices in assigning values to social categories, selecting and ratifying conventions congruent with those assigned values, and selecting and ratifying conventions at variance with those values (a violation). Situation and its attendant strategy may be the sources of much of the richness and complexity we experience in interaction. The general notion of strategy includes but extends beyond the study of individual differences in interaction.

A theme that has emerged in virtually all structural research is that interaction is constructed through the common participation of all those involved. Significantly extending the earlier notions of message or information exchange and of sequential influence of actions, the notion of common participation has been fundamental to the structural analysis of interaction process from its beginning. From this perspective, interactional events such as the exchange of speaking turns are achieved only through the joint, coordinated action of relevant participants. One effect of common participation is that the frequency, duration, and other characteristics of actions such as gazes or smiles, once regarded by many investigators as belonging exclusively to one participant, can be deeply affected in various ways by the actions of the partner.

The notion of common participation emphasizes the deep interconnectedness of things in interaction. The full implications of this basic phenomenon continue to be explored by investigators. On the one hand, common participation appears to complicate some more traditional approaches to interaction research. On the other hand, common participation provides a powerful resource for investigators. By capitalizing on the complex network of relationships among the many different actions by all participants, investigators not only can facilitate research on the process of interaction itself, but also can make more effective use of interaction processes in examining other phenomena of interest, such as individual differences and cognitive processes.

Bibliography. Ray L. Birdwhistell, *Kinesics and Context: Essays on Body Motion Communication*, Philadelphia, 1970; Eliot D. Chapple, *Culture and Biological Man*, New York, 1970; Starkey Duncan, Jr., Donald W. Fiske, Rita

Denny, Barbara G. Kanki, and Hartmut B. Mokros, *Interaction Structure and Strategy*, New York, 1985; Erving Goffman, *Frame Analysis*, Cambridge, Mass., 1974; Robert G. Harper, Arthur N. Wiens, and Joseph D. Matarazzo, *Nonverbal Communication: The State of the Art*, New York, 1978; Adam Kendon, *Studies in the Behavior of Social Interaction*, Lisse, The Netherlands, 1977; Albert E. Scheflen, *Communicational Structure: Analysis of a Psychotherapy Transaction*, Bloomington, Ind., 1973; Jim Schenkein, ed., *Studies in the Organization of Conversational Interaction*, New York, 1978.

STARKEY DUNCAN, JR.

INTERACTIVE MEDIA

Technologies that provide person-to-person communications mediated by a telecommunications channel (e.g., a TELEPHONE call) and person-to-machine interactions that simulate an interpersonal exchange (e.g., an electronic banking transaction). Most scholars would not classify as interactive media those technologies that permit only the selection of content such as a broadcast teletext service with one hundred frames of information, each of which can be selected on demand by a viewer. However, the boundary between selection of content and simulation of an interpersonal communication exchange is not always definable in a specific application or service.

The importance of interactive media is associated, first, with their capability to extend person-to-person communication beyond face-to-face settings. Through audio, audiovisual, and electronic text channels individuals can communicate with others who are geographically dispersed. Second, interactive media offer the potential to overcome a few important limitations of one-way mass media. Whereas the public is a receiver of one-way mass communications, the public can send and receive communications through interactive media. And although mass media are controlled by a relatively small number of individuals working in large institutional settings, some forms of interactive media are controlled by individuals or small groups working in a wide range of settings.

The most common form of interactive media communications is a telephone call. The telephone network may also be used to provide audio communications among groups at two or more locations. This form of communication is generally classified as audio teleconferencing. When a video channel is added to an audio link between groups by means of SATELLITE transmission, microwave transmission, or a two-way CABLE TELEVISION system, the communication exchange is generally classified as a video teleconference. The communication of electronic text messages over the telephone network or other means of transmission is classified as electronic

mail, computer conferencing, or personal computer bulletin boards, depending on the size of the group exchanging messages, control of the system by an individual or organization, and the type of content exchanged. In each of these media content is created largely or entirely by the individuals who use the technology.

However, there is another class of interactive media in which most of the content is created by a centralized production group or organization. Here individual users interact with content created by an organization. For example, in some interactive cable television systems, viewers can respond to questions posed in programming. Typically their response is limited to pressing one of a few alternative buttons on their cable converter box, thereby indicating agreement with one of the opinion statements set out by the program producers. Similarly, much of the content in computer-based interactive media such as VIDEOTEX is created by production groups or the host organization for the system. With the exception of message sending, the interaction consists largely of selecting and manipulating content provided by the service.

Applications. The modern era in interactive media may be traced to the New York World's Fair in 1964, when AT&T demonstrated a picture telephone and predicted that the device would enter millions of homes and businesses within a decade. The picture telephone of the 1960s was a failure owing to its high cost and low demand for such a service. Concurrently the picture telephone received much publicity and focused attention on other potential applications for interactive media. Contributing to the interest in interactive media were the energy crisis in the early 1970s, which focused attention on ways to reduce travel costs through telecommunications; the dispersal of the work force in some industries and government agencies, which underlined the need to link separated work groups; general inflation, which encouraged efforts to reduce operating costs and improve worker efficiency; and advances in cable, satellite, and computer technology, which made it possible for a variety of groups to explore new services.

During this period a range of demonstration projects in Europe and North America examined how government, education, and business services might be delivered through interactive media. British government agencies developed audio and video teleconferencing systems to link geographically dispersed civil servants. In the United States the National Science Foundation supported a series of trials in interactive cable television for providing social service information to senior citizens as well as for training fire fighters, teachers, and day-care workers. Other interactive media projects in North America and

Europe linked doctors at a major hospital via two-way microwave transmission to patients in a small island clinic, allowed public defenders to speak over picture telephones to their clients in a city jail, and linked remote classrooms throughout a state to a professor on a UNIVERSITY campus who provided instruction to the learners at each site. At the same time many commercial applications emerged. In Britain a major videotex service, Prestel, began to offer electronic text information services to homes and businesses in the late 1970s. Similar services followed in other European countries and in Australia, Japan, and North America.

Policy issues. These trials, demonstrations, and services were investigated by scholars from a range of disciplines. They examined the use of interactive media as a substitute for travel and studied the role of interactive media in linking a geographically dispersed work force, including some individuals who work at home, and the impact of such media use on the composition of the work force. On a larger scale, they debated the value of an information-based economy in which interactive media would perform a major role.

Communication scholars also examined the adoption or rejection of interactive media in organizations, along with the problems that might accompany implementing new interactive media services. In addition, they explored the economic, social, and psychological factors that lead individuals and groups in organizations to accept or reject telecommunications innovations. Moreover, researchers documented many of the ways in which interactive media can change patterns of work. Along with expected concerns about the cost and perceived benefit of the technology to an organization, research findings indicate that potential users are often concerned about the threat a new technology may pose to their jobs, how it may change their status within the organization, and whether it may cause them social embarrassment. Although the new technology may be adopted as a replacement for a former way of doing business, it often leads to new work patterns and therefore alters rather than substitutes for the old way.

Focusing more narrowly on the behavior of those using interactive media, communication scholars studied the development of communication codes, the shared rules or pacts that allow individuals to communicate with and be understood by others in a specific social and technological context. The new generation of interactive media increased the number of channels by which individuals could exchange messages, but the development of widely shared communication codes to govern the exchange of those messages will require more time. By studying how new communication codes evolve, researchers hope

to gain some understanding about this fundamental component of human communication.

Interactive media also pose many challenges to the development of communication policies. Policy analysts have addressed issues of PRIVACY, access, and ownership of interactive media, among others. Privacy issues are associated, first, with interactive media content such as electronic mail that is created by users of the technology. Because this content is processed by computers, there is a potential for abuse by government or private agencies that might intercept mail and process the contents. In addition, the use of interactive media often creates information about individuals for billing purposes. Even if one assumes a benign environment in which government and private agencies do not seek to obtain or use this information, its mere existence raises privacy issues.

Several applications of interactive media raise important questions of compliance with a legislative statute or constitutional right. Issues of legal compliance will receive increased attention from scholars if interactive media are applied to courtroom settings, voting in elections, and securities trading.

Access to interactive media is another issue for concern. Unlike mass media, which are relatively available to all (as readers, viewers, or listeners), access to interactive media is restricted—in some instances by high cost and in others by the technical skills required to use the technology. Some analysts have voiced a concern that this may lead to a new society of information haves and have-nots. Indeed, the new-technology environment might return Western society to a pre-twentieth-century model of information flow, when access to and ownership of information was restricted and thereby became an important instrument of economic, political, and social power.

On the other hand, interactive media offer the possibility of extending the number and types of information sources available to the public. Unlike mass media programs, which are expensive to produce and can be distributed only through a limited number of available channels, some forms of interactive media can be inexpensive to produce. Furthermore, the potential number of distribution channels for interactive media is greater. This expectation was expressed frequently during the 1970s. However, as trials and demonstrations ended and commercial services emerged, the economic environment that led to centralized control of the mass media by a few organizations began to have its effect on the interactive media industries. It remains unclear whether interactive media at the turn of the century will indeed provide a greater diversity of information sources to the public.

In response to these policy issues, a few European

countries, notably Sweden, developed policies to manage the interactive media environment. In other countries a long-term trend of deregulation for mass media and telecommunication services was extended to interactive media policies. In these countries interactive media services grew unhampered by policies about privacy, access, and ownership, or they were loosely regulated by policies and laws created for earlier mass media and telecommunication services.

See also AUDIOVISUAL EDUCATION; CITIZEN ACCESS; VIDEO.

Bibliography. Martin C. J. Elton, William A. Lucas, and David W. Conrath, eds., *Evaluating New Telecommunication Services*, New York, 1978; Sven Gustafson et al., *New Views: Computers and New Media—Anxiety and Hopes* (Commission on New Information Technology), Stockholm, 1979; Ithiel de Sola Pool, ed., *The Social Impact of the Telephone*, Cambridge, Mass., 1977; Ronald Rice et al., *The New Media: Communication, Research, and Technology*, Beverly Hills, Calif., 1984; John Short, Ederyn Williams, and Bruce Christie, *The Social Psychology of Telecommunications*, New York, 1976; "Symposium on Experiments in Interactive Cable TV," *Journal of Communication* 28 (1978): 142–208; Ederyn Williams, *Research at the Communications Studies Group, 1970–1977*, Cambridge and London, n.d.

JOHN CAREY

INTERCULTURAL COMMUNICATION

The process of communication across cultural boundaries; also, the academic discipline studying it. As a process it involves the concept of CULTURE, which from this perspective is assumed to represent a unitary whole best understood from the point of view of the actors (e.g., individuals, institutions) involved.

As an academic discipline intercultural communication involves an examination of LANGUAGE and other constituents of interactions in different cultural settings, determinations of their relative importance for the actors involved, and an analysis of other factors that may have an influence on the process. So far three major theoretical perspectives have emerged to account for the phenomena of interest in the field: (1) empiricist, (2) phenomenological, and (3) systems.

The empiricist approach. Greatly influenced by work in both experimental psychology and communications research, this view assumes that the characteristics of sender(s) and receiver(s) are somehow different because of their different cultural backgrounds. All types of exchanges, including NONVERBAL COMMUNICATION, are assumed to be affected by these differences. Three main areas of research have evolved: (1) characteristics of senders and receivers,

with an emphasis on the identification of similarities (see SEMANTIC DIFFERENTIAL); (2) message characteristics, that is, how "standard" forms of intracultural communication vary across cultures (see FOLKTALE; ORAL HISTORY); and (3) characteristics of "good" receivers, with emphasis on the identification of personality and other types of traits that may allow a person to function without much difficulty in a culture different from his or her own (also known as "intercultural competence").

The phenomenological approach. Emphasis here is on the point of view of the participant. U.S. researcher Fred L. Casmir suggests that after elimination of "unexamined preconceptions or presuppositions," phenomenology proceeds to analyze the specific communication event

through the consciousness of interactive communicators by way of their intuition, imagination, and experience. By doing so, phenomenologists feel they are able to gain substantial insight into the essential *structure* and *relationships* of these events, based on concrete examples supplied by experience or imagination, or a combination thereof. Further investigation is often conducted in an intentional sense with the senders, in order to determine what were the motives behind communication events which they initiated.

Thus this approach relies on interpretation: by the participants, of the events they initiate or participate in; and by the researcher seeking to make sense of the phenomena under study.

The systems approach. This represents an effort to synthesize, but also broaden, the scope of the discipline. The systems view considers the previous two approaches as component parts. P. E. Rohrlich has suggested that intercultural communication is best regarded "as a set of interacting elements, actors, interacting in a physically and culturally compounded environment. While the environment exists apart from the system, its cultural relevance derives from cultural perception of it by the system's actors. . . . The elements of the system maintain socio/psycho/cultural depth of cognitive perception which they bring to both intentionally and unintentionally communicated messages." Rohrlich argues that three distinct but interrelated levels—intrapersonal, interpersonal, and synthetic—can be identified, each having specific attributes, research interests, and areas of application. For example, at the intrapersonal level problems of "culture shock" can be addressed through cross-cultural counseling. At the interpersonal level semantic and/or linguistic issues such as translation and interpretation problems can be dealt with through orientation or through training in cross-cultural "management." And at the synthetic level, according to Rohrlich, broader questions derived from general and specific cultural differences can be handled through both positive and negative

feedback mechanisms, for example, in the context of GROUP COMMUNICATION.

Issues

The major deficiency in intercultural communication theory is an inability to specify how culture is learned or transmitted. This limitation is related to the vagueness characteristic of most definitions of culture. Nevertheless, knowing how people "learn" their culture seems crucial for any analysis (empirical or otherwise) of intercultural communication. Because the observation of children learning cultural facts and behavior raises theoretical and methodological problems, an alternative is to study how adults go through the process of accommodating to a new culture ("acculturation").

Much work has focused on techniques for improving interactions between people from different cultural backgrounds. All three theoretical approaches described above have contributed to this line of research.

From a training perspective, the empirical approach has paid considerable attention to the "culture assimilator," a technique of programmed instruction derived from work by Harry Triandis and others. Early work on assimilators—perhaps *facilitators* is a more precise term—was based on extensive interviewing, trying to identify situations in which cultural conflict (or communication difficulties) could arise. Triandis, for example, outlined a procedure that specified a priori a set of conflict dimensions around which episodes were then constructed. The fact that this is an expensive research procedure has limited its development and use, and less expensive protocols still have to prove their effectiveness.

The phenomenological approach, by contrast, has paid very little attention to training techniques. However, experiential learning techniques (e.g., "simulations" and "immersions") may have a relation to phenomenological analysis because of their emphasis on viewing the world from a different perspective.

Systems theory, like phenomenological analysis, has yet to develop unique training approaches. The more germane are those using the concept of "synergy," found in industrial and organizational applications where there is a need to place personnel in foreign cultures. Although the term is less than clear, N. Adler suggests that cultural synergy "attempts to recognize both similarities and differences between nationalities that compose the organization or team. This approach suggests that cultural diversity be neither ignored nor minimized. Rather, cultural diversity can be viewed as a resource in the design and development of the training process and content."

Developments in telecommunications and trans-

portation have had an impact on ideas about contacts between members of different cultures. The task of dealing effectively with foreign situations can be addressed not only through "cultural training" but also by learning rules governing specific interactions. The notion of "microcultures" suggests that such rules of exchange have developed as the world has become more internationalized, so that many interactions no longer represent or critically involve any of the traditional, geographically based cultures. Once the rules are understood, the locale becomes less relevant, and communication is facilitated because participants share knowledge of the rules governing the type of interaction they find themselves in.

At a different level two other related issues have been investigated. One has to do with the effects of TOURISM on local cultures, the other with the potentially negative and/or positive consequences of media materials imported from one culture to another. Although it is difficult to deny the positive outcomes associated with tourism, such as improved economic conditions and increased knowledge of different cultures, questions remain about the unintended changes in the "host" culture derived from the presence of large numbers of visitors. For example, it has been observed that traditional arts and crafts sometimes change in the direction of perceived preferences of the tourists, not always resulting in products of quality or truly reflective of the culture that generated them.

The introduction of new communication technologies and accompanying materials diffused through them has also been a matter of study and concern. Perhaps the major questions have centered on the possible negative consequences on a culture receiving substantial amounts of ENTERTAINMENT, news, films, and other materials produced in foreign countries. The hypothesized effects include both individual-level and societywide outcomes such as changes in consumption patterns, preferences in media use (foreign over locally produced material), and even political and ideological issues (see MARXIST THEORIES OF COMMUNICATION—THIRD WORLD APPROACHES). These are, however, unresolved issues that continue to be studied by academics and several INTERNATIONAL ORGANIZATIONS such as the United Nations Educational, Scientific and Cultural Organization (UNESCO).

Bibliography. Molefi K. Asante, E. Newmark, and C. A. Blake, eds., *Handbook of Intercultural Communication*, Beverly Hills, Calif., 1979; R. W. Brislin, K. Cushner, C. Cherrie, and M. Yong, *Intercultural Interactions: A Practical Guide*, Beverly Hills, Calif., 1986; Fred L. Casmir, ed., *Intercultural and International Communication*, Washington, D.C., 1978; Pierre Casse, *Training for the Cross-Cultural Mind*, 2d ed., Washington, D.C., 1981;

Edward T. Hall, *Beyond Culture*, Garden City, N.Y., 1976; Dan Landis and R. W. Brislin, *Handbook of Intercultural Training*, 3 vols., Elmsford, N.Y., 1983; Charles E. Osgood, William H. May, and Murray S. Miron, *Cross-Cultural Universals of Affective Meaning*, Urbana, Ill., 1975; Harry C. Triandis, Varso Varsilian, et al., *The Analysis of Subjective Culture*, New York, 1972.

DAN LANDIS

INTERNATIONAL COMMUNICATION. For a discussion of the formal contacts between nations, see **DIPLOMACY**; **INTERNATIONAL ORGANIZATIONS**. The entry **INTERCULTURAL COMMUNICATION** discusses a somewhat related topic.

A historical background is offered in the entries **COLONIZATION**; **EXPLORATION**; **MIGRATION**; **SILK ROAD**. An increasingly significant form of international communication is discussed in **TOURISM**.

Several entries deal with communication developments in different regions: **AFRICA, TWENTIETH CENTURY**; **ASIA, TWENTIETH CENTURY**; **AUSTRALASIA, TWENTIETH CENTURY**; **ISLAMIC WORLD, TWENTIETH CENTURY**; **LATIN AMERICA, TWENTIETH CENTURY**. Disparities between developed and developing societies in their influence over the flow of communication are discussed in **COMPUTER: IMPACT—IMPACT ON THE WORLD ECONOMY**; **NEWS AGENCIES**; **SATELLITE**; **TELEVISION HISTORY—WORLD MARKET STRUGGLES**. Efforts to combat such disparities are reviewed in **DEVELOPMENT COMMUNICATION** and **NEW INTERNATIONAL INFORMATION ORDER** and are further analyzed in **MARXIST THEORIES OF COMMUNICATION—THIRD WORLD APPROACHES**. Various problems arising from the use of communications for international political purposes are addressed in **DISINFORMATION**; **PROPAGANDA**; **RADIO, INTERNATIONAL**.

INTERNATIONAL ORGANIZATIONS

As settings for interactions among nations and for collective problem solving in particular, international organizations have especially important functions in the field of communications. Communication issues inevitably transcend national boundaries. There are two kinds of international organizations: governmental and nongovernmental. The governmental organizations—often called intergovernmental—are the setting for interactions in which official representatives are the main legal actors. Nongovernmental organizations, on the other hand, consist primarily of private citizens, groups, or both, who cooperate on the international level.

Many international organizations are global in nature, with members in every region of the world. In some, membership is open to all concerned, as is the case with the Universal Postal Union. Others

have a limited membership relating to their more restricted purposes and scope of activities. Many of these, such as the European Broadcasting Union and the Organization for Economic Cooperation and Development, are regional or specialized in structure but also engage in international activities. These are usually referred to as regional or specialized organizations.

History

International organizations active in communications are among the oldest in existence. The first modern international governmental organization, the Central Commission for the Navigation of the Rhine, was established in 1851 by the Congress of Vienna. During the nineteenth century the number of international organizations in the fields of transportation and communication grew rapidly, primarily in response to the growth in transportational commerce and communication that accompanied industrialization as well as the development of **TELEGRAPHY** and the **TELEPHONE**.

The oldest international governmental organization still in existence, the International Telecommunication Union (ITU), traces its history back to 1865, when the conference of the International Telegraphic Union, composed of twenty European states, met in Paris to establish rules for the transmission of telegraph messages across national boundaries (see **TELECOMMUNICATIONS POLICY**). Earlier such messages had to be transmitted to the border, walked across the frontier, and retransmitted. This arrangement resulted in distortion, loss, or interception of the information, and a great deal of frustration. The treaty established international regulations in telegraphic communications and granted the participant nations the right to correspond by telegraph, providing protection for **PRIVACY** and **SECURITY** in the transmission of such messages.

The advent of the telephone in 1876 prompted the International Telegraphic Union to add *telephone* to its name, thus becoming the International Telegraph and Telephone Union. From 1903 to 1906 attempts were made to achieve interference-free **RADIO** communication. Another union was founded in Berlin in 1906 by twenty-seven maritime states to regulate radio communication to ships at sea and to set **STANDARDS** for radio frequencies and technology. It was through the realization of the advantages of this type of international communication cooperation that in 1932, at the Madrid International Telecommunications Conference, these two international intergovernmental organizations (the International Telegraph and Telephone Union and the Radio-Telegraphic Union) merged to form the International Telecommunication Union. At the 1947 Atlantic City Plenary Conference ITU became a specialized agency

of the United Nations, linking ITU in many ways to that newly established international organization.

The earliest international response to the international flow of information through POSTAL SERVICE systems was the establishment in 1878 of the Universal Postal Union. This organization negotiated and developed international protocols and regulations.

The development and spread of LITERACY and modern EDUCATION, accompanied by the development of mass communication—especially the growth of the book PUBLISHING industry and the support for freedom of expression in Europe during the late nineteenth century—prompted the development of international COPYRIGHT agreements. The Bern Convention in 1886 laid down the principles of the Universal Copyright Convention, in which many nations participated.

The number of international organizations, both intergovernmental and nongovernmental, grew even more sharply after each world war. Membership in these organizations increased as the result of decolonization and struggle for political, economic, and cultural independence. During World War I there were more than 80 intergovernmental and close to 500 nongovernmental organizations, of which approximately 20 and 200, respectively, were in the fields of communication and transportation. By the beginning of the 1980s these numbers had increased to roughly 350 intergovernmental and 2,600 nongovernmental organizations, of which about half in each category dealt with some aspects of communications, transportation, education, and cultural activities (see Figure 1).

The increase in the number of international organizations of all kinds since the mid-nineteenth century has been due mainly to the following factors:

- the development of modern telecommunications technologies, especially satellites and computers (see COMPUTER: IMPACT; SATELLITE)
- the increase in the number of nation-states, transnational organizations, groups, and individuals involved in communication activities
- the call for regulation and standardization, aimed at promoting efficiency and the “free flow” of information
- protection of national sovereignty, individuals’ rights, and privacy
- international and regional development and cooperation
- allocation of communication resources (e.g., of the radio SPECTRUM) and prevention of unwanted interferences
- increased promotion of international cooperation, understanding, and peace
- negotiation of demands, disputes, and arbitration
- the design of international legal regimes and poli-

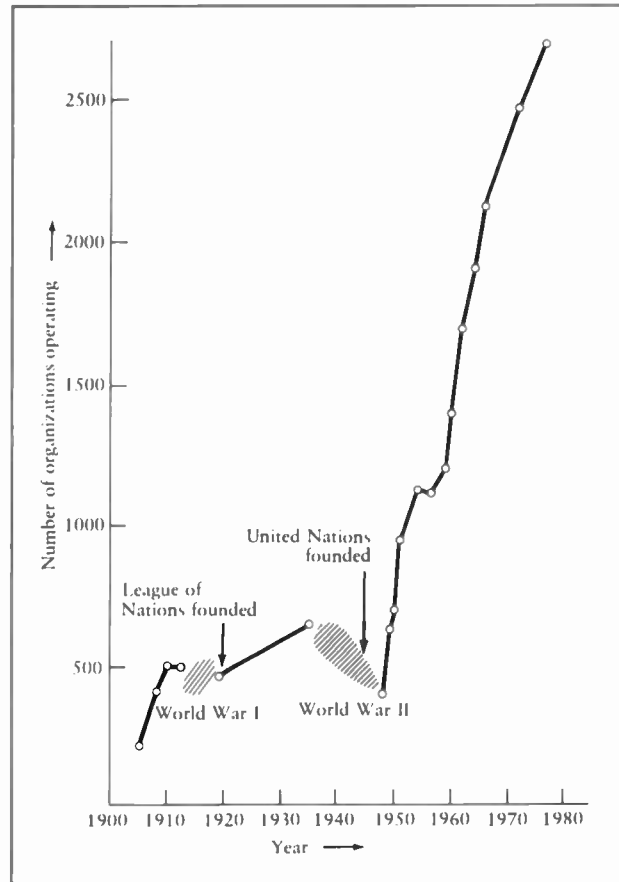


Figure 1. (*International Organizations*) Pattern of growth in the number of international organizations, governmental and nongovernmental, during the twentieth century. Redrawn after Colin Cherry, *World Communication: Threat or Promise?* Chichester, Eng., and New York: John Wiley and Sons, 1978, p. 124.

cies in regard to information flow across national boundaries

- research and development
- exchange of scientific, technical, and cultural information

Speed in communication is a prerequisite for stable world development, as it helps bridge sociopolitical and resource distribution disparities (see DEVELOPMENT COMMUNICATION). Since international communication can assist development in such fields as trade, health, and scientific knowledge, the coordination and smoothing of the flow of information through international organizations become essential to world peace and security. See also DIPLOMACY.

The United Nations

The most important intergovernmental organization established since World War II is the United Nations (UN). It is essentially different from the former League of Nations, established in 1920, in that it operates

in economic and social fields rather than being limited to political debate. The UN is able to make provisions for actual cooperation through specialized, autonomous bodies like the United Nations Educational, Scientific and Cultural Organization (UNESCO). A unique feature of the UN is the separation maintained between the political and operational spheres, to guard against infringement on national sovereignty. The UN also allows nonmember states to be "associates" (e.g., Switzerland, a nonmember, participates in most specialized areas).

Twenty-four UN agencies (with related organizations) deal with education, science, CULTURE, sociology, economics, health, mass communication, agriculture, aviation, postal service, maritime issues, and other essential and practical areas of international development. Of these, five major organizations besides UNESCO are concerned directly with world communications: the Universal Postal Union (UPU), the World Intellectual Property Organization (WIPO), the ITU, the International Civil Aviation Organization (ICAO), and the International Maritime Consultative Organization (IMCO).

In a sense, all UN agencies are concerned with communication in that their tasks are to improve international organization, which inherently requires communication and the collection and dissemination of information. UNESCO in particular deals directly with international communication through examination of the uses of modern communication technologies, literacy, textbooks, mass communication, sociological and demographic data, exchanges of cultural and scientific information among countries, translation, and the wide variety of issues related to human communication and culture.

UNESCO's principal activities in the information field include technical assistance to the developing areas, its contribution to the copyright laws, and its concern with problems of imbalance in the world flow of information. The organization has been in the forefront of the debate over the need for a NEW INTERNATIONAL INFORMATION ORDER and has been the major forum for the promotion of national and international communication policies, especially through the work of the International Commission for the Study of Communication Problems (the MacBride Commission, named for its president, Sean MacBride). The so-called MacBride Report led to the establishment of the International Program for the Development of Communications (IPDC), which operates within the UNESCO framework and is supervised by an intergovernmental council elected from UNESCO members. Its main task is to assist the developing countries in improving their capabilities in the field of communications, mainly by supplying trained personnel and technical infrastructure.

The WIPO protects proprietary rights in published

work. Its Patent Information Network, with nearly seven million citations, is a major activity in international recordkeeping and dissemination. Its primary task is to administer the 1952 Universal Copyright Convention.

The UN's four other main specialized organizations responsible for world communications planning (the ITU, UPU, ICAO, and IMCO) work together closely because their spheres of interest overlap to a large degree: international postal service depends on air transport; air transport relies on radio communications, telex, and, increasingly, use of satellites; and telecommunications is essential for safe and efficient navigation and for international shipping. The common factor is telecommunications, without which none could operate on a global scale (*see TELECOMMUNICATIONS NETWORKS*). The ITU and UPU are concerned with message traffic; the ICAO and IMCO, with transport communications. Each has its own constitution, methods of operation, budget, and forms of representation. The highest administrative bodies of these organizations work with their permanent secretariats to deal with general policy, while consultative committees may be set up to deal with technical questions. The strength of this arrangement is that agencies can draw on the expertise of a wide range of actors in particular fields, and commercial independence is not violated. One weakness is the lack of enforcement ability, as such committees are strictly advisory organs.

The most complex organizational structure belongs to the ITU, which has three permanent organizations other than its secretariat: (1) the International Telegraph and Telephone Consultative Committee, (2) the International Radio Consultative Committee, and (3) the International Frequency Registration Board. This collective provides technical assistance, including training, to members. The ITU had the most challenging task of dealing with technological developments in communication—from telegraph to communication satellite—all achieved in less than a century. Its work is crucial to NEWS AGENCIES, data communication services, and navigation, as well as broadcasting. This expansion of the tasks assigned to the ITU is reflected in its World Administrative Radio Conference (WARC), which deals with a complex set of technical—and often controversial—questions, including the allocation of international radio frequencies.

The UN has also been involved in other communication-related issues and problems through its specialized committees and related organizations in the fields of social and economic development. Its Committee on the Peaceful Uses of Outer Space (COPUOS) was assigned numerous tasks, among them the study of the legal problems arising from outer space activities (e.g., direct broadcast satellite and remote

sensing), and has produced documents that are generally considered basic to space law. Other UN organizations and agencies such as the International Bank for Reconstruction and Development (commonly referred to as the World Bank), the General Agreement on Tariffs and Trade (GATT), the United Nations Development Program (UNDP), and United Nations University (in Tokyo) have been active in the areas related to telecommunications and socioeconomic development.

Other Organizations

The development of satellite technology has greatly enhanced the importance of international organizations beyond the UN system. The International Telecommunications Satellite Consortium (known as INTELSAT) provides common-carrier satellite service to most countries of the world, and as a major component in the international infrastructure for transborder data flow, it plays an important role in economic communication across national boundaries. As an intergovernmental organization INTELSAT has been viewed as one of the most successful efforts in global cooperation and international development. Similar in function but smaller in size is the intergovernmental system INTERSPUTNIK, with membership composed of the Soviet Union, the socialist countries of eastern Europe, and a number of other socialist and nonsocialist nations in Asia, the Middle East, and Latin America. INTERSPUTNIK coordinates its activities with the ITU and has established agreements with other organizations and nations on areas and methods of cooperation.

One of the earliest uses of satellite communications was for navigation. This led to the establishment of a new international intergovernmental organization called the International Maritime Satellite Organization (INMARSAT), whose satellites provide links to ships at sea with a combined system of computer networks and DATA BASE access.

An essential function of international organizations has been their ability to identify specific communications technologies of interest to different groups and nations. It is in this context that another major organization, the Intergovernmental Bureau of Informatics (IBI), was established. Its aim is to coordinate and set standards for the field of informatics—the design, construction, evaluation, use, and maintenance of computer- and satellite-based information systems, as well as their policy implications.

An increasing number of international organizations, while limited in their domain, are united by some geographical, cultural, technological, or historical associations. Many of these “regional” organizations are active in some aspects of communications technologies and their policy implications. Intergov-

ernmental organizations of this type include the European Economic Community (EEC), the Council of Europe, the Organization of American States (OAS), the Organization for Economic Cooperation and Development (OECD), the Organization of African Unity (OAU), and the Arab League Educational, Cultural, and Scientific Organization (ALECSO). Operational agencies and professional organizations (both intergovernmental and nongovernmental) include the European Conference of Postal and Telecommunications Administration (ECPTA), Arab Telecommunications Union (ATU), Pan African Telecommunications Union (PATU), European Broadcasting Union (EBU), Asia Pacific Broadcasting Union (ABU), Islamic Broadcasting Union (IBU), and World Association for Christian Communication (WACC).

There are also large numbers of nongovernmental professional media organizations in the communications field, such as the International Organization of Journalists, the International Press Institute, the International Federation of Journalists, the International Federation of Information Processing, the International Documentation and Communication Center, and the International Press Publishers. Active in the scholarly and professional fields are such organizations as the International Association for Mass Communication Research (IAMCR), the International Communication Association (ICA), and the International Institute of Communications (IIC). Because these organizations have no direct governmental authority, they exert only indirect influence on major international communications policies, but they have great impact on the “climate” of the international decision-making process.

Many aspects of the activities of international organizations involve political, economic, and cultural—as well as bureaucratic and organizational—BARGAINING, which can best be described as international political discourse (*see* POLITICAL COMMUNICATION). In addition, states often use international organizations as part of their own policies to advance their economic and political preferences. In general, cooperation and problem solving among states have been more extensive in the technical, regulatory, and cultural areas of international communication than in the political and economic aspects of the field.

Bibliography. Anne W. Branscomb, ed., *Toward a Law of Global Communications Networks*, White Plains, N.Y., 1986; Colin Cherry, *World Communication: Threat or Promise?* rev. ed., Chichester, Eng., and New York, 1978; George A. Coddling, Jr., and Anthony M. Rutkowski, *The International Telecommunication Union in a Changing World*, Dedham, Mass., 1982; George Gerbner and Marsha Siefert, eds., *World Communications: A Handbook*, New York, 1984; Harold K. Jacobson, *Networks of Interdependence*, New York, 1979; David M. Leive, *Inter-*

national Telecommunications and International Law: The Regulation of the Radio Spectrum, Dobbs Ferry, N.Y., and Leiden, Holland, 1970; Hamid Mowlana, *Global Information and World Communication: New Frontiers in International Relations*, White Plains, N.Y., 1986; Kaarle Nordenstreng, *The Mass Media Declaration of UNESCO*, Norwood, N.J., 1984; Edward W. Ploman, *International Law Governing Communications and Information*, London, 1982; Union of International Associations, *Yearbook of International Organizations* (Annuaire des organisations internationales), biennial, Brussels, 1948-.

HAMID MOWLANA

INTERPERSONAL COMMUNICATION

The most general meaning of the term *interpersonal communication* is simply "communicating between persons," but scholars insist on a narrower and more rigorous conceptualization. The anchor points for such a conceptualization are (1) at least two communicators intentionally orienting toward each other, (2) as both subject and object, (3) whose actions embody each other's perspectives both toward self and toward other. In an interpersonal episode, then, each communicator is both a knower and an object of knowledge, a tactician and a target of another's tactics, an attributor and an object of attribution, a codifier and a CODE to be deciphered.

Beyond this basic conceptualization the question "What makes communication interpersonal?" has been answered in several quite different ways. *Interpersonal* has been defined in terms of

1. The *channels of communication* available to the interactants. Applying this criterion, interpersonal communication is equivalent to face-to-face interaction because only in this context do interactants have access to visual, tactile, and vocal messages (see INTERACTION, FACE-TO-FACE).
2. The *degree of structure* in the interactional situation. In contrast to the predictable patterns of communication found in highly ritualized, formal, or typified situations, interpersonal communication is associated with informal, spontaneous, and unstructured situations.
3. The *number of interactants*. Accordingly, as one moves from dyadic to increasingly larger units, communication among interactants becomes less interpersonal (see GROUP COMMUNICATION).
4. The *closeness of the relationship between interactants*. Communication in intimate relationships, therefore, is viewed as more interpersonal than communication in role relationships.
5. The *kind of knowledge used by communicators*

when making predictions about the consequences of their messages. By this standard, predictions based on cultural or sociological knowledge produce impersonal communication. Conversely, predictions based on psychological knowledge produce interpersonal communication.

Not only has interpersonal communication been defined in different ways, but as a specific field of inquiry it encompasses all the disciplines concerned with social behavior or human interaction. The cross-disciplinary nature of the field is reflected in its historical development. Early in the twentieth century a number of influential sociologists drew attention to interpersonal communication by observing that the self evolves out of interaction with significant others. The implications of this insight were examined thoroughly by GEORGE HERBERT MEAD, whose work became the foundation of socialization theory and an explanation for how cultural norms are internalized by individuals. Strongly influenced by Mead's "interactionist" sociology, the psychiatrist HARRY STACK SULLIVAN gave a series of lectures in the 1940s in which he introduced an interpersonal orientation to the field of psychiatry. Sullivan's approach shifted the focus of psychiatric study from inside the individual to relationships between individuals. This relational emphasis was reinforced and extended by GREGORY BATESON, who attempted to formulate a general theory of communication applicable to individuals, groups, and cultures. At about the same time Fritz Heider, a social psychologist, wrote *The Psychology of Interpersonal Relations*, a book that set an agenda for empirical research on attraction, attribution, and communication. During the 1960s U.S. involvement in the Vietnam War inspired outspoken criticism of U.S. social ideals. Searching for alternatives to conventional ideals, a group of self-styled "third-force" psychologists offered a humanizing approach to interpersonal relations based largely on Martin Buber's interhuman philosophy of "dialogue" and the virtuous ideals of confirmation and authenticity.

Perspectives

There is no general theory of interpersonal communication, but there are several distinctive perspectives on the subject. Underlying each perspective are certain premises about the nature of interpersonal life. Although these premises are not always stated explicitly, they become quite evident when one examines the lines of investigation associated with a particular perspective. Each perspective can be seen as a set of premises about the relation between self and other on the basis of which specific research problems are formulated (see Table 1).

Table 1. Perspectives on Interpersonal Communication

<i>Model</i>	<i>Relations</i>	<i>Focus</i>
Monadic	Control	Individual
Dyadic	Coordination	Collective
N-adic	Self-regulation	Contextual

Interpersonal relations as control. Interpersonal communication has been viewed as a problem of control in which self seeks to control the outcomes of other. Interpersonal situations are seen as uncertain, but it is assumed that the problem of how to act can be decided rationally on the basis of social knowledge. Thus interpersonal communication is described as a goal-oriented activity in which the probability of success is determined largely by whether self has enough social knowledge and/or social skill to predict and control other's responses. Since primacy is granted to self—the individual “knower”—the control perspective is highly individualistic. The focus is on what is happening inside the individual. Interpersonal communication is reduced to an outcome of psychological processes.

The control perspective has given rise to several lines of research emphasizing strategic communication. One approach has been to define the goal of interpersonal communication as compliance and to examine the factors associated with self's ability to elicit compliance from other. Compliance gaining has been conceptualized as an ability to select an appropriate message strategy. As a result, research on compliance gaining has focused on developing taxonomies of message strategies and also on determining the conditions under which communicators select different strategies. Unfortunately this research has not progressed beyond the point of asking individuals which strategies they would select, or have selected in the past, to “get their way.” The responses of other to self's selections have not been observed. Also, compliance typically has been studied as an event that occurs at one point in time rather than as a sequence of interaction involving maneuvers and countermoves between self and other.

A second approach has focused on the processing and application of social knowledge. Referred to as the social cognition approach, this line of research emphasizes the structures of knowledge that self brings to an encounter with other and examines how self gathers, retrieves, processes, and applies social information during the course of an interaction. One program of research representative of this approach is the constructivist perspective, which hypothesizes

a causal relationship between an individual's system of constructs and the messages the individual will produce in an interpersonal encounter. The system of constructs is the organized cognitive structure by which self anticipates, interprets, and evaluates other's responses. The more differentiated and abstract self's system of constructs, the more likely it is that self will form multiple goals and identify multiple obstacles to achieving these goals. An individual with a complex construct system is thought to possess a more highly developed repertoire of strategies. This type of individual has learned to approach interpersonal communication as a situation involving complex communication tasks and has developed a wide variety of interpersonal tactics to cope with this complexity. The constructivist perspective extends the scope of research on interpersonal strategies beyond compliance by acknowledging the multiple intentions that self may have when encountering other. However, message selection and production still are examined only from the individualistic perspective of the message producer. *See also* SOCIAL COGNITIVE THEORY; STRUCTURALISM.

Interpersonal relations as coordination. Interpersonal communication has been construed as a problem of coordination in which self and other must coordinate their lines of action in order to achieve their personal goals. In contrast to the monadic model of communication represented by HAROLD D. LASSWELL's famous equation—“Who says what in which channel to whom with what effect?”—the coordination perspective is tied to a dyadic model of communication that views the relation of self to other as a coorientation process involving something more than an aggregate of individual processes (*see* MODELS OF COMMUNICATION). The dyadic model can be traced back to JOHN DEWEY and Mead in interactionist psychology, to Theodore M. Newcomb in social psychology, and to ALFRED SCHUTZ in phenomenological sociology. Terms such as *role-taking*, *intersubjectivity*, and *joint-consciousness* have been coined to reflect how each person projects part of the other's consciousness onto his or her own, thus joining together, at least temporarily, into a single interaction system.

Much of the empirical work associated with the coordination perspective was inspired by British psychiatrist R. D. Laing's observations on interaction and interpersonal perception in dyads. Laing observed that each person's behavior toward the other is mediated by the experience by each of the other, and the experience of each is mediated by the behavior of each. This deceptively simple statement provided the foundation for a series of collective representations of experience in a dyad, referred to as levels of coorientation. These levels include

1. level of agreement (what self thinks; what other thinks);
2. level of understanding (what self thinks other thinks; what other thinks self thinks); and
3. level of realization (what self thinks other thinks self thinks; what other thinks self thinks other thinks).

By taking into account the levels of experience of self and other as a dyad, investigators are able to study the relations between the two persons systematically. A coordination model of measurement has been applied in investigations of consensus, superior-subordinate relations, family socialization, and disturbed communication in marriage.

The coordination perspective is rooted in the premise that reality is socially constructed and must be socially sustained. The premise of a socially constructed reality embodies three important assumptions: (1) meanings are learned through *SPEECH*, (2) speech is a social process governed by rules, and (3) without rules there can be no meanings (*see MEANING*). These assumptions draw attention to the inextricable connections among speech behavior (verbal and *NONVERBAL COMMUNICATION*), rules, and meanings. This corpus of concepts is central to an approach to the study of interpersonal communication referred to as *rules perspectives*.

One of the most widely discussed rules perspectives is the coordinated management of meaning, a theory of interpersonal communication that attempts to explain the procedures by which individuals coordinate their actions. The theory defines rules as cognitions existing in the heads of individual actors. Rules organize the meanings of actors and subsequently regulate their actions. Since individuals will frequently be guided by different rules, the theory draws attention to cases in which coordination requires self and other to assign different meanings to the same messages. Thus the theory emphasizes managing meanings rather than sharing them.

The theory of coordinated management of meaning calls into question the assumption that interpersonal communication accomplishes a sharing of the same meanings between individuals. Meanings are not fixed by messages. In fact, only the most trivial messages are transparent. Although it is commonly assumed that "whatever can be meant can also be said and understood," this "principle of expressibility" may have no meaningful application outside the realm of unequivocal literal expressions. In the world of ordinary discourse between human beings the main qualities of expression are nonliteralness, ambiguity, vagueness, and incompleteness. Speakers are rarely able to say exactly what they mean. Typically self and other have different knowledge and beliefs about the world, and encounters between such dif-

ferent private worlds cannot be expected to produce "shared meaning" in the ordinary sense of that term. Rather than the ideal of a pure intersubjectivity based on the possibility of a free and complete interchangeability of dialogue roles, the "real" world of interpersonal relations is only a partially shared one in which a sense of sharing is the product of mechanisms of control over meanings as well as mutual faith in a shared social world. *See also* AUTHORSHIP.

Interpersonal relations as self-regulation. Interpersonal communication has been viewed as a problem of self-regulation in which self and other form a system that controls itself by following largely implicit rules established through a process of trial and error over a period of time. In contrast to the monadic and dyadic models of communication, the principles of self-regulation may be thought of as "N-adic" in that they assume "it is always the most complex that explains the most simple." This contextual orientation implies that an analysis of any communication system must extend the boundaries of the system to include other interactants implicated in or by the system.

Self-regulation has been used to describe the functioning of naturally evolving groups such as families and work teams (*see FAMILY*). These bonds evolve over a period of time through a sequence of transactions and feedbacks until the members become a unit governed by stable rules unique to them alone. The systemic orientation holds that members of such groups should be seen as elements in a circuit of interaction. While it is acceptable to assume that every member has influence, it is unacceptable to conclude that any one member's behavior causes the behavior of others. As elements in a circuit, none of the members has unidirectional power over the whole. Causality is circular insofar as every member influences the others and is influenced simultaneously by them. The part cannot control the whole, or, as systems theorists have expressed it, "the power is only in the rules of the game," which cannot be changed by the people involved in it.

The principles of self-regulation are sometimes classified as part of a school of thought about human communication referred to as the *interactional view*. Most closely associated with the cybernetically informed writings of Bateson, the proponents of the interactional view have successfully applied transactional and systemic concepts to the analysis of communication systems. This corpus of work has emphasized

1. the coexistence of analogical and digital messages;
2. metacommunication and its power to frame "a context of contexts";
3. how interactional circularity is reflected in the report and command levels of communication

and embodied in the arbitrary punctuation of interaction sequences;

4. the necessity of defining relationships and the symmetrical and complementary forms that relational definitions typically assume;
5. the tendency of interactional sequences to perpetuate themselves; and
6. interactional paradoxes.

Many of these seminal ideas about communication systems were incorporated in the famous double-bind theory of schizophrenic transaction. The double bind is a description of a repeated sequence of interaction that, because of the conflicting, unresolvable messages being sent, produces the kind of confusion associated with feeling "damned if you do and damned if you don't." An injunction is made and simultaneously disqualified by the same person. This double message is accompanied by another message that rules out any possibility of commenting on the bind or leaving the field. "Victims" of repeated occurrences of this sequence will inevitably learn to distrust their perceptions, thus accounting for the once-puzzling tendency of schizophrenics to use communication to deny that their communication is a communication.

Research Domains

As the different perspectives show, there is no widely accepted framework for organizing the large volume of research on interpersonal communication. Yet it is possible to discuss some particular research objectives in terms of the conventional categories of structure, function, and process.

Structure. One of the most productive lines of inquiry has been the effort to determine universal parameters of interpersonal behavior. The accumulated evidence strongly suggests that influence and affection are fundamental processes of communication found in some form everywhere. Most of the variation in individual behavior can be accounted for by these two behavioral dimensions and by some measure of interactional frequency. There is also conclusive evidence of an "interpersonal reflex," a tendency for certain behaviors to elicit certain responses. Although reciprocity is limited by fluctuations in the situation and relationship between partners, regular patterns of mutual influence have been observed in a wide variety of linguistic, vocal, and kinesic behaviors (see KINESICS). Structural studies of long-term relationships have focused on relationship boundaries, such as rules of participation, and structural hierarchies, such as rules of power and authority. This work has pointed the way to methods of intervention conducive to therapeutic and organizational change.

Function. There are numerous ways of classifying the desired or potential consequences of interpersonal communication. Research has strongly suggested that interpersonal communication is multifunctional. Almost every message has the potential to produce more than one outcome. Traditionally researchers have insisted on classifying behavior in terms of mutually exclusive categories, but that arbitrary rule is no longer viewed as useful. The following are usually included among the most central functions of interpersonal communication: (1) to organize, (2) to manage impressions, (3) to validate, (4) to disclose, and (5) to protect. Researchers have identified a number of highly generalized contradictions that have substantial force in determining communication outcomes. They include stability/change, autonomy/interdependence, and expression/protection. These contradictions often take the form of mixed motives, making it difficult to decide precisely how to act or what to say in a particular interpersonal situation.

Process. Research on process focuses generally on how interpersonal relationships develop over time and, specifically, on how properties of time constrain interpersonal transactions. Much of this research has been confined to one time period only, largely owing to the methodological and sampling problems associated with longitudinal research. Initial interactions have been shown to be highly predictable transactions that seem to be governed by a principle of uncertainty reduction. Beyond initial interaction, there is very little conclusive research on the development of interpersonal relationships. The development of an interpersonal relationship is not a systematic and orderly process but seems instead to be characterized by retreats and advances that are episodically conditioned by the particular interaction experiences of the participants.

See also CONVERSATION; DECEPTION; SOCIAL SKILLS.

Bibliography. Carroll C. Arnold and John Waite Bowers, eds., *Handbook of Rhetorical and Communication Theory*, Boston, 1984; Dean C. Barnlund, ed., *Interpersonal Communication: Survey and Studies*, Boston, 1968; Gregory Bateson, *Steps to an Ecology of Mind*, New York, 1972; Michael Brenner, ed., *The Structure of Action*, New York, 1980; Frank E. X. Dance, ed., *Human Communication Theory: Comparative Essays*, New York, 1982; Fritz Heider, *The Psychology of Interpersonal Relations*, New York, 1958; Mark L. Knapp and Gerald R. Miller, eds., *Handbook of Interpersonal Communication*, Beverly Hills, Calif., 1985; R. D. Laing, Herbert Phillipson, and A. Russell Lee, *Interpersonal Perception: A Theory and a Method of Research*, London and New York, 1966; George Herbert Mead, *Mind, Self, and Society*, ed. with an intro. by Charles W. Morris, Chicago, 1934, reprint 1962; Mara Selvini Palazzoli, Luigi Boscolo, Gianfranco Cecchin, and

Guiliana Prata, *Paradox and Counterparadox* (Paradosso e controparadosso), trans. by Elisabeth V. Burt, New York, 1978; W. Barnett Pearce and Vernon E. Cronen, *Communication, Action, and Meaning*, New York, 1980; Harry Stack Sullivan, *The Interpersonal Theory of Psychiatry*, New York, 1953; Paul Watzlawick, Janet Helmick Beavin, and Don D. Jackson, *Pragmatics of Human Communication*, New York, 1967; C. Wilder-Mott and John H. Weakland, eds., *Rigor and Imagination*, New York, 1981.

ARTHUR P. BOCHNER

INTERPERSONAL DISTANCE

The spacing of individuals whenever they are in each other's presence. The distances adopted are affected in the first place by the situation and the nature of the interactional activity, but individual preferences, goals, and expectations also may play an important part. Thus the distances adopted may be quite variable from one circumstance to another. The term *personal space*, coined by U.S. psychologist Robert Sommer, has also been widely used. This term has sometimes been taken to refer to a "bubble" or sphere of space that surrounds the individual, providing protection from intrusion by others. Because the spacings between people are always a function of their interaction, interpersonal distances may be quite variable for an individual over time. Consequently, the term personal space can be misleading if it implies that individuals carry a protective spatial zone around them that is constant in size.

Situational Influences

The role of the situation in structuring spatial patterns is a pervasive one, yet one that enters awareness infrequently once the situational norms are learned. The kinds of activities characteristic of different settings are critical in determining appropriate interpersonal distances. For example, the demands of games or SPORTS may lead players to congregate closely as in football or spread themselves widely as in baseball. In general, the hitting, throwing, or kicking of a ball requires substantial spacing among at least some of the players, whereas the direct physical competition of wrestling or boxing requires intense bodily contact. In other activities, such as military marching band drills, spacing is controlled to within fine limits of tolerance. In such settings it is very likely that neither one's personality nor interpersonal affect is much of an influence on spacing. The requirements of different work settings can also impose fairly specific constraints on spacing. In many work settings the activity norms and the physical design of the setting determine the spacing among employees (e.g., workers on an assembly line or clerks in an open office area). In other settings the activity norms determine the spacing between the professional and the

client (e.g., between a physician and a patient or between a barber and a customer). In general, these prescribed spacing norms may be seen as serving specific task or service functions. That is, the completion of the task or service requires, or is at least facilitated by, a particular spatial arrangement. Furthermore, individuals are substitutable in the sense that replacements will occupy spatial arrangements comparable to those they replaced.

Although the situational determinants of spacing are very important, most empirical research tends to overlook the role of the situation. In fact, most studies focus on relatively artificial interactions between strangers meeting in a laboratory room, hardly a circumstance representative of everyday exchanges. Many other studies simply examine people's conscious schemas for spacing behavior by having them arrange miniature cutout figures representing themselves and others. This latter technique can provide useful information on people's cognitions about relative spacing preferences, but such conscious preferences may not be representative of spontaneous spacing patterns.

Regulating Interaction

In addition to serving specific task and service functions in various settings, spatial behavior also facilitates the regulation of interaction. U.S. anthropologist Edward T. Hall has written extensively on the manner in which distance determines the form of specific interactions. In general, closer distances that permit TOUCH and olfactory input are appropriate for intimate exchanges (*see also* SMELL). As interactions become more formal, less personal, and less intense, interpersonal distances increase. Thus distance and arrangement set limits on the nature of the interaction and the intensity of the exchange between individuals.

The selection of specific distance arrangements can also help to restrict unwanted interaction. When individuals enter relatively large social gatherings (e.g., parties or receptions), small groupings of several individuals typically orient themselves into roughly circular arrangements. These arrangements help to define distinct groups and, at the same time, reduce potential interference from nearby conversations and activities. Occasionally people enter settings in which they expect and prefer no interaction at all with others (e.g., a library, a doctor's waiting room, or a train station). The choice of more remote seats will usually discourage others from initiating an interaction.

Intimacy and Social Control

Interpersonal distance may also serve functions linked to interpersonal motives. Preferred distances between

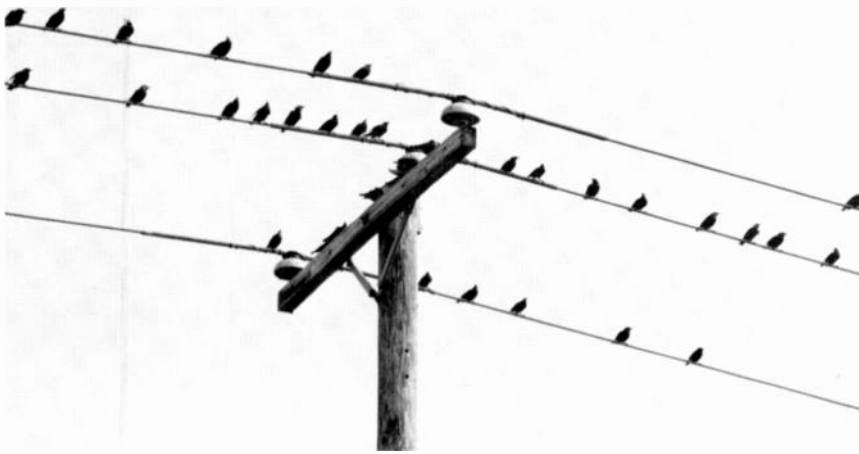


Figure 1. (*Interpersonal Distance*)
Noncontact behavior: starlings on
telephone wires. *Animals Animals*
© E. R. Degginger.

individuals are partially a product of their relationships. In that sense distance reflects the intimacy function. That is, one's affective reaction toward another person, in terms of liking, love, or commitment to that person, may be indicated by interaction distance. Closer distances are preferred between good friends, lovers, and family members. Those preferences are, of course, limited by cultural and situational norms, personality, and GENDER differences. The intimacy function may be manifested more commonly in interactions that are relatively less structured and less evaluative in nature, such as casual interactions among friends, exchanges between family members, or conversations between coworkers on a coffee break.

When the setting of an interaction is more structured and highly evaluative, then behavior may be more a product of the social control function. Social control describes what happens when one's behavior is purposely managed to influence the behavior or judgments of others. This more deliberate behavior can be independent of one's feelings toward another person. For example, an applicant may be very sensitive to managing his or her own behavior in an employment interview. An intense dislike of the personnel manager probably would not prevent the applicant from approaching at a moderately close (but not too close) distance, maintaining a high level of gaze, and reacting favorably to the personnel manager's comments. Interpersonal distance may be managed not only to create a positive impression, but also to control or intimidate another person. Very close approaches or "spatial invasions" can put the recipient on the defensive and lead to flight from the intruder. Even when spatial invasions do not cause the victim to leave the setting, other compensatory

responses may occur, such as turning or leaning away from the intruder to lessen the impact of the close physical presence. In general, as the consequences of one's social behavior become more salient and important, the strategic management of one's behavior will most likely increase.

Group and Individual Differences

Situational and activity norms, like personal relationships, lead to general expectations about appropriate distancing in interactions. With the exception of those settings in which spacing is very finely restricted (e.g., military drill formations), these expectations probably define a range of appropriate spacing. These ranges themselves may vary as a function of CULTURE. Hall's observations in different societies led to his proposing a contact-noncontact continuum to classify the comparative intensity of social exchanges within cultures (*see also* PROXEMICS). In general, Hall proposed that Arabs and both Mediterranean and Latin American peoples were on the contact end of the continuum because they preferred close, intense interactions. In contrast, the British and northern Europeans were on the noncontact end of the continuum because they preferred less proximate and less intense interactions. The effects of cultural background, race, and ethnicity on spatial behavior, however, do seem to be diluted when examining those differences within a single society, such as in the United States.

Within a culture, at least within most Western cultures, *gender* and *personality differences* may be important determinants of spacing preferences. In same-sex interactions, females typically interact at closer distances and, more generally, prefer higher



Figure 2. (*Interpersonal Distance*) George Cruikshank, *Inconveniences of a Crowded Drawing Room*, 1818. Reproduced by courtesy of the Trustees of The British Museum.

levels of nonverbal involvement (in behaviors such as gaze, touch, and smiling) than males do. In cross-sex interactions, interpersonal distance is highly related to the degree of commitment or liking between individuals. That is, for unacquainted male-female pairs, relatively distant patterns are common, but for lovers or good friends much closer patterns are common. It is important to appreciate that these gender differences are affected not only by the type of relationship between the interactants, but also by the cultural differences previously described. In some Mediterranean countries, for example, close contact, including touching and hugging, is socially acceptable in public between males but not for mixed-sex pairs. Gender differences seem primarily to be a product of both different social learning experiences for males and females in childhood and later sex-role expectations, although some genetic component may also enter.

Personality is another potentially important determinant of spatial behavior. The influence of personality is most apparent in the broad contrast between “normal” and “abnormal” groups. In general, individuals classified as abnormal are more likely to

select and maintain greater distance from others than are normal individuals. A strong preference for maintaining large interpersonal distances is especially characteristic of one subgroup: violent prisoners. The contrast between violent and nonviolent prisoners has been reported in a number of studies that included samples of subjects from different cultures, races, and age groups. Within the normal range of personality differences, three traits representative of a general social approach-avoidance dimension—extraversion, affiliation, and social anxiety—have received considerable attention. Across studies, a general pattern is discernible: decreased interpersonal distance was correlated positively with extraversion and affiliation and negatively with social anxiety. Numerous other personality dimensions, including self-esteem and dominance, may also be related to spatial preferences, but those relationships are not as well supported as those with the social approach-avoidance variables.

It is important to recognize that the influence of factors such as gender and personality can be quite variable depending on the situation. In many casual exchanges among friends, acquaintances, or cowork-

ers, there is considerable latitude in what might be considered appropriate spacing. In such instances gender and personality differences may be expressed in spacing behavior without attracting undue attention. In contrast, in formal, highly constrained settings, spacing patterns may be determined almost completely by the task and setting norms, and minor variations from the norm would be judged as inappropriate.

A Multivariate Perspective

An understanding of interpersonal distance or any other social behavior is facilitated by an appreciation of the broader behavioral context in which it occurs. Selection and maintenance of comfortable distances in interaction are very much related to involvement behaviors such as gaze, orientation, facial affect, posture, and various paralinguistic cues. In addition, the content of CONVERSATION can promote or discourage a close and involved interaction. It may be convenient for the sake of analysis to examine behaviors in isolation, but such an approach tends to overemphasize the significance of the focal component and ignore related cues.

Although interpersonal distance is an important component in the overall level of involvement between individuals, it is still just one component. Much of the research on distance in social interaction has examined the behavioral adjustments that follow movement toward or away from a partner. In some situations changes in distance seem to precipitate compensatory adjustments in other behaviors such as gaze, orientation, or smiling. That is, if one person moved considerably closer to another, the latter might decrease gaze toward and turn away from the person who moved. The apparent purpose of these compensatory reactions is the maintenance of a comfortable level of intimacy. In other situations, particularly between good friends, lovers, or family members, increasing intimacy in the form of a close approach, touch, or gaze will often result in a reciprocation of intimacy. Again, that adjustment can occur in any one or more of the component behaviors, such as distance, touch, gaze, or smiling. Understanding and explaining these various patterns of exchange in interaction has been a major focus of theoretical work in psychology and communication.

See also CROWD BEHAVIOR; NONVERBAL COMMUNICATION.

Bibliography. J. R. Aiello, "Human Spatial Behavior," in *Handbook of Environmental Psychology*, ed. by Daniel Stokols and Irwin Altman, New York, 1987; Edward T. Hall, *The Hidden Dimension*, New York, 1966; Nancy M. Henley, *Body Politics: Power, Sex, and Nonverbal Communications*, Englewood Cliffs, N.J., 1977; Albert

Mehrabian, *Silent Messages: Implicit Communication of Emotions and Attitudes*, 2d ed., Belmont, Calif., 1980; Miles L. Patterson, *Nonverbal Behavior: A Functional Perspective*, New York, 1983; Albert E. Schefflen and Norman Ashcraft, *Human Territories: How We Behave in Space-Time*, Englewood Cliffs, N.J., 1976; Robert Sommer, *Personal Space: The Behavioral Basis of Design*, Englewood Cliffs, N.J., 1969; idem, *Tight Spaces: Hard Architecture and How to Humanize It*, Englewood Cliffs, N.J., 1974.

MILES L. PATTERSON

INTERPRETATION (HERMENEUTICS)

Hermeneutics is the science of interpretation. Although there were treatises on interpretation among the ancients (e.g., ARISTOTLE, St. Augustine), hermeneutics as a particular philosophy based on particular theories of interpretation emerged in the modern period with the work of German philosophers Friedrich Schleiermacher (1768–1834) and Wilhelm Dilthey (1833–1911). The former, a theologian and interpreter of both PLATO and the Bible, founded what came to be known as romantic hermeneutics, grounded in an alleged romantic faculty of empathy for what is "other" and strange, and grounded also in grammatical-linguistic study (see GRAMMAR; LINGUISTICS). Dilthey, who understood his aim as uniting the critical philosophy of Immanuel Kant with the romantic hermeneutics of Schleiermacher and the emerging historico-critical method, attempted to develop a hermeneutical theory that would prove to be "a critique of historical reason." Despite their many individual contributions to modern hermeneutics, the writings of both Schleiermacher and Dilthey are ordinarily considered versions of romantic hermeneutics and thus of relatively little value to modern hermeneutical theory related to the field of communications. The latter developments may be found in the distinct but related contemporary hermeneutical theories of Hans-Georg Gadamer, Jürgen Habermas, and Paul Ricoeur. It is their influential positions and controversies that ordinarily constitute what is called hermeneutics in modern linguistic and communication circles. ✓

Interpretation as a problem or even as an explicit issue has tended to become a central concern in periods of cultural crisis. So it was for the Stoics and their reinterpretation of the Greek and Roman myths. So it was for those Jews and Christians who developed allegorical methods for interpreting their scriptures (see SCRIPTURE). So it has been across the disciplines since the emergence of historical consciousness in the eighteenth and nineteenth centuries. The sense of historical distance that scholars find in their relationships to the classics of their CULTURE (or of a broader cultural tradition, both religious and

secular) has impelled an explicit interest in the process of interpretation itself. If scholars focus only on their sense of historical distance from the classics they will formulate the problem of interpretation as primarily a problem of avoiding misunderstanding, which even Schleiermacher often tended to do. The two aspects of Schleiermacher's hermeneutics reflect conflicts that are still unresolved: his emphasis on the interpreter's need for "empathy" and "divination" of the original author's feelings and intentions, which encouraged the development of romantic hermeneutics; and his emphasis on developing methodological controls that would help interpreters avoid misunderstanding, which encouraged the development of, first, historico-critical methods, then several formalist methods, and, later, structuralist and semiotic methods (see SEMIOTICS; STRUCTURALISM).

There is little doubt among most contemporary interpreters that historico-critical methods are needed to avoid ethnocentric and anachronistic interpretations of other cultures or texts of earlier periods of one's own culture. Most contemporary hermeneutical theorists not only accept but also demand the controls and the clear gains that historical methods have allowed. Several hermeneutical theorists also accept the gains provided by semiotic and structuralist methods—gains that permit attempts at serious cross-cultural interpretations. See also HISTORIOGRAPHY.

Gadamer's Contributions

It is impossible to summarize briefly the complex debates on hermeneutics in the modern period and to contrast hermeneutics with all the other theories of interpretation. It is clear, however, that Gadamer, a German hermeneutical theorist, has made a fundamental contribution to the development of contemporary interpretation theory. His interpretation theory is historically conscious without being strictly historicist. Moreover, he maintains this position without retreating into earlier romantic understandings of empathy with "the mind and/or spirit" of the author, as do Schleiermacher and Dilthey. Of major interest here is not the Heideggerian ontology (on "historicity") of Gadamer's position. It is important to note, however, that Gadamer's principal philosophical mentor, Martin Heidegger, is the first philosopher in the phenomenological tradition to shift philosophical study from a search for "eidetic," "genetic," or "transcendental" "essences" into an explicitly hermeneutical stance. Hermeneutics emerges in Heidegger's work *Being and Time* (1927) as an ontology for all understanding. In Gadamer the philosophical concern with all understanding as hermeneutical continues but is expanded into a study of hermeneutics itself in ART, history, philosophy, and theology in his magnum opus, *Wahrheit und Me-*

thode (Truth and Method). Gadamer's influential interpretation of hermeneutics on the model of the CONVERSATION can be described in the following terms.

In the first place, every interpreter enters the task of interpretation with some preunderstanding of the subject matter addressed by the text. Contemporary historical consciousness helps to clarify the complex reality of the interpreter's preunderstanding. Historical consciousness is, after all, a post-Enlightenment and, in some ways, even an anti-Enlightenment phenomenon. More exactly, for Gadamer, the Enlightenment belief that the interpreter can in principle and should in fact eliminate all prejudgments was at best a half-truth. The truth operative in the Enlightenment's "prejudice against pre-judgments" was classically expressed by Kant as "aude sapere": dare to think for yourself and free yourself from the mystifications and obscurantisms present in all the traditions. Indeed, that critical force released by the Enlightenment was a liberating moment that inevitably forms part of the horizon (the preunderstanding) of most modern scholars.

Yet the reason why this Enlightenment truth is only a half-truth must also be clarified. If the expression *historicity* is not merely a philosophical abstraction, if the phrases *socialization* and *enculturation* are other than disciplinary jargon, they all bespeak, Gadamer argues, the other truth missed by Enlightenment and modern methodological polemics against prejudgments and traditions. The fact is that no interpreter in any discipline approaches any text or any historical event without prejudgments formed by the history of the effects of the interpreter's culture. There does not exist any anthropologist, social scientist, humanist, or historian as purely autonomous as the Enlightenment model promised. This recognition of the inevitable presence of tradition in all preunderstanding, moreover, does not mean that the interpreter has to share the tradition to which the text to be interpreted belongs. For example, interpreters of the Bible do not have to believe in the particular tradition they are interpreting in order to interpret it properly. However, every interpreter does enter into the act of interpretation bearing the history of the effects, both conscious and preconscious, of the traditions to which all interpreters in every age ineluctably belong. In Gadamer's controversial formulation, each of us belongs to history far more than history belongs to us. Any claim that the interpreter can ignore the history of those effects, including the history of former receptions or readings of the text, is said to be illusory. At this point, in Gadamer's work and in hermeneutics more generally, the problem of LANGUAGE becomes the principal hermeneutical concern.

Hermeneutics has become focused primarily on the question of language and communication, as has

much contemporary philosophy since the linguistic turn of LUDWIG WITTGENSTEIN, FERDINAND DE SAUSSURE, and Heidegger. The explicitly hermeneutical concern takes the following form. Every language carries with it the history of the effects, the traditions, of that language. The word RELIGION, for example, as used in the English language, carries with it the history of the effects of both the Roman notions of civil religion and Jewish and Christian notions of faith, as well as Enlightenment notions of natural and positive religion. No interpreter enters the process of interpretation without bearing some prejudices or pre-judices; included in those prejudices through the very language we speak and write is the history of the effects of the traditions forming that language.

Yet to say that the interpreter "enters" the process of interpretation also allows us to recognize a second step in that process. The clearest way, for Gadamer, to observe this second step is to consider our actual experience of any classic text, image, symbol, event, RITUAL, or person. Indeed, any classic text (such as the texts of Homer, the Bible, or Shakespeare) can be considered paradigmatic for the interpretation of all texts. First, every culture has some loose or strict canon of classics for that culture (see LITERARY CANON). Those classics, both consciously and pre-consciously, deeply influence the history of the effects of the preunderstanding of all participants in that culture and thereby all prospective interpreters of the culture. Every Westerner, for example, is initially startled when attempting to interpret the seeming dissolution of the self in classic Buddhist texts on "no-self." The belief in individuality among Westerners is not limited to substance notions of the self. Even radical critiques of the notion of the self-as-substance in the West live by means of the history of the effects of Greek, Jewish, Roman, and Christian senses of the self, which have become, since the RENAISSANCE, the modern Western notion of the individual.

Moreover, any classic text in the Western tradition bears a certain permanence and excess of MEANING that resists a definitive interpretation. Thus we recognize the first productive paradox of the classic. The actual experience of any classic text (e.g., the Bible) vexes, provokes, and elicits a claim to serious attention that is difficult to evade. And just this claim to attention from the classic text provokes the reader's preunderstanding into a dual recognition: first, of how formed our preunderstanding is and, second, of the vexation or provocation elicited by the claim to attention of this text. In sum, the interpreter is now forced into the activity of interpreting in order to understand at all. One's first recognition is the claim to attention provoked by the text. That experience, as Gadamer's successors in reception theory in modern hermeneutics have insisted, may range from a tentative sense of resonance with the possi-

bilities suggested by the text through senses of import or even "a shock of recognition."

At this point the interpreter may search for some heuristic model to understand the complex process of interaction now set in motion by the claim to attention of the text and its disclosure of one's preunderstanding. This search for a heuristic model for the de facto process of interpretation provides the third step of interpretation. Gadamer's now famous and controversial suggestion of the model of the "game of conversation" for this process of interpretation becomes clear here. Gadamer's insight is that the model of conversation is not imposed on our actual experience of interpretation as some new de jure method, norm, or rule in the manner of Dilthey's neo-Kantian search for a "critique of historical reason." Rather the phenomenon of the conversation aptly describes anyone's de facto experience of interpreting any classic text, ritual, or cultural symbol. To understand how this comes about, Gadamer first considers the more general phenomenon of the game before describing the game of conversation itself.

The key to any game is not the self-consciousness of the players in the game but rather the release of self-consciousness into a consciousness of the phenomenon of the to-and-fro, the particular back-and-forth movement that constitutes any particular game. The attitude of the authentic players of any game is dependent above all on the nature of the game itself, not on their own consciousness. If the game is allowed, then the back-and-forth movement takes over the players. When we really play any game, it is not so much we who are playing as it is the game that plays us. If we cannot release ourselves to the back-and-forth movement, then we cannot play. But if we can play, then we experience ourselves as caught up in the movement of the game. We realize that our usual self-consciousness cannot be the key here. Rather we may even find, however temporarily, a sense of a new self given in, by, and through our actual playing, our release to the to-and-fro movements of the game.

This common human experience of the game is, for Gadamer, the key to the basic model of conversation for the game of interpretation. For what is authentic conversation (as distinct from debate, Gossip, or confrontation) other than the ability to become caught up in the to-and-fro movement of the logic of question and response? Just as the subject in any game releases herself or himself from self-consciousness in order to play, so too in every authentic conversation the subject is released into a particular subject matter by the to-and-fro movement of the questioning. It is true, of course, that conversation ordinarily occurs between two living subjects or even one subject reflecting on a question (as in Plato).

Yet the model of conversation, Gadamer insists, is also in fact applicable to our actual experience of the

interpretation of texts. If interpreters allow the text's claim to serious attention to provoke their questioning, then they enter into the logic of question and response. And that logic is nothing other than the particular form that the to-and-fro movement of this singular game—the conversation as inquiry or questioning—takes. To repeat, the kind of interaction that occurs when we converse is the central model for interpretation, an interaction of the logic of questioning whereby a particular question and not our own subjectivity is allowed to take over. If we cannot converse, if we cannot allow for the demands of any subject matter or any questions provoked by the claim to attention of the text, then we cannot interpret. But if we are willing to enter into any genuine conversation, then we are willing to admit that conversation can be a model for the process of interpretation itself. In contemporary hermeneutics the model of conversation (and thereby reflections on Plato's models of dialogue) has become the principal model for hermeneutical theorists, despite their otherwise significant differences (see below).

Along with the earlier demands of the historico-critical method in romantic hermeneutics, therefore, modern language-oriented hermeneutical theorists insist on the model of conversation with the formed subject matter, consisting of questions and responses provoked by any text or any other cultural ARTIFACT. On this Gadamerian hermeneutical model, therefore, the primary meaning of the text does not lie behind it (in the mind of the author, the original social setting, the original audience) or even in the text itself (as in the New Criticism). Rather the meaning of the text lies in front of the text—in the now common question, the now common subject matter of both text and interpreter. Historically conscious interpreters do not seek simply to repeat, to reproduce, the original meaning of the text in order to understand its questions. Rather they employ all the tools of historical criticism and then seek to mediate, translate, and interpret the meaning into their present "horizon of understanding." Interpreters seek, in Gadamer's often misunderstood phrase, to "fuse the horizon" of the text (the horizon of meaning in front of the text, not behind it) with their own horizon of understanding on a particular question.

Moreover, by recognizing the experience of the interaction of interpreter and text as an experience modeled for its communication possibilities on conversation, Gadamer maintains that interpreters also recognize the inevitable finitude and historicity of even their best acts of interpretation. For they recognize the fate of all interpretation of all classics as a fate that can become an explicitly hermeneutical communication destiny. That destiny—present in all the classic conversations, especially the Platonic dialogues, and in all the great interpreters—is the insight

that "insofar as we understand at all we understand differently."

Hermeneutics, therefore, is insistent that gains of the historico-critical method are essential for any historically conscious interpretation. Hermeneutics on the Gadamerian model is equally insistent that interpreters do not finish their task after using that method.

Interpretation after Gadamer: Hermeneutics of Suspicion and Explanatory Methods for Interpretation as Communication

Within the hermeneutical tradition two crucial questions have been posed to Gadamer's theory. Both have direct relevance for the use of hermeneutics for communication theorists. The first question is whether Gadamer's theory involves too sanguine a notion of tradition. One need not retreat to Enlightenment polemics against the inevitable presence of tradition in all understanding in order to share the insistence of several of Gadamer's critics (especially Habermas, a philosopher of the Frankfurt school) that Gadamer's notion of tradition bears its own dangers.

One way of clarifying that danger is to recall the central insight of the Enlightenment itself, namely, its belief in the emancipatory power of critical reason. Yet this clarification, however acceptable to most modern theorists, will not suffice as a charge against Gadamer's own general program of interpretation but only against his particular interpretation of the Enlightenment. For, at best, the truth of Gadamer's interpretation of the Enlightenment can be said to be the partial truth of the corrective of Enlightenment polemics against all traditions. This same critique of the Enlightenment is now widely shared by most historians and cultural anthropologists. In sum, there is nothing intrinsically hermeneutical in Gadamer's interpretation of the antitraditional stance of most Enlightenment thinkers. His hermeneutics does not stand or fall on the truth of his highly particular (and romantic) interpretation of the Enlightenment. Gadamer, as much as such critics as Habermas, allows for—indeed demands—moments of critical reflection by the interpreter as intrinsic to the process of interpretation. The fact that his position is grounded in the conversation between text and interpreter (and not simply the text, as in most forms of purely formalist criticism) indicates this. The kind of "critical reflection" that Gadamer characteristically endorses is the kind of classic reflection expressed in the notion of dialectic in the dialogues of Plato and the critical phenomenology of Aristotle rather than in modern critical theories.

However, even those differences need not mean that Gadamer's hermeneutics is simply traditionalist and thereby unconcerned with critical analysis of the

H. circle

tradition. The real difficulty seems to lie elsewhere. Gadamer's retrieval of the classical tradition's enrichment of the interpreter's preunderstanding does include forms of critical reflection that can undo error and falsity in any interpretation. His explicitly hermeneutical interpretations of the critical principles of Plato, Aristotle, and G. W. F. Hegel (often against his own hermeneutical mentor, Heidegger) should be sufficient warrant for this fact. Yet it remains an open question whether Gadamer's understanding of the kind of critical reflection available to the modern interpreter can account for those modern critical theories developed to expose not error but illusion, not normal cognitive and moral ambiguity but systematic distortions. Here, other hermeneutical theorists charge, is where Gadamer's anti-Enlightenment polemic severely damages his case. His apprehension is that any move to critical theory will inevitably become yet another futile attempt to provide a mythical "presuppositionless" interpreter. Because of that apprehension Gadamer seems to discount the occasional necessity of some critical theory in some conversations—including conversations with all the classics of the Western humanist tradition. The basic developments in modern hermeneutics (as, for example, in liberal and modernist theological interpretations of the Bible) have been geared to various modern critical theories. Those theories were forged to expose the latent meanings of texts, especially those latent meanings that enforce not mere error but illusion, not occasional difficulties but systematic distortions.

But Gadamer's own position does not really allow these so-called hermeneutics of suspicion to join his "hermeneutics of retrieval or recovery." Yet even his model of interpretation-as-conversation should alert hermeneutical theorists to the occasional need for a hermeneutics of suspicion and its attendant critical theory. This intrahermeneutical debate can be clarified by returning to the model of conversation itself, on the interpersonal level. For example, if in the course of any conversation someone begins to suspect (the verb here is crucial) that a conversation partner is psychotic (in the strict psychoanalytical sense), that person would consider himself or herself justified in suspending the conversation. In a post-Freudian culture the need for a hermeneutics of suspicion—and the need for critical theories (such as psychoanalytic theory and Marxist IDEOLOGY critique) to spot and possibly heal systematic distortions in our personal and, beyond that, our cultural and social lives—has become an indispensable aspect of many modern interpreters' preunderstandings, including several hermeneutical theorists (such as Habermas). It is true, of course, that this kind of interpretation of latent, hidden, repressed meanings unconsciously operative as systematic unconscious distortions is easier

to develop through the various interpretative techniques of psychoanalytical theory on the personal and interpersonal levels than it is on the social, cultural, and historical levels. However, even on those levels various forms of revisionary Marxist ideology critique, of feminist hermeneutical theories, and, more recently (with thinkers such as MICHEL FOUCAULT), of Nietzschean "genealogical methods" exist to try to locate the systemic but largely unconscious distortions in both the preunderstanding of the interpreter and the classic texts and traditions of the culture. Every one of these hermeneutics of suspicion, moreover, cannot rest simply on the model of conversation. Each needs a critical theory to aid its hermeneutical operation. *See also* FEMINIST THEORIES OF COMMUNICATION; MARXIST THEORIES OF COMMUNICATION; PSYCHOANALYSIS.

For any interpreter who suspects that there may be systematic distortions in a particular tradition, a hermeneutics of suspicion can be a helpful correlate to a hermeneutics of recovery. At any such points of recognition of systematic distortion (e.g., by a cultural anthropologist) the hermeneutic model of conversation becomes inadequate to describe the full process of interpretation. Recall the idea of psychoanalytic models of interpretation on the interpersonal level of interpretation, for example. The analyst and the analysand are not, in fact, engaged in an ordinary conversation. Rather they are engaged in a process of interpretation whereby one "conversation-partner" (the analyst as interpreter) employs a critical theory (psychoanalytic theory) to interpret the analysand's unconscious experience. Thereby the interpretation may emancipate the analysand from the systematic distortions repressed but still distortingly operative in experience. Only after that kind of psychoanalytical emancipation is the kind of hermeneutics based on Gadamer's model of conversation possible again. Yet not to face the demand for a hermeneutics of suspicion in interpreting both ourselves and all the cultural, social, and political traditions seems to leave interpretation theory unwittingly without the hermeneutic resources that contemporary hermeneutics in its full range makes available. Just as Gadamer's hermeneutics of recovery on the model of conversation can complement exegesis of a strict historico-critical sort, so too any legitimate hermeneutics of suspicion can complement the hermeneutics of recovery.

Conversation can remain the key heuristic model for hermeneutics. And yet, as such hermeneutical theorists as Habermas have argued and as such hermeneutics of suspicion as psychoanalytical theory, feminist theory, ideology critique, and Nietzschean genealogical methods imply, the model of conversation alone is a necessary but not a sufficient model for the needs and aims of contemporary hermeneu-

tical theory in its full complexity. It is also important to insist that this correction of Gadamer's position need not demand a retreat to an Enlightenment polemic against all tradition. It does demand, nonetheless, the development of modern critical theories whose emancipatory thrust continues the kind of critical reflection present in the logic of questioning in the Platonic dialogues, in the legitimate demands of historico-critical methods, and in the hermeneutical model of interpretation-as-conversation set forth by Gadamer himself.

This first difficulty with Gadamer's position has occasioned within hermeneutical theory itself a basic acceptance of his model for interpretation-as-conversation but also an insistence on a correction of his critique of the role of critical theory in the interpretive process as a whole. The second question posed by post-Gadamer hermeneutics is related not to the model of conversation but to the notion of the text and its subject matter. The crucial issue here is that the subject matter that becomes the common subject matter of both interpreter and text in the process of interpretation-as-conversation is one whose claim to attention is expressed in the form of a text. This point is worth emphasizing in order to understand the fuller contemporary debates on hermeneutics.

Once again, it is not that Gadamer is unaware of the importance of form and structure for *expressing* any particular subject matter in a text and thereby, in his terms, for causing the claim to serious attention of the meaning "in front of the text." But insofar as the interpreter recognizes that the text produces its claim to attention by structuring and forming the subject matter into a work, an ordered whole, *a text*, some hermeneutical theorists argue for the legitimacy of using some explanatory methods in hermeneutics itself. It is true, as Ricoeur insists along with Gadamer, that for the hermeneutical tradition understanding envelops the entire process of interpretation. The hermeneutical question becomes whether explanatory methods grounded in explanation (*Erklären*) as distinct from understanding (*Verstehen*) can develop a hermeneutical understanding of how the meaning of a text is produced through the very form and structure of the text.

The fuller model of hermeneutics-as-conversation thereby suggests itself in the influential work of Ricoeur, the French hermeneutical theorist, whose position is that the entire process of interpretation encompasses the arch of some initial understanding yielding to an explanation of how the referent (the world of meaning in front of the text) is produced through the meanings-in-form-and-structures (the sense) in the texts. After those explanatory moments provided by such explanatory methods as semiotics, structuralism, and communication theories, the interpreter has, in fact, a better understanding of the

subject matter (as an *in-formed* subject matter) than any interpreter does without them. Indeed, without the use of such explanatory methods as the formalist methods of LITERARY CRITICISM or semiotic and structuralist methods on the codes (*see* CODE) of a text, it is difficult to see how the hermeneutical theorist is not in danger of simply extracting "messages" (under the rubric "subject matter") from the complex, structured, formed, encoded subject matter that is the text.

Every text, after all, is a structured whole. Every subject matter comes to us with its claim to serious attention in and through its form and structure. For hermeneutical theorists to resist explanatory methods seems pointless. Such methods can show how expression occurs from the semiotic level of the word, through the SEMANTICS of the sentence, through the structured whole of the text (achieved principally through composition and GENRE) to the individuating power of style (*see* STYLE, LITERARY). So apprehensive can some hermeneutical thinkers become of how explanation (or *Erklären*) can turn into a means to undo the hermeneutical model of a conversation between text and interpreter (and therefore undo authentic hermeneutical understanding, or *Verstehen*) that they are sometimes tempted to discount explanatory methods altogether.

Several hermeneutical theorists now insist that any explanatory method that shows how meaning is produced in the text should be used (e.g., through genre and style analysis in literary studies). Structuralist methods, for example, are not identical with the antihistoricity of some structuralist thinkers any more than Gadamer's own hermeneutics is identical with his commitments to the Greek and German humanist traditions in his polemics against the Enlightenment and modern critical theories. Rather, structuralist and semiotic methods—such as the formalist methods of the New Critics, the explication-de-texte methods of earlier Continental critics, the semiotic methods or the more familiar use of literary criticism by historical critics, or even some variants of deconstructionist methods and modern Anglo-American communication theories—have demonstrated their hermeneutical value even to those interpreters who do not share the larger explanatory claims of some of their proponents. In that sense modern hermeneutics, first formulated in Gadamer's theory of the model of conversation, has itself become one major conversation partner in the conflict of interpretations on interpretation itself across the disciplines in our period.

See also AESTHETICS; AUTHORSHIP; INTERTEXTUALITY; READING THEORY.

Bibliography. Wilhelm Dilthey, *Descriptive Psychology and Historical Understanding* (in German), trans. by Richard M. Zaner and Kenneth L. Heiges, The Hague, 1977; Hans-

Georg Gadamer, *Philosophical Hermeneutics* (selections from *Kleine Schriften*), trans. and ed. by David E. Linge, Berkeley, Calif., 1976; idem, *Truth and Method* (Wahrheit und Methode), trans. from 2d ed. by Garrett Barden and John Cumming, New York, 1975, reprint 1986; Jürgen Habermas, *Knowledge and Human Interests* (Erkenntnis und Interesse), trans. by Jeremy J. Shapiro, Boston, 1971; idem, *Theory of Communicative Action*, Vol. 1 (Theorie des kommunikativen Handelns), trans. by Thomas McCarthy, Boston, 1984; Martin Heidegger, *Being and Time* (Sein und Zeit), trans. by John Macquarrie and Edward Robinson, New York, 1962; Paul Ricoeur, *The Conflict of Interpretations* (Le conflit des interprétations: Essais d'herméneutique), ed. by Don Ihde, Evanston, Ill., 1974; idem, *Freud and Philosophy: An Essay on Interpretation* (De l'interprétation: Essai sur Freud), trans. by Denis Savage, New Haven, Conn., 1970; idem, *Interpretation Theory: Discourse and the Surplus of Meaning*, Fort Worth, Tex., 1976; F. D. E. Schleiermacher, *Hermeneutics: The Handwritten Manuscripts* (Hermeneutik), ed. by Heinz Kimmerle, trans. by James Duke and Jack Forstman, Missoula, Mont., 1977; Joachim Wach, *Das Verstehen: Grundzüge einer Geschichte der hermeneutischen Theorie im 19. Jahrhundert*, Tübingen, 1926–1933, reprint Hildesheim, FRG, 1966.

DAVID TRACY

INTERTEXTUALITY

As a theoretical concept, intertextuality came into currency in the late 1960s. Its most generally accepted definition is the relation of one literary text to other texts. In this broad sense intertextuality therefore encompasses allusion, parody, burlesque, travesty, pastiche, imitation, quotation, and other forms of textual echoing, with the important exceptions of influences, sources, or plagiarism. Historically intertextuality developed in the wake of various North American and European textual theories that attacked the then-prevalent views both of the nature of MEANING in literature and of how texts related to other texts. These theories included Russian formalism, French STRUCTURALISM, and modern reworkings of certain ideas of SIGMUND FREUD and KARL MARX. Although the definition of intertextuality has varied slightly with each particular orientation and has continued to vary depending on the discipline using it, the concept proved particularly attractive in the field of LITERARY CRITICISM because it appeared to offer a new way to understand literary INTERPRETATION. The text was no longer to be read only historically or in relation to either the author (as tended to be the case in the romantic period [see AUTHORSHIP; ROMANTICISM]) or the world (as in theories of REALISM). Instead intertextuality would offer a way for criticism to restrict itself to describing the relationships between one text and other related texts. Sometimes this notion of related texts was extended to include the broader systems of signifi-

cation that exist and operate within a given culture or society. See also IDEOLOGY; SIGN SYSTEM.

In either case, however, intertextuality differs deliberately and significantly from those studies of literary influence, sources, or plagiarism that are all oriented toward the author's writing of the text. The process of writing was now considered to precede the text's existence and to be both inaccessible to the reader and also not particularly necessary for the interpretation of the text. This questioning of the value and availability of the author's intention (and therefore of any influences, sources, and possible plagiarism) was also a central issue of American New Criticism from the 1930s on. Later theories of intertextuality in the 1970s and 1980s shared the New Critical assumption that literary texts in particular exist as separate and autonomous entities in the sense that once published they are independent of their authors or the world outside and are meaningfully connected only to other texts.

The term *intertextuality* was first coined and defined by Julia Kristeva in her 1966–1967 lectures in Paris. The idea grew out of her work on Russian theorist MIKHAIL BAKHTIN, especially his view of the multiple "voices" that exist in literary texts. For Kristeva intertextuality *was* the text's meaning; that is, its meaning depended solely on those voices (or other texts) that a given text transforms and absorbs. From this initial, if somewhat vague, definition, the concept of intertextuality both broadened and narrowed as it migrated across various communications disciplines. At its most specific it came to be a tool of specifically literary interpretation, a means of studying the textual and hermeneutic history of a text in a new and different way from traditional literary history. These two new kinds of history (textual and hermeneutic) are related but distinct. To read the novels of Thomas Hardy, for example, as the "intertexts" of John Fowles's contemporary novel *The French Lieutenant's Woman* (1969) would be to read for *textual* history, for Fowles's novel textually recalls the earlier ones. But to read Fowles's story as the intertext of Hardy's *Tess of the D'Urbervilles* (1891) would be to read for *hermeneutic* history, for here it would be the reader whose reading history is called into play. Intertextuality can and does violate historical time in this second—hermeneutic—MODE. Readers connect up the texts they have previously read, and their reading is rarely, if ever, totally chronological in terms of the dates of publication of what they read.

At its most general the term *intertextuality* has been used to refer to that which defines all textuality and, especially but not exclusively, all literature. By this view "literature" actually comes into being and has meaning by virtue of its relations to other texts as perceived by the reader. This is a move away from the most common and dominant thematic and ex-

pressive (author-oriented) definitions of literature, such as the familiar one that asserts that literature consists of those significant texts that express the authors' awareness of the universal, timeless themes of humankind. The radical nature of this change was sensed immediately by literary critics and has had important theoretical repercussions. Among the most significant of these was the new possibility that the text's meaning could now be conceived not as a "product" fixed in the text—that is, put there by the author in order for the passive reader to find it with ease—but as a "process" or result of the active participation of the reader as cocreator of the text.

Although the early definitions of intertextuality in literary theory (by the French critics Gérard Genette and Laurent Jenny, for example) concentrated on the textual nature of the process at the expense of the notion of the reader's role, this radical change had implicitly been made. Theorists at first referred to the change in terms of the "death of the author" (MICHEL FOUCAULT, ROLAND BARTHES) and the rise of self-reflexivity—the view that texts refer only to themselves or to other texts. It was not long, however, before it became clear that the death of the author had directly brought about the birth of the reader. If early definitions of the concept had downplayed the reader's role in favor of the text's relations to other texts, this was both natural and understandable as a reaction against the basically nineteenth-century theories of literature still prevalent in the years prior to 1960. Both realism and romanticism had made the text itself secondary to what it was said to reflect or represent (the world or the author). Nevertheless, according to the extensive theoretical work of Michael Riffaterre, the real intertextual dialogue was to be seen as a complex process, provoked in the act of reading, between readers and their memory of other texts.

The experience of literature, by this definition, has no longer anything at all to do with the world outside or with the author; it consists of a reader, a text, and the reader's reactions. These reactions take the form of systems of words grouped associatively in the reader's mind. Two texts could share these systems without one having influenced, been a source of, or plagiarized the other because it is the reader, not the author, who is central to making meaning, to interpreting, for instance, *The French Lieutenant's Woman* in light of the Hardy intertext (or vice versa). This does not reduce intertextuality to a clever, supplementary noticing of textual analogies by a particularly cultivated reader. Instead it is argued to be the necessary process by which any text takes on its full meaning for any reader. The question that arises from the obligatory nature of this process is, which is the controlling agency in interpretation—the reader or the text? For some theorists the reader is free to

associate texts more or less at random, limited only by individual idiosyncrasies and personal culture. For them *The French Lieutenant's Woman* may be read intertextually through either a television SOAP OPERA like "Dynasty" or William Makepeace Thackeray's *Vanity Fair* (1847–1848). For others the text as a structured entity demands a more conditioned and therefore much more limited and controlled reading. From this perspective only the Thackeray text, with its structural parallels to the Fowles novel, would qualify as a true intertext.

Many such radical consequences followed from the rise of intertextuality as an important theory of textual and hermeneutic meaning. One was its overt challenge to any simple notion of what literary texts, in particular, refer to. If a text's first and foremost relationship is to other texts, then there can be no simple realist concept of the relation of literature to the world. The world of literature will always be filtered through the prism of other texts' versions of it. There are also ideological implications in this same process: if textual meaning is not inherent in the world outside the text but exists in the relations within and between texts, then there can be no transparent relation of imitation between literature and reality; there are inevitably going to be social and political assumptions both in the text's language and in the reader's interpretation of it. Another seemingly opposite consequence of the theory of intertextuality was its implied questioning of any view of texts as closed, totally self-sufficient entities with fixed meaning. Instead texts reverberate with echoes of other texts and are opened up to a continual process of meaning making. It all depends on the reader. See also READING THEORY.

Intertextuality has frequently been used as a generic term to encompass any form of textual interrelation: parody, pastiche, allusion, quotation, and so on. However, there are important distinctions to be made among types of intertextuality. These depend on two considerations. The first is the intended effect on the reader of the textual confrontation: is the reader to mock, to laugh, to respond to a call to authority? The second is the particular nature of the textual linkage: is it one that stresses difference or similarity between texts? The basic concept of intertextuality does not deal specifically with either of these considerations, but no discussion of the particular kinds of textual interrelation listed above is possible without them. The humor usually associated with the intertextual modes of parody, pastiche, travesty, and burlesque, but not necessarily with allusion, imitation, or quotation, is one example of differences in intended response. Parody, however, is particularly rich in its possible responses. *The French Lieutenant's Woman* does not so much ridicule as revere the Victorian novels it parodies. The range of re-

sponse in twentieth-century parody in all the arts is wide, extending from the playful to the scornful to the respectful. There is much playful toying with Leonardo da Vinci's *Last Supper* in Arakawa's painting called *Next to the Last*. Diego Velázquez's *Las Meninas* (1656) is as respectfully treated in Pablo Picasso's cubist variants of it as is Ludwig van Beethoven's music in George Rochberg's modern parodies or classical architectural forms in postmodernist constructions like Charles Moore's *Piazza d'Italia* in New Orleans. The more traditional notion of parody as being scornful or derisive in intent was dominant in the nineteenth century and can still be found in modern works like Robert Nye's *Faust*.

The one constant in all of these responses to parodic intertextuality is irony, and it is irony that defines the particular nature of parody, which is a form of ironic difference between texts. Pastiche, imitation, and allusion, on the other hand, try primarily to achieve correspondence or similarity, not difference, in their relations with other texts. Quotation, of course, while involving more or less structurally identical repetition, can always involve a recognition of difference as well. Even the most literal quotation can have a different meaning when inserted into a new context.

Despite these distinctions based on intention and form, in all of these types of intertextuality it is the productive and dynamic interaction of text and reader that is held to determine meaning. For the reader it will not be to Fowles himself that one looks for the meaning of *The French Lieutenant's Woman* but to those other texts by Hardy, Thackeray, Henry James, Charles Dickens, and others that form the intertexts of the novel. The concept of intertextuality has offered a methodology of reading and an important tool for textual analysis, one that has radically re-focused literary study in particular, although its influence soon spread to other cultural realms: music, the visual arts, architecture, television, film—in other words, to any domain in which interpretation is the fundamental task of criticism.

See also POETICS.

Bibliography. Gérard Genette, *Palimpsestes*, Paris, 1982; Linda Hutcheon, *A Theory of Parody*, London and New York, 1985; Julia Kristeva, *Séméiotiké: Recherches pour une sémanalyse*, Paris, 1969; Andrew Oliver and Brian T. Fitch, eds., *L'intertextualité: Intertexte, autotexte, intratexte* (special issue), *Texte 2* (1983); Jean Parisier Plottel and Hanna Charney, eds., *Intertextuality: New Perspectives in Criticism*, *New York Literary Forum 2* (1978); Michael Riffaterre, *Semiotics of Poetry*, Bloomington, Ind., 1978; idem, *Text Production* (La production de texte), trans. by Terese Lyons, New York, 1983; Wolf Schmid and Wolf-Dieter Stempel, eds., *Dialog der Texte: Hamburger Kolloquium zur Intertextualität*, Vienna, 1983.

LINDA HUTCHEON

ISLAM, CLASSICAL AND MEDIEVAL ERAS

The subject of classical Islam involves an immense area of the greatest possible cultural diversity and a span of many centuries. The elements that shaped the processes of communication in the world of Islam and between Islam and the non-Muslim world from the seventh century C.E. to about 1500 were basically three: the introduction of paper, the creation of a unified empire, and the establishment of one LANGUAGE, Arabic, as the medium of learned communication.

By far the most important factor was the introduction of paper. Originating in China, paper became known in Muslim central Asia in the second half of the eighth century, reportedly through Chinese prisoners of war brought to Samarqand. It relentlessly spread westward, replacing papyrus and parchment for all practical purposes within about two centuries. While it remained rather expensive, this was less true for paper than for the other generally used WRITING MATERIALS. Paper was less fragile than papyrus, and above all it could be manufactured anywhere in any desired quantity. The explosion of scholarly and literary activity in Islam and the production of ever more voluminous writings, combined with an increasing trend toward specialization, must be credited mainly to the new WRITING material. As a consequence, all kinds of ideas became more accessible throughout the Muslim world, even in remote fringe areas.

Communication was greatly facilitated by the fact that Islam created a unified empire larger than its two great predecessors in the region, the Achaemenid Empire and the ROMAN EMPIRE. It soon broke up into de facto independent territories under rulers who were often bitter rivals. However, the unity was not based on ethnic or geographical factors or on political configurations but on a religious IDEOLOGY. While the world of Islam was exposed to massive sectarian splits and hostilities, the RELIGION of Islam remained a unifying factor making for geographically unimpeded communication. The unified world of Islam, moreover, occupied a central location with respect to the then-known world and thus constituted a potential bridge for transmitting material and intellectual achievements in all directions.

Because it is the prime tool for communication, the widespread use of the same language makes for the most efficient transmission of ideas. Though the variety of languages spoken by Muslims was great, Islam succeeded in establishing one language, Arabic, as the medium of science and scholarship, including the fundamental religious and legal disciplines. Native languages continued to play a role in such areas as POETRY—the literary art form universally practiced and enjoyed by Muslims of all classes—and entertaining literature, as well as other subjects such

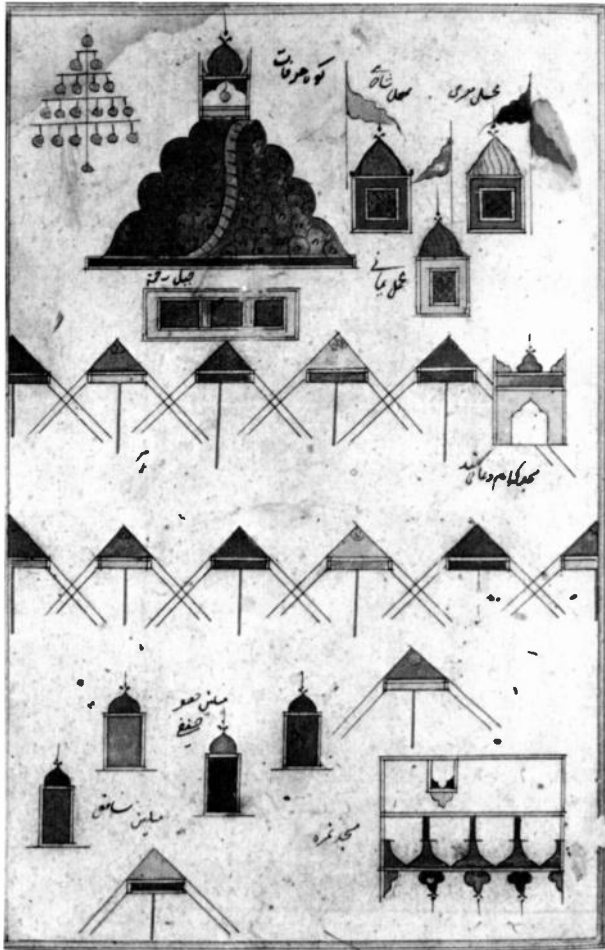


Figure 1. (*Islam, Classical and Medieval Eras*) Drawing from a poem on the rites of pilgrimage, showing pilgrims' tents ranged before Mount 'Arafât. Persian, sixteenth century. By permission of the British Library.

as HISTORIOGRAPHY and mysticism that touched large sections of the population, but even in these genres Arabic was the admired model. However limited and even nonexistent the knowledge of Arabic may have been among people of low educational level, it was indispensable for educated people, including the intellectual leaders and those concerned with the transmission of the cultural heritage.

Communication within the Muslim World

The domination of one religion and language in Islam simplified communication to a degree not known before on such a large scale, but it also created a rather marked distinction between communication within the Muslim world and as it applied to contacts with the non-Muslim world. In some ways, then, intra-Muslim relations and, to use an anachronistic term, "international" exchanges followed different courses.

Travel and oral transmission. Probably the most important vehicle for the accelerated spread of ideas in medieval Islam was the intensive and far-flung caravan travel on land and the flourishing travel by sea. Travel being a strenuous and often dangerous activity, it was rarely undertaken by individuals on their own, although there were mystics and ascetics who on occasion traveled by themselves over long distances, propagating their views and causes along the way. Land and sea travel were essentially economic activities organized by merchants, but it was also customary and necessary for scholars and other intellectuals to travel all over the Muslim world and seek (religious) knowledge or further their careers in distant countries. Such travel usually required joining caravans organized by groups of merchants. Thus the two most influential and closely interrelated classes of Muslim society were brought into intimate contact over extended periods of time. Long-distance caravans and ocean-going ships accomplished the transportation of books, including newly released publications, and provided an opportunity for the exchange of ideas and the discussion of research in progress.

A different kind of travel peculiar to Islam was the hajj, the pilgrimage to Mecca, to be performed at least once during a Muslim's lifetime. This travel, too, was done mainly by caravan. Scholars performed the pilgrimage repeatedly if possible and then joined colleagues and teachers resident in Mecca and Medina for extended stays in the holy cities. As a regular annual event encompassing the entire vast realm of Islam, the pilgrimage was, and is, a unique institution in human history. As a by-product of its essential purpose of religious rededication, it served as a forum for personal meetings of members of all professions and occupations and thus as a center for the continuous exchange of information.

The courts of rulers and the salons of the wealthy and powerful also served to establish personal contacts among members of the intellectual elite and thus created conditions suitable for propagating new insights and accomplishments. Their effectiveness, of course, fluctuated greatly with changing political and economic fortunes.

Oral transmission and transmission in written form were recognized in Islam as basically different means for the dissemination of knowledge, and their comparative usefulness and reliability were much debated. In higher EDUCATION there developed a continuous and heated discussion about whether oral instruction by a teacher or self-study by means of books was preferable. Oral transmission was presumably common in pre-Islamic Arabia. It was natural in a bedouin society such as then existed in much of the Arabian peninsula. With the spread of the Arabic language and the growing LITERACY in it, followed by the introduction of paper, the situation changed. Muslim civilization became primarily a civ-

ilization of the written word. Oral transmission, however, retained a significant place in it. For example, the careful indication of sources was considered indispensable for the validation of information, and while they were often clearly stated to be written sources, religious scholarship early introduced a special method of citing oral sources that became the norm for scholarly activity. It focused on the *isnād* (chain of transmitters), the indication of the various authorities participating in the process of transmission *viva voce* from one authority to another back to the original source. A vast literature was produced that elaborated on the criteria determining the qualifications of the transmitters and thereby the reliability of the information itself. Entertaining literature, such as romances or tales narrated by storytellers in public, was often orally transmitted and only secondarily put into writing. Poetry was seen as orally transmitted by individuals who became the official transmitters of a given poet (see ORAL POETRY). However, in contrast to folk poetry, art poetry usually depended on writing for its spread and preservation. More significantly, this also applied to the vast corpus of religious and juridical writings.

Books and writing. With books and writing established as the dominant means of communication, three basic institutions helped to determine the extent and character of communications: the educational system, the institutions for PUBLISHING and preserving books, and the problem of CENSORSHIP. Education was seen as a lifelong task. Students were expected to continue the acquisition of knowledge, and many did. An appropriate curriculum, beginning at an early age with learning the Qur'ān (Koran) by rote, was more or less uniform, although there were sporadic attempts to develop a pedagogically more



Figure 2. (Islam, Classical and Medieval Eras) Disputation in a school in Aleppo. Illustration from the second Maqāma of al-Hariri's *Maqāmāt*. Phot. Bibl. Nat., Paris.

suitable course of study. Many works were written setting out in detail the technical, practical, and moral aspects of the educational process. Higher education was connected principally with the mosque, but since the eleventh century the *madrasah* (college) provided a highly structured institution for the cen-



Figure 3. (Islam, Classical and Medieval Eras) Brass writing box with copper and silver inlay. Mogul, thirteenth century. Reproduced by courtesy of the Trustees of The British Museum.

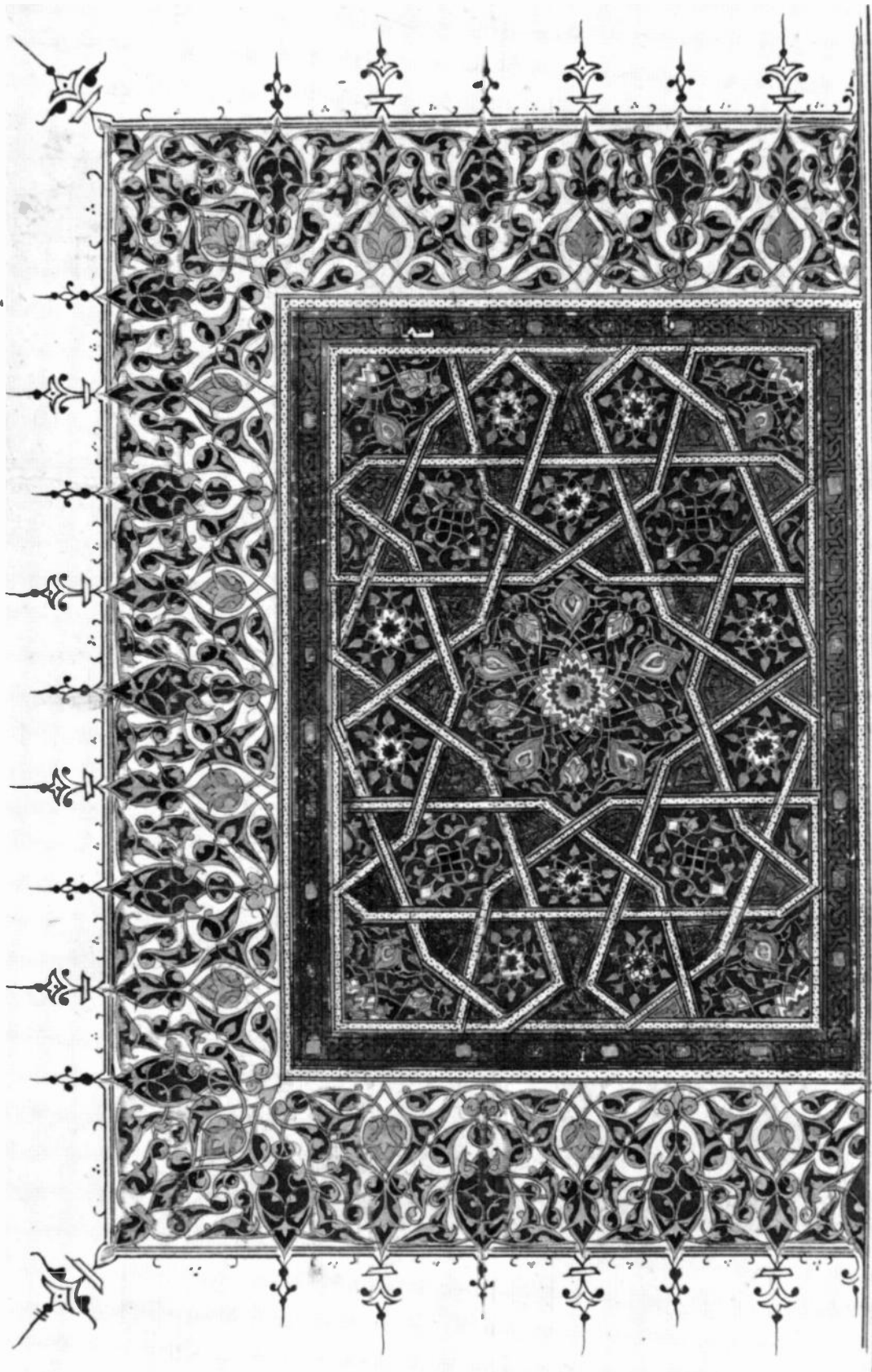


Figure 4. (*Islam, Classical and Medieval Eras*) Frontispiece to the ninth section of a thirty-volume Qur'ān, Egypt, end of fourteenth century. By permission of the British Library.

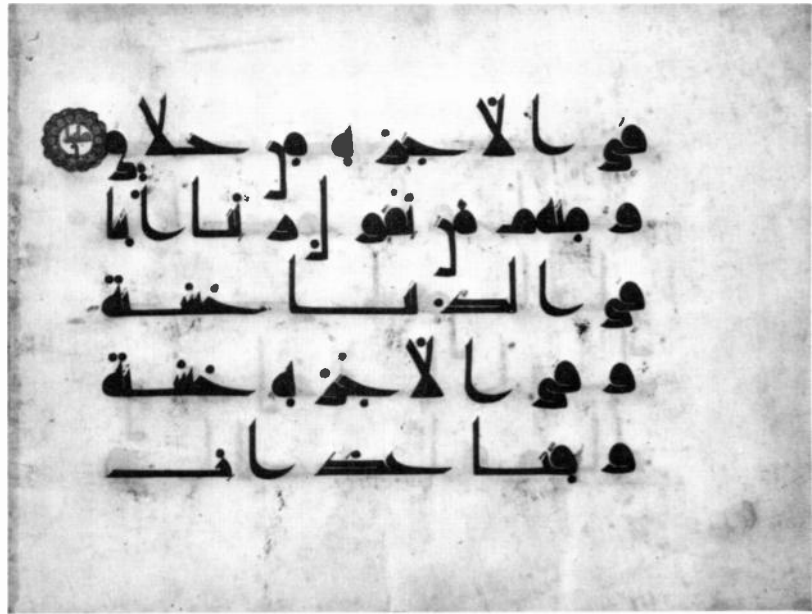


Figure 5. (*Islam, Classical and Medieval Eras*) Page from a Qur'ān in kufic script on parchment. Ninth to tenth centuries. Courtesy of the Freer Gallery of Art, Smithsonian Institution, Washington, D.C. (Acc. no. 37.6).

tralization and administration of advanced study. A *madrasah* was exclusively concerned with the legal/religious sphere of knowledge (which was peripherally interested in other subjects such as aspects of historiography). As is only natural for educational institutions, the *madrasah* tended to reinforce accepted values rather than to develop and disseminate new ideas. In general, however, Islam's stress on education ensured the transmission and elaboration of the cultural heritage through successive generations.

The way in which books were “published” and put in circulation before the invention of PRINTING—near the end of the period considered here—was not much different from procedures in classical antiquity. All or part of a work was entrusted to copyists connected or identical with booksellers, or was commissioned by a wealthy patron. Several copies would be produced for distribution or sale. The system was necessarily slow and clumsy; at times it probably prevented the circulation of books that should have been more widely known. BOOK production was greatly assisted by the copying labors of students taking down the dictation of their teachers and by the fact that there never was a shortage of those who wanted to earn a modest livelihood by copying manuscripts. Substantial private and, in a way, public libraries existed in large numbers, many of them famous for their size and quality. Much effort was expended on their efficient administration, as their indispensability for the dissemination of ideas was recognized and appreciated. Libraries and bookshops were, in addition to mosques and salons, meeting places where intellectual life was concentrated and ideas were exchanged. See LIBRARY.



Figure 6. (*Islam, Classical and Medieval Eras*) Page from a Qur'ān in thuluth script on paper. Egypt, Mamluk period, fourteenth century. Courtesy of the Freer Gallery of Art, Smithsonian Institution, Washington, D.C. (Acc. no. 30.59).

The impediment to the free circulation of ideas called censorship did not visibly exist as a formal institution in medieval Muslim society, as far as is known. The office of *muhtasib* (market supervisor) had charge of the control of public morality. The *muhtasib* would, for instance, warn against the teaching of lewd poetry to children. It was his duty to suppress views that were not in agreement with accepted religious teachings. The danger inherent in any activity of this sort was clearly recognized. Only if the *muhtasib* could distinguish right from wrong on the basis of his own knowledge and judgment or by following the opinions of established contemporary scholars was he to exercise such censorship, for, it was said, “the danger is great, and if an ignorant *muhtasib* delves into something he does not know, he may do more harm than good.”

However, a kind of censorship was built into Muslim society by virtue of its attunement to what was religiously and socially acceptable at a given time in a given environment. Censorship was thus basically self-imposed. The banning and burning of books by concerned authorities were not infrequent occurrences. Writings considered heretical stood little chance of attaining wide circulation and an even smaller chance of surviving, unless those heretics formed well-knit social entities that endured over the centuries. The famous “unorthodox” thoughts of Muslim mystics managed to spread and survive attempts to suppress them because they gained majority support and were somehow adapted to what was broadly conceived as orthodoxy. The ecstatic utterances of a clearly objectionable sort ascribed to eighth- and ninth-century mystics seem often to have been propagated orally rather than in published writings vulnerable to suppression. Thus censorship, all but nonexistent on one level, was omnipresent and quite powerful on another. It did not stop the flow of ideas but could, and did, inhibit their gaining ground.

Communication with the Non-Muslim World

Powerful societies are apt to think of themselves as self-sufficient and to cultivate a sense of superiority over and hostility toward outside groups. Interaction in either direction is thereby hampered. The situation in the Muslim civilization was exacerbated by its religious basis. Proclaiming the attainment of bliss in the other world as humanity’s real and only goal in life, it was accustomed to denying true value to anything foreign that was not expressly sanctioned by Islam. This led to skepticism toward ideas that were recognized as coming from outside and also sustained opposition to them, often lasting long after they had found wide acceptance. But intellectual curiosity, the main motivation for communication, was alive and active.

Translation of texts from non-Muslim civilizations. Translation provided the most effective means of establishing lasting contact with foreign ideas. Extensive translation activity from Greek into Arabic was responsible for bringing about the formation of what is meant by Muslim civilization. The process of assimilating Hellenism had been a continuous one before the advent of Islam. It can be documented in the Persian Sassanian Empire and was dominant in Syriac-speaking Christianity, which provided crucial intermediaries. With the early Muslim conquests of the first half of the seventh century, Islam took over

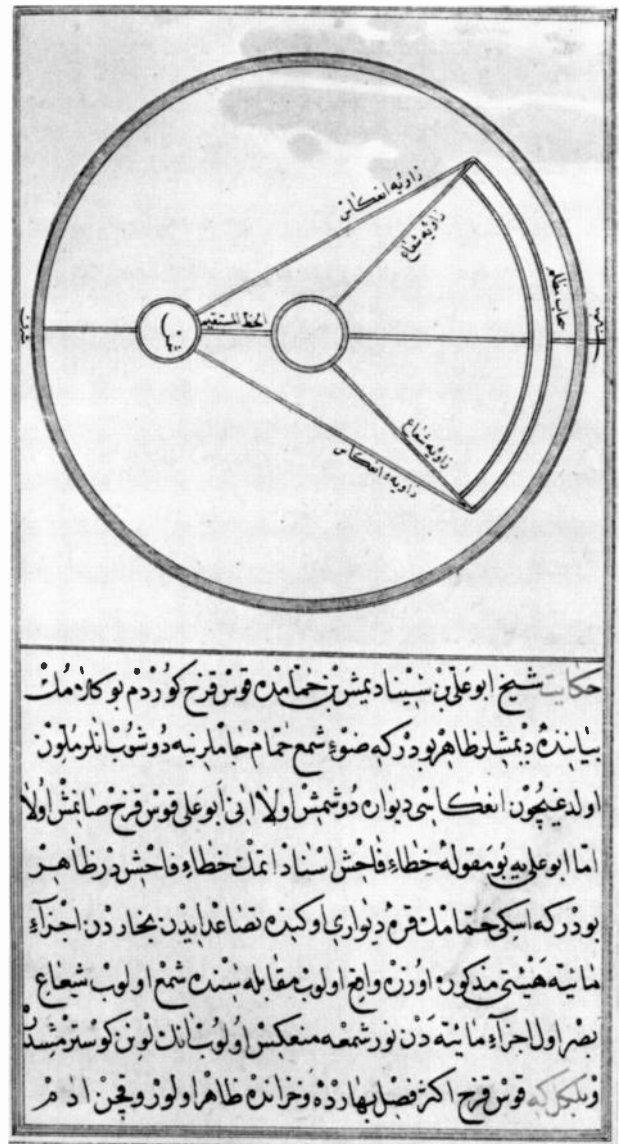


Figure 7. (*Islam, Classical and Medieval Eras*) Diagram from al-Qazwīnī’s *Wonders of Creation* illustrating Avicenna’s theory of the rainbow. By permission of the British Library.



Figure 8. (Islam, Classical and Medieval Eras) Aristotle. From a manuscript of the *Description of the Animals*, by Ibn Bakhtishū, early thirteenth century. By permission of the British Library.

the homeland of Persian civilization and entered vast Hellenized territories. Indian, Persian, Syriac, and Greek books were found to be sources of useful knowledge needed by the new state if it was to flourish. Very soon, some literary and scholarly works were translated or at least somehow made available. The most important and readily accessible storehouse of practical and theoretical knowledge was classical Greek literature. An organized effort to translate it into Arabic started around 800 and continued in full force throughout the ninth century, only to diminish rapidly thereafter. The caliph al-Ma'mūn (r. 813–833) is credited, traditionally and for good reasons, with being the principal promoter of the movement. The Christian scholar from al-Hīrah on the Euphrates, Ḥunayn ibn Ishāq (808–873), stands out as the single most influential translator and the founder of a school of translators. See TRANSLATION, LITERARY.

Science (including medicine) and philosophy possessed the greatest attraction for Muslims because these disciplines provided practical information and theoretical foundations to build on. Greek medicine, already established in Sassanian Mesopotamia, was represented principally by the large corpus of works by Hippocrates and Galen, and they were translated



Figure 9. (Islam, Classical and Medieval Eras) Two illustrations from an Arabic translation of the *Materia Medica* of Dioscorides, written by Abdallah ibn al-Fadl. Iraqi painting on paper, Baghdad school, 1224 C.E. (a) Physician and attendant cutting a plant; (b) Autumn crocus. Courtesy of the Freer Gallery of Art, Smithsonian Institution, Washington, D.C. (Acc. nos. 38.1 and 43.2).

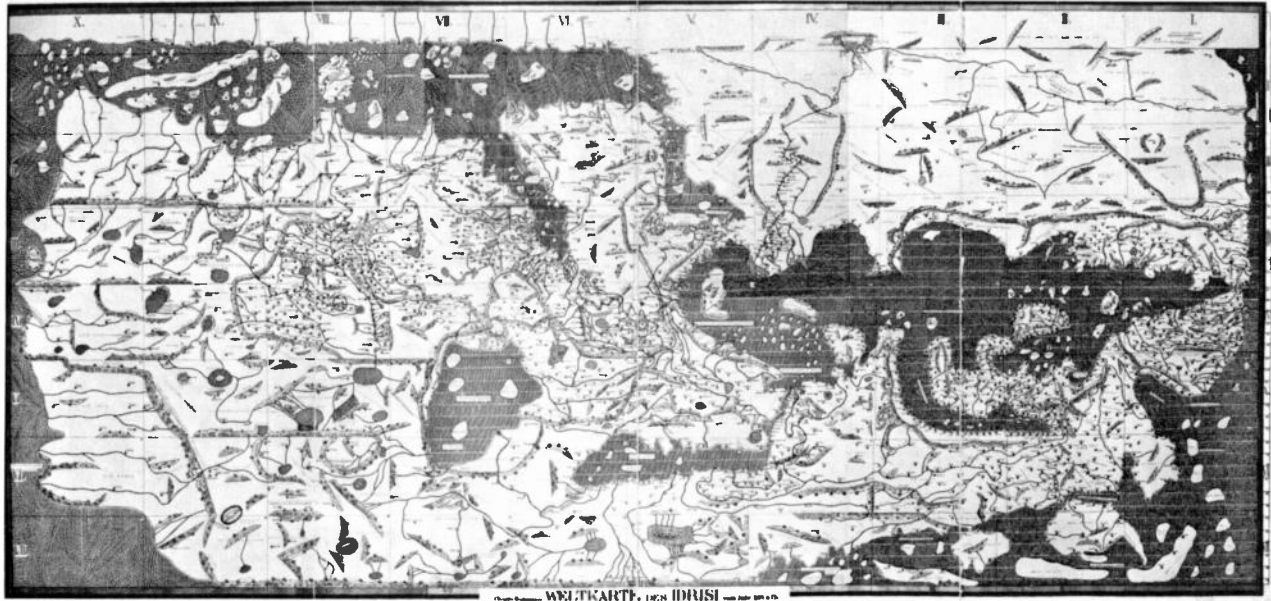


Figure 10. (*Islam, Classical and Medieval Eras*) Al-Idrisi, map of the world, 1154 C.E. Courtesy of the Library of Congress.

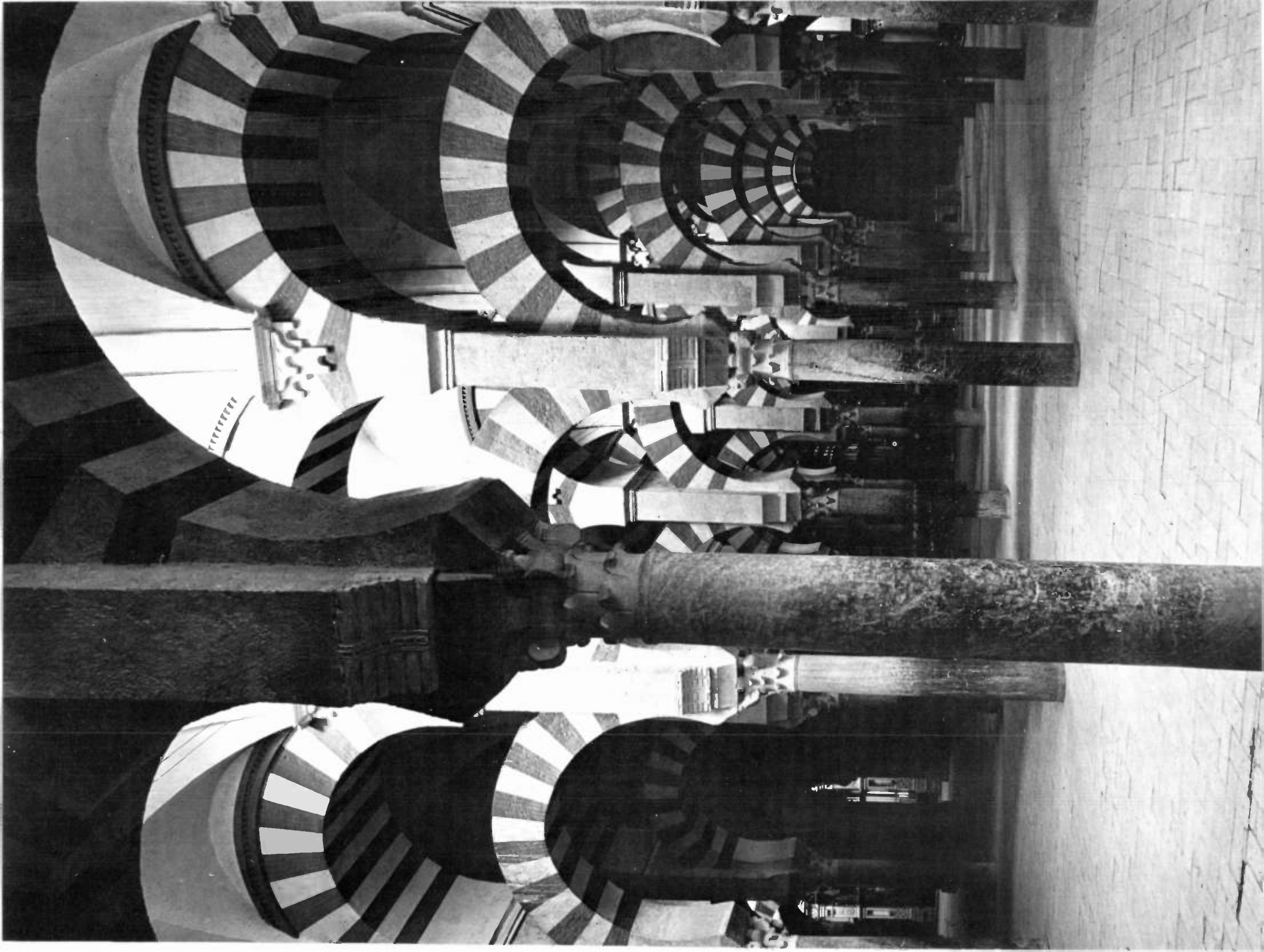
in their entirety. Astronomical and mathematical classics, such as the works of Euclid and Ptolemy, soon found their way into Arabic. Astrology and oneirocritics (the interpretation of dreams), to name some of the pseudosciences, were thought by many to be of great practical value. Works on alchemy, representing a very late stratum of Hellenistic civilization, soon entered Islam. Aristotelian logic headed the list of works expounding Greek abstract thought; it was adopted, if often attacked, by Muslims and furnished the conceptual framework for later scholarship. Most of ARISTOTLE'S other works were also translated. His ethics, together with the ethical thought of other Greek writers and large compilations of easily quoted wisdom sayings, exercised a far-reaching influence. Aristotelian metaphysics became a strong force in Muslim theological speculation, as did the more congenial Platonic and especially Neoplatonic thought from works made available in translation. Some popular literature was known, but drama and poetry and the great historical works of antiquity were not translated, as they had lost ground already in Near Eastern schools before Islam and were in many respects not communicable to a society with a totally different outlook.

Ḥunayn made use of all the tools known to philology. Greek manuscripts were collected, requiring extensive searches in Byzantine territory. They were collated, and a reliable text was established, whenever possible, before translation began. The inherent problems of translation were understood and discussed. The creation of a viable translation vocabu-

lary was seen by Ḥunayn as a prime task. In this way he and his school were able to discard the popular mechanical translation method and to make translations that were exact without being incomprehensible and that rendered the meaning of the originals faithfully. With the Muslims' growing estrangement from contact with speakers of Greek, direct knowledge of Greek texts was already becoming more and more difficult for them to acquire during the tenth century. The existing translations constituted the sole means of access to Greek knowledge for the great Muslim philosophers, physicians, and scientists of the following centuries. They thoroughly reworked, adapted, and incorporated that body of knowledge, influencing not only Muslim secular thought but also Islam as a religion and even to some degree as a legal system.

The seepage of other information from the outside into the world of Islam was considerably slower and more haphazard. International merchants made a large contribution, reporting on foreign countries with an eye for the marvelous and unusual, or for geographical and economic information and, on a much smaller scale, for political and historical data. Another interest, explainable by the role of religion in Islam with its numerous sects and religious mi-

Figure 11. (*Islam, Classical and Medieval Eras*) Interior, Great Mosque at Córdoba, Spain. Arcades of 'Abd ar-Rahman I, ca. 786 C.E. Lauros-Giraudon/Art Resource, New York.



norities, was foreign religious beliefs and how others thought about Islam. The resulting new discipline of comparative religion provided an acquaintance with foreign religious ideas and widened the Muslims' religious horizon.

Muslim influence on other civilizations. For spreading the accomplishments of Islamic civilization into Christian Europe, a translation movement proved again the most important medium. Its principal locus was, naturally enough, the Iberian peninsula. The motivation was the European desire for scientific knowledge and interest in philosophical speculation. A lesser factor, not involved in the earlier translation enterprise, was the necessity to learn about adversaries by translating their works. Philosophical, scientific, and medical translation served the purpose of improving the Western acquaintance with Greek writings then imperfectly known in Europe in the originals. In translation Arabic works based on the Hellenistic heritage, such as some of the works of al-Fārābī (870–950) and, most important, the works of Ibn Rushd, also known as Averroës (1126–1198), became strong catalysts in the formation of European thought. Here too, a minority group often intervened in the translation process, in this case the Jews. Some Latin translations from the Arabic went through the medium of Hebrew. The common translation procedure, repeated in numerous variations, involved collaboration between someone, frequently a Jewish scholar, who knew Arabic and some Spanish vernacular and thus was able to give a rough oral translation, and a European Latinist. The overall result was again an increase in knowledge and the inauguration of a fertile process of integration and development.

A variety of influences coming from the Muslim world matched the translation movement in overall importance, but the channels of transmission are by no means as obvious. Their existence can be suspected without decisive proof being obtainable. The most celebrated cases are the possible connection of troubadour poetry with Spanish Arabic poetry and the influence of Muslim religious mythology (concerning visits to the other world and related matters) on Dante Alighieri (1265–1321). In the case of Dante it has been established that some of the relevant Arabic literature may have been known to him in translation. Possible relations in the realm of poetry remain likely but mainly on the shaky ground that similar trends making themselves felt in close geographical proximity are unlikely to be totally unrelated, and poets and connoisseurs might well have been in occasional touch across the political boundaries. Institutions such as colleges show remarkable parallels in certain places, but concrete influence remains to be proved.

ART and ARCHITECTURE, FOLKLORE, fables, and games exhibit many features of undeniable Muslim

origin. Literary and artistic motifs can be traced on their migrations with comparative assurance. Among games, chess is the outstanding example, but other games too, such as playing cards, are documented as having reached Europe from the Muslim world. The transmission may have been the result of contacts with expert artisans, merchants, and travelers, or simply of contacts with ordinary people close by, especially under political conditions such as existed in Spain and southern Italy.

The exact circumstances of the communication of a large array of technological inventions, many of them singularly potent forces in shaping history, are similarly clouded. Rarely do we have substantial literary documentation such as exists in connection with automata such as clocks or fountains, where at least the transmission from antiquity to Islam is well attested. As in the case of paper, much technological invention would seem to have had its origin in eastern Asia. This would make the Muslim world the logical area of transit, but a direct northern route through central Asia and Russia cannot be ruled out. A case has also been made for the frequent movement of technology from Europe into Islam; for instance, the lateen sail and the stirrup, which, while apparently originating in the East, was developed and its function expanded in Europe.

The carriers of the new inventions remain anonymous. Skilled artisans, prisoners of war (as we have seen in connection with the introduction of paper), soldiers, merchants, and other travelers, as well as Christian monks and perhaps even slaves—a list as plausible as it is unspecific—may have played a role in the transmission. In the history of the transfer of technology, the decisive constant is less the point of entry than the improvements made after it has reached its destination. It is the innate stubborn resistance to innovation that determines the history of technology's diffusion, as is illustrated, for instance, both in the Muslim world and in Europe, by the long time it took for the Indian/Arabic numerals to be accepted, despite their obvious advantages. Many crucial details of the process of transmission, which probably cannot easily be reduced to one common denominator, remain to be learned, if they are not lost to us forever.

See also CRUSADES, THE; EAST ASIA, ANCIENT; HELLENIC WORLD.

Bibliography. Enrico Cerulli, *Il "Libro della Scala" e la questione delle fonti arabo-spagnole della Divina commedia*, Vatican City, 1949; Ibn Khaldūn, *The Muqaddimah*, trans. by Franz Rosenthal, New York, 1958, reprint 1967; George Makdisi, *The Rise of Colleges: Institutions of Learning in Islam and the West*, Edinburgh, 1981; Joseph Needham, *Science and Civilization in China*, New York and Cambridge, 1954; Johannes Pedersen, *Den Arabiske*

bog (The Arabic Book), trans. by Geoffrey French, Princeton, N.J., 1984; Franz Rosenthal, *The Classical Heritage in Islam*, London, 1975; Joseph Schacht and C. E. Bosworth, eds., *The Legacy of Islam*, 2d ed., Oxford, 1974; Ibn al-Ukhūwah, *The Ma'ālim al-qurba fī ahkām al-ḥisba*, ed. and trans. by Ruben Levy, London, 1938; Gustave E. von Grunbaum, *Medieval Islam: A Study in Cultural Orientation*, 2d ed., Chicago, 1954; Lynn T. White, Jr., *Medieval Religion and Technology: Collected Essays*, Berkeley, Calif., and London, 1978; idem, *Medieval Technology and Social Change*, New York, 1962.

FRANZ ROSENTHAL

ISLAMIC WORLD, TWENTIETH CENTURY

Communication patterns in the Islamic world have undergone considerable change since the advent of twentieth-century life-styles and the introduction of new technologies. However, the mainstream concept of reaching out with the Word of Allah and keeping the Islamic *Umma* (Muslims of the entire world) well informed through all available channels has never changed. New trends and models emerged from increased contact with other cultures and their communication systems and from the far-reaching economic and social developments of the latter part of the twentieth century. World trends have included an increasing flow of information, new international communication systems, a focus on DEVELOPMENT COMMUNICATION, a growing role of RELIGION in the mass media, and—within Islam—an emphasis on communication from an Islamic outlook.

Modern Islam

Geographically and demographically, the core of the Islamic world extends along a broad band through the continents of Africa and Asia, but Islamic communities exist throughout the world. Muslims number roughly one billion worldwide. MARSHALL McLuhan's idea of a "global village" also applies to the Islamic world, where new communication technologies have created what may be called a "global mosque." Far from being isolated cultural pockets in alien environments, remote Islamic communities employ both traditional and modern channels of communication to maintain an active relationship with one another and with their cultural roots.

Conceptually the Islamic faith transcends national boundaries and ethnic differences as well as LANGUAGE barriers. It has a built-in function of both vertical and horizontal communication, for which twentieth-century communication technologies have offered channels with unlimited capacity. Traditional channels have sometimes had to be phased out or modified to cope with new needs and priorities, but in many cases they have been amply supported by the new technologies.

Along with breakthroughs in technologies, the impact of two world wars, countless regional and domestic conflicts, and new sources of material wealth in a few Islamic countries have affected the life and thought of the Islamic world. Some Islamic countries were more directly involved than others in regional conflicts, but such conflicts had far-reaching communication implications with respect to the use and abuse of communication capabilities, particularly in RADIO broadcasts and psychological warfare.

It is often argued that contact with the West throughout the twentieth century has only superficially westernized the lives of Muslims without reaching into their inner souls. Especially significant in this context is the spectrum of value systems applied in CENSORSHIP of film and other media in Islamic countries. The countries may be politically, socially, or economically worlds apart, but they share an Islamic background that dictates ideological and moral criteria for film censorship and the admissibility of certain topics or ATTITUDES for treatment by the print or electronic media. Atheism, paganism, adultery, usury, gambling, and drinking, for example, cannot be tolerated in domestic or imported productions. Faith in God, honesty, justice, equality, charity, the family, and the work ethic are, on the other hand, Islamic ideals that have to be upheld within a framework of AGENDA-SETTING that varies according to the degree of twentieth-century secularization permitted by the religious authority in a given state. All this is part of the deep-rooted Islamic identity that the modern media have challenged but have also, in many ways, reinforced.

Although the media are not directly run by religious institutions (except broadcasts and publications devoted entirely to religion or located in countries controlled by a religious hierarchy), complete secularization of the media has never been an objective of communication policy. Religious content may vary in volume and intensity but has always been a conspicuous element even in broadcasts beamed to the Islamic world from non-Islamic countries (e.g., BBC broadcasts). A measure of state control, however, is almost universal in Islamic countries as a safeguard.

Modern Islamic Media

The Pan-Islamic movement of the turn of the century and the Pan-Arab movement of the 1950s were supported by a powerful press, but the innovative revival of Pan-Islamism in the 1960s, 1970s, and 1980s used more diversified media. Communication technology enabled two daily newspapers in the Islamic world to publish simultaneous editions at different locations. Offset PRINTING processes became highly developed. Millions of copies of the Qur'an, the Islamic SCRIPTURE, were turned out by ultramodern printing



Figure 1. (*Islamic World, Twentieth Century*) Muslims being called to prayer. Mopti, Mali, 1967. United Nations photo 106,724.

equipment in several Islamic countries. Film production in the Islamic world, particularly in Egypt and elsewhere in North Africa, also made remarkable progress. Films that dealt with Islamic topics and Islamic history became very popular, and some won regional and international awards.

However, the electronic media can be singled out for achieving the most conspicuous progress. In the Arab countries of West Asia and North Africa, where Arabic, the sacred language of Islam, is the common

language of the region, radio lent its overwhelming power to governments as well as to operators of pirate or dissident broadcasts (*see* RADIO, INTERNATIONAL). The religious content of most scheduled and unscheduled radio transmissions became more intensive when nationalistic or Pan-Arab grievances were more or less identical with Islamic issues.

Other languages spoken in the Islamic world include Persian, Pashto, Turkish, Urdu, Malay, Indonesian, Swahili, and several additional Turkic and

African languages, besides English, French, and Russian. Some languages use Arabic characters (e.g., Persian and Urdu), and others use Latin or other characters. New word-processing and photocomposing techniques have solved many of the problems related to this mosaic of symbols, but the basic communication problem is offset by the unifying factor of the Islamic faith and the Qur'an.

The Qur'an has always been the core of Islamic communication in countless formats. The first technological innovation after printing was the amplification of the human voice in Qur'an recitals by microphones and loudspeakers. Then came radio, which opened worldwide vistas for Qur'anic recitals. A significant development was the early 1960s launching in Egypt of a radio network completely dedicated to the Qur'an. This was followed by another originating from Saudi Arabia. An unending by-product was the introduction of complete sets of Qur'anic recitals on cassettes, which are often used in combination with printed editions of the Islamic scripture.

Television brought to the Islamic world a new dimension of communication plus all the problems associated with television in developing countries (*see TELEVISION HISTORY*). Among these was the precarious balance between domestic and imported productions. Some Islamic countries resented the image-assisted "cultural invasion" that introduced alien or un-Islamic concepts and values (*see NEW INTERNATIONAL INFORMATION ORDER*). However, television survived the unrest in those countries by maintaining a tradition of religious censorship and religious content.

There were also technical problems. When television appeared in the Islamic world during the late 1950s and early 1960s, each individual country had its own plans irrespective of future regional and international development. These differences were further accentuated when the time came for choosing PAL or SECAM as a system for color television. Divergent choices made it very difficult and expensive to exchange programs, even between neighboring countries, or to form a Pan-Islamic or Pan-Arab network. The problem was eventually solved by technological advances and multisystem equipment.

SATELLITE capabilities also caught up with the emerging needs of the global mosque. One striking example is the annual radio and television coverage of hajj, the once-in-a-lifetime pilgrimage to Mecca. Around three million Muslims from all over the world gather in Mecca for the most spectacular of all Islamic RITUAL events and the annual "convention" of the Islamic faith. Until the late 1940s any intrusion of the major media into events of the hajj was taboo, but one by one radio broadcasters, still photographers, and then motion picture and VIDEO

photographers were permitted to cover the pilgrimage. By the 1980s the hajj had become, via satellite, an event shared by all Islamic countries simultaneously.

Another area of Islamic ritual enhanced by communication technology is the call to prayer. Aside from public-address systems that have functionally replaced the traditional minaret towering high above the structure of the mosque, the call to prayer is carried by radio and television five times a day in many Islamic countries.

One serious consequence of television has been its effect on the lives of working people in rural areas. The traditional working day used to start at dawn and conclude with the evening prayers about two hours after sunset. Usually people would retire at that time and get up early in the morning. With the attraction of prime-time television ENTERTAINMENT and home video, many people stay up late and consequently get up late. Apart from considerations related to program content, this situation has significantly changed social and work patterns and has interfered with agricultural productivity.

Economic developments during the 1960s and 1970s encouraged waves of temporary MIGRATION. Migrant workers flocked to oil-rich countries, where relatively lucrative job opportunities were abundant. It was observed that shortwave radio-cassette recorders and later videocassette recorders were among the migrants' first acquisitions. Radio-cassette recorders kept them abreast of news at home and provided other information and entertainment. The demand for such recorders created a sizable market in affluent Islamic countries, and the migrant workers remained devotees of this combined medium even after they returned to their old homes. The availability of the medium then created a demand for prerecorded cassettes. Some were domestically produced, but others could readily be transported—perhaps smuggled—across national borders, with far-reaching social and political implications. The role of cassettes in the REVOLUTION organized from exile by the Ayatollah Ruholla Khomeini, which in 1979 overthrew Moḥammad Reza Shah Pahlavi and took control of Iran, is a telling example. Cassettes recorded in Paris were smuggled into Iran and duplicated for distribution to revolutionary units for indoctrination and coordination of action.

The satellite is a medium of somewhat similar implications. The geographic location of many countries in the Islamic world made them prime targets for satellite communication. Through a network of ground stations, INTELSAT is accessible almost everywhere in the Islamic world via Atlantic and Indian Ocean satellites. To serve the specific purposes of certain areas of the Islamic world, two major satellite systems were developed: PALAPA for the

Indonesian archipelago in Southeast Asia and ARABSAT for the Arab countries of West Asia and North Africa.

Education and research in the specialized field of Islamic communication as distinct from communication in general have been carried out by Al-Azhar University in Egypt, Omdurman Islamic University in Sudan, and Imam Muhamed Ibn Abdel Wahhab University in Saudi Arabia. There are also training facilities in Mecca, Medina, Islamabad, and Kuala Lumpur and courses offered by several other institutes in the Islamic world. Scholars in Egypt and Saudi Arabia have theorized about the relationship of traditional Islamic models to modern MODELS OF COMMUNICATION.

The need to coordinate within the framework of a worldwide Islamic community was behind the creation of the Organization of Broadcasting Services in Islamic Countries, with headquarters in Jeddah, Saudi Arabia. Membership in the organization did not exclude membership in various preexisting organizations, such as regional organizations. The most active among these is Gulfvision, which serves Arab countries of the Persian Gulf area.

In spite of all the conflicts and contradictions that have beset the Islamic world during the twentieth century, the development of communication has been guided not only by national priorities but also by Islamic motives. Constructive plans developed by INTERNATIONAL ORGANIZATIONS have had Islamic support. Most Islamic countries participate in the International Program for the Development of Communication (IPDC), which started in 1982.

The twentieth-century upheavals in communications technology have had dual meanings for the Islamic world. Often posing threats to Islamic values and unity, they have at the same time provided means to deflect the threats and strengthen the unity. All new media have been enlisted in the service of the global mosque.

Bibliography. Yehia Aboubakr, Saad Labib, and Hamdy Kandil, *Development of Communication in the Arab States*, Paris, 1982; John Esposito, ed., *Voices of Resurgent Islam*, New York, 1983; Munir Hijab, *Nazariatul l'lam Al-Islami* (Theories of Islamic Communication), Cairo, 1981; Marjorie Kelly, ed., *Islam: The Religious and Political Life of a World Community*, New York, 1984; Bernard Lewis, ed., *Islam and the Arab World*, New York, 1979; Malise Ruthven, *Islam in the World*, New York, 1984; Edward W. Said, *Covering Islam*, New York, 1981; W. Montgomery Watt, *What Is Islam?* 2d ed., London, 1979.

YEHIA ABOUBAKR

IVENS, JORIS (1898—)

Dutch filmmaker. Ivens was a pioneer documentarist whose filmmaking, spanning more than half a cen-

tury, ranged over five continents and influenced generations of filmmakers, particularly those engaging the medium in the cause of revolutionary social change. In at least four genres of activist DOCUMENTARY he set a tradition in motion (see GENRE).

In *Misère au Borinage* (1933), made with Henri Storck of Belgium and focusing on impoverished striking miners, he inaugurated the contextual social action documentary aimed at community mobilization. In *The Spanish Earth* (1937), on struggles of the beleaguered Spanish republic against Fascist forces led by Francisco Franco, he inaugurated the international solidarity documentary, a summons for world aid. In *Komsomol* (1932), a tribute to the first Soviet Five Year Plan, made by Ivens during a visit to the USSR sponsored by director Vsevolod Pudovkin, he inaugurated the utopian genre of the exemplary portrait of an exotic revolutionary society (see UTOPIAS). And in *Nieuwe Gronden* (New Earth, 1934), a bitter juxtaposition of Dutch workers heroically winning land from the sea with stock shots of harvests being destroyed elsewhere in a depression-stricken globe, Ivens provided the first Western variant of the radical compilation genre pioneered by Soviet documentarists. Much of our inherited lexicon of the documentary was first tested and consolidated during the 1930s by Ivens and his editor, Helen van Dongen, from contrapuntal sound to individual characterization and narrative mise-en-scène and editing, but such innovation was always in the service not of modernist dislocation but of improved social access and POLITICAL COMMUNICATION.

Ivens as filmmaker came of age as Amsterdam's delegate to the cosmopolitan AVANT-GARDE of the 1920s with the urban cinempoem *Regen* (Rain, 1929), his most enduring work from this period. As the depression spread, Ivens's long-standing Communist commitment became increasingly the determining principle of his work, and his ensuing "proletarian" period was marked by heroic epics of work ranging from the Zuider Zee to the Urals. The late 1930s gave rise to Ivens's best-known "Popular Front" period. His home base during these years was the United States, and he filmed on behalf of not only the Spanish Loyalists but also Chinese soldiers repelling the Japanese invaders (*The Four Hundred Million*, 1938) and Ohio farmers organizing to electrify their lands under the benevolent aegis of the New Deal (*Power and the Land*, 1941).

World War II saw Ivens busy first with the U.S. "Second Front" movement and then, under the auspices of the Netherlands government, with preparations for a Grierson-style educational film apparatus for a postwar Netherlands East Indies. The result was instead a vibrant appeal for Indonesian independence (*Indonesia Calling*, 1946), the prophetic prototype for later Third World variants of the solidarity genre. Ivens was thereupon stripped of his Dutch



Figure 1. (*Ivens, Joris*) Joris Ivens, *The Spanish Earth*, 1937. National Film Archive, London. Copyright Joris Ivens.

Figure 2. (*Ivens, Joris*) Joris Ivens.
Photograph by Virginia Haggard
Leirens.



citizenship and settled in for a cold-war exile in Poland and the German Democratic Republic, another prolific period whose best work is the epic manifesto of union internationalism, *Das Lied der Ströme* (Song of the Rivers, 1954).

In 1957 Ivens settled in Paris, the city that was to become his permanent home and to which he dedicated his poetic essay *La Seine a rencontré Paris*, made the same year. Some critics welcomed the return of the lyrical landscapist to what they saw as his true calling, but they were to be disappointed. The following decade saw many more lyrical travel essays, but always infused with Ivens's socialist celebration of human labor and class struggle. Ivens earned his new nickname, "the Flying Dutchman," working with the new post-Stalin generation of young leftist filmmakers in China, Cuba, Chile, Italy, and France. The Vietnam War provoked yet a new phase in the sexagenarian's career. The author of four films on Indochina, Ivens became the figurehead of European artistic efforts on behalf of the Vietnamese cause. At the same time, after Prague, Ivens quietly joined other European Communists in breaking ties to Moscow, looking instead to the East for an alternative model of the revolutionary dream. Returning to China for a third time, Ivens, together with his partner, Marceline Loidan, produced his final masterpiece, the eleven-hour, twelve-part series on the cultural revolution, *How Yukong Moved the Mountains* (1976), a direct-cinema epic on the process of collective political change (see CINÉMA VÉRITÉ).

Ivens had much in common with the other three founding parents of the documentary cinema, ROBERT FLAHERTY, DZIGA VERTOV, and JOHN GRIERSON. Flaherty's lyrical and heroic romanticism often surfaced in Ivens's images of revolutionary heroism and of collective work amid the natural elements in every corner of the globe. Sharing both Vertov's commitment to Marxism and his roots in the futurist-constructivist currents of the 1920s avant-garde, Ivens's

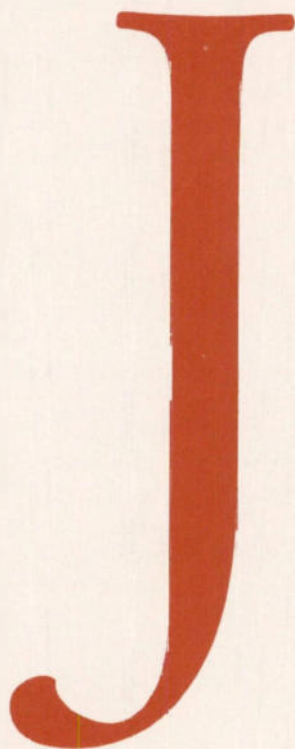
idealism and efficacy far outlasted Vertov's, being grounded in the oppositional undercurrent of the Western democracies rather than the congealing cultural bureaucracy of the Soviet state. As for his friend Grierson, who hired him to make the Canadian *Action Stations!* in 1942, Ivens shared both his pragmatism and his populism, his commitment to documentary film as a means of stirring popular audiences in the age of mass media. Yet, despite Ivens's many Grierson-style state commissions over the years, his most important work remained the articulation of opposition, the elaboration of models of survival, resistance, and alternative values under the global hegemony of capitalism.

Although Ivens was born in the same year as Grierson and SERGEI EISENSTEIN, his career extended into a much later period. His pioneering legacy has been the beneficiary of at least a dozen book-length studies around the world and of many more major retrospectives in almost every world cinemathèque from New York to Beijing. Yet the critical consensus suggested by this acclaim is not unanimous in a country whose documentary legacy he helped found—the United States—where many of his major works are unavailable and where his reputation is still clouded by a cold-war mystique of the separation of politics and art. Ivens's accomplishment has been to refute that separation and to provide each decade since the 1920s with its most lingering images of radical hope.

See also AVANT-GARDE FILM; MOTION PICTURES; NEWSREEL.

Bibliography. Rosalind Delmar, *Joris Ivens: Fifty Years of Filmmaking*, London, 1979; Joris Ivens, *The Camera and I*, New York and Berlin, 1969; Joris Ivens and Robert Distanque, *Joris Ivens ou la mémoire d'un regard*, Paris, 1982; Thomas Waugh, ed., "Show Us Life": *Toward a History and Aesthetics of the Committed Documentary*, Metuchen, N.J., 1984.

THOMAS WAUGH

A large, stylized red letter 'J' is positioned on the left side of the page. It has a thick, solid red body with a horizontal top bar and a curved bottom that tapers to a point.

(dʒ^{eɪ}), the tenth letter of the alphabet in English and other modern languages, is, in its origin, a comparatively late modification of the letter I. In the ancient Roman alphabet, I, besides its vowel value in *ibīdem*, *mīlītis*, had the kindred consonantal value of modern English Y, as in *iactus*, *iam*, *Iouem*, *iūstus*, *adiūro*, *maior*, *peior*. Some time before the sixth century, this y-sound had, by compression in articulation, and consequent development of an initial 'stop', become a consonantal diphthong. . . .

JAKOBSON, ROMAN (1896–1982)

Russian-born linguist. A founder of the Prague school of structural LINGUISTICS, Roman Osipovich Jakobson also did work in literary theory, LITERARY CRITICISM, and FOLKLORE and was a major figure in the study of Russian and Slavic languages and literature, POETICS, SEMIOTICS, child LANGUAGE, and aphasia (see SPEECH AND LANGUAGE DISORDERS). Human communication in general and language in particular as its primary vehicle were concerns that permeated every period of his life and unified every facet of his work.

Born and educated in prerevolutionary Moscow, Jakobson in 1915 became a founding member and the first president of the Moscow Linguistic Circle, which examined questions of poetics and the poetic use of language and many of whose members were associated with a school of thought known as Russian formalism. Jakobson himself acknowledged that his fascination with linguistics grew out of his love of literature and was particularly ignited by the innovations of the Russian AVANT-GARDE poets Velemir Vladimirovich Khlebnikov and Vladimir Vladimirovich Mayakovski.

In 1920 he moved to Prague and in 1926 cofounded the Prague Linguistic Circle, whose members pursued the structure and function of PHONOLOGY, morphology, and poetics. FERDINAND DE SAUSSURE's ideas of the bipartite nature of the linguistic SIGN as signifier and signified in *langue* and *parole*, the linguistic sign's relations on the paradigmatic and syntagmatic axes, and its opposition to other signs formed the basis of much of the group's investigations. However, the Prague linguists rejected Saussure's dichotomy of a synchronic view of language as a static system opposed to a diachronic view of it as dynamic. They believed that the system is always interacting with itself. They also questioned the Saussurian doctrine of the arbitrariness of the linguistic sign, which was that there was no connection between the elements of a sign that would make any particular signifier (the "sound-image") the natural vehicle for a particular signified (the concept associated with the sound-image). See also STRUCTURALISM.

During the 1920s and 1930s Jakobson, together with N. S. Trubetzkoy, developed the central notions of the distinctive features in phonology and their operation in binary oppositions. One term of the opposition was "marked" for the feature; the other term, "unmarked." Jakobson took this work a step further by analyzing the semantic structure of morphological as well as phonological units in terms of markedness and the binary organization of conceptual features. At the root of these advances is the idea of *relational invariance*—that is, of the integrity of linguistic units, which vary contextually but main-

tain systematic relations to the other units in the system.

When the Germans occupied Czechoslovakia, Jakobson fled to Scandinavia, where he found more confirmation of the distinctive features of his groundbreaking work on LANGUAGE ACQUISITION in children and language loss through aphasia. In 1941 he arrived in New York, where he flourished as a teacher, first at the École des Hautes Études and then at Columbia University. In 1943 he cofounded the New York Linguistic Circle.

In 1949 Jakobson moved to Harvard University, where he exercised a profound influence on the next several generations of U.S. Slavicists. This period is also characterized by collaborative research with scientists in the fields of acoustics, communication theory, and MATHEMATICS. From 1960 until his death in 1982 he taught at both Harvard and the Massachusetts Institute of Technology.

The repercussions of Jakobson's ideas are evident in much subsequent work in linguistics in the United States. His student and collaborator Morris Halle modified the phonological distinctive features into generative phonology in the early 1960s. U.S. linguist Noam Chomsky, in his transformational GRAMMAR, reversed the principle of relational invariance by resolving syntactic variations into hypothetical deep structures. The surface variations could be derived by rules, but at the cost of what Jakobson considered the semantic focus of those variants. The opposition of conceptual features, however, remained the hallmark of the morphological and lexical work of Jakobson's student C. H. van Schooneveld.

See also SEMANTICS.

Bibliography. Elmar Holenstein, *Roman Jakobson's Approach to Language: Phenomenological Structuralism*, Bloomington, Ind., 1976; Roman Jakobson, *Selected Writings*, 2d ed., 7 vols., The Hague, 1971–1982; Roman Jakobson and Krystyna Pomorska, *Dialogues*, Cambridge, Mass., 1983.

ROBERT A. FRADKIN

JAMES, WILLIAM (1842–1910)

U.S. thinker and educator. Originally a physical scientist (with an M.D. from Harvard Medical School), William James then became a psychologist and scholar of RELIGION and ethics, but he is best known as the leader of the influential movement in U.S. philosophy called pragmatism. Eldest child of the eccentric philosophical theologian Henry James, Sr., and brother of the novelist Henry James, William James contributed crucially to the transition from Victorian to modern conceptions of reality and of human COGNITION. His persistent opposition to abstraction and absolutism and his emphasis instead on the experiential and conditional had a telling influence on twentieth-century



Figure 1. (*James, William*) William James. The Bettmann Archive, Inc.

developments in communications theory. James's work demonstrated a marked continuity across his several fields, each of which he taught, in succession, as a Harvard faculty member from 1872 to 1907. In each instance he took an established subject and worked a similar kind of modern transformation on it—away from abstract, a priori reasoning and static, transcendental, and absolute understandings toward concrete, functional emphases and dynamic, experiential, and conditional outlooks.

James's work in psychology, epitomized by his classic two-volume *Principles of Psychology* (1890), rejected the atomism and mechanical associationism of older schools. Instead James proposed a "functional psychology" that defined mental life not as passive before phenomena but as purposive and continually changing and that focused not on the mind's supposedly fixed, abstract structure but on the experiential consequences of the mind's actions. James's view of cognition emphasized the importance of symbolic knowledge of the world, in addition to that known through direct, unmediated observation. He thus participated in the emergence of modern conceptions of the role of symbols in the formation and communication of human thought processes (see SEMIOTICS; SIGN; SYMBOLISM). In his 1894 presidential address to the American Psychological Association, he introduced this point with a famous example:

There are two ways of knowing things, knowing them immediately or intuitively, and knowing them conceptually

or representatively. Although such things as the white paper before our eyes can be known intuitively, most of the things we know, the tigers now in India, for example, or the scholastic system of philosophy, are known only representatively or symbolically.

James's next major works, *The Will to Believe and Other Essays in Popular Philosophy* (1897) and *The Varieties of Religious Experience* (1902), subjected religion to the same kind of empirical scrutiny he believed all phenomena must undergo. He characteristically went for evidence not to religious institutions or theological systems but to spontaneous religious experience itself. Radically reconstructing certain fundamental religious ideas, James held here that experience did not support the traditional notions of an infinite, omnipotent, and personal God and of life after death but did suggest the existence of a diffused "higher part of the universe" that works for the good and helps humankind to achieve it.

Pragmatism was first used as a term in the 1870s by U.S. philosopher CHARLES S. PEIRCE but was more fully developed and altered by James in popular works such as his 1907 *Pragmatism: A New Name for Some Old Ways of Thinking*. (The philosophy should not be confused with notions of expediency or commercial efficiency.) James rejected the metaphysical idealism that prevailed in the philosophy of his day, holding instead that the MEANING or validity of any idea or value can ultimately be found only in the succession of experiential consequences it leads to. James's view here of truth—not as an a priori, static imperative transcending experience but as arising concretely out of what he called "agreement with reality"—generated a vigorous new movement in Western philosophy and intellectual culture at the dawn of the twentieth century, inspiring younger philosophers such as JOHN DEWEY, who became one of its best-known later exponents. See also WITTGENSTEIN, LUDWIG.

Not a complete materialist or relativist, James confessed to a "piecemeal supernaturalism" (i.e., based on the evidence he saw for a "higher part of the universe"), and his pragmatism does imply the existence of an objective reality outside individual consciousness. James's modernism lay instead in his emphasis on the fluidity of that external reality and on the conditionality of any knowledge we can ever have about it—beliefs that led him to exhort a constant skepticism about any absolute, fixed understandings of reality and a constant reevaluation of our own conceptions against the ever-changing particulars of what he called "the total context of experience." These beliefs form almost a manifesto for modern communications.

Bibliography. Gay Wilson Allen, *William James: A Biography*, New York and London, 1967; Jacques Barzun, *A*

Stroll with William James, New York, 1983; Gerald E. Myers, *William James: His Life and Thought*, New Haven, Conn., 1986; Ralph Barton Perry, *The Thought and Character of William James*, 2 vols., Boston, 1935; Andrew J. Reck, *Introduction to William James: An Essay and Selected Texts*, Bloomington, Ind., 1967.

JOSEPH CADY

JOHNSON, SAMUEL (1709–1784)

English man of letters, lexicographer, biographer, and journalist. Samuel Johnson was the leading literary figure in the Britain of his time, which scholars often call “the Age of Johnson.” He not only achieved great fame in his lifetime, but, as the subject of one of the most famous biographies in any LANGUAGE, James Boswell’s *Life of Samuel Johnson* (1791), his life, conversation, and correspondence have become intimately known to more than two centuries of readers. Johnson is the most frequently quoted writer of English PROSE in the world today. His contributions to the history of communications are manifold, from his youthful attack on CENSORSHIP (*A Complete Vindication of the Licensers of the Stage*, 1739) to his popularization of literary BIOGRAPHY (*Lives of the English Poets*, 1779–1781), but most important are his role in the establishment of the writer as an independent person free from the influences of patronage, and his *Dictionary of the English Language* (1755).

The son of a struggling provincial bookseller, Johnson was born in Lichfield and was educated locally; he started college at Oxford in 1728. His poverty compelled him to leave college after just thirteen months, ending his formal education. He later received honorary degrees from Trinity College, Dublin, in 1765 and from Oxford University in 1775. After five years of desultory reading, writing, translation, and teaching, Johnson married a widow some years older than himself, Elizabeth Porter, in 1735. His effort to found a school, using much of his wife’s small inheritance, failed, and in 1737 Johnson moved to London to commence a career of writing for his living. The next twelve years show the emergence of all the major projects that distinguished his career. Between 1737 and 1749 he undertook a variety of journalistic tasks, writing book reviews and composing parliamentary debates (Parliament’s proceedings in the mid-eighteenth century were still secret, but Johnson, writing for the *Gentleman’s Magazine*, actually composed debates on the legislative issues of the day so plausible that they were taken for originals well into the next century). He produced his first biographies, began the editing of Shakespeare’s works that would lead to his influential edition of all the plays (1765), wrote his two imitative satirical poems (*London*, 1738, and *The Vanity of Human Wishes*, 1749), and started work on his *Dictionary*. In the

1750s he turned to periodical essays, writing or contributing to three different series, one of which, *The Rambler* (1750–1752), is without parallel among collections of English essays, comparing equally with the *Essays* of Francis Bacon. He produced a philosophical novel, *Rasselas*, in 1759, the same year as the appearance of Voltaire’s *Candide*, with which it is often compared. In addition to his edition of Shakespeare and some able political pamphlets (see also PAMPHLET), Johnson published *A Journey to the Western Islands of Scotland* (1775) and a series of biographies of English poets for a multivolume edition of their writings. In his later years Johnson’s persistent poverty was somewhat alleviated by a small annual pension from the crown and considerably reduced by his intimacy with the wealthy Thrale family, especially Mrs. Hester Thrale. His last years are notable for the intimacy in which he lived with a number of friends who would become his biographers in the years after his death. More biographies of Johnson appeared in the decade after his death than of any other figure in literary history in a comparable period, and, through the version of Boswell, Johnson’s has become the best known of all literary careers.

In 1746 Johnson signed a contract with a group of publishers for his *Dictionary*; soon thereafter he addressed an ambitious *Plan* for this work to the fourth earl of Chesterfield, one of the nation’s richest

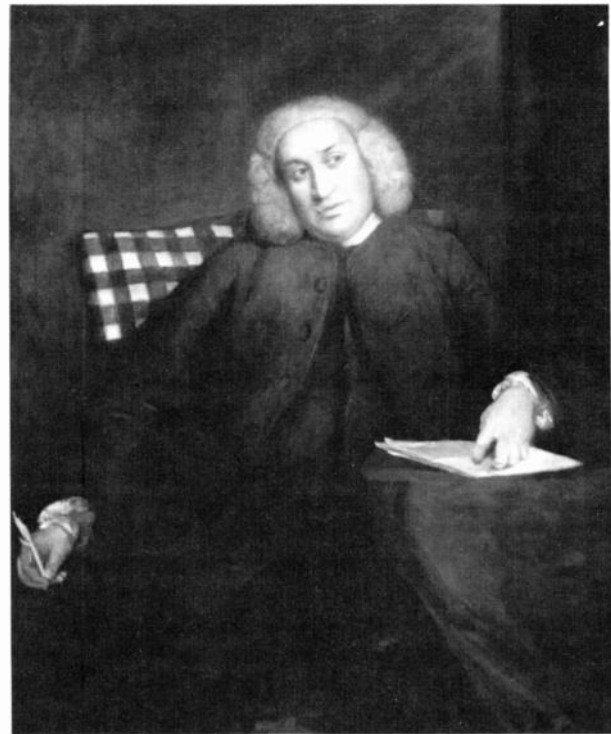


Figure 1. (Johnson, Samuel) Joshua Reynolds, *Samuel Johnson*, 1756. National Portrait Gallery, London.

men and most active literary patrons. From Chesterfield's initial encouragement of this project and his later neglect of Johnson while the work was under way derives Johnson's great contribution to authorial independence. Early in 1755, when the work was nearly ready for publication, Chesterfield renewed his interest in it, but Johnson, unwilling to acknowledge support from someone who had not materially aided him, spurned the earl's interest in a splendid LETTER that has become both an evocation of the age of the independent writer and the most famous single literary epistle in the English language. Although this letter was not published in Johnson's lifetime, his position on authorial independence and patronage became widely known.

The contribution of the *Dictionary* to modern lexicography is enormous. Johnson did not set forth deliberately to fix the MEANING of words, although his work has sometimes been thought to have that effect. Instead, he tried to "register" the meanings of words as representative English authors of the previous two centuries had used them. What he did that was new for his time was to extend to the English dictionary the techniques of the RENAISSANCE lexicons of the classical and biblical languages, which had illustrated the various uses of individual words with quotations from the best authors. The *Dictionary* was the first English lexicon to employ illustrative quotations, often in a copious manner suggesting that Johnson sought to record the intellectual history of his times through his dictionary. Just as the idea of Johnson's *Dictionary* derives from JOHN LOCKE's call for STANDARDS of usage, so subsequent English dictionaries derive directly from Johnson's seminal work, down to the nineteenth-century *New English Dictionary* (completed in the twentieth century and now called the *Oxford English Dictionary*). Publication of Johnson's *Dictionary* brought him fame, if not fortune, and through its many abridgments and editions would carry Johnson's name, ideas about language, and clear definitions on into our own century.

Johnson's career is notable for the number of genres in which he specialized; one of his early biographers listed twelve areas in which he had achieved excellence (see GENRE). Yet through his miscellaneous output runs an important thread for communications history: Johnson's reliance on the publishers of his century for his livelihood. Before Johnson, authors had to rely on some form of patronage, but in his time it became possible for a writer successfully to negotiate with the new lords of the press, the publishers. Johnson's role in the evolution of the concept of literary property is pivotal for his century. During his life as well as through his influence, the encyclopedic quality of Johnson's knowledge and achievement best characterizes his contribution to the history of communications.

See also ARTIST AND SOCIETY; AUTHORSHIP; LANGUAGE REFERENCE BOOK; LITERARY CRITICISM; PUBLISHING; WEBSTER, NOAH.

Bibliography. W. Jackson Bate, *Samuel Johnson*, New York and London, 1977; James L. Clifford, *Dictionary Johnson: Samuel Johnson's Middle Years*, New York, 1979; Robert De Maria, Jr., *Johnson's Dictionary and the Language of Learning*, Chapel Hill, N.C., 1986; Alvin Kernan, *Printing Technology, Letters and Samuel Johnson*, Princeton, N.J., 1987; James H. Sledd and Gwin J. Kolb, *Dr. Johnson's Dictionary: Essays in the Biography of a Book*, Chicago, 1955.

PAUL J. KORSHIN

JOURNAL. See AUTOBIOGRAPHY; DIARY.

JOURNALISM. See COMMUNICATIONS, STUDY OF; NEWSPAPER: HISTORY; NEWSPAPER: TRENDS; PHOTOJOURNALISM.

JUDAISM

The Jews are a people scattered throughout the countries of the world yet connected ultimately by a sense of shared origins, historic destiny, and common identity. The development and continuity of Judaism, despite centuries of dispersion and MIGRATION (see DIASPORA), can be traced to elements in the heritage of the Jewish people that contribute to processes of communication linking diverse communities of the Jewish world.

From the early beginnings the Jews interacted with other nations and civilizations, but they preserved a distinctive consciousness. As a small minority among the peoples of the ancient Near East, Persia, Greece, and Rome, and within Islamic and Christian societies, the Jewish people were subject to the impact of these environments. At the same time, mutual influence through the ages led the surrounding cultures to adopt certain features of Judaism.

Judaism has many similarities to such other members of the monotheistic family of religions as Christianity and Islam, but a variety of practices and assumptions are not shared (see RELIGION). Adherence to monotheism, the main tenet of Judaism, set the Jews apart from other nations beginning in the ancient Near East. This self-image as a people with a sense of religious mission found expression in the belief in a covenant contracted between God and the ancestors of the Jews, introducing the notions of the divine election and future redemption of the nation.

Jewish law and writings. The traditions and ethical teachings that have become associated with Judaism

are contained in the law and prophetic writings collected in the Hebrew Bible, which is the foundation of Jewish life and thought. The Torah, considered the holiest and most authoritative text, is read in synagogues from manuscript scrolls that continue to be copied by hand by highly skilled scribes. This care for the transmission of the written law from generation to generation is one symbol of the divine authority accorded the canonized books of the Bible. Supplementary to the written law there developed a body of oral law claimed to have been communicated from teacher to student since the time of Moses, which is accepted as binding by mainstream or Rabbinic Judaism. *See* SCRIPTURE; WRITING.

The principles of Rabbinic Judaism characterize the most widespread and influential belief system of Jewry to the present day. According to Rabbinic Judaism, Jewish law is continually adapted and interpreted by commentators, or rabbis, whose discussions contribute new layers of meaning to the prescriptions regarding RITUAL and practical matters. These opinions and decisions, the dissenting ones alongside those of the majority, were eventually codified in the Talmud, which consists of the basic texts of Rabbinic Judaism—the Mishnah and the Gemara. In addition, a body of popular interpretive literature known as the Midrash elaborates on the literal text of the Bible by employing legends, parables, and aphorisms.

Succeeding generations of scholars reinterpreted the opinions of their predecessors, creating a body of doctrine that was meant to preserve the essential features of Judaism in light of new social realities. Deliberations and interpretations of the Talmud continued in the various academies that emerged in all parts of the Jewish world community. They are also discussed in rabbinic Responsa, discursive written replies to inquiries on all aspects of Jewish law. This legalistic and poetic literature on the governance of ritual observance and social behavior, in general, embodies the basis of Judaism as a cultural system and facilitates communication among Jews throughout the world.

Institutions and community. Judaism advocates the merits of studying the Torah and other traditional texts for knowledge of the regulations that guide Jewish life. This emphasis on learning and EDUCATION for the whole people resulted in the obligatory establishment of religious schools by every Jewish community. Another institution in which Jews assembled for study of sacred writings, public discussion of communal issues, and prayer is the synagogue. Although the ARCHITECTURE and interior of synagogues reflect contemporary styles of the local society, these structures exhibit common classic features prescribed by tradition, as well as distinctive Jewish motifs and symbols. The synagogue has become a center of Jewish life, functioning as a house of assem-

bly that supports a variety of activities within the community.

The communal structures developed by Jews to mediate internal affairs and to communicate with the surrounding non-Jewish populace have varied in range and scope depending on place and time. However, in attending to the needs of its members, the organized Jewish community (the kehillah) proceeded in accordance with Jewish principles. In addition to establishing synagogues, cemeteries, religious courts, and ritual baths, aid to the needy was carried out at the community level by voluntary associations whose services were funded through charity contributions and a special tax. Conformity to the norms of the community was virtually guaranteed by a kind of excommunication (herem) administered by the elders, which banned the outcast from any contact. Community leaders also served as liaisons in the collection of levies that were transferred to the local authorities.

The administrative systems that Jewish communities established to manage their everyday affairs allowed them a wide measure of autonomy. Although it was not the purpose of the rulers of the countries who enforced segregation of the Jews from the rest of society, the modes of self-governing community life to which Jews adhered throughout the Diaspora enabled them to develop their group life independently. Communication among the various individual administrative bodies was made possible by centralized decision making and legislation on the part of regional councils that convened representatives to resolve issues common to the area's communities. These gatherings occurred, for example, when major Jewish settlements flourished in Babylon, the Ottoman Empire, and eastern Europe.

The era of reforms. The structure provided by the Jewish community for organizational life and cultural continuity was challenged by the processes of modernization and secularization. The leadership of the kehillah, perpetuated in the hands of the rabbinate whose judicial power as communal and religious authorities allowed them to guide Jewish life until the late eighteenth and early nineteenth centuries, was threatened by the Enlightenment and its promotion of Jewish emancipation and secular education.

One impact of reforms in western and eastern Europe was to shake the religious unity that had lasted from the first to the seventeenth century. Forces that were altering the social and political climate of Europe questioned the Jewish traditional mode of life and offered new views on the state of Jewry. Rather than separateness, an IDEOLOGY of integration and equal citizenship led to varied responses on the part of Jews. Many enlightened intellectuals converted to Christianity in an attempt to resolve the problematic dilemma of gaining entry into European

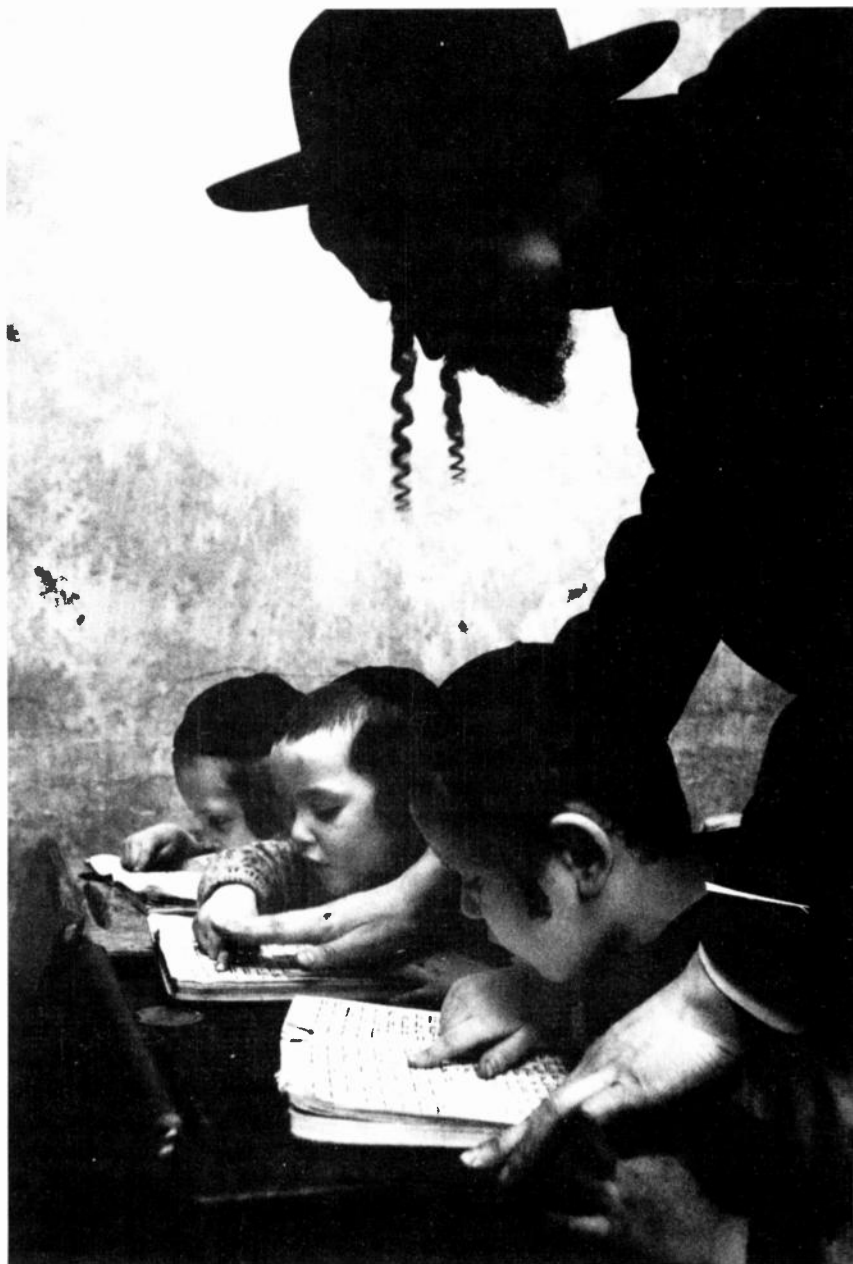


Figure 1. (*Judaism*) Cornell Capa, *Talmudic Scholars, Israel, 1955*.
© Magnum Photos, Inc., New York.

society as members of a group whose rituals, CULTURE, LANGUAGE, and CLOTHING marked them as different.

Another path was taken by many others who chose to balance acceptance of emancipation with preservation of Jewish identity. Out of this new trend to adapt traditional Judaism to contemporary conditions there eventually evolved the main denominations of modern Judaism—Reform, Conservative, Orthodox, and Reconstructionist—and the expression of secular interpretations of Jewish identity.

The encounter with modernity is characterized by increased communication between Judaism and the non-Jewish world, which provoked a multiplicity of responses and redefinitions of Jewish identity. New attitudes in Europe regarding the possibility of na-

tional independence influenced the reawakening of Jewish nationalism. Although Jewish prayer recurrently expresses a yearning for return to the homeland, the idea of Jewish national rebirth in Israel—Zionism—was crystallized as a modern political movement only in the nineteenth century.

Anti-Semitism and the Diaspora. A significant impetus to the growth of Zionism was the spread of anti-Jewish sentiments throughout western Europe, central Europe, and particularly in Russia, as the spirit of emancipation that granted equal rights to Jews reversed itself in manifestations of anti-Semitism. The hostility and violence that Jews suffered in their attempt to integrate into the local society heightened their support of the idea of settlement in the land of Israel as a solution to their problem. Discriminatory

policies, economic hardships, and government-sponsored anti-Semitic pogroms in this period also spurred Jewish migration to other refuges, including the United States.

Although wandering and immigration characterize the Jewish nation from its early origins, the map of the Jewish world was visibly changed by migrations and persecutions of the late nineteenth and twentieth centuries. Between 1880 and 1920 more than two and a half million Jews left eastern Europe. The end of World War II marked another period of mass migration, mainly to Israel on the part of survivors of the Nazi holocaust in Europe and Jews in Muslim countries who had been uprooted from their homes. The modern state of Israel, established in 1948, maintains close ties with Jewish communities in the Diaspora for whom activity of various kinds on behalf of Israel has become one of the most visible signs of Jewish affiliation.

Jewish life has long been characterized by the existence of autonomous Jewish settlements under foreign power linked to the focal point of Israel. This dispersion resulted in differences among Jewish ethnic communities as time went on. Similarities were reinforced by emissaries who traveled to the various communities in the first and second centuries C.E., for example. They relayed the regulations and recommendations established by the Sanhedrin, a court of Jewish sages that formulated rulings to enable Jewish life to continue uniformly. In other periods contact was also maintained among Talmudic scholars and as a result of the commerce and trade activities of Jewish merchants. The rhythm of the Jewish CALENDAR and FESTIVAL timetable, the Jewish week (which culminates in a Sabbath day of rest), and the Jewish life cycle guides the shared cultural framework of diverse Jewish communities.

Language. Nonetheless, it is important to mark the varieties of languages, customs, ART forms, and creativity that distinguish Jewish ethnic groups. Influenced by the culture of their adopted region of settlement, Jews have generally spoken the language of their neighbors, often developing their own dialect versions of these or evolving a distinctive language of their own. Hebrew was retained as the dominant language of worship and was taught to children at an early age. LITERACY, as a result, has been generally high among Jews. In recent times Hebrew has been revived as a spoken language and has become the official language of Israel.

The linguistic map of Jewry reflects the process by which local tongues were combined with Hebrew and Aramaic components to form written and spoken Jewish languages. The Hebrew ALPHABET, as the basic medium of education, is used for writing these other languages, the most widespread of which are Judeo-Spanish (Ladino and Judezmo) and Yiddish.

The first emerged from the experience of descendants of the Jewish exiles from Spain and Portugal, expelled in 1492 during the Inquisition, who settled in North Africa, the Balkans, and other areas in the Ottoman Empire and later in parts of Europe. This category of Jews has come to be known as Sephardim, a term often used to include Jews from Muslim countries of Asia and Africa. Yiddish, on the other hand, is the language closely associated with Ashkenazim, the other principal designation that encompasses Jews of European and Slavic extraction. These two major groupings and the many Jewish subcommunities they represent exhibit distinctive dress, music, art, foodways, and observances in addition to their particular patterns of linguistic and literary productivity.

Along these lines there were also two characteristic forms of Hebrew script, Ashkenazi and Sephardi, which remained intact even after the invention of PRINTING with movable type in the fifteenth century. The art of producing and illustrating Hebrew manuscripts had always been valued in Jewish society, but Jewish and Christian printers facilitated the dissemination of many copies of Hebrew editions of biblical texts and other books, which had a major impact on the spread of Jewish culture and scholarship. Changes in the standardized printed Hebrew letter forms did not occur until the nineteenth and twentieth centuries. These trends in Hebrew printing parallel the rise of Jewish national social movements in Europe, which introduced new developments in modern Hebrew and Yiddish culture.

Under the influence of the European Enlightenment, modern Jewish literature in Hebrew and Yiddish blossomed in a new, secular domain. In pre-World War II eastern Europe this literary activity flourished alongside a vital Jewish press, a thriving network of Jewish schools, research institutes, and Jewish theatrical innovation. Estimates are that in Poland, for example, two hundred Jewish journals in Polish, Hebrew, and Yiddish were published before the destruction of this vibrant community by the Nazis.

In 1939 there were approximately ten million Yiddish speakers in the world, mainly concentrated in the eastern European centers of Jewish culture. As a result of the holocaust as well as the natural process of linguistic assimilation, dwindling numbers of Jews maintain active use of a specifically Jewish language, except for the case of Hebrew in Israel. Jews have always contributed in the language of the prevailing society to the national literature and other cultural spheres, including the mass media. The award of the Nobel Prize for literature to Isaac Bashevis Singer in 1978 drew attention to Yiddish literature and helped to spur renewed interest in that language.

As ethnic identification is reexamined and reeval-

uated in the United States and other nations, especially on the part of the grandchildren of immigrants, Jews join other minorities in the search for ways to communicate their identity, albeit in new forms. Modern Jewish identity is a fusion of ethnic, national, religious, and historical components. The transmission of Judaism occurs in a variety of ways as the cultural system unfolds and changes. In the post-World War II era the Nazi holocaust and the rise of the state of Israel have had an important effect on Jewish group solidarity and self-preservation. Despite the wide variety of possible affiliational paths that Jews can adopt, the unity of the Jewish people in many lands is maintained through the observance and preservation of shared traditions.

Bibliography. *Algemeyne Entsiklopedye: Serye Yidn*, Vols. 1–7, Paris and New York, 1934–1966; Salo W. Baron, *A Social and Religious History of the Jews*, 2d ed., Vols. 1–18, New York, 1952–; Lucjan Dobroszycki and Barbara Kirshenblatt-Gimblett, *Image before My Eyes: A Photographic History of Jewish Life in Poland, 1864–1939*, New York, 1977; Louis Finkelstein, *The Jews: Their History, Culture, and Religion* (1949), 4th ed., 2 vols., New York, 1970–1971; Jewish Encyclopedic Handbooks, *The Jewish People, Past and Present*, 3 vols., New York, 1946–1952; Elihu Katz and Michael Gurevitch, *The Secularization of Leisure: Culture and Communication in Israel*, Cambridge, Mass., 1976; Cecil Roth, *The Jewish Contribution to Civilisation*, Oxford, 1945, reprint London, 1956.

HANNAH KLIGER

JUNG, CARL (1875–1961)

Swiss psychological theorist who ranks as one of the most important psychologists of the twentieth century. Carl Gustav Jung is best known as SIGMUND FREUD's chosen successor to lead the psychoanalytic movement, also as the first president of the International Psychoanalytic Society and the founder of his own school of analytical psychology after his break with Freud in 1914. His formative teachers in psychiatry were Eugen Bleuler (Zurich) and Pierre Janet (Paris). After early studies in word association and dementia praecox that initiated his contact with Freud, Jung went on to develop an influential classification of personality types and eventually a theory of the collective unconscious that has important implications for the study of communication as well as of CULTURE, mythology, and RELIGION.

The contribution of Jung to the study of communication developed primarily in response to Freudian psychoanalytic theory. Although he accepted Freud's general concept of the unconscious, Jung denied its instinctual—especially its sexual—nature, asserting instead the religious ground of our “undiscovered

self.” He also rejected the necessity and dynamic quality of what Freud called the psychic mechanism of repression. In place of the instincts Jung proposed a series of universal cultural archetypes that underlie the personal unconscious, originating in the impersonal “collective unconscious.” These archetypal motifs, such as the “persona” and “shadow,” the “anima” and “animus,” define the basic forms of the psyche. They are suprahistorical, transcultural, and not reducible to their particular individual and collective representations. According to Jung, archetypes specify a transcendent order.

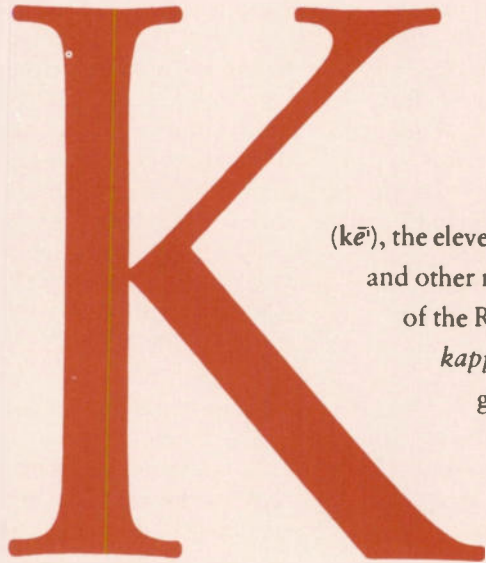
Jung implicitly identified two levels of communication: the intrapsychic and the interpersonal. Intrapsychic communication is problematic insofar as the individual psyche develops a neurotic imbalance that prevents conscious expression of archetypal representations. The task of Jungian psychotherapy is to work toward the recognition of hidden parts of the personality and to correct the imbalance with compensatory expressions. This task is accomplished through INTERPERSONAL COMMUNICATION in which the analyst helps the patient to bring repressed contents to light—for example, by interpreting fantasies and dreams. As in the case of Freudian therapy, each individual becomes something of an artist of private life because there is a touch of the artist in every person. However, this artist in every person remains merely potential, lacking the power to articulate and to communicate until released by the analyst. With the analyst's help the patient grows into a successful but limited artist by creating a set of interpersonal meanings. But in contrast to Freudian theory this set of meanings constitutes a personal myth that integrates the individual into a universal and saving symbol system that can fairly be described as religious in function.

In Jung's vision the modern individual suffers from the failure to experience and therefore to communicate eternal archetypal forms in a cold and rationalist world. Ironically, the more successful one is at creating a personal, saving myth, the more one is authorized to withdraw from the public world into the therapeutic security of a private religion.

See also ARTIST AND SOCIETY; FOLKLORE; PSYCHOANALYSIS.

Bibliography. Frieda Fordham, *An Introduction to Jung's Psychology*, 3d ed., London, 1966; C. G. Jung, *Modern Man in Search of a Soul*, New York and London, 1933, reprint 1961; idem, *The Portable Jung*, ed. by Joseph Campbell, trans. by R. F. C. Hull, New York, 1971; idem, *Psychology and Religion* (1938), 2d ed., Princeton, N.J., 1969; Philip Rieff, *The Triumph of the Therapeutic: Uses of Faith after Freud*, New York, 1966.

ALAN N. WOOLFOLK

A large, bold, red capital letter 'K' is positioned on the left side of the page. The letter is rendered in a classic serif font with a slightly flared top and a solid vertical stem. A thin vertical line runs through the center of the stem.

(*kē*), the eleventh letter of the alphabet in English and other modern languages, was an original letter of the Roman alphabet, taken from the Greek *kappa*, K, originally K , from the Phœnician and general Semitic *kaph*, כ . Its sound in Greek and Latin was, as in English, that of the back voiceless stop consonant, or guttural *tenuis*.

KELLER, HELEN (1880–1968)

U.S. author, lecturer, and champion of the communication needs of the handicapped—a subject illuminated by her own life. At the age of nineteen months Helen Adams Keller was stricken with a disease that was diagnosed as acute congestion of the stomach and brain. She was left deaf, blind, and mute and became a wild and destructive child, existing in a private world of darkness and silence. Her father, publisher of a weekly newspaper and a local government official, contacted the Perkins Institute in Boston, which specialized in the rehabilitation of the blind. The director at Perkins recommended a recent graduate, Anne Sullivan, herself partially blind, who traveled to the Keller home in Tuscumbia, Alabama, and began her celebrated and determined efforts to penetrate Helen's isolation and to make possible communication between her and the world around her.

To gain ascendancy over Keller, Sullivan used a mixture of stern discipline and loving tenderness. Into Keller's hand she spelled out the names of objects, using a manual ALPHABET. Keller readily learned and could repeat the alphabetic signs but could not at first comprehend how they were related to objects until, two weeks after they had begun, Sullivan held Keller's hand under a pump and spelled the word *water*. Within a few months of this event she had learned three hundred words and had written a letter to her mother.

Keller and Sullivan traveled together to Boston, where they became associated with the Perkins Institute and where Keller began to develop an interest in helping others who were impaired in similar ways. In 1894 they moved to New York so that Keller could attend the Wright-Humason School, which specialized in TEACHING the deaf to speak. Two years later Keller enrolled in the Cambridge School for Young Ladies to prepare for entry into college. Within nine months she had passed the first admission tests to Radcliffe; in 1900 she was admitted. Sullivan attended every class with Keller, tirelessly spelling the lectures into her hand. In 1904 Keller graduated cum laude with distinction in English. In the meantime, with the help of Sullivan and Harvard instructor John Macy, she had written her AUTOBIOGRAPHY, *The Story of My Life*, which was published in 1903.

For the career of advocacy she now undertook, Keller depended largely on patrons, but she also proved adept at raising money on her own, writing steadily and even delivering lectures on the vaudeville circuit. In 1917 she produced a feature motion picture, *Deliverance*, dramatizing her emergence into human society; for this she and Sullivan jointly coached the actors. A more telling enactment of her story came late in her long life with the television play *The Miracle Worker* (1957), by William Gibson, later



Figure 1. (*Keller, Helen*) Helen Keller, Anne Sullivan Macy, and Alexander Graham Bell. Courtesy of the Alexander Graham Bell Association for the Deaf, Volta Bureau Library, Washington, D.C.

developed into a successful stage play (1958) and still later into two motion pictures (1962, 1979) under the same title. Keller and her story became an invaluable aid to the American Foundation for the Blind in carrying its message to the public. She was especially proud of helping to bring the subject of ophthalmia neonatorum (blindness of the newborn) into the open; caused by venereal disease, it had been an unmentionable subject.

Keller lived until 1968, the recipient of honorary degrees from Temple and Harvard Universities and of a presidential Medal of Freedom.

See also NONVERBAL COMMUNICATION; SIGN LANGUAGE; SPEECH AND LANGUAGE DISORDERS; TOUCH.

Bibliography. Helen Keller, *The Story of My Life*, New York, 1903, reprint 1954; Joseph P. Lash, *Helen and Teacher*, New York, 1980.

ROBERT BALAY

KENYATTA, JOMO (1893?–1978)

Kenyan journalist who became a leader in the African nationalist movement and, in 1964, the first president

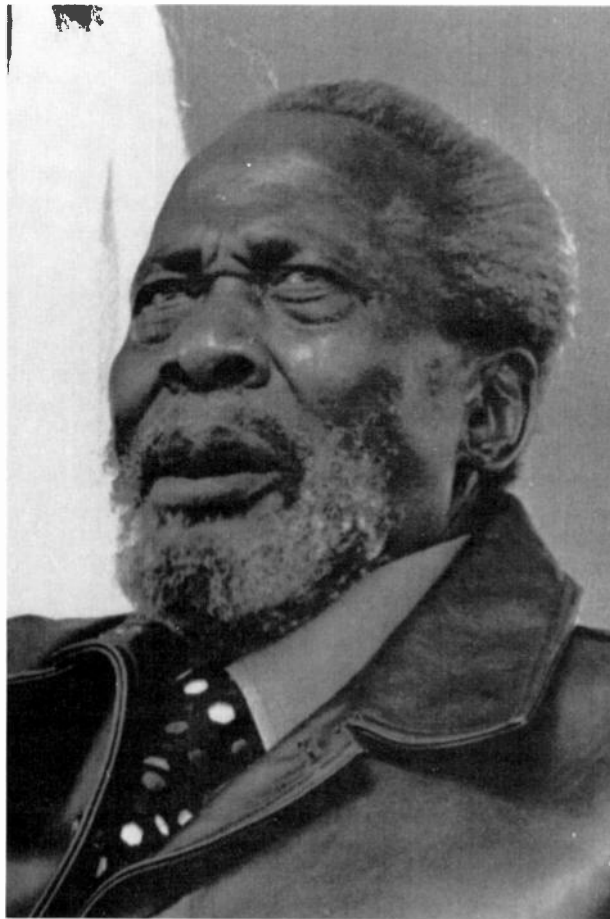


Figure 1. (*Kenyatta, Jomo*) Jomo Kenyatta.
UPI/Bettmann Newsphotos.

of independent Kenya—a position he held until his death. A member of the Kikuyu tribe, the largest ethnic component of Kenya, Jomo Kenyatta spent his early years as a shepherd guarding his father's flock. He started schooling late but soon showed literary and linguistic gifts. While in school he assisted in the translation of passages of the New Testament into Kikuyu. In his mid-twenties he served as interpreter for the Supreme Court in Nairobi. About this time he dropped his original name, Johnstone Kamau, and took the name Kenyatta. To make Kenyans aware and proud of their heritage became his overriding concern. Appointed general secretary of the Kikuyu Central Association, he became the first editor of its journal, *Muigithania* (The Reconciler), the first periodical published by indigenous Kenyans. It voiced the grievances of tribe members whose lands had been taken by settlers. Kenyatta often represented such cases at hearings, both in the colony and before commissions in London.

During a sixteen-year stay in Europe (1930–1946), based in England, he served constantly as spokesman

for African nationalist viewpoints and demands. In articles and books such as *Facing Mount Kenya* (1938), *My People of Kikuyu* (1942), and *Kenya: The Land of Conflict* (1945) he wrote eloquently about his land and its people, describing their way of life as superior to that of Europeans and criticizing the colonial system (see COLONIZATION).

In 1946 he returned home to take up a teaching appointment and soon afterward was elected president of the Kenya African Union (KAU). He skillfully developed this into a political organization, the Kenya African National Union, focusing on the nationalist struggle. In 1952 the colonial government charged him with secretly instigating the Mau Mau uprisings. His arrest, trial, and nine-year detention tended to enhance his status as the father of the nationalist movement. He was released in 1961. When Kenya won independence two years later, Kenyatta became prime minister. A year later, when the country was proclaimed a republic, he became its president.

Mzee (“Old Man”) Kenyatta used all his oratorical and writing skills to exhort his people to the tasks of national development, unity, and reconciliation. The political stability and steady socioeconomic progress that Kenya witnessed under President Kenyatta favored the development of communications. Private and foreign ownership of newspapers and magazines was permitted, and Kenyan newspapers were among the best in Africa (see NEWSPAPER: TRENDS—TRENDS IN AFRICA). RADIO and television broadcasting systems and telecommunications facilities were expanded, though largely concentrated in the few urban areas. The Kenyan capital, Nairobi, developed into a communications center and focal point for INTERNATIONAL ORGANIZATIONS and conferences.

See also AFRICA, TWENTIETH CENTURY.

Bibliography. Guy Arnold, *Kenyatta and the Politics of Kenya*, London, 1974; Jeremy Murray-Brown, *Kenyatta*, London, 1974.

S. T. KWAME BOAFO

KINESICS

Defined by the U.S. anthropologist Ray L. Birdwhistell in 1952 as the study of the communicative functions of body motion in face-to-face interaction. The term now has wider application, but its original use referred to an approach in which patterns of body motion such as FACIAL EXPRESSION, GESTURE, bodily carriage, and posture are viewed as culturally patterned and learned by individuals in the course of becoming competent users of the face-to-face communication systems of their culture. The socially

coded nature of bodily communication was discussed earlier by the linguist EDWARD SAPIR, but Birdwhistell was the first to suggest that it could be analyzed using techniques developed in LINGUISTICS.

Complementing the work of the U.S. linguist George L. Trager on paralinguage, Birdwhistell proposed a terminology and conceptual framework for kinesics parallel to that employed in American structural linguistics. The least discriminable contrastive unit of body motion was termed the *kineme*, on analogy with the phoneme. Kinemes were postulated to occur in regular combinations, or *kinemorphs*, and these in turn were thought to be organized into *kinemorphic constructions*. For example, for a given cultural group only one kineme of eyebrow raise would be established if the members of the group distinguished only two facial configurations as communicatively significant, according to whether the brows were raised or not, regardless of the different degrees of eyebrow raise that could be found by measurement in different individuals or on different occasions. The combination of different eyebrow-raise kinemes with kinemes of mouth and eyelid movement produces different facial kinemorphs. Such facial kinemorphs themselves may combine in various ways with different combinations of kinemes of arm and hand movement, head movement, and the like. In greeting, for instance, the head may be thrown back at the same time as the eyebrows are raised and lowered rapidly, the mouth opened in a smile, the arm raised in a wave. The smile combined with eyebrow movement, the wave, and the head movement are all examples of kinemorphs. Their combination in this pattern is a kinemorphic construction. The communicative significance or "meaning" of this construction would then be determined through a study of the interactional contexts of its occurrence, following procedures of context analysis developed by Birdwhistell's colleague Albert Schefflen, a psychiatrist.

For kinesics to be possible, film or VIDEO recording and appropriate stop-frame and slow-motion replay apparatus are essential. The use of film for kinesic analysis was pioneered by GREGORY BATESON and MARGARET MEAD, who also contributed much to the development of the general theoretical outlook of which kinesics is a part. This outlook regards the kinesic code as a subsystem of communication along with others such as SPEECH, TOUCH, SMELL, spacing, and orientation (*see also* NONVERBAL COMMUNICATION). Communication in face-to-face interaction, thus, is seen as a complex, continuous, culturally patterned, multichannel process. The aim of kinesics is to provide a systematic analysis of the body motion system and to show how it is related to these other systems.

See also BODY MOVEMENT; BODY MOVEMENT NOTATION; FACE; INTERACTION, FACE-TO-FACE.

Bibliography. Ray L. Birdwhistell, *Kinesics and Context: Essays on Body Motion Communication*, Philadelphia, 1970; Albert E. Schefflen, *Communicational Structure: Analysis of a Psychotherapy Transaction*, Bloomington, Ind., 1973; Thomas A. Sebeok, Alfred S. Hayes, and Mary Catherine Bateson, eds., *Approaches to Semiotics*, The Hague, 1964.

ADAM KENDON

KUROSAWA, AKIRA (1910–)

Japanese film director. After his debut in 1943 with *Sanshiro sugata*, Akira Kurosawa went on to make a body of twenty-eight films that has placed him among the most celebrated film directors. He is world renowned for such pictures as *Rashomon* (1950), *Ikiru* (1952), and *Shichinin no samurai* (The Seven Samurai, 1954).

Trained as a painter, Kurosawa—unlike more traditional Japanese film directors—sees film mainly as a NARRATIVE of visuals, and this is as true for his earlier films as for the spectacular *Ran* (1985). His extraordinarily visual language perhaps also accounts for his popularity outside Japan.



Figure 1. (*Kurosawa, Akira*) Akira Kurosawa. The Museum of Modern Art/Film Stills Archive.

At the same time, however, the moral concerns of his films—and Kurosawa is as driven by moral concerns as Robert Bresson or Ingmar Bergman, directors he in no way resembles otherwise—deepen their effect and underlie the philosophical statements that give his films universal appeal. These statements often involve education—in films such as *Sanshiro sugata*, *Sanjuro* (1962), and *Akahige* (Red Beard, 1965), the hero is taught how to be himself, how to achieve a reality that is his, or, as in *Ikiru*, how to redeem what must be. In many films Kurosawa defines the nature of reality (the “true” in philosophy) by showing its counterfeit, the “false.” The theme of illusion versus reality occurs in many of his films. Often he shows a rehearsal for an event and then, in contrast, the event, as in *Ikiru*, *Seven Samurai*, *Yojimbo* (1961), *Warui yatsu hodo yoko nemuru* (The Bad Sleep Well, 1960), and—a film devoted entirely to this question—*Rashomon*. Or we are shown a “false” man who learns to be “true” (*Kagemusha*; Shadow Warrior, 1980). However, the films are not didactic and are only rarely sententious. Image and editing (see

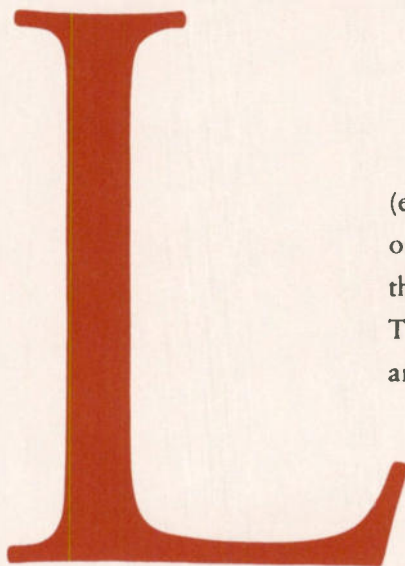
FILM EDITING) unite in an endless and exhilarating flow that makes the Kurosawa film a pleasure to watch. As a film technician he is without peer.




This results in a language that is easy to understand. It also makes for a moral simplicity that can be seen as either idealistic or unrealistic. In Japan Kurosawa has often faced a highly critical press, partly for this reason and partly because his later films were made with foreign funding—the result of his difficulty in obtaining domestic funding. Indeed, unfriendly Japanese critics have described Kurosawa as making films for the West. This is untrue. Western appreciation has been a by-product of Kurosawa’s deep moral concern and stunning cinematic technique, both aimed entirely at an explication of Japan and the Japanese.

See also MOTION PICTURES—SOUND FILM.

Bibliography. Donald Richie, *The Films of Akira Kurosawa*, rev. ed., Berkeley, Calif., 1984.

DONALD RICHIE

A large, bold, red capital letter 'L' is positioned on the left side of the page. It has a classic serif design with a thick vertical stem and a horizontal base that tapers slightly to the right.

(el), the twelfth letter of the modern and the eleventh of the ancient Roman alphabet, represents historically the Greek *lambda* and ultimately the Semitic *lamed*. The earliest known Semitic forms of the character are  and ; both these occur in early Greek inscriptions; the latter was adopted from the Greek into the Latin alphabet, and is the ancestor of the modern Roman forms, but in Greece itself was superseded by the inverted form , which eventually became Λ .

LAND, EDWIN (1909–)

U.S. physicist and inventor of the Polaroid one-step photographic process. Having been interested in PHOTOGRAPHY since childhood, Edwin Herbert Land began, as a student at Harvard in 1926, to experiment with polarized light. He left Harvard before graduation to continue work on a synthetic sheet polarizer, which he was able to produce by embedding crystals of iodoquinine sulfate in a sheet of plastic. To exploit his discoveries Land joined George Wheelwright III of Harvard's physics department to form the Land-Wheelwright Laboratories and in 1937 the Polaroid Corporation. This firm began to discover uses for sheet polarizers, including polarizing filters for cameras and sunglasses and, during World War II, optical elements for infrared night-vision instruments, periscopes, range finders, and bomb-sights.

But it was not until after the war that Land made his most fruitful discoveries. On a vacation in Santa Fe, New Mexico, his daughter asked after taking a photograph why she could not see the picture right away, and during an hour's walk through the streets Land conceived the system that would result in the Polaroid Land Camera. As first marketed in 1948 the camera contained a film pack consisting of silver

halide negative, positive print paper, and a developing reagent. After taking a picture the operator pulled the photographic paper between two steel rollers, rupturing a pod of developer and spreading it over the paper. In about a minute the positive print was fully developed. The photographic system was an instant success, bringing sales of some \$5 million in its first year.

Other inventions from Land's Polaroid Corporation included the vectograph, which permitted aerial photographs to be viewed as three-dimensional images and later resulted in the "3-D" movie craze of the 1950s, and cameras that provided instant color photographs, ejecting the print from the camera as soon as the shutter was released and developing the film in ambient light. Land's cameras and optical discoveries have been widely used by industry and the military, but his lasting contributions—his instant cameras—have brought a new kind of photographic experience to millions, enabling a picture to be viewed immediately after it is taken.

See also PHOTOGRAPHY, AMATEUR.

Bibliography. Mark Olshaker, *The Instant Image: Edwin Land and the Polaroid Experience*, New York, 1978.

ROBERT BALAY



Figure 1. (*Land, Edwin*) Edwin H. Land, 1947. Courtesy of the Polaroid Corporation.

LANGUAGE

The principal medium of human communication. In its primary form language is a spoken CODE of richly patterned combinations of signal elements (audibly distinct features of SPEECH sound) and message units (clumps of SOUND features conventionally associated with meanings or functional features). Serving as the principal means of transmission of CULTURE and belief systems, language has profound effects on the constitution of social life and in turn reflects by the variegation of usage patterns within a community the social organization of its speakers, down to the level of individual differences. *See also* MODE; SEMIOTICS; SIGN; SIGN SYSTEM.

Estimates of the number of different languages now spoken range from some two thousand to more than four thousand. The magnitude of the uncertainty is partly due to the difficulties of distinguishing between different languages and varieties of one language in particular cases and partly because of inadequate information for many areas.

Written and other representations of the spoken system are secondary to it both in historical date of development and in uniformity of acquisition within a social group. READING and WRITING must be learned, typically by instruction; speaking and understanding skills are acquired by all normal CHILDREN as part of the ordinary processes of development and social-

ization (*see* LANGUAGE ACQUISITION). Among the hearing impaired, strictly gestural sign systems have developed and have been transmitted in much the same way as spoken language; secondary systems of fingerspelling stand in the same relation to these as writing (*see* GESTURE; SIGN LANGUAGE).

The Nature and Origin of Language

Consideration of the nature and origin of language has accompanied a wide range of intellectual activities throughout history and doubtless longer still. Much of this long tradition consists of myth and religious doctrines holding that language, and often a particular language, was divinely inspired. Moreover, the connection between sacred texts and the language that conveys them has in many instances conferred a quasi-sacred status on the particular variety represented in the texts, sometimes "freezing" it virtually without change for many centuries and influencing the constantly changing popular usage in various ways. Sanskrit in India, Latin in much of western Europe, Greek and Church Slavonic in eastern Europe, Ge'ez in Ethiopia, and Classical Arabic in North Africa are all examples of this process. A comparable but less extreme instance of this effect is to be noted in the attitude of many English-speaking Protestants toward the language of the King James translation of the Bible. *See also* SCRIPTURE.

Broadly philosophical speculation about the origin of language has a very long and complex history of its own, impossible to summarize here. Whether language has one or a number of origins has been an important issue in this tradition. On this point, however, it is noteworthy that studies of the processes accompanying language contact underscore how very quickly and sweepingly language can change under the pressures of close contact between speech communities, as in political or economic COLONIZATION. The predictable types of change found in such circumstances include grammatical simplification and massive borrowing of vocabulary. With an undetermined number of such episodes possible in the prehistory of any language or language family, there seems to be no reasonable basis for conclusions on this issue.

Although there is a scholarly tradition of discussion of the origins of language as well, much of it shares with the speculative tradition the weaknesses necessarily found in any line of reasoning that is based only on data from attested languages but that seeks to reveal the place of origin or the original character of language. The problem of evidence appears insuperable. If language begins with *Homo sapiens* or earlier, hundreds of thousands of years ago or more, and if the average rate of change in this long period is comparable to that in data from

attested languages, ancient or modern, then related forms (words or affixes) for comparison and reconstruction become more and more scarce as one moves back in time. In general, evidence is available only for reconstruction at relatively shallow time depths of a few thousand years earlier than the oldest attested records. The hundreds of thousands of years of linguistic evolution beyond this barrier constituted by the loss of evidence through the ordinary action of language change are apparently forever beyond the reach of linguistic science.

What can plausibly be said about the development of language as we know it must be based on a broader comparative perspective, drawing evidence from studies of ANIMAL COMMUNICATION as well as LINGUISTICS to find the parallels between ANIMAL SIGNALS and language. We must take the best-informed and broadest view of the range of variation and heterogeneity of human language itself, in place of the often parochial sample of familiar Western languages leavened with a few exotic specimens that is found in so much of the speculative and older linguistic literature.

Both human language and primate communication systems employ combinations of vocal and gestural signs; they both serve as channels for passing messages and also for constituting and maintaining social arrangements. Human speech is structured in a particular way in all known languages, however, and this structure is apparently not present in primate vocalization or in other animal communication systems, at least not on the same scale that it is found in language.

The essence of this structure is a duality of patterning of messages. In traditional terms an utterance is at the same time a sequence of syllables and a sequence of words. The speech sounds or sound features making up the vocal signals combine with each other according to patterns that are partly universal and governed by the physiology of speech and partly arbitrary and specific to the particular language variety. Message elements are combined in patterns largely independent of the sound patterns but also are manifested through the arrangements of sound elements that simultaneously make up the utterance or signal. There is thus an interaction between the combinatory patterns of the signal units or sounds and the message units or forms.

The Production and Patterning of Speech Sound

Speech sound is produced by the organs of the so-called vocal tract, all of which have other functions besides phonation. Respiration is the main function of the lungs; the larynx acts to protect the upper end of the airway to the lungs; the lips, teeth, and tongue serve to chew and swallow food; the tongue also

plays a role with the nasal passage in olfaction. However, comparative physiology suggests that in humans these organs of breathing, eating, and smelling have undergone evolutionary changes specifically related to their use in speech. In turn, the constitution of these vocal organs in humans assures certain universal aspects of human language. The action of the chest cavity in speech, for instance, differs from ordinary respiration, with a shorter, sharper intake of air and a longer, slower exhalation, with relatively steady air pressure sustained in the lungs until an abrupt decline at the end of phonation, followed by another short intake phase, and so on. Utterances are thus ordinarily as long as one of these modified respiratory cycles, and they end ordinarily in a falling pitch with other characteristic effects because of the sudden drop in lung air pressure. To be sure, pitch contours do not necessarily fall, nor does a single respiration set the limits of an utterance. But these are the ordinary values, with other contours and the bridging of the inhalation pause requiring some special audible marking by the speaker.

The larynx, a boxlike structure of bone and cartilage suspended by muscles and other tissue atop the trachea, contains the vocal folds, popularly known as the vocal cords but in fact shaped more like lips. These are two symmetrical, complex organs made up of a number of muscles and ligaments and are connected to both fixed and movable anchoring structures, allowing the speaker to vary their length, stiffness, shape, and degree of approximation to each other. The rate and mode of vibration, and consequently the character of the sound they produce, changes as these factors change.

Speech seen in this way is a succession of rapid, intricately coordinated movements of the organs of the mouth, acting on the pulses of energy delivered by the buzzing of the vocal folds as air from the lungs is forced between them. These articulatory movements of speech are thus a complex kind of valving of this airstream and the acoustic signal formed by it. The hearer is able to interpret the acoustic cues, the traces in the signal of the rapidly changing shapes of the interior cavities of the speaker's vocal tract, and in effect to reconstruct the movements from their characteristic signatures. Moreover, hearers are able to compensate for individual, sex, and age differences in the vocal apparatus whose output they are interpreting and to reconstruct the same articulatory pattern as underlying quite different acoustic signals.

There is experimental and observational evidence that the syllable, consisting of a vowel-like nucleus with optional flanking consonantal margins, is a neurological as well as a linguistic unit for the coding and decoding of the speech signal. In the vowel phase of a syllable the vocal tract is relatively open to the

egress of air and acoustic energy. The vocal folds are (usually) vibrating, and the movements of the oral organs as an initial consonantal constriction is released and a final consonantal constriction is later imposed on the vowel position leave their audible traces in the changing distribution of energy across the frequency spectrum and through the time of articulation. Speech at this level is a succession of syllables, each composed of an initial constriction of the oral tract by a consonant articulation, followed by a relatively open, voiced, vocalic segment, followed again by a constriction phase before the next syllable with its onset, nucleus, and coda.

Syllables vary, then, in their consonantal onsets; in the color, uniformity, length, loudness, and pitch pattern of their vocalic nuclei; and again in their consonantal codas, if any. Each of the primary classes of speech sounds—consonants and vowels—has subclasses. Stop consonants are produced with complete closure of the vocal tract by one or more articulators; fricatives involve nearly complete closure, with audible turbulence produced at the point of greatest constriction. Nasal consonants are produced with the soft palate held away from the back wall of the nasal passage, thus dividing the airstream and producing a characteristic pattern of energy absorption quite different to the hearer from that of a strictly oral consonant made at the same point of articulation ([m] versus [b], for instance).

Speech communities differ in the selection and use they make of phonetic resources from the range of possibilities offered by the vocal tract. The foregoing summary has deliberately been kept at the level of nearly universal generality. Some additional, apparently universal, features can also be noted. These include the use of voicing (vocal-fold vibration) as a feature of syllabic nuclei (usually of all of them) and of some but not all consonantal articulations; the distribution of consonantal margins and vocalic nuclei in syllablelike units; the use of controlled pitch changes during voicing as part of the signaling system; and the use of more than one active articulatory zone (often the lips, as in [p f m]; the front of the tongue, as in [t s n]; and the back of the tongue, as in [k x ŋ]) as well as more than one manner of articulation (stop, spirant, nasal) in determining consonant types. The consonant inventories of some languages, such as those of the Caucasus or of the northwest coast of North America, are unusually large, distinguishing more positions and manners of articulation than the few mentioned here, whereas those of Polynesia are usually limited. Vowel systems typically (perhaps universally) include [i a u] sound types at least as variants, though not always as distinctive signaling elements. Like consonant inventories, they are subject to considerable difference from language to language.

Language Structure

Both signal units and message units in language are elements in a structured system. These elements are discrete rather than continuously varying in their qualities and can be said to be present or absent altogether from a signal rather than present to some degree. The principal relation used to demonstrate and map out the structure of a language is contrast. This is the relation between two linguistic signs—words will do as examples—that are different from each other in both sound and MEANING. For example, if we consider utterances corresponding to the written representations

“I’m looking for a pin,” and
“I’m looking for a cat,”

it is evident that they are in part different in sound and in meaning and thus in contrast. Setting aside the like parts for now, we are left with the English words *pin* and *cat*. They too are contrastive by the above definition; so are *pin* and *pan*, *cat* and *kin*, and indeed many other words. Utterances that are partly alike and partly different in sound and meaning are compared in this way, with the different segments extracted and grouped according to sound, meaning, and distribution relative to other forms. See also SEMANTICS.

In this way, by exhaustive comparisons and sorting according to difference of sound and meaning or the lack of it, one can accumulate a stock of discrete message units. Carried to completion, the process of contrastive analysis will take many individual words apart in just the same way that words are extracted from phrases or sentences: *cat* and *cat-s*, *pit* and *pit-s*, and so on.

Some of the complexity of the manifold structural relations among language elements can be understood from the traditional accounts of word formation and GRAMMAR of our own or other languages as taught in the schools (see LANGUAGE REFERENCE BOOK). Modern linguistics seeks to go much farther in precision, coverage, and explicitness and in so doing has brought to prominence some aspects of this multidimensional complexity. For instance, it emphasizes the infinite scope and extensibility of language, such that from the decidedly finite inventory of signaling units—perhaps as few as a dozen or so distinct sound features combined into a few dozen distinct sound segments—a literally infinite number of sentences, each of indefinite length, can be generated. That is, this infinite number of possible sentences is implied by the set of rules of formation and transformation of grammatically acceptable structures. Accordingly, modern linguistics uses powerful mathematical systems to represent these formations and their relations, distinguishing in most

approaches a phonological component (a subset of rules) dealing with features of the sound system and their combinations and a syntactic component to account for sentence structure. The lexicon, the stock of message units or elementary meaningful forms spelled out as combinations of signaling units or elements of the sound pattern, is the bridge between the phonological and grammatical aspects of language descriptions (see PHONOLOGY). Other aspects of everyday creativity in the use of the structural resources of language have also received a share of attention from contemporary linguistics, in particular the intricately patterned choices of alternative expressions governed by social and interpersonal factors and serving, in the words of ERVING GOFFMAN, to give off information about speakers and hearers at the same time that they are giving information to each other (see INTERACTION, FACE-TO-FACE).

Patterning of Message Units: Morpheme, Word, and Sentence

Just as syllables are grouped by stress (prominence) differences into metrical units and these in turn into phrases by intonation contours and pauses, so too are words (many having their own internal structure of roots and affixes) grouped together by various grammatical markers into phrases and clauses. Conjunctions, prepositions, pronouns, particles, and the other “function words” serve to link together the constituents of the hierarchy of grammatical form, grouping head noun with modifier, distinguishing subject and object roles, relating the time of onset and duration of events marked by verbs and in other ways, and generally indexing the organization and guiding the interpretation of utterances for the hearer. Languages differ significantly in the details and relative complexity of this organizational apparatus. For some, English among them, the order of constituents is the principal means of identifying major sentence roles such as subject and object; for many other languages, including the older Indo-European languages of the Western classical tradition, the grammatical role of most forms is overtly marked by inflectional and derivational affixes, most of them suffixes. In still other languages, prefixes are the commonest means of indexing these functions; in some, still other formal mechanisms are found. Classical Arabic, like other Semitic languages, displays a striking pattern based on consonantal roots that are nearly always made up of three consonants and vocalic patterns interdigitated with them, as well as prefixes and suffixes. Thus, *ktb* is the trilateral root for writing; *kataba* means “he wrote,” *kutiba* “it is written,” *yaktubu* “he is writing,” *kitaab* “book,” and so on.

It testifies to the effectiveness of human speech as

a signaling system that out of a relatively few audibly distinguishable elements, combined in a highly patterned way so that the arrangements are quite redundant, a great many message units are constructed, and from these, in turn, a literally infinite number of messages may be created. The redundancy in the signal (e.g., the predictable alternation of consonant and vowel groups) protects users against damage to communication from noise in the auditory channel, allowing the listener to fill in missing elements by reference to context.

Language Use

The stock of signal and message elements, the conventions governing their patterns of combination, and of course the messages conveyed all differ in varying degrees from group to group, but language use is a universal feature of human social life. Indeed, one dimension of the patterning of language use is its subdivision into repertoires of closely related but easily distinguishable LANGUAGE VARIETIES, some associated with geographically or socially distinct groups of speakers and others used in alternation by the same speakers for specific purposes or in particular social contexts in their daily lives. The geographical distribution of differences among language varieties is the province of dialectology, one of the older branches of linguistics; the study of socially distributed language varieties, sociolinguistics, is a recent offshoot of it. All speech communities, even the smallest and least complex societies, exhibit some degree of heterogeneity and variability in the norms of speech and in the individual speakers' degree of mastery of these norms and the basic resources of the language.

One truism of linguistics is the close relationship between expert knowledge and finely subdivided terminology. This applies not only to individual experts, such as herbalists, healers, priests, warriors, and the like, but also to some degree to the culture as a whole, as in the ecologically defined preoccupation of northern peoples (or avid skiers) with snow in its many forms or of native Central American peoples with the swidden system of cultivation of maize and associated crops. Some occupational specialties, such as the priesthood or political leadership, may call for specific linguistic skills, such as ORATORY, the mastery of more than one dialect or language, or the rote learning of large bodies of text.

In some communities more than one variety or language may be in current use, with the roles of each regulated by culturally defined situations. In Greece, German-speaking Switzerland, Haiti, and much of the Arab world, for instance, a situation prevails that has been called diglossia by U.S. linguist Charles Ferguson. Diglossic societies use two for-

mally and functionally distinct varieties of the same language. One, called Low (or just L), is the language of family life and intimate acquaintanceship and consequently of informal settings generally. The other, High or H, is used in formal settings. Typically, as in the speech communities mentioned above, the two varieties differ appreciably both in grammar and in vocabulary. In other societies, for example, in Paraguay, two quite different languages are in use in a pattern of this kind, in this case Guaraní, an American Indian language, as L, and Spanish as H. Many Paraguayans use both to some extent, and it would be as odd to court one's future spouse in Spanish as to address a courtroom in Guaraní. Some societies, among them some large communities, are multilingual. In Ethiopia and many parts of sub-Saharan Africa, as well as in significant parts of Asia, the Americas, and Europe, the ordinary level of linguistic competence of an adult involves fluency in two or more languages. The social or functional distribution of use reflects, as always, the internal structure of the speech communities.

Language use has always played a significant role in political movements of many kinds. Multiethnic nation-states with one or more politically dominant groups and additional linguistic and ethnic minorities have for centuries been the source of nationalist and other ideological movements with strong linguistic components. Other groups, essentially monolingual, idealize the virtues of their own and the imagined defects of their neighbors' forms of speech. This phenomenon can be observed at all levels, from villages to nations. See LANGUAGE IDEOLOGY.

Language Change and Relatedness

Language change was long considered paradoxical by linguists, who were aware from the study of a wide variety of speech communities over the whole span of written and spoken records that language change is forever in progress and yet is never directly observable. Nor does its pace ever disturb communication between generations. How then could the complex structure of the communicative system be in constant flux and yet retain its negotiability within a speech community as a medium of communication?

Phonological change, in particular, was troublesome for this view of language change as ever present but imperceptible. Because of its regularity, that is, its freedom from exceptions under the stated conditions, sound change was the object of intense study in the linguistics of the nineteenth and early twentieth centuries. Some sound changes could be accepted readily as gradual, perhaps imperceptibly so, as for instance a shift of vowel quality from midfront unrounded to a lower midfront unrounded articulation. There were no articulatory barriers to the possibly

smooth and gradual transition over time between one norm of pronunciation and the other. But some sound changes, including some rather well-documented episodes in the history of western European languages, could not be explained easily in this way. The type of trilled [r] produced by vibration of the tip of the tongue at or near the alveolar ridge behind the upper teeth, as in modern Spanish or Italian, was once the standard pronunciation in French and German too. Over a period of time in the seventeenth century it was replaced by the [R] produced by vibration of the uvula against the back of the tongue. There is no possible smooth transition between the two, because the middle of the tongue lying between them will not support a trill type of articulation. Thus the French and German users of the old [r] must have borrowed the new [R] from other speakers. Borrowing, then, or replacement, rather than modification, has come to be understood as the general mechanism of language change. The consequences of this unification of the mechanism of change, in turn, have led to a far-reaching integration of our understanding of the evolution of language families, the process of the formation of new varieties through contact (pidginization and creolization), and the relationship between language differences and social differences within communities. Change, then, came to be understood as the generalization of one alternative means of expression at the expense of others, so that one takes over a portion of the range of environments formerly occupied by the other or others. If this change of distribution goes to completion, the one is said to replace the other; if it has not gone to completion, the two continue to serve as alternatives under some stable pattern of distribution.

Other types of change can also be understood as changes in the distribution of alternatives, as the extension of one pattern at the expense of others. A celebrated example, chronicled by Swiss linguist FERDINAND DE SAUSSURE, is the phonological change, in early Latin, of intervocalic *s* to *r* and the irregular but highly patterned analogical consequences of this regular sound change. The paradigm of the Old Latin word for "tree," unlike the Classical form, was presumably *arbos*, *arbosis*, and so on. After the change of intervocalic *s* to *r*, the oblique forms, which fit the conditions for the change, have an *r* in place of the *s*, making the paradigm morphologically irregular: *arbos*, *arboris*. Most Latin noun stems, of course, are regular in the sense that the root-final consonant does not change. In relation to the model constituted by these numerous forms, the new products of the sound change are irregular. Three possible resolutions are available: no further change but maintenance of the irregularity, leveling of the oblique forms back to *s*, or analogic reformation of the nominative form to *r*. In the case of "tree" it is the

last of these that prevailed, giving the familiar form of the Classical paradigm: *arbor*, *arboris*. The otherwise comparable "flower," however, did not undergo analogic change, remaining as *flos*, *floris*.

Language change, then, is merely the effect over time of shifts in the pattern of choice among alternative means of expression. Alternatives are constantly present, being generated socially through the action of borrowing from inside and outside the immediate community and through the action of regular sound change and analogic or other forms of change. Thus language change is the ordinary outcome of language use, and our notion of language structure has accordingly been enriched to include this added dimension of variability.

See also COMMUNICATION, PHILOSOPHIES OF.

Bibliography. Hans Arens, ed., *Sprachwissenschaft: Der Gang ihrer Entwicklung von der Antike bis zur Gegenwart*, Freiburg and Munich, 1969; Barbara F. Grimes, ed., *Ethnologue*, 10th ed., Dallas, Tex., 1984; Archibald A. Hill, "A Note on Primitive Languages," *International Journal of American Linguistics* 18 (1952): 172-177; Henry M. Hoenigswald, *Language Change and Linguistic Reconstruction*, Chicago, 1960; Dell Hymes, ed., *Language in Culture and Society*, New York, 1964; Louis G. Kelly, *Twenty-five Centuries of Language Teaching*, Rowley, Mass., 1969; *Linguistic Bibliography/Bibliographie linguistique*, Utrecht and Antwerp, 1939-; Edward Sapir, *Language: An Introduction to the Study of Speech*, New York, 1921; Rulon Wells, "Distinctively Human Semiotic," in *Essays in Semiotics/Essais de sémiotique*, ed. by Julia Kristeva, Josette Rey-Debove, and Donna Jean Umiker, The Hague, 1971.

JOHN G. FOUGHT

LANGUAGE ACQUISITION

Critical to communication is competence in understanding and using LANGUAGE in society. To communicate effectively CHILDREN and other language acquirers must gain a tacit understanding of grammatical and appropriate language use in their speech community. In the words of U.S. linguistic anthropologist Dell Hymes, acquiring language entails not only acquisition of grammatical competence but acquisition of communicative competence as well.

The study of first-language acquisition has two major goals: (1) to explain how language is acquired, and (2) to specify and analyze children's grammatical and communicative competence over developmental time. The former concern has focused on issues of nature and nurture in the emergence of language. Currently most researchers maintain that children bring to the task of language acquisition an active and structured mind. This view has been reinforced by cross-cultural research indicating that caregivers

do not universally simplify the grammatical form of their SPEECH to young children. The implication of this literature is that language acquisition is not dependent on a particular type of language environment, namely, exposure to grammatically simplified speech. This does not mean, however, that environment does not play a part in language acquisition. Cross-cultural research provides substantial evidence, for example, that acquisition of systems of MEANING and discourse structures in spoken and written language are deeply affected by the social and cultural milieu in which language acquisition takes place.

Issues in Research

An unresolved issue in acquisition research is whether the capacity to acquire a language is part of a more general cognitive capacity (*see* COGNITION) or an autonomous, language-specific ability. Scholars such as U.S. linguist Noam Chomsky argue that humans have an independent, specific mental faculty for constructing grammars. This faculty (referred to as Universal Grammar) sets limits or parameters on the possible grammars that the human mind will construct. U.S. psycholinguist Stephen Pinker and several other researchers have related acquisition strategies in specific languages to these parameters and have proposed a theory of language learnability in these terms. In this perspective the child is a hypothesis tester, sifting through principles of Universal Grammar to discover those that apply to the language data in the child's particular environment.

On the other hand, other researchers follow the ideas of Swiss developmental psychologist JEAN PIAGET and argue that (1) language is part of a more general semiotic or symbolic system, and (2) linguistic intelligence is rooted in general cognitive abilities developed in infancy and early childhood. These researchers point out that several critical properties of language are part of children's nonverbal competence prior to language or at the point of emergence of language. For example, children have been observed representing concepts in nonverbal imitation and PLAY prior to or along with their use of language as a symbolic system. Further, the earliest meanings encoded in language appear to match those expressed in children's nonverbal behavior prior to language. For example, relations among agent, action, and object affected by an action encoded early in children's speech are already part of children's sensorimotor intelligence before the emergence of language.

The capacity of language to express topics and comments or old and new information is also brought to bear on the issue of the autonomy of language vis-à-vis other forms of behavior and competence. Several researchers have argued that grammatical

devices such as word order, subject-verb agreement, and ellipsis serve as markers of topic and comment or old and new information and that precursors to these devices can be found in children's prelinguistic communicative development. The distinction between old and new information in language has roots in children's prelinguistic attention to what is perceptually salient in their environment and children's rudimentary awareness of knowledge states of others acquired in the sensorimotor period of development. From this perspective GRAMMAR emerges out of functional considerations; grammar is to be seen as an efficient alternative to other means of carrying out these functions.

Those arguing for language and its acquisition as an autonomous phenomenon point out that linguistic structures are far more complex than these functional explanations admit. Looking only at the rules constraining phonological and morphosyntactic forms in language, we have no evidence of any other behavioral structure of this complexity. Since the latter part of the 1970s a number of psycholinguists, including Annette Karmiloff-Smith and Dan I. Slobin in the United States, have been working to resolve this dilemma. A compromise position that has been proposed is that whereas certain structures and properties of language are rooted in sensorimotor intelligence and reflect a non-language-specific, general cognitive ability, other structures and properties of language are specific to language alone. Slobin suggests that while children's early grammars draw on prelinguistic cognitive and social understandings, each language is a complex formal system for encoding notions that present learning problems not encountered in children's prelinguistic experience. Karmiloff-Smith proposes that at a certain developmental point language in itself becomes a "problem space" for children. On the other hand, in this perspective language development is not the result exclusively of preformed, innate grammatical structures. Rather, what is or may be innate is a capacity or predisposition to acquire language. In Slobin's terms children are predisposed to perceive and structure speech in certain systematic ways. Slobin presents a series of procedures or operating principles guiding children's construction of grammar. These principles delineate the language-universal and language-particular parameters of this predisposition.

One of the major interests of language acquisition research has been not only explaining but also documenting children's strategies for verbally encoding notions about the physical and social world. Several scholars have proposed that children initially use a *rigid word order* to encode elements of proposition, reserving different positions for specific elements, such as agent or patient. It is claimed that children will use a rigid word order in their language produc-

tion and comprehension even when the language they are acquiring permits a variety of possible word orders. The universality of this claim has been challenged by Slobin, who reports that children acquiring a language that has a regular case-inflectional system (such as Turkish) will rely on morphology rather than a rigid word order to encode and decode meanings.

A related claim is that where children do rely on word order, the word order they prefer reflects a natural ordering of elements within a proposition. For example, it is claimed that regardless of language acquired children prefer to encode agents before patients (objects affected by actions of agents). This preference corresponds to a statistical preference among the world's languages for word orders in which subject precedes objects (e.g., subject-verb-object, subject-object-verb, and verb-subject-object word orders). While observations of children acquiring languages such as Kaluli (spoken in Papua New Guinea) and Turkish indicate that the preference for encoding agents before patients is by no means universal, the preference does hold for a wide range of language acquisition situations.

A number of child language researchers in the United States have argued that initial word-order preferences in children's speech and comprehension reflect a natural preference for encoding new and old information. Psycholinguist Patricia Greenfield stated that at the single-word stage, children tend to use their one-word utterances to encode only new information. Elizabeth Bates and Brian MacWhinney have argued that when children acquire a language with more than one word order (e.g., Italian or Hungarian), the natural tendency of children beyond the single-word stage is to encode the newest, most informative element first and then relatively old information (comment before topic). In many languages old information very often is not expressed within a clause. In these languages both children and adults prefer to introduce objects, persons, and other entities as part of a predicate and in the immediate subsequent discourse to make statements about them without explicitly referring to them. Looking at the flow of information across a sequence of clauses, we see a preference for old information to precede new information. This preference appears to be a universal organizing principle of discourse.

Acquiring competence in language involves, then, knowing how to encode and decode new and old information as well as information concerning actions and states. Language, however, is more than a vehicle for making logical propositions about the world. It is also a means of organizing social behavior and dispositions, and in acquiring language children must acquire an understanding of this social potential of language. One of the basic functions of language is the carrying out of social acts and activities. Chil-

dren are able to perform basic social acts, such as asserting and requesting, through action and vocalization in the first year of life, anticipating the use of language to achieve these ends. By the time children start producing two- and three-word utterances they are able to produce and respond to a wide range of speech acts, including begging, teasing, warning, greeting, announcing, requesting permission, test questions, answers, challenges, and indirect requests for action.

During this early period of language development, children are developing an ability to participate in conversational exchanges of two or more verbal acts, such as question-answer, question-answer-evaluation of answer, or question-clarification request-clarification response-answer to question. All studies of children's CONVERSATION indicate the expected, namely, a developmental trend toward greater similarity between children's and others' conversational acts. Cross-cultural research indicates that caregivers the world over facilitate children's acquisition of conversational competence. In the societies observed caregivers routinely prompt children, telling them what to say in a given conversational exchange. In certain societies, such as Anglo-white middle-class society, caregivers facilitate children's understanding of verbal acts (and hence their ability to respond to those acts) by supplementing the verbal message with actions and gestures that provide cues as to what verbal act is being performed.

Language in a Social Context

One of the important trends emerging in the literature on children's development of conversational competence is that as children are acquiring knowledge of language they are acquiring knowledge of society and CULTURE. Children do not produce and comprehend language in a social vacuum. Rather, they acquire language in socially and culturally constituted contexts. Particular expressions, grammatical structures, and verbal acts and activities are closely associated with particular contexts, and these contexts become part of children's understanding of language. That is, language has sociocultural meaning. Because it is such a rich encoder of social order and cultural beliefs and values, language is also a powerful vehicle for socializing children. Language socializes not simply through message content but also through patterns of use, such as social constraints on who can perform particular verbal acts and activities with whom, when, and where.

We know that children are sensitive to such social constraints early in their language development. Before the age of three children acquiring language in a hierarchical society such as that in Samoa will know to avoid performing verbal acts appropriate only to higher-ranking persons. Similarly, by the age

of three English-speaking children growing up in the United States are already acquiring the linguistic features of speech associated with different social roles, such as mother, father, teacher, student, doctor, and patient. Further, in several societies children have displayed awareness and understanding of politeness norms expected in their communities early in their development. These norms may involve use of complex linguistic constructions that soften or indirectly convey a particular verbal act. *See also* FAMILY.

In addition, children in several societies have been observed to display early awareness and understanding of the grammatical expression of emotion. At the single-word stage, for example, children produce and recognize intonation contours associated with different emotions. In the latter part of the single-word stage, children are able to use morphological forms that either intensify affect or specify a particular type of affect (usually anger or sympathy for self or another person). Additionally, children become skilled quite early in a variety of verbal acts that convey some attitude or feeling, such as teasing, begging, and complaining.

In acquiring language, then, children learn ways of using language for a variety of functions: to encode activities, states, and events; to provide foreground and background for different elements of these activities, states, and events; to perform social acts and activities; to create and validate social relationships; and to convey emotions. Each one of these functions affects linguistic form. What constitutes the nature of these form-function relations is the essential problem of language acquisition.

Bibliography. Catherine Garvey, *Children's Talk*, Cambridge, Mass., 1984; Michael McTear, *Children's Conversation*, Oxford, 1985; Bambi B. Schieffelin and Elinor Ochs, eds., *Language Socialization across Cultures*, Cambridge, 1986; Dan I. Slobin, *Psycholinguistics*, 2d ed., Glenview, Ill., 1979; idem, ed., *The Crosslinguistic Study of Language Acquisition*, Hillsdale, N.J., 1986; Eric Wanner and Lila R. Gleitman, *Language Acquisition: The State of the Art*, Cambridge, 1982.

ELINOR OCHS

LANGUAGE DISORDERS. *See* SPEECH AND LANGUAGE DISORDERS.

LANGUAGE IDEOLOGY

A variety of integrated assertions, theories, and goals that attempt to guide collective sociopolitical beliefs and actions regarding LANGUAGE choices in communication systems. Such language values and decisions prescribe one language or language variety (including dialect, register, and style) over another

and attempt to dictate the linguistic preferences and practices of international alliances, as well as nation-states, national and regional institutions, and local communities. Language ideologies can be elaborate or simple, highly salient or hardly noticeable. *See also* IDEOLOGY; LANGUAGE VARIETIES.

Though all societies have some standards for language evaluation, the extent to which such judgments become ideologies varies greatly from one society to another. Relationships between ideologies and behaviors are extraordinarily complex and often difficult to discern: groups may espouse ideals they ignore or subvert in actual use, distinctions may blur between evaluations of language and estimations of speakers, and language ideology may be a covert part of a body of ideals held about specific institutions of the society. All language decisions carry implicit and explicit symbolic as well as instrumental values. Many communities find their language superior to others, and some judge their language inferior, but features of distinction and criteria of judgment may differ. Some may think their language more poetic (or more direct, sacred, logical, romantic, etc.) than others and promote language choice on the basis of this feature (*see* CLASSIFICATION). However, there is no way to validate these claims, and those who hold firm to their ideologies decry or ignore research that shows the difficulty of rating languages on almost all of these scales.

Language Choice and Standardization

Language choice is an issue for international and national organizations, regional and ethnic communities, voluntary associations, and religious and sociopolitical institutions throughout the world. For some international and national groups the preferred language is one through which things get done; information, ideas, and beliefs can be transmitted efficiently across vastly different groups and great distances. For such instrumental purposes groups have contributed consciously at different times in history to the spread of languages such as Latin, English, or Esperanto (an artificial international language based largely on words common to the major European languages). For those groups whose language ideology is closely tied to RELIGION, appointed or anointed leaders perpetuate myths about the origins of their language, the extent of its supernatural powers, and the need to preserve the classical form of the sacred texts.

Modern national language ideologies vary greatly in terms of acceptance of the extent to which language can and should be regulated by the national body politic. People of the Scandinavian-Baltic nations, for example, endorse efficient, rational, and relatively frequent policy setting by political leaders, language planners, and educators who select, codify,

and bring up to date standards of language use from time to time. In recent centuries France decreed French as the language of the state, established a language academy to watch over changes in the language, and charged educational institutions with TEACHING a chosen variety of French to nationals and French colonials alike. Central European nations newly independent after World War I encouraged language scholars to consider the functionalism of a national language, ways of building its resources, and distinctions between workaday technical language and poetic language.

Some newly independent nations have within their borders speakers of many unwritten languages. More than four thousand languages are spoken in the world. The vast majority are unwritten; only about three hundred are in regular use in written form, and fewer than one hundred of these have more than a scant written literature. New national leaders have had to settle on a language of oral exchange among individuals and groups and to standardize this choice for the written records of government. The selection of a national language has been central in the modernization of new nations. Political leaders depend on formal schooling to promote a single language CODE that will mark the educated person. Often underlying the promotion of a single linguistic medium in such nations is a language ideology that regards language as a medium of exchange for verbal transactions in a linguistic marketplace of buyers and sellers who obtain certain goods and services and have an underlying profit motive. Linguistic capital, like any other form of capital, enables those who have it to get ahead of those who do not. *See also* DEVELOPMENT COMMUNICATION.

However, any SPEECH community, regardless of size or relative power in the national or world marketplace, can harbor intense language ideologies. Members may believe their language to be a core sociocultural marker of ethnic or regional identification whose importance transcends the acquisition of wealth or membership within the national socioeconomic system. On the other hand, the fundamental definition of the community's language may be as an oral communication system, inappropriate either in written form or on the tongues of outsiders. Thus language loyalties may penetrate deeply into human values and habits.

Linguistic and Literary Aesthetics

In nations with long-established choices of a national language for affairs of state (or religion), leaders may favor certain varieties and styles of language over others. Special written texts (such as dictionaries, grammars, and key writings from earlier eras) may codify the linguistic norm (*see* LANGUAGE REFERENCE BOOK). Recommendations to preserve older forms,

eschew borrowings, and create words for new cultural items from older resources in the language are attempts to conserve what may be regarded as a pure form of the language. Formal schooling may prescribe GRAMMAR rules in an attempt to prevent changes in the language, which could be interpreted as signs of the deterioration of the society.

Regional or social dialects are typically the candidates for what will become the most prestigious variety of the language. Generally the chosen standard variety is the dialect of a particular region and/or social class. But the ideology may not recognize this at all and may give a totally different justification.

Within each language certain uses or styles achieve a higher valuation than others. A register of a particular language is a variation according to use: physicians, lawyers, sportscasters, and teachers use a special register of their language as part of daily communication within their occupational roles. To the extent that such registers become associated with formal EDUCATION and high social status, certain features of these registers, especially vocabulary, will be borrowed by those who esteem both the norms and the goals of these professional groups. The valuation of registers shifts in accordance with society's estimation of the speakers who use them.

Far more stable as a highly valued norm across speech communities is the language of the literature most highly valued in the society. In both oral and written literary language, performers, writers, and audiences recognize nonordinary uses and forms of language set apart from ordinary styles. Literary language reflects ordinary life and language and yet portrays and inspires interpretations and responses that transcend the mundane. Both the essence and the form of expression live beyond any single PERFORMANCE or reading. Those who create, perform, and interpret literature receive differing degrees of recognition and sponsorship in their societies. In some systems, governments or national academies support literary artists and print codifications of the literary norm, as well as works of literature, which they hold up as language models for the nation. Other societies separate political and artistic sectors to preserve artists as independent critics of all aspects of daily existence. In virtually every society in which written language plays a significant role, literary language represents an ideal form of the language that some members strive to create and others to understand and appreciate.

Linguistic Deprivation and Incompetence

All assertions, theories, and goals that attempt to value some language varieties while denouncing or ignoring others reflect distorted ideas about language varieties. In addition such ideologies often exaggerate

the extent to which certain language values and habits can be institutionalized and perpetuated by the government, schools, or literary academies.

Sectors of society that equate certain language varieties with power or socioeconomic or moral worth tend to prescribe rules of language use and to judge individuals who do not meet these prescriptive norms as deficient or incompetent. Informal indirect practices of exclusion and stratification close off from employment and social opportunities those who do not or cannot meet these language norms. For example, in complex modern states those speakers of a high socioeconomic class regard their language variety as a marker of relative prestige, intelligence, morality, and good citizenship. For them and for those who aspire to upward social mobility, speakers who do not share their linguistic norms are rightly denied opportunities and given derogatory character evaluations and low estimations of their motivation and morality. Selective vision, distorted conclusions, and exaggerated claims operate together to ensure maintenance of certain language ideologies despite empirical research demonstrating that although languages differ from one another, one is not inherently better structurally than any other.

Modern Linguistic Research

Linguists and other social scientists who study language provide systematic statements about uniformities of process in language systems and their uses and users. Since the beginnings of modern LINGUISTICS in the nineteenth century scholars of language have regarded it primarily as a means of referring and predicating. Most linguistic research focuses on the representational value of language, its rules and ways of standing for objects, situations, and feelings. This objectification and representational function of language depends, however, on epistemological presuppositions that regard language as object of inventory and description through patterns of rule generation.

Yet the functional powers of language go beyond its capability for labeling to its constitutive values in a system of shifting social relations. Social groups construct both cognitive understandings and linguistic forms and performances in accord with urges to present themselves, control the behavior of others, and transcend the immediate frame of any manifest utterance or verbal exchange. Such intentions lie behind the actual language used or the immediate reality represented to interrelations of social role, notions of time, and recognitions of multiple levels of MEANING. Speakers negotiate these meanings at the moment as well as in remembered reconstructions, and audiences interpret language according to their emotional needs, levels of analytical expertise, and membership in interpretive communities.

A science of language that merely objectifies linguistic material cannot capture the value-constituting relations of language. Thus language scientists have to recognize that the epistemology of their own language research reflects a language ideology just as much as a mythic ideology of some nonliterate society. Science in the relatively advanced societies has been said to permit a constant rational process of orderly revision and reform of sociopolitical institutions. However, explanations of language and its complex interdependence with sociocultural phenomena, which can themselves be ideologically based, must penetrate further language ideologies in order to move beyond theoretical statements to programs for policy or practice. Language ideology by its very nature yields only rarely to scientific criticism.

See also COMMUNICATION, PHILOSOPHIES OF; FEMINIST THEORIES OF COMMUNICATION; SEXISM.

Bibliography. Basil B. Bernstein, *Class, Codes and Control*, 2d rev. ed., 3 vols., London, 1971–1977; Noëlle Bisserset, *Education, Class Language, and Ideology*, London, 1979; Edward Finegan, *Attitudes toward English Usage*, New York, 1980; Jürgen Habermas, *Theory of Communicative Action*, Vol. 1 (Theorie des kommunikativen Handelns), trans. by Thomas McCarthy, Boston, 1984; Frederic Jameson, *The Prison-House of Language*, Princeton, N.J., 1972; Gunther Kress and Robert Hodge, *Language as Ideology*, London, 1979; William Labov, *Sociolinguistic Patterns*, Philadelphia, 1972; Ferruccio Rossi-Landi, *Linguistics and Economics*, The Hague, 1975; Aldo D. Scaglione, ed., *The Emergence of National Languages*, Ravenna, 1984; Raymond Williams, *Marxism and Literature*, Oxford, 1977.

SHIRLEY BRICE HEATH

LANGUAGE REFERENCE BOOK

Traditionally language reference books have been both scientific and popular and have served both descriptive and prescriptive functions. They codify LANGUAGE, examine its past, argue or gently push for reform, offer information to the puzzled or the curious. Even the most descriptive works cannot avoid making judgments, which in turn serve as recommendations to readers. And even the most prescriptive works take as their point of departure a description of some aspect of language. Created in response to linguistic needs, real or perceived but always socially or politically motivated, language reference books both affect and reflect cultural attitudes toward language (see LANGUAGE IDEOLOGY).

We take our language seriously because we perceive it as an essential feature of our humanity and our individuality. Consequently we tend to resist attempts to tamper with our traditions of language use. This resistance may be mild, as when a student ignores a teacher's efforts to dictate a preferred pronunciation, or it may be violent. Although the clas-

sically based standard written language of Greece had long since lost its ties to spoken Greek, great resistance accompanied attempts earlier in this century to modernize Greek WRITING, and riots resulting in several deaths followed the translation of the New Testament into demotic (modern) Greek in 1901.

Functions

The functions of language reference books are many and varied, as are their users. They may be directed toward foreigners to help them learn a new language or toward native speakers to assist them with difficult words or to resolve usage questions. In either case their purpose, as British lexicographer SAMUEL JOHNSON put it in the preface to his influential *Dictionary of the English Language* (1755), is to *ascertain* ("to fix, or make certain") particular linguistic forms in explicit or implicit preference to variants. In some cases the result of this fixing of forms is to favor a particular dialect as the standard for a nation. In other cases it is to create a standard form of written communication for a society with one or more competing spoken dialects or languages. *See also* LANGUAGE VARIETIES.

The creation of reference books is frequently tied to the emergence of a new nation, the industrialization or modernization of an already existing nation, or a shift in the international importance of a nation with a consequent shift in the load its written language must bear. In some cases the movement toward standardization occurs after a period of energetic linguistic growth. In the sixteenth and seventeenth centuries, for example, English underwent a period of sudden expansion, flourishing as a literary as well as an administrative language, enlarging its vocabulary through borrowings from French and Italian, coinages based on the learned languages, and revivals of archaic words. During this period the power of the English monarchy greatly increased, England emerged as an international colonial power, and the Reformation threw increased emphasis on the English vernacular as the language of religion at the expense of Latin. During this time there was heightened interest in the study of the English language and its history and in the creation of artificial "philosophical" languages that would serve the burgeoning field of international scientific communication. In addition frequent recommendations were made for the regulation of the English language, particularly in the areas of word coinage and spelling. However, it was not until the eighteenth century, with the growth and solidification of power of the English middle class and the spread of LITERACY accompanying industrial expansion, that the first generalized movement toward linguistic standardization and the first large-scale publication of language reference books

occurred. In that century dictionaries, grammars, usage guides, and language commentaries first established themselves as authorities for the regulation of the English language.

The Idea of a Standard Language

In order to bring about reform some language standardizers sought to identify a historical period, whether past or present, to set up as a golden age whose language should be both preserved and imitated. For the Greeks of the Hellenistic period it was the golden age of Athens (*see* HELLENIC WORLD). For the Latin grammarians Aelius Donatus (fourth century C.E.), Priscian (sixth century C.E.), and their colleagues the golden age was exemplified by CICERO's writing (first century B.C.E.) (*see* ROMAN EMPIRE). In contrast the editors of the dictionary of the French Academy (1694) looked to their own century for linguistic precedents. They perceived modern French to be flourishing and supposed the language may even have reached perfection. However, perfect French was spoken by only a small percentage of the population. According to Claude Favre de Vaugelas, the French academician and author of the first usage commentary of the language, *Remarques sur la langue françoise* (1647), good usage belonged to the elite, defined as the best elements of the royal court and the best writers of the day, while bad usage characterized the majority of speakers and writers. The fifth edition of the dictionary of the French Academy, issued in the seventh year of the First Republic, similarly defended the need for an elite body of linguistic judges; like its predecessors it also described the language not of the masses but of the select few who spoke and wrote correctly. This dictionary showed the effects of Enlightenment thinking; the preface recommended the work as something necessary for the good sense and rationality of the people, not simply as a record of correct or fashionable language. It also stressed the notion that a word must be allowed one and only one meaning if language is to be logical and efficient.

For the English language the golden age was not the Elizabethan period, frequently perceived as a time of unchecked growth, which in itself provided reason enough for language reform. Instead authorities like Johnson looked to the era before the Restoration for the best English writers. According to Johnson (1755), English, which "was employed in the cultivation of every species of literature, has been hitherto neglected, suffered to spread, under the direction of chance, into wild exuberance, resigned to the tyranny of time and fashion, and exposed to the corruption of ignorance, and caprices of innovation." Influenced by the spirit of the Enlightenment, Johnson and his European contemporaries regarded language as one of many natural phenomena that could be improved

A
P R O N O U N C I N G
A N D
S P E L L I N G
D I C T I O N A R Y :

Wherein, by a new and sufficient Method,
The Proper SOUNDS of English Words
are exactly ascertained;

And by which,
Both His Majesty's Subjects, and Foreigners,
may correct an *Improper*, or acquire a *Right*
PRONUNCIATION of the *English* Language.

T O G E T H E R W I T H
An INTRODUCTION, and an APPENDIX, con-
taining many new and useful Observations on the
Sounds of the Letters; an Account of the Notation,
whereby their Sounds in Words are, through the
Dictionary, signified; and Directions for attaining to
a right Pronunciation by the Help of this Book.

To which is added, by Way of PRAXIS,
A DISCOURSE on an Important Subject.

W H E R E I N
The Right SOUNDS of the WORDS are so intimated
by the Notation, that a Stranger to the English
Accent, after carefully perusing the Introduction,
may be able to pronounce them properly.

By WILLIAM JOHNSTON, M.A.

L O N D O N :
Printed for W. JOHNSTON, in Ludgate-street.
M.DCC.LXIV.

Figure 1. (*Language Reference Book*) William Johnston, *A Pronouncing and Spelling Dictionary*, 1764. Title page. From R. C. Alston, ed., *English Linguistics 1500–1800 (A Collection of Facsimile Reprints)*, Menston, Eng.: The Scolar Press, 1968. By permission of Scolar Press.

if subjected to rational reform and brought under the constraints of reason and logic. A somewhat different spirit of reform motivated the compilers of the Oxford English Dictionary, who began work in the mid-nineteenth century to correct what they felt were deficiencies in the English dictionaries of their time. Their objective was to account for all the words in the English vocabulary from the earliest records to the present and to record for each word its pronunciation, etymology, and examples of its use in context—a historical treatment of all words and idioms. The intent of the dictionary of the French Academy (fifth edition) was similarly to fix the language without hemming it in but in tracks that would always lead to rational advancement, not poor usage. Today's reformers of English exhibit this same spirit of linguistic idealism. They do not posit a golden age

but instead look to a perfectible, rational form of English that can exist only if we follow their advice.

Language Reform

The social role of language is seldom ignored by the writers of reference works, and authors seem both pessimistic and optimistic in their goals. Citing examples of linguistic forms to which they object, they may warn against the dangers of linguistic decay, exhorting their readers to return to or to create anew a form of language that will both reflect and guarantee the survival of their civilization. On a more practical level they may cite the educational needs of the young, of immigrants or foreign merchants, and of the less fortunate classes. For example, Scottish rhetorician Hugh Blair intended his *Lectures on*

Rhetoric and Belles Lettres (1829) “for the initiation of youth” into a subject that had been cultivated with the greatest of care among civilized nations because a well-regulated language was also thought to be a rational one. Language commentators in the United States further stressed the value of good, standard speech and writing to a democratic society. While such practical aims are frequently subordinated to idealistic or philosophical treatments of language as reflecting both beauty and truth, it is a commonplace of eighteenth- and nineteenth-century English grammars that “grammar is the art (or science) of speaking and writing correctly” (see GRAMMAR).

Johnson’s explicit goals all tended toward the correction of English. In the preface to his dictionary he stated that his aim was to regulate confusion, bring choice out of variety, detect adulteration, establish authority, and adjust orthography. Although Johnson’s dictionary carried great weight as a standard for its time, Johnson himself was not a true language reformer in the sense that NOAH WEBSTER was. To Johnson’s aims Webster, in *An American Dictionary of the English Language* (1828), added correcting the pronunciation of the common people, explaining new words not found in earlier dictionaries, classifying common roots among languages, noting those aspects of English that are particularly American, and ultimately ascertaining “the true principles of the language.” Elsewhere Webster explained that his purpose was to eliminate pronunciation differences in the speech of Americans and to rationalize the spelling of English words to better reflect their proper pronunciation and in some cases their etymology. At the beginning of his career he was strongly influenced by a sense of American nationalism, and he once urged that British usage be rejected even if correct for the simple reason that it was British.

While Webster was able to accomplish some of his ends—he did, for example, lend authority to the “American” spellings of such words as *ax*, *humor*, *plow*, *jail*, and *center* (compare the “British” *axe*, *humour*, *plough*, *gaol*, and *centre*)—many of his idiosyncratic ideas about pronunciation and spelling met with opposition. Thus Webster’s insistence that *deaf* be pronounced /dif/ and that *bridegroom* be respelled *bridegloom* were instantly rejected and had to be retracted.

Impact of Reference Books

The intention of most reference works may be to establish authority and certify correctness, but their effectiveness is extremely difficult to judge. Their role is frequently little more than symbolic, and it has been suggested that the true standardizing forces for many languages have not been the basic reference

works or the works of classical writers but the editorial practices of large PUBLISHING houses, which determine principles of spelling, punctuation, diction, and usage. The standardization of pronunciation is even less certain. Printed reference works like Webster’s dictionary, H. W. Fowler’s *Dictionary of Modern English Usage* (1926), or the frequently reprinted pronunciation guides of Daniel Jones may serve to authorize geographical or social variants, but they are little more than starting points in the determination of national standards. Even in spelling, which is thought to be fairly conventional in English, some significant variation does occur from dictionary to dictionary, as well as in general use. Sometimes spelling variation becomes a usage crux as well, as in the case of the disputed form *alright* for *all right*, which has been discussed in usage books and dictionaries for the past thirty years or more.

While the publication of a language reference book does not usually draw much partisan response, the appearance in 1961 of *Webster’s Third New International Dictionary* provoked some sharp reactions that reveal an ambivalence about the purpose of a language reference work. Critics objected to the new editorial practice that eliminated some of the usage labels traditionally found in English dictionaries, and they asserted the need for more lexicographical prescription. They claimed that readers of dictionaries want to know not just how a word is spelled and what it means, but when and when not to use it. The dictionary editors, on the other hand, maintained that the function of an unabridged dictionary is to describe rather than prescribe, to record with scientific objectivity the English language as it is, not as it should be. Ironically, a century earlier Webster himself was called to task by a reviewer in the *Atlantic* (1860) for thinking that “the business of a lexicographer was to *regulate*, not to *record*.”

Reference works are but one element in the complex system that forms our attitudes toward and knowledge of any given language. Their influence within that system is based on a number of variables. On the one hand, they are highly visible cultural artifacts whose authority is both sought by the perplexed and alluded to by speakers and writers in defense of particular language issues (see ARTIFACT). (It is often not a problem that the authority of one reference work may be disputed by another, for few except scholars consult more than one dictionary, grammar, or usage guide to find what they need.) On the other hand, it is not clear that people follow the advice or even the descriptions provided by language reference works. The power of reference works to promote language change is limited, and they may in fact be as productive of change as they are of standardizing a language. Imperfectly understanding the prescriptions in question, speakers and writers

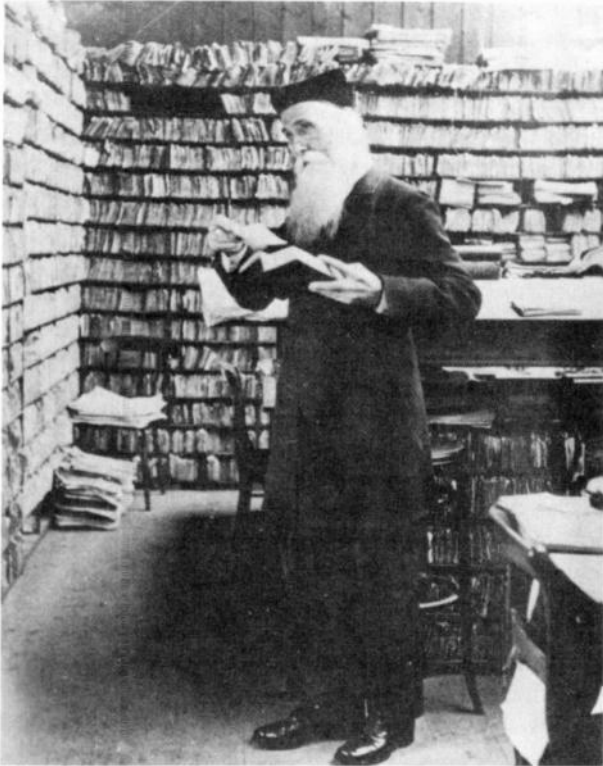


Figure 2. (*Language Reference Book*) James A. H. Murray, editor of the *Oxford English Dictionary*, published between 1884 and 1928. From K. M. Elisabeth Murray, *Caught in the Web of Words: James A. H. Murray and the Oxford English Dictionary*, New Haven, Conn.: Yale University Press, 1977, frontispiece.

may produce new variants in their efforts to be correct; words take on new meanings, hypercorrect idioms evolve, and spelling pronunciations become the norm rather than the exception.

Language regulation for English is an informal process of self-regulation, one not generally dependent on language experts. It is true that the use of English is affected by writers on language, authors, journalists, teachers, and even occasionally linguists and to a very small extent by government intervention. As a consequence the definition of standard English is a loose one, embracing a certain degree of variation even in formal registers, and even the most prescriptive English reference works not only allow but encourage some degree of individual choice. The regulation of French, in contrast, is highly centralized and has been for some centuries directed by the specific authority of the French Academy and its dictionary, and the national system of education with its official language texts. Despite such formal efforts at control, variation in spoken and written French remains great, and in recent years movements to revive local dialects and languages have grown stronger.

It is quite likely that the effect of standard reference

works is strongest in situations involving the modernization of a language or the creation of a written form for a previously unwritten language. It is also likely that once modernization has occurred (as, for example, in the case of modern Hebrew) and the standard language has been launched, it will take on a life of its own, and the various forces of linguistic control—academies, government edicts, educators, critics, and language scholars—will have less direct influence over its development.

See also EAST ASIA, ANCIENT; ENCYCLOPEDIA; ISLAM, CLASSICAL AND MEDIEVAL ERAS; MEANING.

Bibliography. Dennis E. Baron, *Grammar and Gender*, New Haven, Conn., 1986; idem, *Grammar and Good Taste: Reforming the American Language*, New Haven, Conn., 1982; Claude Hagège and Istvan Fodor, *Language Reform, History and Future* (in German, French, and English), 3 vols., Hamburg, 1983.

DENNIS BARON

LANGUAGE VARIETIES

The term LANGUAGE is, from a linguistic point of view, relatively nontechnical. Most linguists prefer to use the concept of *variety* as a neutral term to refer to any particular kind of language spoken by an individual, group, or community that they wish for some purpose to consider as a single entity. As a very general notion a variety includes what could also be called a *language*, a *dialect*, a *register*, or a *style*. To understand the reasons why certain varieties are thought to belong to the same language and others to different languages we must understand the kinds of social and linguistic distinctions to which these labels relate.

The study of language varieties has taken a central place in modern LINGUISTICS. The variability of language within a community is intimately related to the process of language change, as both its product and its prerequisite. Language changes as speakers borrow features from their fellow speakers, so that the new features replace the old in more and more instances of an ever-wider range of their possible uses. For this borrowing to take place easily and frequently, the lenders and borrowers must be able to communicate easily and frequently. Looking at the community as a whole, then, one sees that changes spread inside communication networks within the larger community more readily than they spread between them. The expected patterns of greater similarity within social groups and within spaces bounded by geographical barriers are indeed what one finds.

Dialect, Register, and Style

The term *dialect* has generally been used to refer to a subordinate variety of a language. For example,

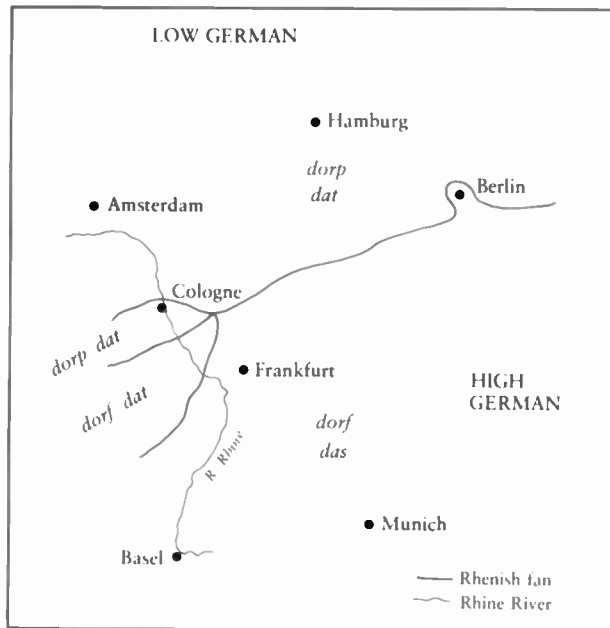


Figure 1. (*Language Varieties*) The Rhenish fan. Redrawn after Werner König, ed., *dtv-Atlas zur deutschen Sprache*, Munich, 1978, p. 64.

the English language has many dialects. A *regional dialect* is a language variety associated with a place, such as the Yorkshire dialect. Dialects of a language tend to differ more from one another the more remote they are from one another geographically. The term *dialect* also has historical connotations. Historical linguists, for instance, speak of the Germanic dialects, by which they mean the ancestors of language varieties we now recognize as modern Germanic languages, such as English, Dutch, and German. The entities we label as the English language or Flemish dialect are not discrete entities. Any variety is part of a continuum in social and geographical space and time. The discontinuities that do occur, however, often reflect geographical and social boundaries and weaknesses in communication networks.

Some classic cases of related dialects are the West Romance and Germanic dialect continua. The West Romance dialect continuum stretches through rural communities from the Atlantic coast of France through Italy, Spain, and Portugal. Mutual intelligibility exists between adjacent villages, although speakers of the standard varieties of French, Italian, Spanish, and Portuguese find one another mutually unintelligible to varying degrees. Similarly the Germanic dialect continuum connects a series of historically related varieties that differ from one another with respect to one or more features. The linguistic boundaries between varieties are called *isoglosses*. Major dialect boundaries are often characterized by a bundle of isoglosses.

One example is the *Rhenish fan*, which separates Low German from High German. As can be seen in Figure 1, the set of isoglosses runs from east to west across Germany (slightly north of Berlin) and Holland. The features comprising the isoglosses include the pronunciation of final consonants such as *p* and *f* and *t* and *s* in words such as *dorp/dorf* ("village") and *dat/das* ("that," "the"). The first member of each of these pairs is the Low German variant, as found in modern standard Dutch, and the second is the High German variant, as found in modern standard German. The point at which the isoglosses meet the Rhine is marked by a fanning out of the isoglosses. In villages along this area speakers may have some Low German features and some High German features—for example, both *dat* and *dorf*.

The dividing line between the languages we call Dutch and German is linguistically arbitrary but politically and culturally relevant. Certain varieties of the West Germanic dialect continuum are considered to be dialects of Dutch and others dialects of German because of the relationship these varieties have to their respective *standard languages*. The process of standardization is connected with a number of sociohistorical factors such as LITERACY, nationalism, and cultural and ethnic identity. It results in the selection and fixing of a uniform norm of usage, which is promoted in dictionaries, grammars, and TEACHING (see LANGUAGE REFERENCE BOOK). A standard language is a variety that has been deliberately codified so that it varies minimally in linguistic form but is maximally elaborated in function.

Thus the Dutch dialects are dependent on, or *heteronomous* with respect to, standard Dutch; German dialects are dependent on standard German. This means that speakers of German consider that they speak German; they read and write in German and are taught German in school. They look to standard German as a reference point. The relationship of heteronomy is shown in Figure 2. The term *language* is employed for a variety that is autonomous, together with all those varieties that are heteronomous with respect to it.

Because heteronomy and autonomy reflect political and cultural rather than purely linguistic factors, they

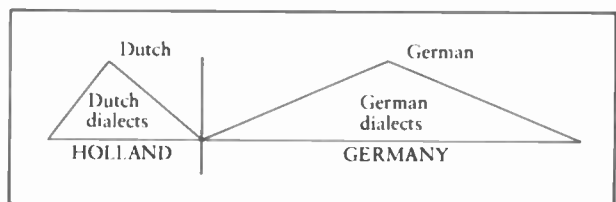


Figure 2. (*Language Varieties*) West Germanic dialect continuum. Redrawn after J. K. Chambers and Peter Trudgill, *Dialectology*, Cambridge: Cambridge University Press, 1980, p. 11.

can change. Formerly heteronomous varieties can achieve autonomy, often because of political developments. Speakers of English in the United States, for example, used to look to British English norms of usage; now, however, an autonomous American variety of standard English must be recognized.

Some linguists make a further distinction between *accent* and *dialect*. An accent consists of a way of pronouncing a variety. A dialect, however, varies from other dialects of the same language simultaneously on at least three levels of organization: pronunciation, GRAMMAR or syntax, and vocabulary. Thus educated speakers of American English and British English can be regarded as using dialects of the same language because differences of these three kinds exist between them. In practice, however, speakers of the two varieties share a common grammar and differ from each other more in terms of vocabulary and pronunciation. Some examples of these differences are illustrated in Table 1.

Geographical distance is but one factor in dialect differentiation. We can draw an analogy between geographical and social space. A dialect continuum can be social rather than geographical. A good example is found in Jamaica, where at one time those at the top of the social scale—the British—spoke English, while those at the bottom spoke Jamaican Creole. Over time the gap between the two has been filled by a range of varieties that are either more like the creole or more like English. Most speakers use several varieties that span a range on this so-called post-creole continuum and shift among them according to context or addressee. Any division of the Jamaican social dialect continuum into English versus Jamaican Creole would be linguistically as arbitrary as dividing the Germanic dialect continuum into Dutch and German. There is no social, political, or geographical reason for saying that English begins at one particular point and Jamaican Creole at another.

A variety is thus a clustering of features. In addition to dialect two other varieties are register and style. A *register* is a variety associated with particular professions, contexts, or topics. Two lawyers discussing a legal matter use the register of law; the language of police detectives reviewing a case reflects a register particular to their profession and the topic under discussion. Vocabulary differences—either a special vocabulary or special meanings for ordinary words—are most important in distinguishing different registers. Language *style* can range from formal to informal depending on social context, relationship of the participants, social class, sex, age, physical environment, and topic. Stylistic differences can be reflected in vocabulary, as in “The teacher distributed the new books” versus “The teacher gave out the new books”; syntax, as in an increased use of the passive

Table 1. Differences between American and British English

	<i>American</i>	<i>British</i>
<i>Pronunciation ate</i>	/eit/ (rhymes with <i>mate</i>)	/ɛt/ (rhymes with <i>met</i>)
<i>Grammar/Syntax</i> Past participle of <i>get</i>	Jane had <i>gotten</i> used to it.	Jane had <i>got</i> used to it.
<i>Vocabulary</i>	Sam took the <i>elevator</i> rather than the stairs.	Sam took the <i>lift</i> rather than the stairs.

voice (in English) in formal speech (“The meeting was canceled by the president” versus “The president called off the meeting”); and pronunciation (see Tables 2 and 3).

Social Aspects

The social dimensions of language varieties have been investigated since the nineteenth century. Since the development of quantitative techniques for analyzing variable features of language in the late 1960s, much work has focused on urban dialectology. Sociolinguists have focused on patterns of language use that require reference to social factors such as class stratification, sex, age, and context for their explanation.

One of the first features to be studied in this way was the pronunciation of postvocalic /r/, as in *cart*, *bar*, and *farm*. Varieties of English can be divided into two groups with respect to their treatment of this variable: those that are *r*-pronouncing and those that are not *r*-pronouncing. Today in Britain accents that have lost postvocalic /r/ as a result of linguistic change generally have more prestige than those, like Irish English, that preserve it. In many parts of the United States the reverse is true, although this has not always been the case. Table 2 compares the pronunciation of postvocalic /r/ in New York City (based on research by linguist William Labov) and Reading, England (based on linguist Peter Trudgill’s research). The results show that in New York City the lower one’s social status, as measured in terms of factors such as occupation, EDUCATION, and income, the fewer postvocalic /r/s one uses, while in Reading the reverse is true.

Like many features investigated by sociolinguists the pronunciation of postvocalic /r/ shows a geographically as well as socially significant distribution. Just as the DIFFUSION of linguistic features may be halted by natural geographical barriers, it may also be impeded by social class stratification. Similarly the boundaries between social dialects tend for the most part not to be absolute. The pattern of variation

Table 2. Percent of Postvocalic /r/s Pronounced (based on Labov 1966 and Trudgill 1974)

<i>New York City</i>	<i>Reading</i>	<i>Social class</i>
32	0	upper-middle class
20	28	lower-middle class
12	44	upper-working class
0	49	lower-working class

for postvocalic /r/ shows *fine stratification* or continuous variation along a linguistic dimension (in this case a phonetic one) as well as an extralinguistic one (in this case social class). The indexes go up or down in relation to social class, and there are no sharp breaks between groups.

The use of other features can be more sharply socially stratifying. That is, a social barrier between the middle class and the working class may be reflected in the usage of some linguistic feature. In English such features are more likely to be grammatical or syntactic, such as the use of multiple negation (e.g., "I *don't* want *no* trouble"), than pronunciation variables. A major finding of urban sociolinguistic work is that the differences among varieties of English are largely quantitative rather than qualitative. Language use is conditioned by both internal linguistic constraints and external social ones.

Not only do some of the same linguistic features figure in patterns of both regional and social dialect differentiation, but they also display correlations with other social factors. Table 3 shows that whether or not one pronounces the final ending of words like *reading* or *fishing* (or omits it, as in *readin'* and *fishin'*) is an indicator of social class as well as style. The behavior of each social class group varies according to whether its style is casual or formal. Although each class had different average scores in each style, all groups *style shift* in the same direction in their more formal speech style, that is, in the direction of the standard language.

It has also been found in a number of sociolinguistic studies that women tend to use higher-status

Table 3. Percent of Forms without Final *g* (results from Trudgill's study of Norwich, England, 1974)

<i>Social class</i>	<i>Style</i>	
	<i>casual</i>	<i>formal</i>
middle-middle class	28	3
lower-middle class	42	15
upper-working class	87	74
middle-working class	95	88
lower-working class	100	98

variants more frequently than men. This pattern was found, for example, with both postvocalic /r/ and final *g*. Women of each social class group use the more prestigious variants more often than men of equal social status. Similar results have been found in other places, such as Sweden. Some researchers have argued that, in the case of spoken English at least, men's and women's speech are two distinct varieties of language. They point to studies that have shown differences in phonological features (pronouncing the final *g*, as noted above), intonation patterns, choice of vocabulary (certain adjectives and intensifiers appear more frequently in women's speech), use of tag questions (addition of a question—such as "isn't it?"—to a statement in order to get agreement or affirmation, something women seem to do more than men), and other features of verbal repertoires. Many of these studies are preliminary, and the features mentioned need to be investigated more thoroughly and systematically. See also GENDER; SEXISM.

Multilingualism

Of course, not all language communities are organized in the same way. Widespread bilingualism and multilingualism are actually more common than monolingualism. It has been estimated that there are some four to five thousand languages in the world but only about 140 nation-states.

In many multilingual communities speakers switch among languages or varieties as monolinguals switch among styles. Often each language or variety serves a specialized function and is used for particular purposes. This situation is known as *diglossia*. An example can be taken from Arabic-speaking countries in which the language used at home may be a local version of Arabic. The language that is recognized publicly, however, is modern standard Arabic, which takes many of its normative rules from the classical Arabic of the Qur'an. The standard language is used for "high" functions such as giving a lecture, READING, WRITING, or broadcasting, while the home variety is reserved for "low" functions such as interacting with friends at home.

The analogy has been extended to other communities in which the varieties in diglossic distribution have the status of separate languages, such as Spanish and Guaraní (an Indian language totally unrelated to Spanish) in Paraguay. Spanish serves here as the high variety and is used for high functions.

In some multilingual communities speakers who do not share a native language use a lingua franca to communicate in certain contexts, such as in commercial transactions. The chosen lingua franca can be indigenous to an area, as Swahili is to Africa, or nonindigenous, as English is to India. It may be, but does not have to be, the native language of any of

the speakers. A pidgin language is one that is created from one or more languages and is used as a lingua franca but has no native speakers. The language from which the pidgin is derived has been simplified, and vocabulary and grammatical complexities have been reduced. Often vocabulary and pronunciation conventions from other languages (other than the one on which the pidgin is based) are introduced into the pidgin by those who use it. As with other lingua francas, the uses and occasions for using a pidgin will depend partly on how widely it is known.

Linguistic diversity thus occurs in both monolingual and multilingual communities. Differences among language varieties are likely to emerge in response to geographical, social, and functional factors. Political considerations are becoming increasingly relevant as well. With the end of colonialism and the formation of new nation-states, the question of which language (or which version of which one) will become the official national language arises and has often led to bitter controversy. Even countries with more than one official language, such as Canada, have not escaped attempts by various factions to gain political advantage by exploiting issues of language loyalty. Language varies according to its users and uses, and research on language varieties will have to take into account all the relevant factors that affect these choices.

See also LANGUAGE IDEOLOGY; MEANING; SPEAKING, ETHNOGRAPHY OF.

Bibliography. J. K. Chambers and Peter Trudgill, *Dialectology*, Cambridge, 1980; R. A. Hudson, *Sociolinguistics*, Cambridge, 1980; William Labov, *The Social Stratification of English in New York City*, Washington, D.C., 1966, reprint 1982; Peter Trudgill, *The Social Differentiation of English in Norwich*, Cambridge, 1974; idem, *Sociolinguistics*, Harmondsworth, Eng., 1983.

SUZANNE ROMAINE

LASER. See FIBER OPTICS; SOUND RECORDING.

LASKER, ALBERT (1880–1952)

U.S. advertising executive. Long considered the doyen of U.S. ADVERTISING and its most articulate apostle, Albert Davis Lasker had a career that spanned the industry's most spectacular decades of growth and in many ways epitomized them. His promotional and propagandistic wizardry became legendary and earned him great wealth and political influence, but in his final years he changed his opinions on many subjects, including advertising and politics.

In 1898, at the age of eighteen, Lasker entered the Lord and Thomas advertising agency in Chicago at a salary of ten dollars a week, but he proved so adept at winning new clients that he soon dominated the



Figure 1. (*Lasker, Albert*) Mary and Albert Lasker. From John Gunther, *Taken at the Flood*, New York: Harper and Brothers, 1960.

agency, earned huge bonuses, and by 1903 was able to buy out one of the partners, D. M. Lord. A few years later he and a colleague, Charles R. Erwin, bought out Ambrose Thomas's share. When Lasker bought out Erwin in 1912, he became sole owner of Lord and Thomas; he would soon take home more than a million dollars a year from the agency's earnings.

His fame spread. In 1917 former U.S. president Theodore Roosevelt invited him for a visit to Oyster Bay, New York, and welcomed him with, "They tell me you are America's greatest advertising man." Lasker replied, "Colonel, no man can claim that distinction as long as you are alive." The jovial encounter led to a prominent Lasker role in Republican party politics. He became assistant to Will Hays, chairman of the Republican National Committee, for which his first task was to organize a campaign against U.S. entry into the League of Nations. Lasker's PAMPHLET, *After the Peace, What?* was distributed in millions of copies. The success of the drive led to another role, as coordinator of all publicity for Warren G. Harding's 1920 "front porch campaign" for the presidency, and to brief service under President Harding. Lasker was invited to become czar of HOLLYWOOD, which was awash with scandal, but instead recommended his friend Hays and returned to his agency.

Expounding to staff members at length about the glories of advertising, he now led them in vigorous drives for Lucky Strike, Pepsodent, Kotex, Kleenex, Palmolive, Frigidaire, Goodyear, and a host of other clients. His leadership was marked by verve, decisiveness, and a flair for terse expression. Asked how Kleenex (an unprecedented new product) was faring, he answered, "Fine. Women are beginning to waste it." For Pepsodent he decreed a secret ingredient, ordering his staff to devise a name for it consisting of two consonants and three vowels. They came up with *irium*, which would dominate Pepsodent commercials during its sponsorship, beginning in mid-1929, of the "Amos 'n' Andy" series on NBC, one of the first great successes of network RADIO. Lasker plunged heavily into radio; for a time almost half of NBC's revenue came from Lord and Thomas. In Lasker's Lucky Strike campaigns the focus was on women. At the start of the 1920s few women smoked. If they could be persuaded to do so, the market would double. Lasker built his strategy around opera singers ("Luckies are kind to my throat") and movie stars—figures of glamour, status, and daring. The depression scarcely slowed Lasker; in 1932 he personally netted almost three million dollars. Near Lake Forest, Illinois, he built a fifty-room mansion on a 480-acre tract with 97 acres of formal gardens, an eighteen-hole golf course, a theater, and a swimming pool; he employed fifty servants. The rich and famous came and went.

In the 1940s, after his first wife had died, he married a Hollywood actress, Doris Kenyon, but they were divorced within months. He entered psychoanalysis, then married again. With his new wife, Mary, he seemed to become a different person. The man who had helped scotch U.S. membership in the League of Nations became an ardent internationalist and backer of the United Nations. He gave up the Lake Forest estate, calling it "the kind of place that's going to be surrounded by an angry mob some day. . . . I intend to be part of the mob." He turned his agency over to his chief staff members (it became Foote, Cone, and Belding) and embarked on new interests. He wrote to his friend Robert Hutchins, president of the University of Chicago: "I am the most superficial man on earth, and yet I am the dean of my profession . . . there must be something wrong with the profession." The man who had set out to persuade millions of women to smoke began to give huge sums to cancer research. After his own death from cancer much of his fortune went into medical research and international causes.

Bibliography. John Gunther, *Taken at the Flood*, New York, 1960.

ERIK BARNOUW

LASSWELL, HAROLD D. (1902–1978)

U.S. political scientist. Harold Dwight Lasswell was one of the most productive and influential political scientists of the twentieth century. Both his scholarly interests and his preparation were wide-ranging. A doctorate from the University of Chicago, when some of the pioneers of modern social science were teaching there, was supplemented by a period in Europe during which he attended seminars with such scholars as economist John Maynard Keynes, campaigned for philosopher Bertrand Russell when Russell was running for Parliament, studied the work of SIGMUND FREUD and KARL MARX, and for six months underwent analysis with Theodor Reik (author of *Listening with the Third Ear*, 1948) to experience personally the workings of PSYCHOANALYSIS. Later Lasswell became noted for applying psychoanalysis to the study of political power, seeing (like Freud) public actions in terms of private motives and personalities. Like many of his fellow pioneers in politics and sociology, he also saw communication as one of the fields of thought and action a modern social scientist ought to understand, and it became a central focus of his studies.

From 1922 to 1938 Lasswell taught political science at Chicago, where among his students were many of the leading political scientists of the next academic generation. When he came up for promotion, however, he was refused a permanent appointment. He resigned from the university, packed his books and research notes into a truck, and started east. The truck caught fire, and all the contents burned, leaving the young teacher without either a job or work materials. Ten years later he got his professorship, but it was at the Yale Law School.

More than anyone else Lasswell pioneered the use of CONTENT ANALYSIS as a major methodology in the study of communications. His published doctoral dissertation (1927) was titled *Propaganda Techniques in the World War I* (World War I). During and after World War II he supervised two large content studies—one at the U.S. Library of Congress, the other at Stanford University—examining PROPAGANDA symbols, opinions of the world elite, and the world "prestige press." He was especially interested in using the massive amounts of data collected during such studies to establish world trend lines—"world weather maps of public opinion"—on the basis of which political scientists could practice "social psychiatry" and "preventive politics" (see PUBLIC OPINION).

Lasswell also posed three "developmental constructs" or paradigms of possible future states: (1) the Marxist state, (2) the "skill commonwealth" run by a managerial elite, and (3) the "garrison state" run by the police or military. These and other con-

cepts in his writings influenced U.S. communications policies in the cold war. His article "The Strategy of Revolutionary and War Propaganda" (1933) analyzes the Marxist use of POLITICAL SYMBOLS and utopianism (see also MARXIST THEORIES OF COMMUNICATION; UTOPIAS). His *National Security and Individual Freedom* (1950) is a handbook for policy-makers on how to maintain maximum freedom—including freedom of the press—under cold war conditions.

Thus Lasswell's concerns with communication were by no means limited to content analysis. Among his numerous publications are works that every communication graduate student reads. One of these is "The Structure and Function of Communication in Society" (in *The Communication of Ideas*, edited by Lyman Bryson, 1948), containing Lasswell's theory of the functions of communication: *surveillance* of the environment, *correlation* of society's response to it, and *transmission* of the social heritage. Perhaps no definition of communication has been more widely quoted than the Lasswell formulation: "Who says what, in what channel, to whom, with what effect?" Lasswell also helped found *Public Opinion Quarterly* and was a member of various important committees and commissions, including the 1947 Hutchins Commission on Freedom of the Press. He became president of the American Political Science Association in 1955.

Lasswell was a leader in what he termed the "policy sciences" and an advocate of communications research as the scientific study of policy-making. In an influential article titled "Communications Research and Public Policy" (1972), published in *Public Opinion Quarterly*, he called for the monitoring of flows of information that enter the public opinion and policy-making process. His initiative and encouragement contributed to the development of the concept of CULTURAL INDICATORS.

See also COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT.

Bibliography. Lyman Bryson, ed., *The Communication of Ideas*, New York, 1948; Harold D. Lasswell, *Politics: Who Gets What, When, How*, New York, 1936, reprint 1950; idem, *World Politics and Personal Insecurity*, New York, 1935, reprint 1965; Dwaine Marvick, ed., *Harold D. Lasswell on Political Sociology*, Chicago and London, 1977; Arnold A. Rogow, ed., *Politics, Personality, and Social Science in the Twentieth Century: Essays in Honor of Harold D. Lasswell*, Chicago, 1969.

WILBUR SCHRAMM

LATIN AMERICA, TWENTIETH CENTURY

Latin America has a long tradition of strong cultural manifestations. The important civilizations existing before the Spanish conquest in the sixteenth century

(e.g., Aztec, Inca, Maya) are notable for their cultural and scientific achievements (see AMERICAS, PRE-COLUMBIAN; CALENDAR; NUMBER). Nearly four centuries of colonial life left imprints in the populations, LANGUAGE, traditions, and systems of social organization that are still visible in the patterns of expression and communication of the countries in this vast region of the world.

The Latin American media industries that developed during the twentieth century have been primarily commercial in nature and privately owned. They include giant enterprises such as Televisa in Mexico and TV Globo in Brazil that produce in various media and have access to international distribution networks. But the prevailing pattern has been marked by limited production capacity with heavy dependence on U.S. sources for equipment, programming, investment capital, and ADVERTISING revenues. Direct ownership by U.S. corporations has become less prevalent. Thus the overall picture continues to be one of relatively small-scale local activity supplemented by large-scale imports—of news services, television programming, films, and other media materials. Cuba and Nicaragua are exceptions because their respective revolutions introduced important changes in terms of ownership, programming, and even equipment.

Evolution

The general trend may be said to have started in the early years of the century, when the international NEWS AGENCIES began extending their cable services to major Latin American capitals (see also NEWSPAPER: TRENDS—TRENDS IN LATIN AMERICA). By the 1930s the U.S. film industry had achieved worldwide dominance, and local film industries with far more limited budgets found it almost impossible to compete against HOLLYWOOD products. U.S. predominance is expected to continue unless policies are formulated to address the social and cultural impact of the mass media and their relation to the international communications industry (see NEW INTERNATIONAL INFORMATION ORDER).

The financial stakes are substantial because Latin America has become a significant market for communications technology and content. Importation of broadcasting technologies for RADIO and television has been followed by the adoption of computer, SATELLITE, CABLE TELEVISION, and VIDEO technologies, especially since the late 1970s. In the early 1980s Latin America accounted for 10 percent of the international theatrical film market, which was estimated at \$5 billion, and 51 percent of the international television and video sales by U.S. distributors. In contrast, a 1982 UNESCO study estimated that Latin America produced less than 1 percent of the

world's cultural products, including media materials.

The spread of the private, commercial model of broadcasting coincided with the global expansion of U.S. transnational corporations (TNCs) during the 1950s and 1960s and with efforts to promote rapid modernization throughout the region (*see DEVELOPMENT COMMUNICATION*). The TNCs were searching for new markets for their consumer products and relied extensively on available media to promote them. The high economic growth rates during the 1960s and early 1970s allowed national corporations and governments to spend considerable amounts of money on promotion through the mass media. Advertising revenues thus fueled the growth of broadcast media in Latin America, along with state collaboration in the expansion of communications infrastructures and the emergence of large urban populations. The private, commercial model of broadcasting was challenged during a brief period in the late 1960s and early 1970s when some emerging political forces attempted to introduce changes in ownership, financing, and media content patterns so that these would be more in line with national development objectives. However, the reform movement was unable to cope with the opposition presented by private national and transnational interests.

Television

During the 1950s Latin American countries began adopting television technology. Transmitters, production equipment, receivers, and programs were imported from the United States. A majority of countries later also adopted the National Television Systems Committee (NTSC) color system and the 525-line video scanning format developed in the United States, both of which are thought to be of lower quality than other systems (mainly PAL and SECAM) used in Europe, the Soviet Union, and Africa. The private, commercial model of broadcasting became standard throughout the region, except in Chile between 1958 and 1973, in Cuba after 1959, and in Nicaragua after 1979.

Television quickly surpassed other media in economic and cultural impact. The largest proportion of advertising expenditures is regularly allocated to television, and people increasingly devote more of their LEISURE time to that medium. Since the 1960s imported U.S. television series have been a major element in program schedules because they cost less than local productions and attract substantial audiences as well as national and transnational advertisers. Table 1 gives a comparative breakdown of advertising expenditures by media in seven Latin American countries.

Media systems in Latin America are characterized by heavy concentration in urban areas, a tendency

toward media and extramedia conglomeration (participation in various media and in other industries), a predominance of ENTERTAINMENT over other types of programming, and a ratings system that mediates relations between broadcasters and sponsors (*see RATING SYSTEMS: RADIO AND TELEVISION*). Critics ascribe to advertisers (*see SPONSOR*) considerable economic and cultural influence, including the socialization of labor within a corporate environment. On the other hand, it is held that television in Latin America, in spite of its imported aspects, has successfully adapted itself to the social, economic, and cultural circumstances of the region, as, for example, in the enormous popularity of *telenovelas* (*see SOAP OPERA*).

It is difficult to ascertain the economic viability of media industries in the region. Observers have argued that even some television stations, normally quite profitable, exist more for political than for economic reasons. By contrast, attempts to establish national film industries have largely failed despite the fact that individual filmmakers from Brazil, Argentina, Chile, Cuba, and other countries have won praise and recognition in film festivals around the world. In general, however, the cinema has been limited to small-scale local productions or variously successful efforts at regional and international coproduction and distribution arrangements. *See MOTION PICTURES—SOUND FILM*.

Media Content

The expansion of media industries has not resulted in a significant increase in the local content of programming. Considerable attention has been paid in research to the proportion of imported versus national television content (*see CONTENT ANALYSIS*). Findings suggest that the intraregional exchange of television programs—especially soap operas—increased during the late 1970s and early 1980s, with Brazil, Argentina, Venezuela, and Mexico as the largest exporters. However, material imported from outside the region, predominantly the United States, generally accounts for 50 to 80 percent of total transmission time despite legislation in many countries establishing minimum requirements in terms of national production and screen time and airtime (e.g., 60 percent in Peru, 50 percent in Venezuela and Colombia, 30 percent in Ecuador and Bolivia). Broadcasters have definite economic incentives to maintain the existing pattern because local production costs are much higher than comparable costs for imported series (e.g., a regional average of about \$1,500 for a local one-hour show compared to about \$250 for an episode of a U.S. series). In addition, Latin American audiences have acquired a taste for Hollywood genres, so that imported programming

Table 1. Advertising Expenditures in Selected Latin American Countries, 1983

Total Advertising Expenditures, 1983 (U.S.\$)	Argentina N.A.	Brazil U.S.\$ Billion	Chile U.S.\$ Million	Colombia U.S.\$ Million	Mexico U.S.\$ Million	Peru U.S.\$ Million	Venezuela U.S.\$ Million
		2	105	337.8	220	74	186
<i>Breakdown by media</i>	%	%	%	%	%	%	%
Television	29.6	61.0	45.1	52.0	50.6	53.9	50.5
Newspapers	23.5	14.7	35.1	18.0	12.3	25.7	25.9
Radio	8.4	8.0	10.8	25.0	16.9	12.2	17.1
Magazines	5.7	12.9	6.1	5.0	9.2	3.8	2.0
Outdoor	7.6	2.3	2.8	—	3.0	4.4	2.3
Cinema	2.4	0.4	0.1	—	1.5		0.9

Source: *Advertising Age*, July 5, 1984. Amendments by authors.

often commands the largest audiences. See also TELEVISION HISTORY—WORLD MARKET STRUGGLES.

The advent of new technologies during the 1980s led some analysts to expect greater diversity in media material; this, however, has not been the overall result. Cable television, videocassettes, and satellite technology have tended to reinforce (and perhaps increase) the traditional reliance on foreign programming. In a replay of the early history of radio and television in the region, issues of content have again been ignored while the technology is rapidly diffusing and practices become entrenched. Thus the audience for these—and other—new technologies has been reduced to the few who can afford to pay for them.

Cultural Implications

Throughout Latin America there are marked discrepancies between mass media content and the cultural and socioeconomic conditions of both urban and rural populations. In Peru it was estimated in 1972 that about half of the 18 million total population could not meet its basic health and nutrition needs. More than 4.5 million people were considered to live at a level of absolute poverty, meaning that they could not satisfy their most basic needs even if they devoted all their disposable income to that end. The irrelevance of the life-styles and values usually depicted in the mass media to the needs of such population groups is a frequent source of criticism. It is argued that the diversity of modern technologies should afford some means for assisting the people of the region to cope with their environment and even to influence it through active participation in the media. The difficulty (or impossibility) of gaining access to established mass media channels has led to multiple experiments in cultural expression through “alternative” communication media, channels, or formats, including small presses, music, and video exchanges. See also CITIZEN ACCESS; MINORITY MEDIA.

Work on the concept and practice of alternative communication has been carried out mainly by two distinct groups: popular organizations (such as labor unions, neighborhood associations, and women’s groups) and technical, professional, and religious organizations. These two groups have collaborated on three types of projects, involving information, EDUCATION, and organization. The shared or similar political goals have not been enough, however, to smooth out the inevitable differences between groups of people with different backgrounds, experiences, and training. Although successful in some ways, the widespread call for new, participatory forms of communication in society has been followed by few projects implementing the principles promoted. Thus there is an evolving consensus in the region about the need to develop further the theoretical, research, and practical bases that will contribute to the movement’s efficacy.

Alternative communication experiences are not restricted to printed media. Radio stations operated by trade unions, peasant organizations, and the Catholic church have a long history in Bolivia, where they play crucial political and cultural roles. A newer medium, video, is being used by more than one thousand groups working for popular organization, education, and development. Additionally, new distribution channels (e.g., the Latin American Video Network created by the Institute for Latin America, IPAL) have joined existing regional organizations such as the Latin American Association of Radio Schools (Asociación Latinoamericana de Escuelas Radiodifusoras, ALER) in promoting alternative uses of the media.

Meanwhile, national governments—sometimes in collusion with national and transnational interests—continue to expand Latin America’s communications infrastructure without due consideration of the social and cultural implications. For example, cable television systems have been started in Mexico and Peru, and investments in satellite networks have grown

significantly. All the countries in the region are utilizing INTELSAT's satellite services, and countries such as Brazil and Mexico have had since 1985 their own satellites for domestic communications, used extensively by the leading private media companies (Televisa in Mexico, TV Globo in Brazil).

This process of cooperation (or collusion) between governments and private media owners subjects many Latin American journalists and other media professionals to both direct and indirect CENSORSHIP. On the one hand, governments pressure the media either through explicit censorship (as in Chile since 1973) or through the control of newsprint, taxes, and official advertising. On the other hand, media owners often establish procedural guidelines that amount to censorship in efforts to protect their individual or corporate interests.

The television industries are at the cutting edge of a trend toward the eventual integration of the mass media and the new communications technologies (e.g., video, cable, satellites, computers). Qualitative changes in the economic and organizational processes involving this sector can be expected. The trend may aggravate the traditional dependence on relatively inexpensive information and entertainment supplied by U.S. sources, but it may also allow for innovative production and distribution arrangements within the region, thus stimulating the production of local materials. For instance, films with limited theatrical audiences could reach wider audiences when distributed in videocassette format, and television programs could overcome physical limitations if shown through cable or satellite systems that are largely immune to atmospheric conditions.

Perspectives

Despite the phenomenal expansion of media industries in Latin America during the second half of the twentieth century, little interest has been shown in reforming the systems in order to promote national cultural expression. Government efforts in Peru, Chile, Venezuela, and Mexico during the late 1960s and early 1970s were unsuccessful either because their proponents lost political power or because of the sustained opposition of private interests.

At a different level, the scarcity of reliable research on media industries has made the task of assessing their cultural and economic impact—as well as that of formulating policies for them—substantially more complex. The private, commercial model is firmly entrenched within the economic systems of the countries in the region, and thus it would not be very realistic to expect any of the Latin American governments to be able to change their communications industries fundamentally by the end of this century. Most states simply could not afford any major intervention in the sector (e.g., by establishing nationwide

television or radio networks of their own). Even in such a limited domain, however, there is room for innovative policy measures that might stimulate national cultural production (e.g., through fiscal incentives) and promote the regional integration of the media industries (e.g., through coproduction and exchange agreements). Intergovernmental bodies in the region, such as the Latin American Economic System (Sistema Económico Latinoamericano, SELA), the Latin American Institute for Economic and Social Planning (Instituto Latinoamericano de Planificación Económica y Social, ILPES), and the Council of the Cartagena Agreement (Junta del Acuerdo de Cartagena, JUNAC), have moved in this direction by incorporating social communication as one of their concerns and fields of cooperation. For all of them it is clear that regional cooperation may be the most effective way to achieve the development of endogenous cultural industries and media.

Bibliography. Elizabeth Fox de Cardona and Héctor Schmucler, *Comunicación y democracia en América Latina*, Lima, Peru, 1982; Valerio Fuenzalida, *Estudios sobre la televisión Chilena*, Santiago, Chile, 1984; Thomas H. Guback and Tapio Varis, *Transnational Communication and Cultural Industries*, Paris, 1982; Armand Mattelart, *Multinacionales y sistemas de comunicación: Los aparatos ideológicos del imperialismo*, Mexico, D.F., 1977; Luis Peirano, ed., *Educación y comunicación popular en el Perú*, Lima, Peru, 1985; Diego Portales, *Poder económico y libertad de expresión*, Santiago, Chile, 1981; Fernando Reyes Matta, ed., *Comunicación alternativa y búsquedas democráticas*, Mexico, D.F., 1983; Jorge A. Schnitman, *Film Industries in Latin America: Dependency and Development*, Norwood, N.J., 1984; Anthony Smith, *The Geopolitics of Information: How Western Culture Dominates the World*, New York, 1980; UNESCO, *Cultural Industries: A Challenge for the Future of Culture*, Paris, 1982.

HENRY GEDDES AND RAFAEL RONCAGLILO

LAW AND COMMUNICATION

At the least, law and legal systems operate to promote order within a society by providing an institutionalized process to regulate disputes. At the most they exist to direct the thought and behavior of individuals along channels approved by their political superiors. In either case communication of the rules and their purpose to the affected parties seems central to the notion of law. In fact, though, communication in law is less prized than one would expect.

Sources

The Western world has made use of four sources of law, in the sense of bases of legitimacy that courts habitually regard as determinative for their decisions:

(1) custom, (2) judicial precedent, (3) juristic opinion, and (4) legislation. Each source has different implications for communication.

Custom. The traditional theory of custom is that habitual behavior comes to have legal force when people observe it, in the belief that it is already binding as law. In practice a supposed custom becomes law when court decisions based on it become accepted as a statement of customary law. In fact, there may have been no preceding custom, with people doing different things, or if there was it may not have been widely known. Customary law is found primarily in small societies with no powerful central administration, and it is a typical feature of customary legal systems that either the law is not known or there are many gaps in it. But a judge, faced with an issue, has to decide the case at hand, whether or not customary behavior can provide an answer. The judge frequently borrows, as if it were the custom, a rule from an admired system or follows the opinion of a writer who is not authoritative and who frequently has made up a rule or borrowed one from elsewhere. When an authoritative account of custom is produced, it becomes law, but as statute. Custom is not today a powerful source of law in the developed world, but it has been in continental Europe, especially during the MIDDLE AGES, and still is in parts of Africa and elsewhere.

Judicial precedent. As a form of lawmaking, judicial precedent is not a satisfactory way of communicating knowledge of law and its aims. The law is buried in a very large number of cases contained in multiple volumes, and usually several cases have to be studied to extract even the beginnings of a rule. Even when textbooks report judge-made law, they leave the impression that the cases must still be read. Law becomes very remote from laypersons, including the very people who are expected to follow it. Besides, law created in this way cannot be systematic. Judge-made law is a bad communicator not just because it is hard to find but also because it waits on events and decides what was the right thing to have done in the past according to a law that then was unknown and unknowable. Yet judicial precedent is a powerful source of law in the common-law countries, such as England and the United States, and is coming to be more highly regarded in civil-law countries, comprising most of Europe and Latin America.

Juristic opinion. Juristic opinion was a powerful source of law in ancient Rome; in the development of the learned law beginning in medieval Europe and still existing today in civil-law countries; and to a lesser though still marked extent in the United States. For communication, juristic opinion has the advantages that it can be forward looking, can set out an issue or a whole area of law systematically and clearly, and can formulate reasons for the adoption

of rules. It suffers from the defect that it is not law and hence cannot be known to be the law until its authority is accepted either by a court or in legislation. Most systems that treat juristic opinion as important for finding the law fail to set up a system for deciding which jurists or which opinions are to be given precedence when jurists disagree, as is frequently the case. Often a juristic opinion may come to shape the law only a considerable time after it was expressed. Thus, insofar as it is a source of law, juristic opinion cannot be given high marks for communicating the law.

Legislation. At least in theory, legislation can be the most powerful form of lawmaking. It also has the greatest power to shape legal thought, direct human behavior, and censor knowledge (*see CENSORSHIP*). Only legislation can break sharply with preceding law and make a new beginning. A good modern example is the adoption in 1925 of the Swiss Civil Code (with only minor modifications) by Turkish leader Kemal Atatürk, and the subsequent acceptance of commercial law from similar European sources. Atatürk aimed at secularizing, modernizing, and westernizing Turkey, and law was one of his tools (*see DEVELOPMENT COMMUNICATION*). Although these aims were not achieved at one stroke, the new law was nonetheless successfully adopted.

Not only can statute law seek to change human behavior, but the legislators can set out their ends in a *preamble*—a device apparently invented by PLATO and, in the eighteenth century, favored by English political theorist Jeremy Bentham. Legislation, moreover, can be systematic on a single branch of law or, as in modern codifications, cover whole fields of law.

Thus, law as communication, as an institutionalized way to regulate and direct human behavior, is best served by legislation. Some features of legislation should be noted. First, legislation until modern times was relatively rare. Second, although legislation may break with the past, it does so only at the time when it is promulgated. It is a feature of legislation, especially marked perhaps in codification, that once it is in place it tends to remain unaltered, possibly for centuries. The courts may reinterpret it away from its original purpose, but then the resulting law is as difficult to find and know as any judge-made law. Third, very little statute law and very few codes are original in the sense that they are made fresh for the territory in which they operate, without a great dependence on law from elsewhere. Atatürk's reforms are typical. It is easier to borrow than to create, even if the law is not precisely dovetailed to the aims of the society. Whatever Atatürk may have desired and whatever he may have achieved, it is difficult to think of two societies more different in geography, economy, politics, and religion than Switzerland at the turn of the century and Turkey in the 1920s. Yet the law of the one was taken over by legislation for the

law of the other. Fourth, even "original" legislation has roots, usually hidden, in the (often distant) past that are not present in the consciousness of the legislator and that affect the attempt to direct behavior. Fifth, apart from topics of consuming passion to them, legislators are generally not interested in law reform, especially in the field of private law. Change by legislation may be a long time coming.

The conclusion seems unavoidable even if surprising. In general, lawmakers are little concerned with communicating the law and their message in it, or even with having a particular message in it. The example of criminal law in nineteenth-century England is illuminating on these points. If one wanted an example of law used to communicate ideals of behavior and to restrain behavior regarded as wrongful, criminal law should have a special place. In 1833 criminal-law commissioners were appointed with the initial task of showing the need to put statutory and common-law principles in one code; then they had to prepare a restatement of the existing law in the code. Despite much previous legislation a great deal of the law was in judicial precedent and was hard to find. Five reports were produced between 1839 and 1845, and a revised commission then produced another five reports between 1845 and 1849. Judges at that stage objected to the notion of a code as being too rigid a framework for the law. Members of Parliament, who also sat as jurors or as justices of the peace, were not enthusiastic about reform. The final result was nothing more than a statute consolidating the law that was already in statute—all this against the background of a penal code for British India drafted by Lord Macaulay and successfully promulgated. Sir James Fitzjames Stephen, who had experience of the Indian codes, produced in the 1870s his own draft of a criminal code that at one time looked as if it would be successful before Parliament but was again defeated by the opposition of the judges. It did not pass in England but was a success in some colonies (*see* COLONIZATION). Since then, there has been some, but little and slow, progress. Scholars may disagree about the motivation of the reluctant lawmakers, whether as judges or legislators, but the lesson is simply that they showed no great desire to communicate knowledge of what the law was or even to produce a precise message in the law. This lack of interest in communication on the part of lawmakers is not unusual.

Qualifications. To all of the foregoing there are three particular qualifications. First, a desire for communication seems a predominant motive in the minds of many who have fought successfully for a codification of the law. This is true, for example, of Moses, Hammurabi, Justinian, Frederick the Great, Napoléon, and Atatürk. It is also true of some who unsuccessfully wished codification, such as Julius Caesar

and Bentham. Dissatisfaction with the actual substance of the rules was usually a much lesser motivation. Usually the need to communicate the rules of law is made express. Those who wish law communicated by codification usually stand outside the legal tradition; they are impatient with the tolerance of other lawmakers for obfuscation. In addition they wish to communicate knowledge of law, not a particular social message in the law.

Second, in some countries communication of certain branches of law is taken so seriously that the countries may become best known in the outside world for these legal attitudes: for example, the Republic of Ireland for its refusal to give legal recognition to divorce and its criminal sanctions against abortion and contraception; and the Republic of South Africa for apartheid, laws against mixing of the races. The legal rules will often be communicated in a simplified form through media such as radio or newspapers. The law in question usually maintains or promotes social conditions and attitudes that are regarded by the state as vital to its interests and that distinguish it from other societies. The law is here used to communicate and preserve social values. One cannot lay down general rules regarding the branches of law on which attention to communication will be focused. It is not the case that a special desire to communicate rules will always be seen in criminal law (as the example of nineteenth-century England shows) or in family law. Likewise, attention is not necessarily centered in capitalist societies either on the clarity or even the formation of business law. The late development in the nineteenth century of commercial law in England—to MAX WEBER's bewilderment—is sufficient proof of this.

Third, written constitutions are typically used to communicate the highest ideals or the PROPAGANDA values embraced by the leaders of a state. This is true for countries as diverse as the United States and the Soviet Union. In contrast to the rest of law, constitutions are usually nontechnical in language, widely disseminated in inexpensive or even free editions, and often referred to rhetorically by politicians and others. They are treated as basic law, knowledge of which is a duty for citizens, but their practical use for enforcing rights in the courts may in actuality be limited. They are used to induce loyalty in the citizen to the state (*see* POLITICAL SYMBOLS).

Society's Knowledge of the Law

Though law regulates human behavior and must be communicated in order to do so, there is, in general, relatively little social interest in making knowledge of the law accessible to those affected by it or even in setting out clear aims in the law. This lack of interest in communication is best seen as indicating

that the needs served in a particular society by law are, above all, the establishment of some kind of order, but not that some precise ordering of society is behind every law. To a considerable extent law is an expression of the culture of the lawmaking elite, and in making law one lawmaker signals to another: judges write opinions for other judges or top practitioners, jurists write texts for other scholars, legislators legislate to impress other parliamentarians. Only in very particular circumstances do lawmakers attempt to set out a clear message in law for the populace at large or to set out the law clearly. Outside of these particular circumstances states seem largely interested in communicating only the most basic notions: "Thou shalt not steal"—but not the nature of the act and intention that constitutes theft; "Contracts are binding"—but not what is a contract or the rights and duties of a party under a contract.

See also POLITICAL COMMUNICATION; TESTIMONY.

Bibliography. Alan Watson, *Legal Transplants: An Approach to Comparative Law*, Charlottesville, Va., 1974; idem, *Sources of Law, Legal Change, and Ambiguity*, Philadelphia, 1984.

ALAN WATSON

LAZARSFELD, PAUL F. (1901–1976)

Austrian-born U.S. sociologist. Born and raised in Vienna, Paul Felix Lazarsfeld moved to the United States in 1933 as a Rockefeller Foundation fellow and became a U.S. citizen; for three decades he was a professor of sociology at Columbia University. Along with his contemporaries HAROLD D. LASSWELL, CARL HOVLAND, and WILBUR SCHRAMM, he was a principal founder of communications research as a social science discipline.

In 1925 Lazarsfeld received his Ph.D. in applied mathematics from the University of Vienna and soon after established the *Wirtschaftspsychologische Forschungsstelle*, a research institute dedicated to the application of psychology to social and economic problems, which among other studies undertook a survey of RADIO listeners. The *Forschungsstelle* was the first of four university-related applied social research institutes founded by Lazarsfeld; the others were the Research Center at the University of Newark, the Office of Radio Research at Princeton University, and the Bureau of Applied Social Research (now the Center for the Social Sciences) at Columbia University.

In 1937 the Rockefeller Foundation granted funds to HADLEY CANTRIL for a large-scale program of research on the nature and social effects of radio, the first such study of radio ever undertaken. On the recommendation of Robert S. Lynd, a professor of

sociology at Columbia, Lazarsfeld was chosen as its director. Cantril and Frank Stanton—who was then research director but would subsequently become the longtime president of the Columbia Broadcasting System—were appointed associate directors of the project, and an intensive study of radio programs and listeners was begun. The project emphasized (1) the secondary analysis of existing audience data, (2) the CONTENT ANALYSIS of radio programs, and (3) the use of the Lazarsfeld-Stanton Program Analyzer, a device for instantly recording the likes and dislikes of experimental groups of radio listeners.

The research conducted by Lazarsfeld and his associates during the project and at the Office of Radio Research virtually created the empirical sociology of mass communications (see MASS COMMUNICATIONS RESEARCH). In particular, this research focused on the uses and gratifications of radio in people's lives. Examples include Herta Herzog's studies of the audiences of daytime radio soap operas (see SOAP OPERA) and (with Cantril) of the reactions of radio listeners who heard ORSON WELLES's 1938 "The War of the Worlds" broadcast (which described an invasion from Mars), as well as THEODOR ADORNO's studies of the social roles of popular music (see MUSIC, POPULAR) and classical music. Other communications research projects carried out during these early years by Lazarsfeld's associates included ROBERT K. MERTON's 1944 study of a marathon eighteen-hour radio broadcast during which Kate Smith sold war bonds, Bernard Berelson's study of the functions that newspapers serve in the lives of their readers (made possible by a 1945 newspaper strike in New York), and LEO LOWENTHAL's 1944 analysis of the biographies (see BIOGRAPHY) of culture heroes published in popular magazines (see MAGAZINE). Lazarsfeld's own research (1940) on the comparative effects of radio listening and reading was an imaginative examination of this important question. His influence on the field outlived him: in the mid-1980s the directors of social research at the nation's three broadcasting networks—CBS, ABC, and NBC—were all former students of his.

In 1937, when Lazarsfeld began to examine the effects of radio, he realized that because of the private nature of radio listening new methods of study were needed. Through the detailed analysis of responses to the opinion POLL—at that time used mainly for descriptive purposes, to measure such features as the popularity or audience size of radio programs—he developed ways to measure the impact of radio on ATTITUDES. This transformation of the opinion poll into the methodological tool called survey research constitutes one of Lazarsfeld's major accomplishments.

An important finding of Lazarsfeld's research on

radio listening is that listeners tend to be self-selected; that is, they listen to programs that are compatible with their own tastes and attitudes. Accordingly, in order to sort out the causal sequences in such problems as the effect of listening on attitudes versus the effect of attitudes on patterns of listening, a method of determining the time order of variables was required. Drawing on a research project in Vienna in which repeated observations were made of the same children over time, as well as on the earlier research of Stuart A. Rice and Theodore M. Newcomb among college students, Lazarsfeld developed what he called the panel method, in which a sample of respondents is reinterviewed at periodic intervals (*see also* OPINION MEASUREMENT).

Lazarsfeld used the opportunity provided by the 1940 U.S. presidential election to test and extend the panel method as a research technique. The study was published in 1944 as *The People's Choice*, a spare and elegant book that has become a classic. The substantive findings of the study are as important as the methodology. First, a great deal was learned about the psychological and social processes that delay, inhibit, reinforce, activate, and change voting decisions. People subject to cross-pressures, for example, delay making a decision longer than do others. Second, the study uncovered an influence process that Lazarsfeld called opinion leadership. It was found that the critical flow of information from the mass media to the public is often mediated by persons who serve as opinion leaders (*see* OPINION LEADER). This process was termed the two-step flow of communication (*see also* MODELS OF COMMUNICATION).

Lazarsfeld's major contributions to communications research were his demonstration of how the media permeate people's political, social, and economic activities and his methodology for studying this permeation. He was a major trainer, and the wide-ranging work that he published influenced the generation of opinion and mass communications researchers that matured in the decades following World War II. He helped create mass communications as a field of scholarship, and through his own research and his influence on the research program of the Voice of America during World War II, he helped create the field of international communications research. *See also* COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT; PROPAGANDA.

These contributions were made relatively early in his career in the United States, and by the mid-1950s he had turned largely to other interests: mathematical sociology, the history of empirical social research, and the utilization of social research. Thirty years later a debate arose about the reasons for the alleged intellectual poverty of the field of communications, and there was a subsidiary debate over the role that Lazarsfeld and others played in this intellectual decline.

During his lifetime Lazarsfeld was widely recognized as an outstanding scholar; he served as president of two major professional associations and received many honorary degrees. He was also much sought after as a consultant, speaker, and teacher. But his lifelong practice of working intensively with colleagues and students has led to another, equally important, kind of recognition: his influence persists in the research of his students and their students, and this pattern shows no signs of diminishing.

Bibliography. Elihu Katz and Paul F. Lazarsfeld, *Personal Influence*, Glencoe, Ill., 1955; Paul F. Lazarsfeld, *Radio and the Printed Page: An Introduction to the Study of Radio and Its Role in the Communication of Ideas*, New York, 1940, reprint 1971; Paul F. Lazarsfeld, Ann K. Pasanella, and Morris Rosenberg, eds., *Continuities in the Language of Social Research*, New York, 1972; Robert K. Merton, James S. Coleman, and Peter H. Rossi, eds., *Qualitative and Quantitative Social Research: Papers in Honor of Paul F. Lazarsfeld*, New York, 1975; John Durham Peters, "Institutional Sources of Intellectual Poverty in Communication Research," *Communication Research* 13 (1986): 527-559; David L. Sills, "Paul F. Lazarsfeld: 1901-1976," in *Biographical Memoirs*, Vol. 56, National Academy of Sciences, Washington, D.C., 1987.

DAVID L. SILLS

LEISURE

A distinctive feature of technologically advanced societies is the degree to which mass media are a center of daily life. One way to assess the impact of the mass media in behavioral terms is through data on the amount of time ordinary people devote daily to the media.

Empirical studies of how people use time indicate that more than half of all free time is devoted to the media in certain modern societies. A common observation is that when a television set arrives in the home (*see* TELEVISION HISTORY), less time is spent not only with other mass media (e.g., RADIO) but also on nonmedia activities such as socializing, sleeping, and gardening. As it becomes a more permanent fixture in a society, television affects other free time and obligatory activities as well (*see* CULTURAL INDICATORS).

Ratings service data. There are several methods for measuring the time people are exposed to certain mass media. Broadcast ratings services in the United States and other Western countries employ mechanical devices (usually called audimeters) installed with permission in a sampling of homes to record the time television and radio sets are on and the stations to which they are tuned (*see* RATING SYSTEMS: RADIO AND TELEVISION). Ratings services often supplement

these mechanical recordings with "media diaries," in which people are asked to record their exposure to a single medium for a one-week or two-week period, or with "telephone coincidental" calls in which respondents are asked to report whether or not they were attending to the medium at the time the telephone rang and, if so, to what program. Occasionally, direct observational studies of media behavior are conducted in people's homes, although with smaller and less representative samples. Such observational studies are sometimes coupled with some sort of intervention, as when studies are made of people whose television sets are in need of repair or who are paid a substantial sum of money to give up viewing for a week or longer.

Time-diary data. A technique that seeks to provide leisure time-use data in a wider context is the time diary, which asks for a full accounting of twenty-four hours of a respondent's daily activities. Generally, time diaries have been considered to generate reliable and valid estimates of daily activity, although definitive tests have been difficult to conduct. These activity time diaries provide no cues to respondents about which activities are most important to report, require respondents to separate media exposure into

primary and secondary usage, and put media exposure into the full context of other free-time and daily activities. Time diaries thus provide estimates of the total free time respondents have available, and their media exposure during non-free-time periods (e.g., at work, during meals), outside one's own home, or under other unusual circumstances. The time-diary approach thus provides a unique perspective on how the mass media relate to (or displace) other activities.

The most detailed international data on mass media exposure and free time come from a twelve-nation study conducted in 1965-1966 in which time diaries were collected from over twenty-five thousand respondents. As shown in Table 1, the predominant use of television in free time was apparent even in a period when less than 50 percent of respondents in some countries had television sets. In addition to the minutes per day spent with television as a primary activity, up to 60 percent more viewing was recorded in diaries as a secondary activity. Almost 90 percent of radio listening was also recorded as a secondary activity, accounting for its relatively small time expenditure in Table 1. Amounts of time spent **READING** were considerably lower than for watching television and varied widely across countries and

Table 1. Mass Media Usage across the Survey Sites in 1965 (weighted to ensure equality of days of the week and of respondents per household)*

	Kazanlik, Bulgaria	Kragujevac, Yugoslavia	Gyor, Hungary	Maribor, Yugoslavia	Pskov, USSR	Lima-Callao, Peru	Torun, Poland	Six cities, France	100 elec. districts, Fed. Rep. Germany	Olomouc, Czechoslovakia	Belgium	Osnabruck, Fed. Rep. Germany	Hoyerswerda, German Dem. Rep.	Forty-four cities, USA	Jackson, USA	
N	2096	2123	1992	1995	2891	782	2754	2803	1501	2193	2077	978	1650	1243	778	
<i>Time spent as a primary activity (in minutes per day)</i>																
Radio	20	16	11	6	11	8	10	5	7	11	8	4	4	4	3	
TV	16	37	43	41	42	54	70	58	63	66	84	74	81	92	101	
Read paper	14	20	12	19	17	10	16	14	12	13	16	13	13	22	22	
Read magazine	1	1	1	1	6	6	3	4	12	3	5	13	2	6	4	
Read books	21	7	14	8	30	2	17	7	5	20	14	6	7	5	3	
Movies	10	7	5	6	16	6	4	3	3	4	4	3	1	3	2	
All mass media	79	87	85	81	116	87	120	91	98	116	137	112	108	131	135	
Total free time	231	311	200	222	249	309	262	245	264	239	297	300	233	301	310	
Percentage with																
TV set	26%	35%	45%	49%	52%	54%	59%	65%	66%	72%	72%	76%	85%	97%	98%	
Percentage																
TV/free time	7	12	22	18	17	17	27	24	24	28	28	25	35	31	33	
Percentage																
TV/set owner	27	34	49	37	35	31	46	37	37	39	39	33	41	26	34	

* Adapted from Alexander Szalai et al., *The Use of Time*, The Hague, 1972, p. 177.

according to types of print media most prevalent in a country. In general, television took up about 15 to 25 percent of the free-time activities reported in the study, and closer to 35 percent among those people who had television sets in their homes. Total (primary activity) reading time totaled about 12 percent of free time, radio listening took 3 percent, and cinema attendance took 2 percent.

Since the 1965 study people have had access to both more free time and more television sets, and television viewing has increased both in absolute hours and as a proportion of free time. In the United States, Canada, and Japan, time-diary data suggest that the gain for television was over 25 percent of free time on a per set-owner basis; in England, France, and Norway the gain was closer to 15 percent. Several factors may account for this increase beyond that due to ownership alone, including longer broadcast days, more channels, more than one set per household, color television, improved program content, and, more generally, improved adaptability to social conditions in each society. The data generally indicate little adverse effect of increased television viewing on reading time, although some increase in reading time might otherwise have been expected given the higher LITERACY levels and years of formal EDUCATION that had occurred in these time periods.

Time displacement. Time-diary data provide an ideal method to examine the effect of new media on all aspects of daily life including usage of the pre-existing media that they displace. Comparison of television set owners and nonowners in the 1965 multinational study, for example, showed a number of differences that held up across countries and across social classes. Television owners generally spent less time in functionally equivalent activities such as listening to the radio, going to the movies, or reading light FICTION. Reading newspapers and "serious" books and magazines, on the other hand, seemed unaffected.

Television "effects" were found for other free-time and non-free-time activities as well: CONVERSATION and social life decreased in television households, as did time spent sleeping, performing outdoor gardening, and caring for pets. Television owners also spent less time away from home and in the company of FAMILY members. These differences persisted after controlling for social class, GENDER, and employment status differences.

Concern has often been expressed about television's adverse effects on reading. However, time-diary studies have yet to show either that heavier television viewers read less or that people read less in societies in which television is more prevalent. Nonetheless, there is evidence of selective effects on reading. For example, reading light fiction magazines and books declined in the early days of television in

the United States. More recently, in the United States at least, some decline in newspaper reading has appeared, possibly due to local television news stations becoming more efficient in catering to audience interests in terms of community news coverage, to audiences becoming increasingly familiar with, and accommodated to, television's scheduling and style of news presentation, or to newspapers' decreased community ties as a result of increasing out-of-town chain ownership (*see* NEWSPAPER: TRENDS—TRENDS IN NORTH AMERICA). With the spread of high-quality movies through specialized movie channels and videocassette rentals, the television set might well displace some of the time spent reading more serious forms of literature (e.g., novels, short stories).

While time spent with television does tend to be higher for people with more free time, that does not hold true for all groups or in all situations. In addition, television viewing does not increase disproportionately with greater amounts of free time, and greater free time is not associated with greater viewing for all groups. For example, unemployed people do not spend proportionately more of their "extra" free time watching television, but rather in social interaction; nor do housewives spend higher proportions of their free time viewing than women in the paid labor force who have less free time. And while viewing time does increase on weekends when more free time is available, it declines significantly on vacation days and holidays. Much the same pattern holds true for the relatively low viewing habits of teenagers, who, as a group, have higher than average amounts of free time. By contrast, another group with almost limitless free time—people past retirement age—do spend far more of their free time with television.

Relation to other activities. Research has shown that activities requiring more effort and involvement than television do not depend as much on the amount of free time people have available, and that attendance at ENTERTAINMENT events or participation in outdoor recreation does not require having significantly more free time. Even people who have long workweeks or large households to manage are just as likely to attend as those without such obligations. In contrast, people with more such obligations do watch less television, although they are relatively more likely to watch cultural or artistic programs on television. These results indicate that people who are attracted to these more active forms of leisure do find some way of managing their time to fit them into their schedules.

This same sense of single-mindedness or integrated purpose is found in studies that deal with whether non-free-time activities spill over into free time (as when people pursue the same type of free-time activities, values, and goals as they do in their work), or

whether the effect is more compensatory (free-time activities differ in character from work activities). Although the evidence is again not definitive, results more consistent with spillover effects than for compensation effects are found, as exemplified by the tendency of those in higher-status occupations to spend more time reading, while those in lower-status, machine-dependent occupations spend more time with television.

Allied to both of these sets of findings is the principle of "the more, the more" that characterizes the correlation among free-time activities. Thus, the more an individual participates in one leisure activity, the more likely it is that she or he will partake in another. However, the correlations between television and most other free-time activities are negative because (as the time-diary method reminds us) as more hours are spent away from home, fewer hours will necessarily be available for at-home activities.

The general picture emerging from these studies to date, then, is of a mass audience that is divided into away-from-home doers and at-home spectators. However, the strength of the divisions and correlations is modest at best, indicating that the variety of ways in which the mass media are incorporated into people's lifestyles, and their use of free time in particular, are undergoing continuous if seldom rapid change.

See also MASS MEDIA EFFECTS.

Bibliography. Rolf Meyersohn, "Television and the Rest of Leisure," *Public Opinion Quarterly* 32 (1968): 102-112; John P. Robinson, "Television's Impact on Everyday Life: Some Cross-National Evidence," in *Television and Social Behavior*, Vol. 4, ed. by Eli A. Rubinstein, George A. Comstock, and John P. Murray, Washington, D.C., 1972; Alexander Szalai, Philip E. Converse et al., *The Use of Time*, The Hague, 1973; Walter Weiss, "The Effects of the Mass Media of Communication," in *Handbook of Social Psychology*, 2d ed., Vol. 5, ed. by Gardner Lindzey and Elliot Aronson, Lexington, Mass., 1969.

JOHN P. ROBINSON

LETTER

Letters belong both to the world of social and business activity and to the domain of ART. It is not possible to keep these altogether separate, and any account of the letter in its historic evolution will shift between the two. We therefore need to consider letters as a simple means of passing on information and as purveyors of more refined messages in which the form takes on a quasi-creative or even fictive purpose.

The Western tradition in this branch of expression goes back to Rome. Indeed, it has been stated that

letter writing was, next to satire, Rome's most distinctive legacy to world literature. The first great master was the humanist and philosopher CICERO, who can also claim priority in setting down a serious CLASSIFICATION of various species within the GENRE. In a letter to G. Scribonius Curio in 53 B.C.E., Cicero remarks that "letter-writing was invented just in order that we might inform those at a distance if there was anything important for them or for ourselves that they should know." This constitutes what might be called the simple NEWSLETTER function. Cicero goes on to add two further kinds: the "intimate and humorous" kind, passing between friends, and the "austere and serious" kind, exemplified by letters of consolation or bereavement. Cicero himself practiced all three kinds, but he is perhaps most renowned for sixteen books of letters addressed to T. Pomponius Atticus—a prolonged "conversation" beginning about 68 B.C.E. and providing at times an almost hour-by-hour NARRATIVE of Roman life. Cicero's surviving correspondence runs to more than eight hundred letters and contains a further sixteen books addressed "To his Friends." The title is more significant than it might instantly appear, for at the heart of Cicero's work is the cult of friendship (on which he wrote a treatise), and letters have always played an important part in strengthening feelings of group solidarity, in promoting movements, and in developing coteries and alliances.

Latin writers also pioneered the adaptation of the epistolary MODE to a more oblique literary purpose. The classical examples here are the epistles of the poet Horace, two books dating from about 20 to 15 B.C.E. The idea of a whole collection of verse epistles was altogether novel, and Horace produced a strikingly individual tone and texture. A second type of letter is that used by Ovid in his *Heroides*, in which famous women of legend, such as Dido and Phaedra, write to absent lovers; a second series is organized in pairs, with both man and woman contributing letters. They were completed before Ovid's banishment to the Black Sea in 8 B.C.E., after which he sent poems of exile known as *Tristia* back to Rome in a quasi-epistolary form.

Little survives of the highest importance from the MIDDLE AGES, though church fathers such as St. Augustine of Hippo and, many centuries later, St. Bernard of Clairvaux expounded on some major devotional topics in their letters. The moment of revival may be placed in 1345, when the Italian poet Petrarch discovered Cicero's letters in a LIBRARY at Verona. He took up the cult of friendship and modeled his own collections of letters, written in Latin, on those of Cicero and Seneca. Here, at the very birth of the humanist movement, letters occupied a prominent place, and as the RENAISSANCE spread across Europe many other distinguished writers fol-

lowed where Petrarch had led. The single outstanding case in point is the Dutch scholar Erasmus; as well as being a masterful practitioner, Erasmus wrote in Latin a widely influential textbook on letter writing, which appeared about 1498. By this time humanist thinkers gave the subject an important role in EDUCATION, a position it was not to lose until very recent times. Even when young women were discouraged from most serious literary activity, they were permitted to write letters, and this proved to be an important breach in the defenses of masculine dominance of the world of AUTHORSHIP.

After the high Renaissance, epistolary fashion followed a wider political and cultural trend, finding a new home in France. At first the greatest contemporary influence was exerted by Jean-Louis Guez de Balzac, whose *Lettres* began to appear in 1624 and were soon copied, translated, pillaged, and held up (especially to the young) for admiration. Balzac's sententious, rhetorically contrived style lost favor as the seventeenth century advanced, and a new model emerged in the person of Vincent Voiture, a lighter and more intimate writer. Although Voiture died in 1648, his works were not published until after his death, and in the last quarter of the century he came fully into vogue, in England as well as France. Above all he was renowned as the standard for letters of "affairs, love and courtship," that is, effusions of gallantry, compliment, and gentle badinage. Purely as literature, the works of both Balzac and Voiture seem artificial and limited today, especially when set alongside the breezy, vigorous, and almost offhand descriptions of life at the court of Louis XIV supplied by Madame de Sévigné. She left fifteen hundred letters, mostly to her daughter, which began to be published in 1725, thirty years after their author's death. A more oblique and satiric version of the form appears in French philosopher Blaise Pascal's *Lettres provinciales* (1656–1657), an attack on Jesuit theology.

As the fame of these works spread, England for the first time started to attempt serious emulation of Continental letter writers. This may have something to do with the improvement in roads and POSTAL SERVICE; it must also be connected with the spur given in JOHN LOCKE's highly influential work *Some Thoughts concerning Education*, first published in 1693. In it he singled out letters as an educational instrument, by which children should be taught

to express their own plain easy sense, without any incoherence, confusion or roughness. And when they are perfect in this, they may, to raise their thoughts, have set before them the example of Voiture, for the entertainment of their friends at a distance, with letters of compliment, mirth, raillery, or diversion; and Tully[Cicero]'s Epistles, as the best pattern, whether for business or conversation.

It is noteworthy that a copy of Locke's *Thoughts* was given to the heroine of Samuel Richardson's novel *Pamela* (1740–1741), the first important example of epistolary FICTION in English. Richardson was indeed prompted to become a novelist by accepting an invitation to compile domestic advice in the form of an exchange of correspondence.

The eighteenth-century novelists found the epistolary mode highly congenial. In England the device was extended by Tobias Smollett in *The Expedition of Humphry Clinker* (1771); by Fanny Burney in *Evelina* (1778); and, as a formal framing device at the start, by Mary Shelley in *Frankenstein* (1818). Jane Austen began her literary career with novels in letters, notably *Lady Susan* (composed ca. 1793–1794). Although she subsequently abandoned the method, a good deal of the essential narrative work in her later books is carried out through letters in the text. Many works of literature in this period are formally cast in letters, though this is often merely a loose principle of organization, with no real epistolary basis.

Richardson's influence extended outside England, particularly through his masterpiece *Clarissa* (1747–1749), in which an extraordinary tension is built up through a long series of letters that serve to dramatize the heroine's isolation and the manipulative schemes of the seducer Lovelace. In France similar themes were lent a greater directness of sexual import or emotional charge in novels such as *Lettres d'une Péruvienne* (1747), by Madame de Graffigny, *La nouvelle Héloïse* (1761), by Jean-Jacques Rousseau, and *Les liaisons dangereuses* (1782), by Pierre Choderlos de Laclos. In addition, a number of satiric or critical works were given polemical edge by being set out in the form of a series of letters, with the writer cast either as "impartial" observer, as in Voltaire's *Lettres philosophiques* on England (1733), or as a naive foreign visitor, as in Baron Montesquieu's *Lettres persanes* (1721). One of the most famous of all narratives nominally presented as letters is *Die Leiden des jungen Werthers* (The Sorrows of Young Werther, 1774), by the German poet and dramatist Johann Wolfgang von Goethe, a cult book that has outlasted the fashionable frissons set up by its daring exploitation of suicide as a climactic gesture of despair.

As we approach the romantic era we come to a new literary situation in which the author's personality is of prime interest, and hence there is a taste for autobiographical revelations (see AUTOBIOGRAPHY; ROMANTICISM). When the English poet Alexander Pope had arranged for the publication of his own letters in 1735, he had to go through elaborate subterfuges to conceal his responsibility for their appearance, owing to a well-established rule of de-

corum condemning such self-publicizing as vain and ill-bred. By the time of the romantics there was far less scrupulosity on such points, and very soon after Lord Byron's death his remarkable letters and journals began to appear before an avid public, which understandably saw these productions as more or less continuous in theme and interest with *Childe Harold* or *Don Juan*.

The nineteenth century saw a vast increase in BIOGRAPHY and bardolatry, so that the letters of famous authors were more eagerly prized than in any previous era and have thus survived in far greater numbers. We reach a point where it is likely nowadays that a new cache of letters by Emily Brontë would be more hungrily devoured than a new novel, or a new journal by Emily Dickinson more discussed than a trawl of forgotten poems. This taste can be amply satisfied, for many great authors, including Aleksandr Pushkin, Charles Dickens, Gustave Flaubert, Mark Twain, Henry James, and Anton Chekhov, left a splendid body of correspondence. So, too, did many later literary figures.

And so have many diplomats and politicians. The extraordinary surviving correspondence of the Adams family of Massachusetts—John Adams, Abigail Adams, John Quincy Adams, and others—not only lets us in on their domesticities but also, in the course of government service in Washington, D.C., and missions to Paris, London, Berlin, and St. Petersburg, gives us a backstage view of world politics. In a world of electronic telecommunications, treasure troves of this sort no longer seem likely to materialize.

But an echo of Cicero's political and philosophic letters, as well as Ovid's epistles from exile, may be found in the letters written by Jawaharlal Nehru during three years in various prisons of the British raj. When he began a term for sedition in 1930, his daughter Indira was thirteen years old. Intent on providing in absentia some supervision of her education, he began a long series of letters to her detailing his view of the history of the world. They were later published as *Glimpses of World History* in numerous editions beginning in 1938. The fact that both sender and receiver of these letters later became prime ministers of independent India (she as Indira Gandhi) gives a unique interest to these fatherly letters.

The letter has a life outside literature, but it has traditionally been one of the places where literature has capitalized most immediately and powerfully on that life outside.

See also STYLE, LITERARY.

Bibliography. Howard Anderson, Philip B. Daglian, and Irvin Ehrenpreis, eds., *The Familiar Letter in the Eighteenth Century*, Lawrence, Kans., 1966; Robert A. Day,

Told in Letters: Epistolary Fiction before Richardson, Ann Arbor, Mich., 1966; William H. Irving, *The Providence of Wit in the English Letter Writers*, Durham, N.C., 1955.

PAT ROGERS

LÉVI-STRAUSS, CLAUDE (1908—)

French anthropologist known as the founder of structural anthropology. Born in Brussels, Claude Lévi-Strauss studied at the University of Paris in philosophy and law. In 1935 he was appointed professor of sociology at São Paulo University in Brazil, and during his four years there he first came into contact with Amazon Indians. He moved to New York in 1942 and taught at the New School for Social Research until 1945. Returning to France after World War II he became, successively, associate director of the Musée de l'Homme, director of studies at the École Pratique des Hautes Études, and editor of *L'homme: Revue française d'anthropologie*. In 1960 he became professor of social anthropology at the Collège de France. He was the first anthropologist elected to the French Academy.

When Lévi-Strauss came to New York and joined the New School faculty, he encountered fellow émigré ROMAN JAKOBSON, who introduced him to what he later referred to as "the revelation of structural linguistics" and inspired him to invent a structural anthropology with which to make scientific sense of his observations among the Brazilian Indians. The results of his structural analyses were published in *Les structures élémentaires de la parenté* (The Elementary Structures of Kinship, 1949) and *Tristes tropiques* (1955), the work that brought him general fame in French intellectual circles. Perhaps Lévi-Strauss's most influential claim is the one first articulated in *Tristes tropiques* (and later in *La pensée sauvage* [The Savage Mind], 1962), namely, that all humans think in the same way and that all cultures—despite varying levels of technological sophistication—are fundamentally the same in intellectual complexity. The savage mind is no different from that of the civilized anthropologist.

Lévi-Strauss decided that anthropologists must follow the lead of the structural linguists and undertake a structuralist analysis of cultural phenomena. That is, they must study the unconscious infrastructure rather than the surface manifestations of phenomena. They must focus not on the terms or the units of phenomena but on the relationships among them. Only thus could their MEANING be discovered. Lévi-Strauss argued that entire domains (such as LANGUAGE or kinship) must be seen as organized systems governed by general laws. Whether confronting a kinship pattern, a social organization, a program of

CLASSIFICATION, or a myth, the anthropologist must find the units of meaning and discover how they relate to one another within a coherent and organized system. In this manner, he argued, we can understand the most important feature of any CULTURE: the ways in which the human mind takes in, classifies, and interprets information.

Lévi-Strauss views these ways as chosen from among a limited set of possibilities. In *Tristes tropiques* he wrote, "I am convinced that the number of these systems is not unlimited and that human societies, like individual human beings, . . . never create *absolutely*: all they can do is to choose certain combinations from a repertory of ideas which it should be possible to reconstitute." Thus in his massive four-volume undertaking, *Mythologiques* (1964–1971), Lévi-Strauss analyzed more than eight hundred American Indian myths from different periods and cultures dispersed over two continents. He concluded that there is a single logic of myth underlying all of these different manifestations and that, like all human patterns and behaviors, myths are codes that embody universal problems of existence.

Although Lévi-Strauss sees language as the fundamental model for all human thought, he is concerned with and sensitive to other modes of symbolic behaviors (see also MODE). He has said that myths share principles of COGNITION with music, and his *Mythologiques* was constructed according to an elaborate musical framework, with sections given titles such as "Overture," "Recitative," "Theme and Variations," and so forth.

In a more general sense Lévi-Strauss sees the arts as systems of shared meanings that help integrate and sustain culture in so-called primitive societies. In modern Western societies he feels that the arts have lost their collective role—in part as a result of the individualization of the arts following the RENAISSANCE and, later, ROMANTICISM—and no longer perform their traditional function. He explains this loss of shared meaning by analogy to the place of language in society: "We would never manage to understand each other if, within our society, we formed a series of coteries, each one of which had its own particular language, or if we allowed constant changes and revolutions to take place in language, like those that we have been able to observe now for a number of years in the fine arts." See also ART; ARTIST AND SOCIETY.

See also SAUSSURE, FERDINAND DE; STRUCTURALISM.

Bibliography. Georges Charbonnier, ed., *Conversations with Claude Lévi-Strauss* (Entretiens avec Claude Lévi-Strauss), trans. by John Weightman and Doreen Weightman, London, 1969; Edmund Leach, *Lévi-Strauss*, London, 1970; Claude Lévi-Strauss, *Mythologiques: Le cru et le*

cuit (The Raw and the Cooked, New York, 1969), Paris, 1964; idem, *La pensée sauvage* (The Savage Mind, Chicago, 1966), Paris, 1962; idem, *Tristes tropiques* (World on the Wane, London, 1961), Paris, 1955.

LARRY GROSS

LEWIN, KURT (1890–1947)

German-born U.S. psychologist. Perhaps more than any other scholar Kurt Lewin put the human group into communication theory and research. A widely respected teacher at the University of Berlin, he emigrated to the United States in 1933 after the Nazis came to power in Germany. After spending two years at Cornell, Lewin was appointed to the faculty of the Iowa Child Welfare Research Station at the state university in Iowa City, where he taught social psychology and attracted a remarkably able group of graduate students.

Lewin was at his best with graduate students, better at informal group discussion than lectures. His enthusiasm and helpfulness in planning research with students were legendary. In Iowa City he reintroduced a device he had used to supplement his classes in Berlin. In Europe it was called the Quasselstrippe (*quassel* means "to ramble on"; *strippe*, a "string"); in Iowa it was named the Hot Air Club. In both places it met on Saturdays and sometimes went on all day because the chance to exchange ideas and plans with Lewin was genuinely exciting. It was not a lecture or a credit course; any student could attend and everyone could talk. Few stayed away.

Lewin's basic approach to communication was through field theory, which drew on Albert Einstein's definition of a field as "a totality of existing facts which are conceived of as mutually dependent." To understand behavior, Lewin said, one must understand the field in which it occurs—an individual's "life space," which includes all of his or her mutually dependent experiences (i.e., the total interaction of a person and his or her environment). No act of behavior could be fully understood, Lewin believed, unless the entire field was known.

Observation rather than quantification was his chief tool for psychological experiments. At Iowa he and his colleagues devised a series of remarkable experiments, all done by observation of the related fields and most of them about group relations. One of the first of these concerned the effect of frustration on children. Lewin found that frustration made children not only less happy but also less competent in learning and problem solving. Another experiment dealt with the effect of democratic versus authoritarian styles of leadership. The results indicated that under an authoritarian leader, discontent, hostility, aggression, scapegoating, loss of originality, and lack

of cooperation were prevalent, while cooperation and group spirit prevailed under a democratic leader.

At the beginning of World War II Lewin became interested in the government's efforts to persuade U.S. housewives to change their food-buying habits—for example, to buy less desirable cuts of meat so that the better cuts could be saved for soldiers. To accomplish this the Department of Agriculture invited housewives to participate in discussion groups. Lewin and his students found that direct PERSUASION in such discussion groups was relatively ineffective but that “decision” groups, in which group members committed themselves to a course of action (in this case to use the less desirable cuts), were much more likely to accomplish the desired result. One important idea that emerged from Lewin's work at Iowa was the “gatekeeper” concept as a way of describing communication networks.

Lewin's project attracted a notable group of scholars. Many of the best young social psychologists in the United States from the 1950s to the 1970s were trained or at least strongly influenced by Lewin.

In 1945 Lewin left Iowa for the Massachusetts Institute of Technology, where he planned to continue his group studies in a center for group dynamics. At the same time he planned to organize the National Training Laboratories at Bethel, Maine, and a center for community relations. Before any of these was well established, however, Lewin died.

See also COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT; GROUP COMMUNICATION.

Bibliography. Alfred J. Marrow, *The Practical Theorist: The Life and Work of Kurt Lewin*, New York, 1969, reprint 1980; James A. Schellenberg, “Kurt Lewin and Field Theory,” in *Masters of Social Psychology*, New York, 1978.

WILBUR SCHRAMM

LIBEL

In law, libel is written communication thought to damage a person's reputation or standing in the community. Assumptions about libel and slander within the disciplines of communication and law at one time ran parallel. Just as early communication research included notions of powerful, uniform effects, the modern libel tort has operated on the assumption that communication in the form of a defamatory newspaper article or a televised news bulletin can affect PUBLIC OPINION. Communication research no longer uniformly accepts powerful effects models, but assumptions about reputational damage in libel law often appear to be based on just such cause-and-effect relationships. Legal scholar Dean William Prosser (1898–1972), summarizing accepted

judicial practices, wrote, “Normally, the publication of false and defamatory matter about the plaintiff is circumstantial evidence in and of itself that there was some impairment to reputation.”

History. The basic concept of libel has changed little in the thousand years it has been documented. People have been and continue to be punished or fined for their criticism of individuals, corporate institutions, and national governments. For centuries satisfaction has been demanded for perceived INSULT. Duels and bloodshed were the common response to defamatory remarks, whether printed or spoken, in many societies. As with much law in England prior to the Norman Conquest, the strongest individual or the individual with the largest army would emerge victorious when accusations of libel were leveled. It was at least in part the state's desire to avoid such combat, rather than a right to receive compensation for damaged reputation, that led to official sanctions against defamatory expression. Only gradually did courts consider the actual harm done to reputation. English authority to punish slander can be found as early as the ninth century, and historians trace the first English codified sanctions against libel to a 1275 statute enacted by Parliament against “any slanderous news . . . or false news or tales whereby discord or occasion of discord or slander may grow between the king and his people or the great men of the Realm.”

Trials for defamatory expression were at first located in secular courts, although the courts took into consideration religious doctrine. Victims of libel received no compensation beyond the satisfaction of a court-ordered public apology. The process remained essentially unchanged in England after the 1066 Norman Conquest when libel trials were moved to ecclesiastical courts. Libelers were made to confess their sins. Their possessions might be forfeited and they might be expelled from the church, but the victim still received no financial recompense.

As the law gained experience with libel, differentiations among various types of defamation were recognized. Seditious libels were words spoken or written against the state, and until 1792 English courts treated speech that threatened the stability of the state or the aggrieved governor under the theory “the greater the truth, the greater the libel.” By the mid-fourteenth century English common law recognized civil libel actions as well as seditious or criminal libels. Unlike criminal libels against the state, however, some trials for civil defamation allowed defendants to plead truth as defense.

The practice of requiring defendants to pay plaintiffs for damage to their reputations grew with the merchant class, which feared the negative impact on their businesses of verbal and written assaults. Until the civil courts began to award such damages, how-

ever, merchants not content with simple public apologies by their critics to clear their names held their own courts. Eventually the practice of awarding damages to plaintiffs in the form of monetary compensation spread even to the Star Chamber.

The slander/libel dichotomy. The infamous Court of the Star Chamber was pivotal in establishing a recognized difference between libel and slander. The Star Chamber heard cases of libel that were political in nature and then only when they involved defamations against state officials or other important figures. By contrast, sixteenth-century courts of common law heard cases of slander, which by definition included all defamation cases not governed by the Star Chamber. Current folk wisdom holds that the slander/libel distinction began as the difference between spoken and written defamations. This is historically incorrect. The difference between libel and slander was based on whom the libel was about rather than how the defamation was transmitted.

The accepted practice in U.S. courts has been to incorporate an oral/written speech distinction. In a broad sense libel has come to encompass that which is transmitted through the mass media, whereas slander refers to defamations delivered in a face-to-face setting. The slander/libel dichotomy is more than semantic, however. The body of evidence required to win a slander suit is more exacting than that required in a libel trial. In essence slander trials require greater proof that the defamation has actually harmed the plaintiff. The rationale for the distinction rests on the conviction that defamations transmitted through the mass media are not only more powerful than simple spoken communication but are often in fact inherently damaging.

The nature of these rationales has raised special problems when it comes to RADIO and television broadcasting (see TELEVISION HISTORY). The norm is to treat defamation involving radio and television, despite its oral nature, as libel. Yet some jurisdictions have gone as far as distinguishing between broadcasters who read from a script and those who do not in determining whether a case will be tried as libel or slander. And in the final decades of the twentieth century jurists and legislators were only beginning to come to grips with the problem of deciding whether defamations transmitted through an electronic medium such as a computer DATA BASE or information stored on a laser video disk generally viewed only by single individuals or tiny audiences should be treated as libel or slander.

The modern libel tort. Libel law in the United States is based on civil rather than criminal law. It is among the most tolerant approaches toward freedom of expression, owing in great part to the First Amendment to the U.S. Constitution, which states, "Congress shall make no law . . . abridging the freedom

<i>Individual's Reputational Interests</i> <i>Societal Interest</i> Publication-Identification-Defamation Fault

Figure 1. (*Libel*) Two-segment litigation model.

of speech or of the press; or the right of the people peaceably to assemble and to petition the government for a redress of grievances." The libel tort is composed of four elements that in turn make up a two-segment litigation model (see Figure 1). The model addresses both the issues of the individual's interest in harm to his or her reputation and society's interest in freedom of expression. Each of the four elements must be proved for a plaintiff to prevail.

Harm to reputation is considered under the elements of publication, identification, and defamation. The plaintiff first must prove that the alleged defamation was published, that is, seen by at least one person in addition to the plaintiff and the defendant. Next, it must be clear that people reading or viewing the information would understand that it was, in fact, intended to be about the plaintiff. Was the plaintiff identified? And third, once the judge has determined that the offending words are capable of a defamatory interpretation, the jury must decide whether in the case at hand the words in question were both false and defamatory. Information that is probably true, even if highly defamatory, is not actionable under common law or statute in most states. It is the jury's task to determine that truth from evidence presented in court.

In their consideration of whether defamation occurred, juries must also make a determination about the severity of the damage. A libel suit filed by Nobel laureate William Shockley, for example, culminated in a jury award of one dollar. The jury believed that technically and legally Shockley was libeled but questioned whether any real damage to the professor's reputation had resulted.

A defendant who cannot prove truth has not necessarily lost. Much of libel law is based on common and statutory law. Under this system each state may set its own standards of liability for defamatory falsehoods. A widespread practice has been the granting of immunity from judgments for defamatory falsehoods that are in fact accurate reports of official government actions such as trials, legislative sessions, and even some law enforcement. This doctrine is called qualified privilege and is based on the theory that full participation in the democratic process requires the unhampered ability to view and discuss government conduct. Another common-law defense to libel often available to the media is called fair

comment. Under this doctrine reviewers may render negative conclusions about issues of public interest such as DRAMA, ART, MOTION PICTURES, and restaurants as long as their comments have a factual basis that is shared with the reader or viewer.

Constitutional protection. Within the context of the turbulent and sometimes volatile U.S. civil rights movement, the Supreme Court radically changed the rules of libel law as they apply to the mass media. Leaving intact the right of states to provide immunity to libel judgments through doctrines such as qualified privilege, the high court greatly expanded the protection provided the press when government officials are involved. The *New York Times* ran full-page ADVERTISING matter that accused Montgomery, Alabama, police and other officials of harassing civil rights leader Martin Luther King, Jr. Six Montgomery officials sued the *Times* for libel. L. B. Sullivan, although never referred to by name in the ad, was a Montgomery commissioner with responsibility for the police department. Based on state law, the Alabama courts awarded Sullivan five hundred thousand dollars. The Supreme Court overturned the decision in the 1964 landmark ruling *New York Times v. Sullivan*. Justice William Brennan argued that the First Amendment required “a federal rule that prohibits a public official from recovering damages for a defamatory falsehood relating to his official conduct unless he proves that the statement was made with ‘actual malice’—that is, with knowledge that it was false or with reckless disregard of whether it was false or not.”

The *Sullivan* ruling was based on constitutional interpretations developed by philosopher Alexander Meiklejohn (1872–1964). Citizens in a democracy must be exposed to the open discussion of current events if they are to carry out responsibly the duties of self-governance, such as voting. Only through an open marketplace of ideas could truth sort itself out, the Court reasoned. To uphold the constitutionally mandated freedoms of speech and the press, Justice Brennan said, “breathing space” would have to be accorded the press and the risk of honest mistakes tolerated. In effect the *Sullivan* ruling put an end to any possibility of successful seditious libel prosecutions against the media by requiring a fourth element—actual malice—in all libel suits involving public officials.

The actual malice fault requirement was quickly expanded by the Court to apply in cases involving public figures as well as public officials. Public figures are defined as those who enter the public limelight voluntarily with the intention of swaying public opinion about important issues. And in 1974 in *Gertz v. Welch* the Supreme Court ruled that the First Amendment requires proof of a minimum level of fault called “simple negligence” even when “private per-

sons” sue the mass media for libel. Simple negligence usually is defined as a lack of reasonable care. By requiring private as well as public persons to prove fault the Court effectively ended the doctrine of strict liability in suits against the press. The Court also ruled in 1974 that all opinions, as opposed to statements of fact, have absolute constitutional immunity from libel suits.

The actual malice controversy. The fault requirement has created its own set of controversies, not the least of which has been defining who is a public person and who is to be considered private. Critics point to case law that includes examples of banks suing for libel as private persons.

Other critics say it is too difficult for juries to deal with the subtleties of doctrines such as actual malice. Studies show that in fact two-thirds of libel suits decided by juries are decided against the press but that the majority of those decisions are eventually overturned on appeal. The process is slow and costly.

A 1985 libel suit against *Time* magazine by Israeli defense minister Ariel Sharon focused renewed attention on the actual malice rule. When *Time* reported that Sharon had discussed the need for revenge with the family of murdered Lebanese prime minister Bashir Gemayel two days before the 1982 massacres in two West Beirut Palestinian refugee camps, the Israeli official launched a \$50 million libel suit in New York. The jury decided that *Time* had defamed Sharon, that the defamation was untrue, and that *Time* had acted “negligently and carelessly.” But the jury ruled *Time* was not guilty of actual malice. Advocates of the fault requirement pointed out that the jury’s verdict in effect cleared Sharon’s reputation and questioned *Time*’s handling of the story without seriously damaging freedom of the press. That decision also amplified one of the loudest criticisms of U.S. libel law: even if a public figure can prove libel caused by careless reporting, the press can still emerge seemingly unscathed. The almost insurmountable actual malice fault requirement erects nearly impenetrable barriers for plaintiffs such as Sharon.

Underscoring the inherent difficulty of using the courts to provide a satisfying arena for libel disputes, a \$120 million suit by U.S. general William Westmoreland ended close on the heels of the Sharon case—but this time without a verdict for either side. After a costly four-month trial the general withdrew his suit against CBS television, which had produced a documentary, “The Uncounted Enemy: A Vietnam Deception,” suggesting that Westmoreland had condoned reports that underrepresented the strength of the Vietcong. Westmoreland’s attorneys attempted to prove that the documentary painted an inaccurate picture of his war record. Trial judge Pierre Level in dismissing the jury commented, “It may be best that the verdict is left to history.”

Libel in Europe and the Third World. The 1985 Sharon case was graphic proof that libel prosecutions are not always confined by national borders. As the decade of the 1980s continued, journalists attempting to cover the antiapartheid movement in South Africa found themselves subject to what amounted to seditious libel laws. The result was a sometimes effective blockade of information both within the country and to outsiders by the government. The line between seditious libel and what governments often prefer to call national security issues tends to blur, although the effect is clear: the channel of information is blocked.

In Europe libel laws differ from nation to nation, although most utilize three types of law: civil and penal laws apply to individuals, and competition law focuses on corporate and product disparagement. The system in the Federal Republic of Germany is perhaps the most complex and is closely mirrored in Austria and Switzerland. Civil remedies for libel in Germany are available but are not popular among plaintiffs. The civil laws provide a chance to clear a reputation but do not include monetary compensation.

The operational theory of German libel law is rooted in the fact/opinion distinction. Opinions and statements of fact that are provably true are subject to claims under civil law but under stricter standards than defamations that are false. Truth is not an absolute defense. This system does not rely on the U.S. system of differentiating between public and private persons. Instead a qualified privilege is available when the information in question concerns public issues.

Civil libel law in Great Britain also lacks the public/private person distinction and relies instead on the public value of the issue discussed rather than on the prominence of the individual. Public officials, however, do receive some additional protections. Whereas the press may use a qualified privilege when reporting on much of government, newspapers, except when reporting on Parliament, may be required to print official clarifications and explanations. And it is a crime to publish defamatory falsehoods about candidates for Parliament in particular. Similar to those in the United States, British libel defenses include truth and fair comment. The British also recognize unintentional defamation—a defense that carries requirements for retraction and apology. And the British maintain a national press council. A quasi-official organ lacking enforcement powers, the council hears complaints against the press and provides written opinions that may be published in the media.

Like other European nations, France recognizes actions against insults as well as against libels. The French include statements of opinion within the category of insult and reserve defamation law for fac-

tually untrue statements. Two defenses are available to the press in libel cases: truth and good faith. Both, however, are extremely difficult to prove under French jurisprudence.

Truth is also a consideration in libel cases in Japan, but it wields limited power in some circumstances. Japanese libel law recognizes truth as a defense only in cases that explicitly involve issues of public importance. Private individuals are not fair game to the Japanese media.

The research agenda. Until the mid-1970s, libel research was almost exclusively traditional legal analysis. Communications and legal scholars studied case law and concentrated on normative legal theory. Research priorities began to change, however, toward the close of the 1970s. Studies were initiated to identify who sues for libel and why. Other research systematically examined the outcome of libel suits in order to discern long-term trends. Some journalists claim that even the threat of large libel awards has a chilling effect on in-depth reporting, but there is a dearth of research and reliable data to back up such assertions. Little effort has yet been put into interdisciplinary studies to examine libel law from a communications perspective. It is clear that phenomena such as the creation of reputation and the effects of media on reputation have implications in both communications and law.

See also CENSORSHIP; ETHICS, MEDIA; GOVERNMENT-MEDIA RELATIONS; NEWSPAPER: HISTORY; NEWSPAPER: TRENDS; PRIVACY.

Bibliography. American Law Institute, *Restatement of the Law of Torts*, 2d ed., 4 vols., Philadelphia, 1975; W. Page Keeton et al., eds., *Prosser and Keeton on the Law of Torts*, 5th ed., St. Paul, Minn., 1984; Robert M. Kundstadt, *The Protection of Personal and Commercial Reputation: A Study of the Law in Western Europe and the United States*, Munich, 1980; Don R. Pember, *Mass Media Law*, 4th ed., Dubuque, Iowa, 1987; Robert D. Sack, *Libel, Slander, and Related Problems*, New York, 1980; Bruce Sanford, *Libel and Privacy: The Prevention and Defense of Litigation*, New York, 1985.

JEREMY COHEN

LIBRARY

This entry consists of two articles:

1. History
2. Trends

1. HISTORY

A library is a collection of books (and often other materials) assembled for a specific purpose or range of purposes and housed to accommodate both the

materials and those who will consult or study them. Libraries have had a long, uneven, checkered evolution. *See also* BOOK.

The earliest known libraries can be divided roughly into two classes: collections of administrative records and collections of literary and other works. The first category includes the library of baked clay tablets and cylinders of Nineveh's King Ashurbanipal (668–627 B.C.E.), which served mainly to provide the king and his civil servants with the records indispensable for the efficient administration of a great empire (*see* NINEVEH). They facilitated what has become known in the modern world as information retrieval, one of the earliest recorded examples of which was the successful search instigated by Darius I, king of Persia, in the fifth century B.C.E., to check the authenticity of the permission that was allegedly granted by his predecessor, Cyrus, to the Jews to rebuild the Temple in Jerusalem.

It would be reasonable to expect ancient Greece to have had at least examples of the second (literary) type of library, but there is little or no evidence of them prior to the conquest of Egypt by Alexander the Great and the foundation of the new city of Alexandria in 331 B.C.E. (*see* HELLENIC WORLD). The splendid new stone buildings erected after Alexander's death in 323 B.C.E. included the museum, to which was attached the legendary library with its subsidiary in the Temple of Serapis. These libraries were planned and built up during the reign of Alexander's successor in Egypt, Ptolemy Soter, and of his son Philadelphus. The latter's librarian, Demetrius of Phalerum, was, according to Josephus,

anxious to collect, if he could, all the books in the inhabited world and, if he heard of, or saw, any book worthy of study, he would buy it; and so he endeavoured to meet the wishes of the king, for he was very much devoted to the art of book collecting.

Demetrius informed his master that the Alexandrian library had already collected two hundred thousand books and that he looked forward to its reaching five hundred thousand. It is impossible, however, to estimate the number of separate works indicated by these totals since individual papyrus and parchment scrolls (the modern codex form was uncommon until the first century C.E.) may have contained more than one work or, alternatively, may have been merely single parts of larger ones. But their numbers at least suggest that some works must surely have found their way to Alexandria from otherwise unrecorded libraries at PLATO's Academy and ARISTOTLE's Lyceum.

The Alexandrian libraries were easily the greatest in the world prior to PRINTING and made Alexandria one of the most important centers of learning. Readers there were served by a succession of distinguished

librarians of whom at least Zenodotus, Callimachus, Eratosthenes, and Aristophanes of Byzantium deserve to be mentioned. The modern world of learning owes them an immense debt for their work in establishing definitive texts of the Greek classics. Callimachus was also responsible for compiling the first known national bibliography, which unfortunately has not survived. The other great library of the ancient world, at Pergamum (modern Bergama), was founded a century later than those at Alexandria, and less is known about it. All were the victims of time, decay, and war. Legends ascribe their destruction to such varied causes as Julius Caesar's and Aurelian's civil wars, Antony's gift of the Pergamum library to Cleopatra, and the determined anticlassical activities of the early Christians and Arabs. It seems clear, however, that by 400 C.E. all had been destroyed or dispersed.

Little is known of libraries in the Roman Republic and the ROMAN EMPIRE prior to the breakdown of organized rule in the fifth century C.E. Many libraries, including public libraries in Rome and provincial cities, appear to have existed, but they were probably less comprehensive and worse equipped than the private ones built up by such wealthy individuals as CICERO and the younger Pliny. The Alexandrian traditions passed to the capital of the Eastern Empire, Constantinople (modern Istanbul), and were maintained there for more than a thousand years (until the capture of the city by the Turks in 1453) by great libraries, notably the Imperial and the Patriarchal. Like the Alexandrian libraries, these attracted scholars from many parts of the world. Although many of their literary productions came in the form of commentaries and edited versions of earlier authors, it is largely because of these libraries that the literary legacies of ancient Greece and Rome were preserved for later generations.

By 400 C.E. the political situation in the Roman Empire had become chaotic, and the library tradition was maintained mostly in the book collections of individuals such as Sidonius, Boethius, Bede, and Alcuin. The latter names indicate the role played by the Christian church in the next major period of library development, which was furthered by the Benedictine rule prescribing a minimum of holy READING for individual monks. During the early MIDDLE AGES some of the most important libraries were collected in the cathedrals of northern Italy, southern Germany, and, to a lesser extent, England. Books were also accumulated in individual monasteries, although hardly systematically, and were often kept in odd corners rather than in designated library rooms. Although monasteries were basically self-contained communities, they frequently held land outside their own boundaries; they were therefore liable to be involved in lawsuits and hence needed

law books. Monasteries also needed texts relevant to their educational responsibilities and even more. For example, the short list of books belonging, during the late thirteenth or early fourteenth century, to the small Premonstratensian abbey of St. Radigund, near Dover in England, included works on law, medicine, and grammar as well as the more obvious theology, psalter, missal, and service books. Larger establishments such as its near neighbor, Dover Priory, and establishments at Canterbury, Durham, and elsewhere had many more. All church libraries were gradually overshadowed by that of the Vatican at Rome, whose development, inevitably impeded by the papal exile to Avignon during the fourteenth century, reasserted itself in the sixteenth. Meanwhile the diffusion of Arab culture encouraged the production of translations, which found their way into at least some of the cathedral libraries (*see ISLAM, CLASSICAL AND MEDIEVAL ERAS*).

Many of the educational responsibilities of the church passed to the new universities, of which, from the eleventh century on, that of Paris provided a greatly admired model for the West, exerting an influence particularly on developments at both Oxford and Cambridge (*see UNIVERSITY*). The early growth of the universities was based largely on individual colleges, and book collecting tended to be associated with them rather than with the central university. By the end of the fourteenth century, however, there were also small central libraries at the Sorbonne in Paris and at Oxford and Cambridge. They and their college libraries were able subsequently to retrieve and preserve at least some of the valuable manuscript material that the dissolution of religious establishments had put greatly at risk. Over the same period books and records of various kinds were accumulated in royal palaces and in the developing departments of state, although, as they tended to follow the perambulations of the monarchs throughout their dominions rather than stay in a fixed library location, the possibilities of damage and loss were considerable. The introduction of printing into western Europe in the fifteenth century obviously facilitated library growth, but the new materials made available tended to be regarded, initially and for many years following, as vastly inferior to their predecessor manuscripts. University libraries in America began in the seventeenth century soon after the first settlements.

Modern Libraries

Library services in the modern world are highly specialized and differentiated. They include national libraries; university, college, and school libraries; special libraries; and public libraries.

National libraries. Most countries have acquired a national library, but only some twenty were founded prior to 1800. Some of the earliest foundations were based on existing royal libraries, as in France and Denmark; others were based at least partly on private libraries, as with the U.S. Library of Congress and the United Kingdom's British Museum (since 1973 the Reference Division of the British Library). Some of the later ones, in common with the Library of Congress, were founded in close association with or in order to serve federal or national governments, as in Australia, Canada, and New Zealand. Many of the newest foundations, including those in the emergent African states, were created by the new governments themselves. Some countries have more than one national library, as in the United Kingdom with its National Library of Scotland and National Library of Wales, and also in Italy and Yugoslavia. Nearly all national libraries rely on the legally required deposit of books by publishers for at least part of their accessions, the privilege of COPYRIGHT being frequently linked with legal deposit.

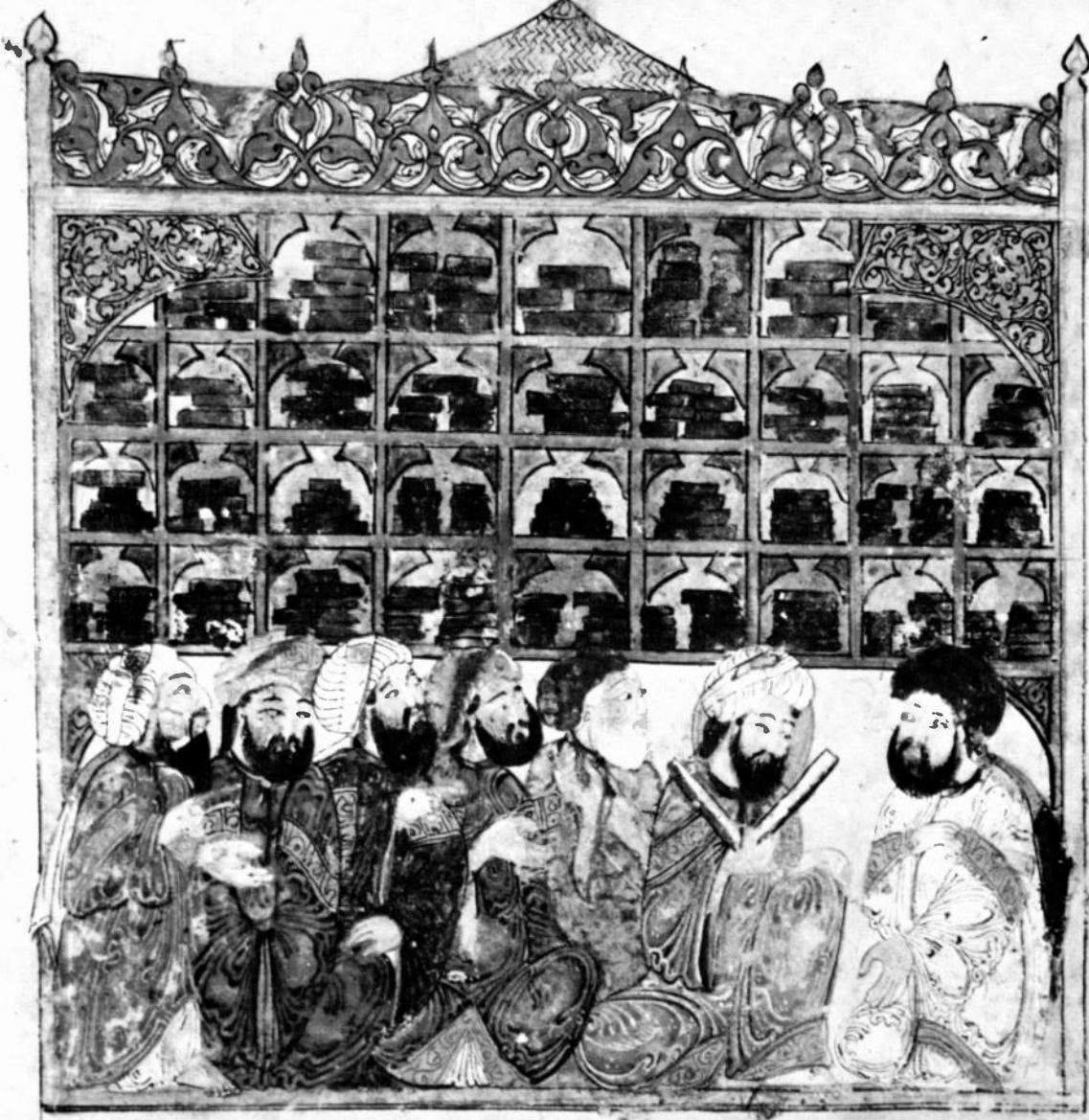
The functions and responsibilities of national libraries vary from country to country. All normally collect and preserve their national production of books. Some also maintain large and representative collections of the literatures of other countries and, increasingly, of nonbook items including maps, music, phonograph records, tapes, film, and microforms. Some coordinate the services and facilitate the cooperation of other libraries within and outside their own countries. A few train their countries' librarians.

The services of national libraries may be available to all readers or at least to those readers unable to satisfy their library needs elsewhere. Some provide a stock that is available for consultation and reference purposes only; others make at least part of it available for home reading. National library book stocks range from the more than 10 million volumes of the Library of Congress, the British Library, the Bibliothèque Nationale in Paris, and the Lenin State Library in Moscow to the still very small collections in some of the emergent states.

In the United Kingdom, the National Library for the Blind lends books in embossed and enlarged type to visually handicapped readers, including those residing in other countries. This is an unusual pattern; most libraries for the blind and physically handicapped form departments of the larger central libraries, such as the Library of Congress.

University, college, and school libraries. Although the university and college libraries in a limited number of countries have long histories, as in Paris, Vienna, Louvain, Oxford, Cambridge, and Edinburgh, and at Harvard University in the United States, most of their systematic stock building began only

فَقَالَ يَا أَيُّهَا النَّاسُ اجْعَلُوا زِينَةَ الْوَلَدِ وَالصَّبْرَ وَجَعَلُوا زِينَةَ الْوَلَدِ وَالصَّبْرَ
 أَنْ تَابِعُوا وَتَدْعُوا بِتَصَدِيقِ دَعْوَتِهِ فَوَجَسَ مَا حَسَرَ فِي أَفْكَارِهِمْ وَفَطَنَ مَا بَطَنَ مِنْ أَسْتِكَارِهِمْ وَجَاءَ ذَلِكَ



فَقَالَ يَا أَيُّهَا النَّاسُ اجْعَلُوا زِينَةَ الْوَلَدِ وَالصَّبْرَ وَجَعَلُوا زِينَةَ الْوَلَدِ وَالصَّبْرَ
 أَنْ تَابِعُوا وَتَدْعُوا بِتَصَدِيقِ دَعْوَتِهِ فَوَجَسَ مَا حَسَرَ فِي أَفْكَارِهِمْ وَفَطَنَ مَا بَطَنَ مِنْ أَسْتِكَارِهِمْ وَجَاءَ ذَلِكَ

Figure 1. (Library—History) The public library at Hulwan. Illustration from al-Hariri's *Maqāmāt*. Thirteenth century. Phot. Bibl. Nat., Paris.



Figure 2. (*Library—History*)
Michelangelo, Biblioteca
Laurenziana (Laurentian Library),
Florence, begun 1524. Alinari/Art
Resource, New York.

during the second half of the nineteenth century or even during the twentieth. In England this expansion was pioneered by the Cambridge University Library and the Bodleian Library in Oxford when they attempted to enforce their legal deposit entitlements (unusual for university libraries). This occurred approximately at the same time as Ainsworth Rand Spofford's comparable activity on behalf of the Library of Congress and Antonio Panizzi's for the British Museum. These book accumulation drives can be regarded as the modern equivalents of that by Demetrius of Phalerum on behalf of the Alexandrian libraries of the ancient world.

School libraries were much slower to develop than university and college libraries. Their expansion during future years would appear to offer more opportunities than for most other types of libraries.

Special libraries. The so-called special libraries, usually provided, at least initially, to serve a restricted readership, are largely a creation of the twentieth century. Some, such as medical and law libraries and libraries serving government agencies, began earlier, but the collections built up by a wide variety of businesses and professional and trade associations developed mostly after World War I. Although some grew into very large libraries, many are small and very highly specialized; their small staffs were appointed primarily to make information readily available to other employees. Because of this prime responsibility of information provision—and information that is as up-to-date as possible—the book has always tended to be less important than the

periodical in these collections. Indeed the staffs of special libraries are normally required not merely to provide the periodicals but also to draw the attention of readers to their contents. Special libraries were pioneered mostly in the industrial nations of the West and particularly in the United States, United Kingdom, France, and Germany, but later appeared in other countries.

Public libraries. Libraries provided for and accessible to the general public began predominantly in the form of eighteenth-century circulating libraries, although there were earlier examples of free public libraries. During the first half of the nineteenth century subscription and institutional libraries became much more numerous and, particularly in the United States and the United Kingdom, prepared the way for free and freely accessible libraries. The latter, supported mainly from local taxes and administered by staffs responsible to boards of local citizens, began to appear in many countries during the late nineteenth century. Grants for building such libraries became for a time a favorite form of philanthropy for wealthy individuals such as Andrew Carnegie.

Public libraries—with varying levels of coverage and efficiency—have become almost universal, and it is impossible even to estimate the total number of such systems throughout the world. Whereas the other main types of libraries mostly provide readers with material that may generally be described as educational, informational, cultural, and for research, public libraries also usually attempt to address their readers' recreational and leisure needs; it

is hence much more difficult to define their specific duties and areas of responsibility. In the United States and the United Kingdom, for example, the controversy over provision of light, mostly fictional reading has persisted over more than a century and remains unresolved. Public libraries, too, have experienced more harassment than other types of libraries because of CENSORSHIP—religious, political, and sexual.

Prior to the twentieth century, readers' access to library stocks was limited primarily to those of libraries that they could visit. There is limited evidence that monastic libraries lent books to one another for reference, checking, and copying, but the vast national and international networks for interlibrary cooperation and lending are creations of the twentieth century. The encouragement of such cooperation has been one of the many useful activities of library associations throughout the world, of which the pioneers were the American Library Association, founded in 1876, and the Library Association of the United Kingdom (since 1898 the Library Association), founded one year later.

Modern methods of economical storage, including the use of mobile shelving, reducing dramatically the number of necessary access gangways, have greatly increased the number of books that can be stored on a given floor area. The growing use of microforms saves infinitely more space. Both expedients are essential if the buildings containing ever-growing library stocks are not themselves to grow beyond economic limits.

Computerization has provided many significant innovations for the way libraries function. From the immediate point of view of the individual library or library system, it can facilitate and speed up cataloging as well as the many mundane but essential routines connected with the registration of readers and the records of books consulted or circulated. Computer terminals can take the place of the card catalogs and other card records that have served library users and library staffs for so long. Much more important, however, are the vast improvements possible in the field of information retrieval. The individual library can now link itself with and obtain full advantage from the various outside networks from which it can

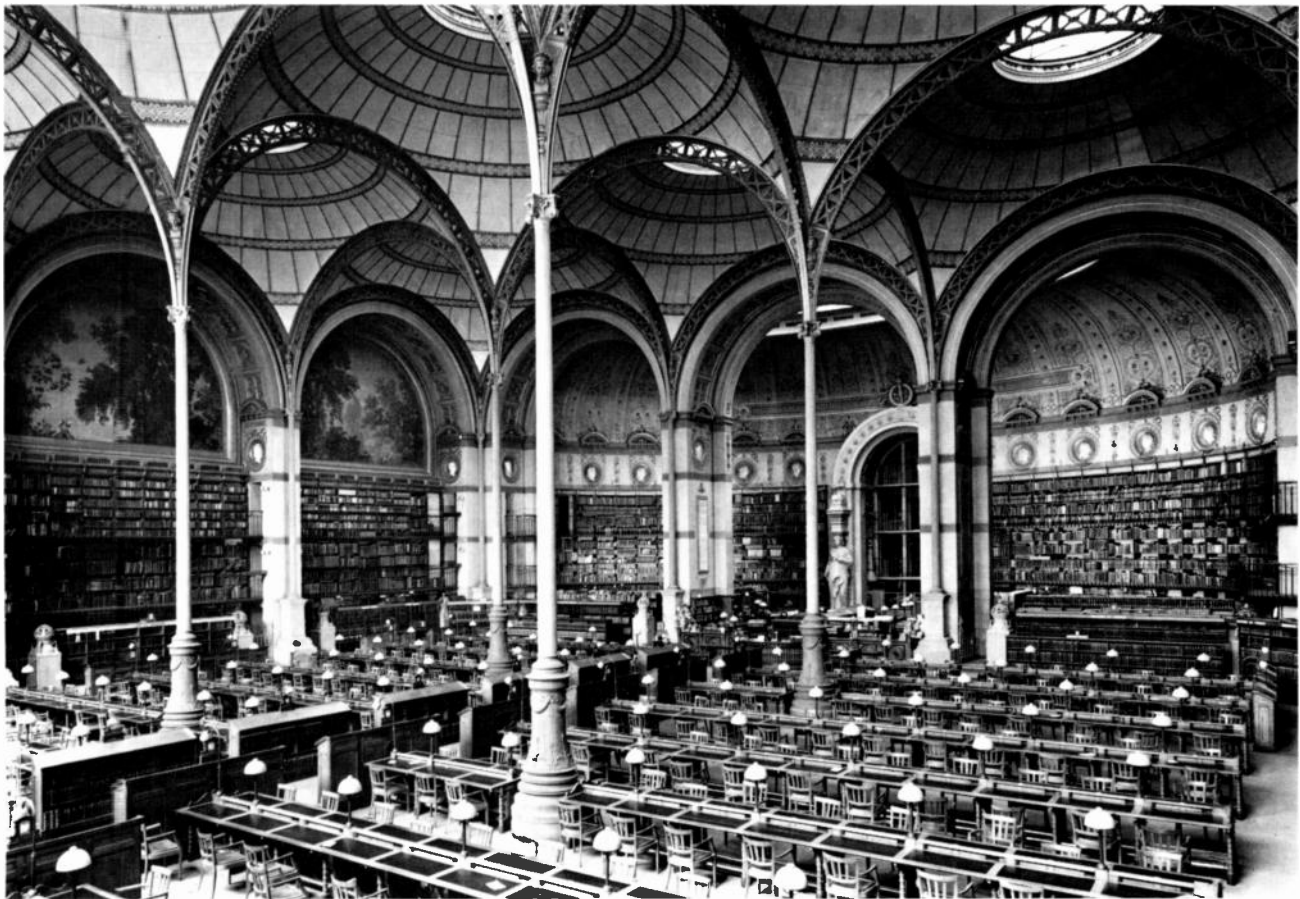


Figure 3. (*Library—History*) Henri Labrouste, reading room of the Cabinet des Épreuves, Bibliothèque Nationale, Paris, 1861–1869. Lauros-Giraudon/Art Resource, New York.

obtain not only bibliographical information in support of its traditional service to readers but also general and/or specialized information. There are also, of course, dangers in excessively centralized information sources. Not the least of the many values inherent in the library service of the past has been the ready access to differing opinions and alternative points of view, and the computerized library must offer no less.

See also ARCHIVES; LITERACY; PAMPHLET; WRITING MATERIALS.

Bibliography. John W. Clark, *The Care of Books: An Essay on the Development of Libraries and Their Fittings, from the Earliest Times to the End of the Eighteenth Century*, 2d ed., London, 1909, reprint (1909 ed.) Norwood, Pa., 1978; Allen Kent and Harold Lancour, eds., *Encyclopedia of Library and Information Science*, 39 vols. in progress, New York, 1968–; E. A. Parsons, *The Alexandrian Library*, Amsterdam and New York, 1967; James W. Thompson, *The Medieval Library*, Chicago, 1939, reprint (with supp. by B. B. Boyer) New York, 1957; Robert Wedgeworth, ed., *ALA World Encyclopedia of Library and Information Services*, Chicago, 1980.

WILLIAM ARTHUR MUNFORD

2. TRENDS

The library has been the repository for written communication since the dawn of WRITING. More than five thousand years ago it housed the first clay tablets. Then as now it had three main functions: to collect, to preserve, and to make available. As WRITING MATERIALS evolved through papyrus to paper to film to magnetic tape, the library adapted, while still accomplishing its three basic functions. The library in the 1980s has incorporated new information technologies into its services just as easily as its predecessors adjusted to the printed word. The modern library houses microfiche, videotapes, and compact discs along with its books, and it uses computer terminals to provide management and user services. See section 1, above.

New information technologies, however, have created changes far beyond the simple storage and retrieval of information. The information environment itself has changed: the value of information, its use, and its dissemination are widely discussed. The library stands on the threshold of an explosion in the methods by which information is stored, viewed, interpreted, retrieved, and disseminated. Although the library has adapted to the use of technological equipment, it has not yet addressed fully the overriding changes needed to adjust to the Information Age.

Technology trends in public services. To the public, the changes occurring in the library because of

automation become evident when a BOOK is checked out. Bar codes and laser scanners have replaced hand-stamped cards; due dates and patron fines are stored in a DATA BASE, not in file drawers.

There are other changes that are not so apparent to the patron. For instance, the long-standing tradition of interlibrary borrowing and lending is evolving. At one time the library's individual resources limited its patrons. Now the patron may gain access to materials from around the world through on-line data bases that provide millions of citations stored in computer memories thousands of miles away (see COMPUTER: IMPACT). Through a computer terminal, on-line data bases, such as DIALOG, INSPEC, and the WORLD PATENT INDEX, provide references to articles in any subject field. These services are growing quickly to provide enhanced access to the citations themselves. In 1978 only 3 percent of the citations available in on-line data bases provided full text reference. By 1985 the balance had shifted, with more than 50 percent of the citations providing the full text of the actual document. This enables the searcher to read entire articles stored in the data base rather than simply locating the author, title, and subject citations. Every year more than 6 million unique references are added to data bases; more than 70 million records are available in the late 1980s.

Advances in miniaturization and telecommunications (see TELECOMMUNICATIONS NETWORKS) have also simplified locating and requesting materials not owned by a particular library. Microfiche, floppy disks, RAM (random access memory) disks, and CD-ROMs (read-only memory) are examples of the storage formats available to libraries to facilitate sharing records of their holdings. Even an isolated library will be able to locate an item owned by another library by searching its record of the other library's holdings. Electronic mail and telefacsimile transmission of documents speed the actual transfer of materials from one library to another.

ARTIFICIAL INTELLIGENCE is enhancing on-line database searching. An "expert system" is a computer system designed to simulate human problem-solving behavior. Using artificial intelligence the computer system learns from the searches it has already done. An expert system will locate and connect to the appropriate on-line data base, translate various search languages, and recall previous searches. The U.S. National Library of Medicine is already using a prototype expert system as a cost-effective consultant in making medical diagnoses.

Groups of libraries that share resources are called library networks. These networks stretch across the nation and recently have crossed international boundaries. The Online Computer Library Center (OCLC) is a good example. OCLC provides telecommunications links among the United States, Canada,

Central America, Great Britain, Japan, and France. This maturing network, founded in 1967, celebrated its eleven millionth interlibrary loan transaction in 1986.

Library services in the home have been made possible by new technologies. With many library services already automated, patrons with a terminal and modem in their own home or place of business are able to search the on-line catalog for a book, place a book on hold or reserve, and request an interlibrary loan. Some libraries offer community information bulletin boards with notices for job-placement opportunities, car-pooling details, community activities, government services, and public documents. France's government-supported MINITEL system is a pioneering effort in this realm. It provides in-home services across the nation, allowing TELEPHONE access to regional libraries from any equipped home.

Technology trends in collection development. Many new types of media have joined the book on the library's shelves. The library of the late twentieth century collects film, videocassettes and disks, computer disks, records, maps, and other items in addition to books in order to assimilate the many forms of communication. "Media center" has become an increasingly popular label for a library that collects book and nonbook materials.

Form as well as content must be considered when developing a library collection. The library is only beginning to address the problems presented by the use of this vast variety of formats. The librarian may choose a hardback or paperback book, microform, or computer disk in order to match the information in the collection with the needs of the potential users. A well-balanced collection is no longer just a group of books that reflects the interests and needs of the library community but a collection that provides the proper format as well. These format decisions have a profound effect on the use of space and budget in the library.

Looking toward the future the library will continue to grapple with the consequences of the new variety of formats. As technology advances, and it becomes easier to reformat information from one material type to another, the library will be pressed, not to choose among types of formats, but to present information to the patron in its most desirable and usable form. A related problem will revolve around the storage and organization of cultural and historical information available on nontraditional formats. TELEVISION NEWS, for instance, has become an important form of journalism and a valuable source of cultural information. Videotapes used in assembling newscasts can be erased and reused—an economic advantage—but historic material may be lost in the process. Libraries are already playing a role in preserving this significant part of twentieth-century

culture. See ARCHIVES, FILM; TELEVISION HISTORY.

Technology trends in cataloging. Historically, preparing a library book for use required a labor-intensive effort. Each library determined the correct bibliographic information and subject descriptions for every book obtained. Today the library accesses automated systems that provide a record of the cataloging done by other libraries. By sharing these bibliographic records the cost and time of duplicating the cataloging effort are avoided.

One result of the increase in shared cataloging information is an effort to standardize. The machine-readable cataloging (MARC) format was designed to standardize the creation of a bibliographic record. There are several different MARC formats to accommodate the variety of types of information material available. The MARC formats allow a computer to understand and manipulate the information that the library has stored on the catalog card. International standard book description (ISBD) numbers are another means of standardizing access to a particular title. These are unique numbers issued to each new book title published. Using this system a book can be identified by its number even if different cataloging methods have been used. Standardization efforts are also being made at the computer-software level to allow different computer systems to "speak" to each other. A major project at the U.S. Library of Congress is to develop interfaces among various computer systems to allow existing records to be transferred from one data base to another. See STANDARDS.

Library issues. The library faces growing complexities as it looks toward the next century. Individuals as well as businesses are called upon to make decisions based on knowledge far beyond their daily experiences. Information is widely discussed; how it is used and how it is distributed are important issues that are being affected by rapidly changing technologies. However, people do not turn instinctively to the library for the information they need, and the demand for libraries will not necessarily increase in the Information Age. In fact, as other information services become available the library may increasingly be ignored.

This problem may result from the library's traditionally multifaceted activities. It has tried to fulfill several roles, providing educational and LEISURE services and materials while also attempting to provide a useful collection for serious readers. These ambiguities will increase as new uses and types of information emerge and as the difference between the "information-poor" and the "information-rich" grows. Other information providers, unburdened by a tradition of attempting to fill every information need, focus on particular services. The library, faced with so many avenues of development, has incorporated new technologies into existing services without di-

rectly addressing changes in the information environment. The library will need to rethink its goals and policies in order to continue to provide useful and needed library services.

Strategic planning. Unfortunately, the library has not responded well to the Information Age challenge. Some libraries simply maintained a low profile as the entrepreneurial maelstrom continued. Others made piecemeal attempts to be more responsive to the masses. A wide variety of library activities resulted as the library wandered from one program to another, attempting to prove its utility. There is concern that library development is spurred by the availability of technology rather than by the information needs of the library community.

One approach to this problem is coordinated strategic planning. A hard look at the library, the current environment, and what will develop in the future will help in planning viable services. The library must examine the information environment and determine which services and resources will be most needed and whether the library or a profit-making service is better suited and motivated to fill the need. Current library services need to be closely examined and their costs and benefits reevaluated. New services should be planned based on the evaluation of the information environment and a careful analysis of users and potential users.

Strategic planning will involve change: the possible reassignment of staff from one department to another or reorganization to reflect services centralized by automation. Traditional services may be changed or dropped, and the onus of starting new ones may be added. But strategic planning also helps develop a frame of reference much needed in the library's changing environment. It provides opportunities to examine important issues, and it encourages the development of objective goals based on the library's mission rather than its operational needs.

Philosophy. The driving force behind a renewed and vigorous library will be a new philosophy: a change from an acquisition- and preservation-oriented institution to a service-oriented institution. This does not mean that the careful collection and cataloging of books will be abandoned but rather, as the library takes advantage of the cost- and time-saving technologies it has installed, that staff has more time to provide extended public services. There has been some doubt expressed about the library's ability to make this philosophical shift. A Carnegie Foundation report stated recently:

Library personnel, while now fully competent to handle the library automation that has taken place, have neither the education nor the emotional commitment to prepare for the shift in outlook required to change from owning, cataloging, and lending, to becoming electronic data sleuths

ready to link a student or faculty member to someone else's data bank.

The library's importance as a keeper of all information (not just profitable information) and a preserver of historical, cultural, and scientific knowledge will ensure its continued survival. However, if the library is to thrive and offer truly desirable services to its public, it must make this shift toward greater emphasis on service.

Such a philosophical shift must be accomplished by a greater effort to make the public aware of the benefits of the library and its willingness to serve. It is the library's responsibility to tell the community of its services and materials. Strategic planning, a new philosophy, and new services are only half the job. These will never be appreciated by the public at large unless the library undertakes to educate the community about the benefits and usefulness of the library.

Education. The librarian of the future needs a variety of new attitudes and skills. Library educators must address this challenge. Robert S. Taylor summarizes six major areas that provide a framework for future professional education in library and information science:

- *Organization of information.* The study of information as a malleable asset rather than a package dictated by format.
- *Information environment.* The study of the history, context, and dynamics of knowledge and information processes in society. How information is used, acquired, organized, processed, retrieved, and disseminated in the community.
- *Information media.* The study of the choices and functions of different media for different messages and for different audiences.
- *Systems and technologies.* The study of formal analysis, design, and evaluation to orchestrate effective combinations of people, machines, and information for the effective use of information.
- *Research methods.* The attainment of skills that will enable the student to become an effective participant in the research process, both to provide needed, quantitative assessments of libraries and library methods and to be a critical consumer of others' research.
- *Management.* The study of organizational behavior, marketing, strategic planning, decision making, costs and budgeting, policy and politics.

These points shift the emphasis of library education from archival studies to true information management. They prepare the librarian for the multifaceted role that a library director must play today. Integral to the library education process must

be an acculturation into the new library philosophy, one that espouses service and active participation in the community.

The library has a unique role to play in the Information Age. It can add a "people perspective" to the development of information technologies and the use and availability of information. The library must focus on people in determining its services and attitudes, for ultimately it will be the users who will identify the ways in which information can help.

See also ARCHIVES.

Bibliography. Ruth Alston, "Hunger for the Poor?: Some Observations on Information Provision in India," *Journal of Information Science* 6 (1983): 115–122; Patricia Battin, "The Electronic Library: A Vision for the Future," in *New Information Technologies and Libraries*, ed. by H. Liebaers, W. J. Haas, and W. E. Biervliet, Boston, 1984; "Bibliographic Databases Provide Enormous Online Knowledge Pool," *The Futurist* 15 (1981): 49; James Ducker, "Futures Dossier: Electronic Information—Impact of the Database," *Futures* 17 (1985): 164–169; Frank Newman, *Higher Education and the American Resurgence*, Princeton, N.J., 1985; Robert S. Taylor, "Reminiscing about the Future: Professional Education and the Information Environment," *Library Journal* 104 (1979): 1871–1875.

ANNE J. MATHEWS AND DAYNA E. BUCK

LICENSING. See COPYRIGHT; DATA BASE; GOVERNMENT-MEDIA RELATIONS; GOVERNMENT REGULATION; NEW INTERNATIONAL INFORMATION ORDER; SATELLITE; TELECOMMUNICATIONS POLICY. See also MILTON, JOHN.

LINGUISTICS

The historically developed body of LANGUAGE-directed approaches and of reflexive activities concerning these approaches. The extant language-directed approaches can be organized in a systematic way when we take into account their proper object: human language and SPEECH in its various aspects. Human language and speech also include, apart from natural languages, speech (or speech fragments) guided or stimulated through human intervention, as in the various branches of computational linguistics. ANIMAL COMMUNICATION is not part of the proper object of linguistics but falls under the study of communication by means of signs (see SIGN; SIGN SYSTEM), which is the central concern of SEMIOTICS. Through much of its history linguistics has focused on the formal-semantic system (GRAMMAR and lexicon) of language; since the nineteenth century, however, the sound system has also been an object of systematic

study, yielding many insights of great importance to the field as it now stands.

In the history of linguistics the study of the formal system has been dominant. Next to this "internal" aspect one must mention the link between language (speech) and mind (thought), which has been the object of both speculative and empirical studies on the nature of conceptualization and its possible culture-boundedness, on the interplay between rational and emotional behavior as reflected in language, and on the expression of polarities ("good"/"bad"), negative contents ("absent"), and all kinds of abstract relationships (often rendered in metaphorical terms). In pre-nineteenth-century language study such subjects were assigned to the philosophy of language or to psychology, but they now belong to distinct professional branches of linguistics, such as psycholinguistics (a term coined in the 1940s) and neurolinguistics. Important topics of research here are LANGUAGE ACQUISITION, speech production and PERCEPTION, aphasic speech (including all kinds of SPEECH AND LANGUAGE DISORDERS), and the localization of a speech area in the brain.

Another link that has been explored throughout the history of linguistics is that between language and society/culture (see CULTURE). Language as a means and as a process of socialization leads to a range of issues associated with its variation across social groups and within individual usage: diastratal (according to social group, education) and diaphasic (according to age) variation, styles of speech and ways of speaking, and code switching (in bilingual or diglossic situations, for example). Among the variables influencing and affecting language use are differences of GENDER and age (see SEXISM); social, educational, and professional background; power and solidarity relationships between language users; and the degree of formality of the communicative situation (allowing for a further typology according to text GENRE).

At a global level one can study—as is usual in the tradition inaugurated by the German philosopher Wilhelm von Humboldt—language as a cultural good. Specific themes here are the degree of determination of language patterns by cultural patterns and vice versa, linguistic acculturation, the cultural importance of language, and so on. A major difficulty of this type of research is finding noncircular parameters, free from any a priori assumptions (a problem evidenced, unfortunately, in studies of language as a mirror of the structure of society). On the practical side the link between language and society is the specific focus of language policy and attitudes. Issues here include promotion, discrimination, or repression of languages; choosing an ALPHABET; language purity; language loyalty; international and artificial lan-

guages; and norms of translation (see LANGUAGE IDEOLOGY; LANGUAGE VARIETIES; TRANSLATION, THEORIES OF). The relationship between language and society/culture is now the focus of two separate offshoots of the language sciences: sociolinguistics and anthropological linguistics. The sociolinguistic and anthropological perspectives can and should be integrated within the study of the formal-semantic system. In fact, a long-standing tradition exists in which linguistic MEANING is studied within its social and cultural context, a tradition now forcefully embodied within recent ethnopoetic work (see ETHNO-POETICS).

Apart from the formal-semantic system of language and its relationship to the human mind and to culture and society, another topic of research consists of the specific communicative uses of language. Included here are a number of logico-linguistic themes: language and truth/falsity; reference; quantification; logical relations within discourse, such as contradiction, presupposition, implication, implicature; modalities; and, on a more global level, language as an object and medium of logical analysis—all of which have been recently integrated within semiotics (and/or pragmatics). Other themes include the use of language in sciences (terminological apparatus, formulation of statements or laws, model construction and axiomatization of theories) and in literature (definition of style, text grammar, semantic analysis of literary texts). See also LITERARY CRITICISM; STYLE, LITERARY.

The practice of language study has also aroused a number of reflexive approaches, taking language-directed activities as their object. Among these reflexive approaches are the history (or HISTORIOGRAPHY) of linguistics and the epistemology of linguistics (the study of methods and types of argumentation found in linguistic works, focusing on the evaluation of goals and principles of linguistic theories). This reflexive work is of crucial importance for the construction of a general theory of linguistics and of language, which should be the proper object of theoretical linguistics.

The Object of Study

The core object of linguistics is the formal-semantic system of language, understood as *genus* (English *language* or *speech*; French *langage*) or as *species* (English *language*; French *langue*). This object necessarily involves a certain amount of idealization and systematization by the investigator. All approaches to language rely on the constitution of data, and in the case of linguistics this constitution can be achieved through various means. Note that linguistic data typically manifest both formal and phonological elements and that much analysis bears on the interac-

tion of these two layers of language structure. In a growing order of determination of data by theory or theories the following means of data constitution can be sorted out: (1) recording of data (fieldwork), (2) philological interpretation of recorded data, (3) reconstruction of data (either on the basis of one language or dialect, as in strictly interpreted internal reconstruction, or on the basis of evidence from two or more languages or dialects, as in the much more common comparative reconstruction), and (4) the theoretical postulation of data or of relationships among data.

A preliminary distinction should be made between oral and written language. The problem of the status of written versus oral language is not so much one of priority but rather one of description of the competence or linguistic knowledge of the subject (within literate cultures). Are written and spoken language integrated within the subject's linguistic competence, or do they constitute autonomous blocks? The structure of written language, which does not have the complete formal-semantic organization of spoken language, is the object of graphemics (or theory of WRITING), which also deals with the history and typology of writing systems or scripts (alphabetical, consonantal, syllabic, morphophonological, morphological, ideogrammatical, pictographic). See also LITERACY; ORAL CULTURE.

In general, when speaking of the systematic organization of language, what is meant is spoken language. This is especially true when speaking of the formal-semantic system of language, which comprises the following components or levels:

1. Phonetics: the study of speech sounds, from the articulatory, acoustic, or perceptual point of view.
2. PHONOLOGY: the (intra)linguistic study of the functionally distinct(ive) sound classes, often codified already in the alphabet (e.g., the case of *t* in English, with its various, functionally nondistinctive word-initial, word-internal, and word-final realizations). For distinctive nonsegmental units (pitch, stress, tone), the term *tonology* is used, although it should be noted that much dealt with under tonology has a morphological function (compare the stress opposition between English *tránsport* and *transpórt*).
3. Morphology: the study of the smallest "form plus meaning" units or, in other terms, the study of the internal structure of words (e.g., *books* = *book* + *s*).
4. Syntax: the study of the combinations of words into larger units (sentences, texts) and of the rules governing these combinations.
5. SEMANTICS: the study of meaning (and reference) within a particular language. The domain of meaning can stretch from morpheme over word

and sentence to text. Semantics is essential for the definition of lexical items (the vocabulary of a language) and is intrinsically linked with lexicology and lexicography.

(In some models, levels 1–4 are subsumed under *grammar*, but this term has also been restricted to the levels of morphology and syntax; for level 5 the less theoretical terms *dictionary* and *lexicon* are also used.)

In the organization of language some issues should be kept in mind. First, not all linguistic models make the same distinctions. Some blend morphology and syntax into “morphosyntax”; others do not make a distinction between syntax and semantics. In some models even more levels are postulated, such as “morphophonology”—the study of phoneme alternations within morphemes, such as the alternation between voiceless *f* and voiced *v* in English *shelf/shelves*. Second, the interactions between the various levels are differently conceived of and accounted for (in stratificational linguistics the description is focused on these interactions). Third, the above-mentioned directionality (from the smaller to the larger units, i.e., a “bottom-up” approach) is typical for most traditional and structuralist practice but is reversed in more recent “top-down” models. Fourth, the description of the system of a language is never based on data obtained from all its speakers at a particular time. Pragmatic factors, such as number of speakers (especially true for extinct languages), make it necessary to extrapolate from more or less reduced corpora that are taken to be representative.

Finally, the formal-semantic system of language is integrated within a particular focus of approach. In a synchronic focus the description refers to data situated with respect to a particular time and place. In a diachronic focus the descriptions correlate data from one or more languages that pertain to distinct temporal periods and possibly also to distinct places. A panchronic or achronic description can combine the synchronic and diachronic perspectives, and it purports to formulate generalizations or correspondences without regard to relative position in space and time. The term *panchronic* can be reserved for descriptions aiming at typological generalizations and *achronic* for contrastive descriptions—either of two languages (say, English and French) or of two sets of languages (as in BENJAMIN LEE WHORF’s contrasting Hopi and Standard Average European).

History of Interests and Methods

Linguistics, like its object (language), is a social product with a very complex history of continuities and discontinuities, including traditions of divergent interests and descriptive frameworks. The development

of linguistics has been one of growing sophistication, extension of various traditions, and, naturally, accumulation of data and insights. The evolution of linguistics has been shaped by a number of variables such as types of contacts between languages, the linguistic needs of various groups, and the state of scientific methodology (descriptive techniques, terminology, or metalanguage). Another is the changing climates of opinion internal or external to linguistics: idealism, historicism, the cultural-anthropological outlook, STRUCTURALISM (and instrumentalism), the romanticist-creative conception, and the like. Still another factor is individual and collective achievements in the field: university programs, pedagogical reforms, learned societies, journals, collections, war-time enterprises, and so on.

It may be useful to articulate the history of linguistics by appealing to the notion of *program* as a cover term for a number of theoretical orientations that pursue basically the same goals and that favor specific approaches and exclude others. Major programs in the history of linguistics could be called

1. The *correspondence* program, which takes language as an instrument and which studies the (inter)relationships among language, thought, and reality.
2. The *descriptivist* program, which takes language as a set of formal data that have to be organized systematically.
3. The *social* program, which sees language as a social and intrinsically variable fact. Linguistic variation (correlating with social differences), which presupposes a multiple competence in the speaking subject, is the basis for language change.
4. The *projection* program, in which a logical-formal model is applied to a fragment of natural language (e.g., tense system, mechanisms of reference).

It is interesting to note that each of these programs subsumes various theories and that programs exist simultaneously.

The notion of program opens vistas for a comprehensive history of linguistics, including various types of folk linguistics—for example, speculations on the origin of language, creation of a (rudimentary) metalanguage, attitudes concerning languages and their use, historically and/or areally spread formulaic expressions, popular etymology, and especially the development of writing systems. Also of relevance would be various studies bordering on philosophy, psychology, theology, and other related subjects. The various traditions resulting from specific orientations must be seen in the light of particular needs, such as the case of bilingual lexicography in Mesopotamia, of Indian grammatical description of Sanskrit and philosophy of language, and of ancient Chinese lexicography.

These national orientations were soon superseded by international trends, such as the development of a grammatical model centered on the study of letters (as representing classes of sounds) and word classes. This was the merit of the school of Alexandrian grammarians, whose model was taken over by the Latin grammarians. Parallel to this grammatical trend was a philosophical trend, taking language as an object of study. In PLATO's case language became the object of an etymological (*Cratylus*) or logical (*The Sophist*) analysis. ARISTOTLE's much more detailed study of linguistic categories (in his *Organon*) led in late antiquity and during the MIDDLE AGES to a powerful tradition of linguistic reflection, either on the sign nature of language (St. Augustine, Boethius, Anselm of Canterbury, William of Ockham) or on the categories of grammar (more specifically, morphology and syntax). The latter part of the tradition is exemplified in the work of William of Conches, Petrus Helias, and the group of speculative grammarians (*modistae*). The linguistic horizon was very restricted then, and the study of Latin eclipsed to a large extent that of the vernaculars (also of Greek and Hebrew).

With the RENAISSANCE there was an increased interest in the study of the vernaculars and exotic languages from Asia, Africa, Oceania, and the New World described by missionaries. The Latin model was still much in favor as a descriptive format or as a standard for comparison. Sixteenth-, seventeenth-, and eighteenth-century studies also produced a large body of didactic works (manuals, school grammars, conversation books) with an utterly contrastive design. The creation of national academies in Europe, the diplomatic exchanges between courts and governments, and the organization of national administrations caused an explosion of linguistic tools and also of larger synthetic enterprises such as grammars and dictionaries (see LANGUAGE REFERENCE BOOK). The growing cosmopolitanism and the vicissitudes of philosophical trends such as rationalism, idealism, empiricism, and sensualism influenced the development of a philosophical analysis of language (also of humans as speaking animals) and of grammatical categories (culminating in the vogue of "philosophical grammar" or *grammaire raisonnée*). There also developed an important body of knowledge on the relationships among languages. The theoretical and methodological advances in these fields of linguistic activity were major ones, as can be gathered from the construction of a theory of grammar in eighteenth-century France, from the reflections on the origin of language and on the relationship between nature and culture (Thomas Hobbes, JOHN LOCKE, Pierre-Louis Moreau de Maupertuis, Jean-Jacques Rousseau, Étienne Bonnot de Condillac, Adam Smith, Johann Gottfried von Herder), and from the incep-

tion of comparative studies (Indo-European and Finno-Ugric).

The nineteenth century saw the rise, development, refinement, and institutionalization of historical-comparative grammar (with Franz Bopp, Rasmus Rask, Jacob Grimm, August Pott, August Schleicher, Karl Brugmann, Berthold Delbrück, FERDINAND DE SAUSSURE, William Whitney), but it also witnessed the spread of Humboldtian linguistics, with a strong interest in (evolutionary) typology and the links among language, thought, and society/culture. Other specific disciplines developed, such as dialectology, phonetics and phonology, psychology of language, neurolinguistics, and semantics (or semasiology). Major achievements were the recognition of regular sound change, the development of the method of reconstruction and of models for genetic relationships, the discovery of the internal history of languages (most fruitfully applied within the study of lexical units), the awareness of (phonemic/morphemic) patterns in language, the idea of linguistic relativity as evidenced on the level of grammatical categories, and the formulation of criteria for typological CLASSIFICATION. If one adds to this the increased interest in the study of dialects and exotic languages one can easily see the groundwork laid in the nineteenth century for twentieth-century linguistic practice and theorizing.

The main trends of twentieth-century linguistics—excluding traditional grammar and broad speculations on the function and origin of language—should be seen in the light of a general concern with methodology and descriptive analysis. The various structuralist schools in Europe and the United States share the view of language as a hierarchical system of forms fulfilling specific functions. Divergences exist in the construction of the theoretical frameworks (integration of various layers or language styles, universalistic versus relativistic orientation, etc.), in the emphasis on the synchronic approach, in the role accorded to meaning, and in the focus on the system of forms or on their function, but it would be wrong to create an impression of the various structuralist schools as opposing monolithic blocks. The structuralist schools each claimed a number of major figures: Saussure (Geneva school); ROMAN JAKOBSON, N. S. Trubetzkoy, and Vilem Mathesius (Prague school); Louis Hjelmslev and H. J. Uldall (Copenhagen school); J. R. Firth (London school); FRANZ BOAS, Leonard Bloomfield, and EDWARD SAPIR (American structuralism, with its complex variations). Some of the exciting developments in the first half of the twentieth century were the fascinating work on exotic languages, the interest in descriptive techniques (and with grammatical forms), the creation of standard handbooks, and also the institutionalization of linguistics as an autonomous discipline. This resulted in a neater division and compartmentalization of

linguistic analysis. Articulatory/acoustic phonetics was separated from phonology, and traditional grammar was replaced by a descriptive model embracing morphophonology, morphology, syntax, and, at times, semantics.

From the 1950s on, the field of syntax became open to less rigid techniques of analysis and to increasing theoretical speculation. This led to the development of transformational (generative) grammar by Zellig Harris, Noam Chomsky, and their followers, which was methodologically rooted in American structuralism but from which it diverged by adopting a mentalist and (eighteenth-century) idealist epistemology. The new period has its own social history and fashions in models and research that often reflect a total ignorance of earlier work, its specific interests (autonomous syntax; integration of syntax and semantics; the study of meaning in its pragmatic context or in the larger context of cultural behavior; the structure of the suprasegmental level: tone, pitch, prosody; morphological productivity), and above all its specific techniques and terminological apparatus. Parallel to the development of a formal theory of grammar and language has been an increasing interest in the study of language as a dynamic set of variable subsystems adapted to specific communicative and social ends. This has resulted in an impressive number of studies on (1) synchronic variation, (2) languages in contact and specific situations such as diglossia and bilingualism, (3) speech styles, and (4) language as a semiotic product and/or activity. The sometimes very narrow orientation of formal grammar/theory of grammar is also counterbalanced by the encyclopedic orientation of some traditional disciplines, such as lexicology, onomastics, dialectology, anthropological linguistics, and especially by the flourishing trend of typological linguistics (which constitutes a fertile source of data for present-day comparative linguistics). Language typology is not only directly relevant to the issue of classification but also the most appropriate way to learn and understand how language functions, how languages vary, and how they change.

Present-day Linguistics: Problems and Tasks

Almost ironically the main problems faced by present-day (general) linguistics are not caused by its primary object (language data) but by its practice and practitioners. Adopting Mario Bunge's distinction between the indirect referent (the data or some idealized version of the data base) and the direct referent of a particular scientific theory (the direct referent being the model associated with that theory), one can say that the proliferation of direct referents in modern linguistics has caused an identity crisis of the discipline. In addition to the theoretical diversity there is

little overlap in the sometimes extremely narrow sets of data being investigated, and, most important, there is no agreement about argumentation in linguistics. These divergences in linguistic analysis, theory construction, and its justification fully sustain the "incommensurability view" held by some epistemologists of linguistics.

Apart from the identity crisis of linguistics as a whole, evidenced by the isolation of theories and models because of the use of separate "circuits" (journals, associations, institutions, "theory-internal" quotation) for exchanging information, there are a number of major specific problems that every theory has to face. The first concerns the linguist's attitude toward the primary object: is it language as a formal-semantic system or the use of language(s)? If the latter, the ultimate goal will be the description of language as a means and as a product of socialization. Such a view aims at an ethnography of speaking (*see* SPEAKING, ETHNOGRAPHY OF), but the extant theoretical models prove insufficient and too narrow. It is clear that the ethnography of speaking requires its practitioners to transcend the boundaries of traditional and modern linguistics, although it is at present far from clear how a full-fledged theory can be constructed for the study of "linguistic culture."

This type of research, based on linguistic data that extend well beyond the sentence, leads to a problem that is internal to linguistic description: the organization of grammar. Basically, three types of solutions can be conceived, and all are now in contention. In the first type of solution, which characterizes both traditional and (post-)structuralist descriptions, the organization of the grammar (or grammatical model) is determined by the levels of segmentation that result from the application of more or less explicit descriptive procedures. A second type of solution, characteristic of more recent work within the generative framework, is to dissolve the grammar into a number of modules (claimed to be components of universal grammar). These modules (syntactic, phonological, and logico-semantic) are interrelated, but there is no fully and consistently developed theory on the nature and effects of these interrelations. A third type of solution consists in organizing the grammar from a socio- or ethnolinguistic perspective on discourse, emphasizing CODE switching. A third problem, or set of problems, concerns the specific object of the various linguistic disciplines and its relation to a global theory of language (and linguistics). Apart from epistemological and methodological problems, which concern the susceptibility of linguistic data to mathematical, logistic, and sociological treatment, the problem of linguistic variation and language change must also be mentioned. Although the general conditions and also the specific factors are adequately diagnosed, the exact nature of variation and change,

as well as their historical context, will be a major target for future linguistic research.

Bibliography. W. Abraham et al., *Terminologie zur neueren Linguistik*, Tübingen, FRG, 1974; *Bibliographie linguistique/Linguistic Bibliography*, The Hague, 1949–; Theodora Bynon, *Historical Linguistics*, Cambridge, 1977; Noam Chomsky, *Knowledge of Language: Its Nature, Origin, and Use*, New York, 1986; David Diringer, *Writing*, New York and London, 1962; *Language and Language Behavior Abstracts*, Ann Arbor, Mich., 1967–1974, La Jolla, Calif., 1974–; Edward Sapir, *Language: An Introduction to the Study of Speech*, New York, 1921; Thomas A. Sebeok, ed., *Current Trends in Linguistics*, 15 vols., The Hague, 1963–1976; Charles F. Voegelin and Frances M. Voegelin, *Classification and Index of the World's Languages*, New York, 1977.

PIERRE SWIGGERS

LIPPMANN, WALTER (1889–1974)

U.S. journalist and political philosopher. Born to a well-to-do New York family, Walter Lippmann completed requirements for a Harvard University A.B. in three years, also finding time to help found the Harvard Socialist Club. Among his professors were three who had a particularly important influence on his thought: the philosophers WILLIAM JAMES and George Santayana and the English social scientist Graham Wallas. Also influential during these years was the muckraking journalist Lincoln Steffens. Lippmann left the university during his fourth year, shortly before he was to be awarded an M.A. in philosophy, to become a reporter with a Boston newspaper.

Journalism appealed to Lippmann because it offered the possibility of combining study and writing with direct contact with decision makers. He soon left Boston to assist Steffens with a series of articles on Wall Street for *Everybody's Magazine*. Shortly thereafter he became an editor of *New Republic*, remaining with this MAGAZINE, with interruptions, for nine years.

One of these interruptions was caused by World War I. An army captain, he served as chief writer of front-line PROPAGANDA leaflets for the Inter-Allied Propaganda Commission and, briefly, as an adviser to the U.S. delegation at the peace conference.

In 1921 Lippmann was hired by the *New York World*. He soon became editorial-page director, and during nearly ten years with the newspaper he wrote some twelve hundred editorials, approximately a third on foreign policy. Simultaneously he wrote several books, a regular column for *Vanity Fair* magazine, and numerous articles. When the *World* was sold in 1931, he accepted what was then a princely salary from the *New York Herald Tribune* to write a syn-



Figure 1. (*Lippmann, Walter*) Walter Lippmann. From Larry L. Adams, *Walter Lippmann*, Boston: Twayne Publishers, 1977, frontispiece.

dicated column, "Today and Tomorrow," which soon became a prominent feature in U.S. POLITICAL COMMUNICATION. It was bought by the Washington Post Syndicate in 1963; the last regular column appeared in 1967. *See also* NEWSPAPER: HISTORY.

Lippmann's writing earned attention and respect from the politically powerful. He worked closely with former president Theodore Roosevelt; President Woodrow Wilson borrowed his "Peace without victory" slogan from Lippmann; Franklin D. Roosevelt and John Kennedy valued his advice. Lippmann's career offers a fascinating case history of interplay between mass media and politics.

Of his more than two dozen books, two are of particular interest to students of communication: *Public Opinion* (1922) and *The Phantom Public* (1925). In the former are Lippmann's insights on PERCEPTION, propaganda, opinion leadership (*see* OPINION LEADER), journalism, and related subjects. He held that information from the news media is refracted by pictures in our heads (which he labeled stereotypes) and that the content of the news is shaped by characteristics of journalists and the press. Despite its title the book's major contribution is less to PUBLIC OPINION than to media sociology, of which it remains one of the finest expositions. It concludes that government by a mystical force called public

opinion is a chimera and that the machinery of knowledge is not organized in a way that provides responsible decision makers with the information they need.

The Phantom Public drives home Lippmann's conclusion that the average person cannot be expected to form intelligent opinions on major political questions. Lippmann was not opposed to the ideal of an informed citizenry, characterizing it as "bad only in the sense that it is bad for a fat man to try to be a ballet dancer," but he emphasized that most people are unable to take the time and trouble to become informed.

Several of Lippmann's briefer works also treated aspects of communication. *Liberty and the News* (1920) anticipated ideas on media sociology included in *Public Opinion*. A forty-two-page supplement to the August 1920 *New Republic* (with Charles Merz) reported on a CONTENT ANALYSIS of news about the Bolshevik Revolution carried in the *New York Times*. The authors concluded that reporters tended to see what they wanted or expected to see rather than what actually happened.

Bibliography. Marquis Childs and James Reston, eds., *Walter Lippmann and His Times*, New York, 1959, reprint Freeport, N.Y., 1968; Heinz Eulau, "From *Public Opinion* to *Public Philosophy*: Walter Lippmann's Classic Reexamined," *American Journal of Economics and Sociology* 15 (1956): 439-451; Ronald Steel, *Walter Lippmann and the American Century*, Boston, 1980.

W. PHILLIPS DAVISON

LITERACY

The set of organized, culturally specific practices that make it possible to understand, use, and create written texts. The term is sometimes loosely used as a synonym for competence in a variety of cultural skills, but a strict definition limits its meaning to practices associated with written LANGUAGE. Minimum and normative standards of literate achievement vary among *textual communities*, a term historian Brian Stock has coined to describe groups that consider texts or types of texts—and their designated interpreters—authoritative. A textual community that embraces a characteristic set of practices specifying skillful PERFORMANCE IN READING, WRITING, COMPOSITION, and even speaking, along with an interpretive framework that gives meaning to these performances, constitutes a *literate community*. A literate community may be a school system that subscribes to standards and practices codified in explicit testing procedures, a nation-state whose leaders promulgate literacy training in the service of patriotic goals, a cult devoted to a sacred text, an AVANT-

GARDE literary circle, or a group of graffiti artists. Literates may belong to more than one literate community, and literate communities may overlap.

The proficiencies demanded for membership in particular literate communities depend on the kinds of literate tasks those communities practice. Some of these proficiencies may be formally schooled, but their usual range is much wider. Oral skills, for example, are an important but often unrecognized dimension of literate performance. Literacy-related oral skills may include reading aloud or recalling the words of a text, speaking about texts, or speaking with implicit reference to them, as when "grammatical" speech identifies the speaker with a textual community that contends that correct speech imitates certain features of written discourse. See GRAMMAR; ORAL CULTURE.

Contemporary popular notions of literacy often define it as reading and writing skills with general applicability, able to be specified independently of any social group or setting, and unrestricted to any particular canon of texts. That notion has its roots in the extension of literate skills through popular education to persons of modest or low social rank in industrializing nations during the nineteenth and twentieth centuries. This expansion marked a significant departure from centuries of an elite, restricted literate tradition embodied in both East and West in a narrow textual canon and a highly structured initiation procedure. What are counted as the most advanced literary skills in particular societies are traditionally the possession of privileged groups, usually males of a specific hereditary or socioeconomic status. In ancient Egypt literacy was an esoteric "mystery" presided over by an elect priesthood. Literacy in medieval Europe was a collection of craft skills reserved almost exclusively to the clergy as the guardians of all written knowledge. Literacy was apparently universal among the two highest classes of Gupta India (fourth century B.C.E.): the Brahmins (priests, lawgivers, and scholars) and the Kshatriyas (rulers and soldiers). Comparable literacy levels may also have characterized periods of high culture in traditional China. A majority of the 25,000 to 30,000 adult male citizens in classical Athens are thought to have been literate in a total Attican population of 250,000 to 350,000, including women, slaves, and the foreign-born (see HELLENIC WORLD).

The term *literacy* has not always had an exact synonym in other languages and cultures. A man who could read was described as *grammatikos* in classical Greece, but this connoted no positive sense of education or cultivation. During the ROMAN EMPIRE, the word *litteratus* signified a person familiar with literary culture. The same word described persons with training in Latin grammar and syntax during the MIDDLE AGES. It was used interchangeably

with the term *clericus*, since churchmen had a virtual monopoly on literate skills and training. Both the fragmentation of clerical authority after the Middle Ages and efforts by printers to expand their secular markets accelerated the written codification of oral vernaculars in Europe and contributed to the gradual dissociation of literacy from clerical control.

The growth of popular literacy in the West was supported by a religious IDEOLOGY, which viewed reading as a form of receptivity to the word of God, and by a democratizing ideology, which cast literate skills as more utilitarian than intellectual and deprecated the cultivation of elite literacy and classical cultures with which literacy had long been identified. Contemporary notions of functional literacy as the minimal level of literate skill necessary to cope with the ordinary demands of daily life reflect this perception of democratized literacy as broad but shallow. Literates in the everyday, urban industrialized world of the twentieth century, for example, are more likely to use their skills for writing checks and interpreting tax forms, traffic signs, and ballots than for reading and debating works of great literature.

Medieval literacy, by contrast, was focused around the monastery and the scriptorium and oriented to the authority of the Bible (see BOOK). Some literate artisans were scribes, others were readers, and still others were skilled in the art of composition. Highly educated individuals might be adept at all three skills, but specialization was (and remains) a characteristic pattern of restricted literacies around the world, especially in traditional preindustrial literacies. A contemporary example may be found in computer literacy, defined as skill with computer texts, since users who are able to execute or read computer programs (texts) at a given level of proficiency may not be able, and may not be expected, to write such programs themselves (see COMPUTER: IMPACT—IMPACT ON EDUCATION; EDUCATION).

Despite the cultural and historical variability of literate goals and practices, most efforts to promulgate literacy standards on behalf of a particular literate community have presented those standards as natural and universal. Most are nevertheless ethnocentric, prescriptive, and associated with membership in ideal cultural groups. That fact prompts some scholars to speak of a variety of literacies or socially situated textual practices, instead of a single literacy or set of literacy standards. As definitions of literacy have moved away from attempts to specify universal cognitive achievement criteria, they have moved toward what are taken to be broadly consensual social achievement criteria. A good example is the definition of literacy put forward in 1951 by the newly formed United Nations Educational, Social and Cultural Organization (UNESCO), which declared that “a person is literate who can with under-

standing both read and write a short, simple statement on his everyday life.” While leaving specific cognitive criteria to be identified in local situations and circumstances, contemporary programmatic definitions of literacy frequently emphasize its social purposes and may link its practice to the exercise of personal pride and dignity, to the ability to realize goals for oneself and one’s family, or to creative participation in community and nation building.

Cognitive effects. If efforts to arrive at universal standards of literacy have largely been abandoned in descriptive definitions of it, the notion that literacy has universal effects remains widespread. In individuals, literacy has been said to have an enabling effect on higher intellectual and logical processes, often defined as the capacity for abstract thought, decontextualization, propositional logic, or psychic mobility. Such claims are difficult to demonstrate, however. This is because every empirical measure of literate achievement appeals to some criterion of success in interpreting messages, where success in interpreting messages is a socially constructed rather than an objective category, subject to complex variation across literate communities. Literacy is always learned, practiced, and evaluated as interpretive strategies in which every “correct” interpretation reflects the cultural framework within which it occurs and which gives it meaning. Research on the cognitive effects of literacy, therefore, has the special challenge of identifying cultural influences that affect the cognitive performances of literates. One team of researchers working on this problem compared the cognitive behaviors of persons from different literate communities within the same Nigerian tribal culture with one another and with the cognitive behaviors of nonliterates in that culture. Although the evidence is not entirely clear, the studies by U.S. scholars Sylvia Scribner and Michael Cole in Nigeria suggest that strong literacy effects are not general and that different literacies cultivate specific skills in the exercise of tasks that vary significantly from literacy to literacy. In sum, literacy cannot be assessed independently of its socially embedded practice because it has no existence apart from a social situation.

Literacy as a mechanism of social control. Since cultural knowledge is manifest in symbolic representations for which literate modes may be especially efficient, literacy is closely associated with social control. Historically literacy has been an instrument to exert control and to challenge it alike. To achieve a wide level of cultural currency and stability, literate practices require the support of powerful institutions, such as the church or the state, which sponsor and promote literacy by providing occasions for its exercise and even by coercing participation in its practice. The development of bureaucratically complex, populous, and far-flung social and political units

unsuited to traditional oral mechanisms of control propelled literate training and practice forward throughout the modern period. At the same time, a variety of nonschooled or informally schooled literacies existed in societies in which literate training was (or still is) a craft apprenticeship distinct from standardized, hierarchically stricter forms of state-sponsored literacy training.

The relationship between literacy and the distribution of power in society has been vigorously debated. A central question is whether literacy is primarily an instrument for diffusing and sharing power or a device for its exercise over the many by the few. In the modern West literacy is regarded as essential to the well-being of individuals in civil society. In the tradition of liberalism descended from the Enlightenment (including Marxism, which favors enlightened class consciousness) universal literacy is held in high esteem. Literacy is thought to be an implicit condition for open expression, which is necessary to discover truth, which in turn is necessary for a just and stable civil society. Literacy is thus a prerequisite for shared political power, a means of ensuring informed participation by democratic electorates, and an instrument of upward social mobility, particularly at the lowest levels of society. The extension of literacy through public schools to nonelites in Europe and the United States in the nineteenth century was justified by an appeal to its presumed capacity to increase its practitioners' political knowledge and maturity, to prevent civil disturbances by including literates within the circle of state power (insofar as that power was manifest in written form), to elevate political discourse above uninformed oral rumor, and thus to increase political stability.

Belief in the positive value of literacy precedes the Enlightenment, however. The labor of copying manuscripts was believed by medieval monks to be in the service of their own and the world's spiritual redemption. By the sixteenth century, Reformation clerics were enthusiastically promoting reading literacy as the key to spiritual salvation. Since the Enlightenment, competing political states have sponsored mass literacy campaigns in the hope that literates would prefer the political programs and ideals of the sponsors to those of rival states and ideologies. So deep is the commitment of modern states to mass literacy that any apparent decline in its level is a source of public concern. Great outcry was raised in the United States when levels of high school literacy measured by academic achievement tests dipped dramatically during the 1960s and 1970s. It is unclear whether this "crisis" was due to lax standards, as some critics charged, or whether it reflected a temporary adjustment to the absorption of large new student constituencies that had previously been excluded from the educational system.

A different version of the Enlightenment tradition grants the efficacy of literacy but sees it as a means for elites to restrict and control nonelites in order to maintain and extend their own power. Many scholars such as David Cressy, Harvey Graff, Lee Soltow, and François Furet have demonstrated that historical opportunities for acquiring and practicing literacy are related to a variety of social factors, including class, gender, occupation, ethnicity, birth order, and whether one's residence is urban or rural. According to this account literacy is an instrument of social power selectively granted or withheld by elites who wish to preserve the gap between themselves and outsiders in order to enjoy the rewards of their own literate status, or because they fear its extension to those lacking in or resistant to elite values. Centuries of reluctance to offer women full educational opportunities available to males and prohibitions on teaching literacy to slaves in the American South are good examples.

Still other elites have forcibly imposed literate practices on subject populations in order to transmit systems of ideology and authority implicit in those practices. During the nineteenth century the American Indian Bureau instituted compulsory education for Indian children in English-language literacy in order to demonstrate the superiority of white culture. A common conquistadorial practice during the sixteenth-century conquest of Peru was to burn the written artifacts of the Incas and establish mission schools to teach Spanish-language literacy. European settlers in North America frequently refused to recognize Indian claims to traditional tribal lands because these claims were not codified in writing. Historians of the nineteenth and twentieth centuries have argued that literacy training is also a mechanism of social control by which the labor forces of modern industrial states learn obedience and efficiency, practice taking orders, and become accustomed to routinized work. Other scholars have challenged the assumption that the acquisition of literacy automatically leads to social mobility, at least within the first generation.

Historically there appears to be no necessary relation between popular literacy and political structure. Political cultures with high participation have existed in the absence of popular literacy, and authoritarian regimes have flourished in its presence. The sense of urgency many modern states feel to achieve mass literacy among their populations may have less to do with the participatory character of their political structures than with perceived threats from rival states, or with the rationalization of economic production on a world scale and the growth of science and technology, all of which are facilitated by literate modes.

Literacy as a molder of world views. Still another body of theory assigns the effects of literacy not at

the level of individual cognition or political power but to cultural perception and organization. Walter Ong, Jack Goody, and others have argued that the physical form of the dominant mode of communication in each historical period shapes the character of political and social order, the quality and texture of individual experience, and even the moral spirit of the culture it presides over. In this view differences among literate practices are trivial since the essential effects of literacy flow from certain universal features of script as an exteriorization of language in discrete signs and from the physical and technological requirements of recording, storing, and retrieving written or printed texts.

A variety of historical consequences have been derived from these assumptions. U.S. historian Elizabeth Eisenstein has argued that the accuracy of textual reproduction that printing made possible offered unprecedented opportunities for access to texts and scholarly cross-comparison (*see* PRINTING). This led in turn to a flowering of intellectual activity in the fifteenth century that could never again be halted or lost by the diversion of cultural energies to emergencies like war and famine. Other scholars have argued that the historical appearance of the rational, impersonal procedures of modern science required a level of symbolic abstraction that is said to be more characteristic of literate than oral communication. It has been claimed that literacy promotes cultural homogenization by giving many people access to the same ideas; individualism by making possible personal access to sources of authority, standards, and ideas foreign to one's immediate community; and psychological alienation by substituting literate solitude for face-to-face exchange. Goody has argued that religions of conversion are religions of the book because their fixed point of reference, the sacred text, is less flexible than that of more syncretistic, orally based religions. Writers such as HAROLD INNIS have claimed that literacy fosters a modern secular concern with territorial expansion, since the ease with which written materials may be transported relative to other symbols of authority facilitates political and administrative control of distant territory.

These claims confront the same obstacles to empirical demonstration as those discussed earlier, but with two added difficulties. It is not clear whether written forms of communication are more pervasive or influential than the oral ones they are assumed to displace and with which they are contrasted. It may be truer to say that written and oral practices continually collide with and transform each other. Additionally, the attempt to demonstrate that literacy causes large and often vaguely defined social effects that would be absent without it requires adopting a strong, monocausal explanation for complex differences among cultures and historical epochs.

For example, anthropologist Kathleen Gough has challenged the hypothesis that literacy promotes concepts of linear time, interest in historical precision, and the development of skeptical thought across cultures, as well as the related hypothesis that these results are fostered more by alphabetic traditions than by literacy alone. Gough argues that whether or not such hypotheses describe historical experience in the West, they do not account for important contrasts between the literate premodern high cultures of India and China. These two nonalphabetic written traditions show marked distinctions that suggest that the experience of literacy is not culturally uniform. The nature of these differences also argues against large claims of uniform difference between literate and nonliterate discourse and between alphabetic and nonalphabetic discourse, since (written) Indian traditions contain important features associated exclusively with orality, and (nonalphabetic) Chinese traditions contain features associated exclusively with alphabetic writing. Whereas the Chinese produced reliable chronologies of societal events as early as the ninth century B.C.E., for example, traditional Indian literature had nothing comparable before the Muslim period (1000 C.E.). Elaborate theories of cyclical time also characterized Indian astronomy. Similarly, Buddhist, Hindu, and Jainist thought in India cast the material world as unreal, while secular monarchs and literate bureaucracies in China fostered a fascination with correct, this-worldly social relations.

If the enthusiasm with which contradictory effects have been attributed to literacy does not resolve the question of what these effects are, it does suggest the close association between literacy and acculturation. In this view literacy is less important as a cause of particular cognitive or social effects than as a sign of its practitioners' participation in a social system of written messages. Beyond the socioeconomic factors that may control admission to training in a given array of literate skills lies a coded discourse of literate practice that continually marks and regulates social relations around written language, whether these skills are carefully restricted or widely diffused.

Measures of literacy. Contemporary emphasis on the importance of literacy may obscure the fact that even with the arrival of paper, printing, bureaucracy, and schools, reading and writing were not practiced by large numbers of persons until perhaps the eighteenth century. Although it has been argued that literates may exercise control over certain features of the lives of the less literate, many literate practices may also be irrelevant to large domains of experience for those with expertise in other communicative codes. While mass literacy may be counted as a twentieth-century achievement for many industrialized and industrializing countries, universal literacy is still an

elusive attainment. Less developed countries that lack formal institutional mechanisms for teaching popular literacy have perhaps the highest rates of illiteracy in the world. Like the term *literacy*, however, the term *illiteracy* is relative. If signatures are used as a criterion for literacy (as in most studies of pre-nineteenth-century literacy, for example), literacy may be considered a widespread phenomenon in the twentieth century. If the chosen standard is a critical ease and reflective familiarity with a canonical tradition for which intensive, specialized training is required, the number of literates will be small even in societies in which rudimentary reading and writing skills are widely diffused. Nor are quantitative measures of popular literacy completely informative. The depth of a literate tradition may be indicated by the existence of literate institutions such as libraries, universities, public inscriptions, village schools, and literatures.

Daniel and Lauren Resnick have shown how dramatically literacy standards have changed throughout history. The purposes of literacy tests have been equally various. Before the late nineteenth century, most direct tests of literacy were oral tests of recitation and memorization of familiar texts. Much Qur'anic (Koranic) literacy is still taught and examined this way today. Michael Clanchy has described how persons who could read aloud a prescribed scriptural passage (the "neck verse") in late medieval England were exempt from secular prosecution and punishment by virtue of the clerical status imputed to all literates. This practical literacy test discriminated those with benefit of clergy, or immunity from prosecution, from those without. Literacy levels have also been inferred by measuring signatures from early marriage registers, parish catechetical examination records, conscript records, nineteenth-century school attendance records, and public censuses. Precise estimates of literacy are not possible before the modern evolution of state recordkeeping and written involvement in citizens' lives, which provide data for direct or indirect measures of the literate skills of large numbers of citizens. Twentieth-century literacy tests have been devised by educators, military authorities, social scientists, and international agencies like UNESCO. These tests have had a variety of purposes, including understanding the nature and distribution of literacy skills, classifying some persons as qualified for particular tasks and opportunities, and evaluating literacy training.

Contemporary issues. Widespread popular literacy cannot be said to have existed anywhere in the world before the eighteenth century. Even after a century of public education in the United States more than 20 percent of the adult population is estimated to be less than functionally literate. While some critics argue that literacy is overvalued and that excessive emphasis on literacy may obscure the importance of

nontextual modes of communication, many citizens, educators, politicians, intellectuals, and others who articulate and enforce standards of literate practice are concerned about limitations on the life opportunities of nonliterates because of their exclusion from a significant part of the communications mainstream. In a world in which science, technology, and the world economy are largely organized by literate modes, literate skills provide individuals with occupational entry, security, and mobility. They also provide tools for self-defense against literate centers of power, as well as the opportunity to take advantage of the vast range of human knowledge and experience in textual form.

See also ALPHABET; CODE; EAST ASIA, ANCIENT; ISLAM, CLASSICAL AND MEDIEVAL ERAS; LIBRARY; MUSIC THEORIES—NOTATIONS AND LITERACY; NEWSPAPER: HISTORY; PAMPHLET; PUBLISHING; READING THEORY.

Bibliography. Michael T. Clanchy, *From Memory to Written Record: England 1066–1307*, London and Cambridge, Mass., 1979; David Cressy, *Literacy and the Social Order: Reading and Writing in Tudor and Stuart England*, Cambridge, 1980; Elizabeth L. Eisenstein, *The Printing Press as an Agent of Change: Communications and Cultural Transformations in Early Modern Europe*, 2 vols., Cambridge and New York, 1979; François Furet and Jacques Ozouf, *Reading and Writing: Literacy in France from Calvin to Jules Ferry* (Lire et écrire, Vol. 1), New York and Cambridge, 1982; Jack Goody, ed., *Literacy in Traditional Societies*, Cambridge, 1968, reprint Cambridge and New York, 1975; Daniel P. Resnick and Lauren B. Resnick, "The Nature of Literacy: An Historical Exploration," *Harvard Educational Review* 47 (1977): 370–385; Sylvia Scribner and Michael Cole, *The Psychology of Literacy*, Cambridge, Mass., 1981; Lee Soltow and Edward Stevens, *The Rise of Literacy and the Common School in the United States: A Socioeconomic Analysis to 1870*, Chicago, 1981; Brian Stock, *The Implications of Literacy: Written Language and Models of Interpretation in the Eleventh and Twelfth Centuries*, Princeton, N.J., 1983.

CAROLYN MARVIN

LITERARY CANON

Those literary works that at any given moment in a CULTURE'S history are regarded by educated people as the best their culture has to offer. Though one often speaks of the canon of Western literature or of the Asian classics, literary traditions are usually associated with the character and ideals of ethnic and national groups. The close relationship between these groups and their literary traditions both requires and guarantees a certain stability in the makeup of literary canons. Thus the works of William Shakespeare,

inseparable as they are from England's conception of itself, will probably never disappear from the canon of British literature. At the same time that canons represent cultural continuity and duration, they also reflect cultural change. Since literary works embody the values of the society that produces them, and since such values are almost always in dispute, the question of which books ought to be accorded canonical status is frequently a subject of controversy. Arguments over whether this or that text achieves literary greatness need to be understood in the context of debates over which moral standards, social arrangements, and political goals the culture will publicly endorse.

Changes in historical circumstance bring with them corresponding changes in the literary canon. Following the French Revolution, for example, romantic (see ROMANTICISM) definitions of POETRY in Britain (antiauthoritarian, alienated, individualistic) brought a resurgence of interest in *Paradise Lost* (1667), with JOHN MILTON, the seventeenth-century republican, being seen as "of the devil's party." During the 1930s, anthologies of U.S. literature mirrored the economic conditions and political consciousness of the depression by including workers' songs and excerpts from political speeches; later, in the conservative 1950s, these selections were dropped.

While debate over which works ought to be considered canonical is as old as literature itself, the historical study of canon formation, of how and why certain literary works achieve classic status, is relatively new. Students of canon formation investigate the mechanisms that create and sustain or, alternatively, abort or destroy a literary work's reputation, and attempt to account for changes in the literary canon over time by delineating the emergent conceptions of literature and literary value that accompany such changes, as well as the historical processes in which they are embedded. Rather than concentrating on the features of literary texts themselves, students of canon formation examine the contexts within which literary works were originally written and read in order to understand the conditions that guaranteed that the works of some authors would remain in the foreground of literary study while the works of others would gradually be forgotten.

The main reason for the emergence of canon formation as a subject of study is the entrance into the professoriate of people from outside the culture's dominant group, combined with a heightened consciousness of the way a person's race, GENDER, and social class affect his or her social status, political power, and cultural influence. Scholars who study canon formation usually belong to or identify with groups that have been socially marginal or oppressed and whose literary production, accordingly, is not part of the cultural mainstream. Working-class people,

women, homosexuals, blacks, and members of ethnic minorities look at the literary canon and find that their interests, their experiences, and their concerns are not reflected there. Unable to believe that people like themselves have never written anything that deserves to be called great, they study the mechanisms that create and sustain literary reputations in order to discover why the authors who represent their sense of themselves have not survived the process of selection. They conclude that the reasons why literary works appear in anthologies and on university reading lists have more to do with considerations of class and race, religious background, economic and social status, educational opportunity, and institutional affiliation than with considerations of aesthetic merit. Some question whether aesthetic standards can ever be separated from practical, political concerns. Believing that circumstances have favored authors who belong to certain social groups rather than others, these critics want to revise the literary canon so that it will become more representative of all the groups that constitute the social whole. See AESTHETICS.

The idea that the canon should represent the interests of social groups in somewhat the same way that the governing body of a democratic nation represents political constituencies does violence to traditional notions of the canon and of literature itself. From the traditional perspective, works now in the canon are assumed to reflect not the workings of a political process but the judgment of generations of readers who have responded to the work's intrinsic superiority. In this view Shakespeare and Milton, rather than the works of black or women writers, are taught in the schools not because they represent the values and interests of a particular social group or literary critical trend but because they are great in themselves, their genius having been recognized over time by people whose education, taste, and experience enabled them to identify true literary merit.

This standard conception of how canons are formed rests on a definition of literature that emphasizes its timelessness and universality. At least for the last hundred years literature has been distinguished from other forms of discourse on the grounds that its truths transcend the special interests of parties and rise above the limitations of historical time and place. Literary classics, it is said, appeal *across* time and space to people of diverse backgrounds and experience without regard to their particular conditions of existence (race, class, gender, nationality, etc.). From this perspective, insisting that works written by members of every minority group be included in a nation's literary canon robs literature of its universality, denies its transcendence, challenges its disinterestedness, and reduces it to the level of RHETORIC or PROPAGANDA, which is to say, of discourse that is committed to furthering the interests of one faction

over another. To preserve literature from POLITICIZATION, proponents of the traditional view seek to preserve the existing canon on the grounds that it represents enduring values.

The problem with this position, from the viewpoint of people who find members of their own race, sex, or ethnic group excluded from the canon, is that it means accepting the idea that people like themselves are or have until now been incapable of producing great ART. Not wishing to accept the imputation of racial, sexual, ethnic, or class inferiority, these scholars prefer to assume that canonization is not a neutral process in which the best work rises to the top through natural selection; instead they set out to demonstrate exactly the reverse, that canonization is a means by which the class of people that exercises power in a society maintains control of the society's systems of value. For these scholars, the literary canon, far from being a protected zone that preserves the best that has been thought and said, becomes an arena of ideological struggle in which contending visions of the world vie for mastery. See IDEOLOGY.

In this view literary texts enter the complex interaction of social and institutional structures that mutually reinforce one another. The correlation between the behavior, manners, customs, and vested interests of the dominant social class and the standards of critical judgment ensures that only works written by people with access to certain educational and social opportunities will be able to compete. An author's social and cultural milieu, moreover, will determine his or her access to PUBLISHING outlets; publishing with a certain press will affect the nature and number of reviews an author receives. The personal, social, and institutional relationships that obtain between authors and critics, between authors and journal editors and influential publishers, between the professoriate and the reviewing media, between the judges of literary contests (who belong to all of the above-named categories) and the prizewinners—all work to determine whose books will be printed, distributed, advertised, purchased, read, reviewed, cited, reprinted, taught, written about, and declared or not declared "classic." Once the canon is in place, differing tastes in literature (canonical, noncanonical) serve to distinguish members of different social classes from one another and thus to preserve the hierarchical social distinctions on which the canon is already based.

The study of canon formation that reveals the ways in which certain social groups have been discriminated against by these processes is, in effect, a literary suffrage movement seeking to enact in academic and cultural spheres the principles that in democratic nations are supposed to regulate political life. Thus the study of the canon is not a politically neutral activity but one way for previously marginalized

groups to advance their own interests. To see this political motivation as grounds for dismissing the enterprise, however, is not to adopt a neutral stance but to buy back into the conservative position that regards the literary status quo as, so to speak, interest-free.

An example of canon formation may clarify this process. In the 1970s, Harriet Beecher Stowe's *Uncle Tom's Cabin* (1852), though a standard text for historians of the antebellum era in the United States, was seldom written about, taught, or referred to by literary critics. It was considered maudlin, trite, melodramatic—a piece of sentimental propaganda, not a serious work of literature. As a result partly of the feminist movement, partly of neohistoricist criticism, and partly of a growing interest in U.S. popular culture, Stowe's novel came to be taught regularly in courses on U.S. literature and became the kind of text that younger critics can prove themselves by writing on.

The addition of a text to the literary canon is not an isolated event. The act of taking seriously a novel like *Uncle Tom's Cabin* required a shift in critical perspective that sprang from a series of interlinked circumstances—social, cultural, and institutional—whose effects have begun to alter the nature of canonical works as well by changing the shape of the attention paid to them. That Stowe's text could become an object of legitimate discourse silently validates the perspective it represents and opens the way for other works to enter the canon that previously would have been inadmissible. The presence of these texts will presumably alter the social environment in unforeseeable ways, leading to new possibilities for change. It is conceivable that as the circumstances surrounding the production and reception of literary texts evolve, canons will cease to function as symbols of national identity and will serve purposes that are as yet unthought of.

See also LITERARY CRITICISM; POETICS.

Bibliography. Pierre Bourdieu, *Distinction: A Social Critique of the Judgement of Taste* (La distinction: Critique sociale du jugement), trans. by Richard Nice, Cambridge, Mass., 1984; Joan Hartman and Ellen Messer-Davidow, eds., *Women in Print I: Opportunities for Women's Studies Research in Language and Literature*, New York, 1982; Paul Lauter, ed., *Reconstructing American Literature: Course, Syllabi, Issues*, Old Westbury, N.Y., 1983; Deborah S. Rosenfelt, "The Politics of Bibliography: Women's Studies and the Literary Canon," in *Women in Print I: Opportunities for Women's Studies Research in Language and Literature*, ed. by Joan Hartman and Ellen Messer-Davidow, New York, 1982; Barbara Herrnstein Smith, "Contingencies of Value," in *Canons*, ed. by Robert Von Hallberg, Chicago, 1984; Jane Tompkins, "'But Is It Any Good?': The Institutionalization of Literary Value," in *Sensational Designs: The Cultural Work of American Fic-*

tion, 1790–1860, New York, 1985; Raymond Williams, “Traditions, Institutions, and Formations,” in *Marxism and Literature*, Oxford, 1977; Richard Yarborough, “In the Realm of the Imagination: Afro-American Literature and the American Canon,” *ADE Bulletin* 78 (1984): 35–39.

JANE TOMPKINS

LITERARY CRITICISM

The history of literary criticism, with its many different concerns—the nature of literature, the social role of the poet, the response of the reader, and questions of value and INTERPRETATION—is usually regarded as having begun with PLATO, who for nearly two thousand years stimulated defenses of POETRY and poets against his attack. Plato denigrated poets on the ground that they were secondhand imitators—imitators of external appearances, which were themselves only imitations of “ideas.” Actually, in the guise of this attack on poets, he was criticizing the teachers known as Sophists for their employment of RHETORIC rather than strict dialectic. For Plato rhetoric, with its reliance on tropes, or figures of speech, was an abuse of reason and therefore of LANGUAGE. Rhetoric appealed to the baser senses, not to the rational powers; hence, in the *Republic*, Plato had Socrates advise the young to study MATHEMATICS and not poetry. At best the poet was possessed of a divine madness, and though Socrates acknowledged poetry’s charm, he suggested that the poets be banished from the state—but with garlands on their heads.

ARISTOTLE’S *Poetics* (ca. 330 B.C.E.), lost for centuries until its rediscovery in the RENAISSANCE, defended poetry by revising Plato’s doctrine of ideas and the meaning of imitation. For Aristotle poetic imitation re-created actions and always added something of its own, which was the shape, form, or integrity of the whole. Thus was begun the opposition between the Platonic idea of imitation and an objectivizing formalism that has been with criticism in some shape ever since. The other early effort to cope with Plato was that of the Neoplatonist Plotinus, who in the third century C.E. argued that beauty is incarnate in the symbol itself, which is thus something more than a false simulacrum, or imitation of reality. Though Plotinus never discussed literature, his general remarks came to be regarded as relevant to literary matters.

Rhetoric was not successfully dispatched by Plato, who was himself an effective rhetorician. Aristotle asserted that the prime requisite of the poet was a command of METAPHOR, and in the Roman period both Horace and Longinus defended poetry, one on

the ground that as a “speaking picture” it both delighted and instructed, and the other on the ground that in inspired and well-prepared hands it was capable of conveying powerfully moving experience. To both of these critics imitation of ideas had become imitation of revered precursor poets. Much later the eighteenth-century English poet Alexander Pope was to proclaim, along similar lines, Virgil’s understanding that to copy Homer was to copy nature.

Generally speaking, literary criticism has followed the same lines as philosophy. Its history can be divided into three great ages: the long age of ontology that began with the Platonic critique, the age of epistemology coincident with the rise of modern science, and the age of linguistic thought, which was brought to birth in the nineteenth century. The first, ontological age was concerned with Being and Truth, either a being that poetry attempted to copy in vain (Plato) or successfully (Plotinus), or a being of the work itself, as in Aristotle’s treatment of the poem as a whole that orders the parts by its own principles of unification—“not to know that a hind has no horns is a less serious matter than to paint it inartistically.” The Aristotelian notion of unity solidified in Renaissance Italian and French criticism when the *Poetics* was rediscovered, and by the time of the seventeenth-century French dramatist Pierre Corneille it had become the standard employed to restrict treatment of time and place on the stage. Renaissance critics tended to invoke Plato to defend poetry in a strenuous misreading of his arguments; the work of the Italian Jacopo Mazzoni in the late 1500s is perhaps the most daring and interesting.

The earliest critical reading of texts in Western culture presumed that they were allegorical representations of spiritual truths or historical events. Such interpretive practice was early dominated by the reading of Homer and of SCRIPTURE. The Homeric epic tended to be treated as moral allegory with a Platonic flavor; scripture was given elaborate allegorical readings by Jewish writers, while Christian interpreters were often concerned about its losing historicity and developed a MODE of typological interpretation suggested by New Testament authors in which symbols, or “types,” of the Old Testament were read as historical prefigurations of the events and people of the New. Thus the Bible was given the unified shape of a sequence proceeding from Creation to Apocalypse that history was itself declared to possess (see HISTORIOGRAPHY). Elaborate medieval schemes grew out of this tradition: the levels of interpretation developed by John Cassian and appropriated with certain variations by St. Thomas Aquinas and Dante Alighieri, who in his famous letter to Cangrande della Scala transferred the same conventions to a reading of his own secular text of *The Divine Comedy* (1321).

The history of criticism through the Renaissance is in many respects a long series of disputatious footnotes to Plato and, after rediscovery of the *Poetics*, to Aristotle. The unity of a work of literature was treated as imitative of the unity of being that literature was said to imitate; but from Neoplatonism and the *Poetics* the argument was derived that the work's unity (and fictive character) produced an improvement on nature, the "golden world" of, for example, Sir Philip Sidney's *Apology for Poetry* (1583).

In the seventeenth century, with the rise of modern science, ontology gave way to epistemological concerns, and criticism followed. In the long period of ontological dominance, readers, it was declared, were delighted, instructed, and/or transported by literature. In the age of epistemology the task soon became that of distinguishing the effects and value of ART from those of science. With truth now taken principally to be objective scientific knowledge, poetry's truth and what it taught (if anything) had to be reconsidered. A variety of theories developed that proposed to divide its "affect" (if there was a knowable object, there had to be an experiencing subject) into elements of the "beautiful" and the "sublime." These categories were to be the concern of the new science of AESTHETICS, a term invented by the eighteenth-century German theorist Alexander Baumgarten. The subject-object distinction created by Renaissance science and developed philosophically on both empiricist and rationalist lines resulted in a need to find a place for experience categorizable as neither wholly subjective nor wholly objective. The great systematizer of aesthetic theory was Immanuel Kant, whose *Critique of Judgment* (1790) treated the experience of the beautiful and the sublime as falling under what Kant, adopting another Baumgarten term, called the *judgment*. In aesthetic situations our normal purposiveness is absent from our relation to the object, and aesthetic experience is neither utilitarian nor related, except by analogy, to the idea of the good.

The new emphasis on viewers and readers was paralleled by an increased attention to authors (see AUTHORSHIP). Until the late eighteenth century the little interest that was taken in authors had scant effect on the treatment of their work. SAMUEL JOHNSON'S *Lives of the Poets* (1781) tends to separate discussion of the life from discussion of the art. But works such as William Wordsworth's preface to the second edition of the *Lyrical Ballads* (1800) make the author the focus of criticism and poetry the utterance of personal feelings. This expressivist aesthetic, the other side of the somewhat earlier interest in affect, continued to be dominated by epistemological concerns, particularly by a sense of the gulf between subject and object or, in the Wordsworthian version, consciousness and nature. The theories of

imagination developed at the time in Germany and in England reflected a desire to see the human mind as not merely the passive receptor of sense data, as in the prevailing associationist psychology, but an active creator of its own experience and even, to some extent, of the external world. Poetic theory emphasized individual imaginative power, denigrated imitation as a passive reception of fixed externality or slavish adherence to tyrannical rules of art, and developed interest instead in the inner authorial self. This in turn led to attention being given to fantasy, to dreams, and to the grotesque. See ROMANTICISM.

The opposition between this new sense of active creativity and the older notion of an orderly nature to be faithfully rendered is well illustrated by William Blake's spirited annotations to the *Discourses* (1797) of Sir Joshua Reynolds, first president of the British Royal Academy. But the most important single text may be the brief and truncated thirteenth chapter of Samuel Taylor Coleridge's *Biographia Literaria* (1817). Following a chapter in which he borrows wholesale from Friedrich Schelling's *System des transcendentalen Idealismus* (1800), which adopts a view of the mind as creative and holds that whether one begins from the pole of the subject or that of the object one ends in a creative idealism, Coleridge goes on to define *imagination* and *fancy*. The primary imagination is the repetition in the finite human mind of God's eternal creativity—PERCEPTION itself; the secondary imagination is artistic creativity, which "dissolves, diffuses, dissipates in order to recreate"; the fancy is the mind operating only passively, as in associationism, with "fixities and definites." Coleridge's argument, like Kant's, was an effort to avoid identifying literary art with radical subjectivity. Approaching the problem from the side of the auditor, viewer, or reader, Kant had proposed the "subjective universality" of aesthetic judgment, which is a judgment not verifiable according to scientific categories but nevertheless one that the judge, exercising no self-interest, is willing to declare everyone else should share. In his *Principles of Genial Criticism* (1814), Coleridge introduced into English thought this same distinction between a judgment of what is beautiful and a judgment of what is good or useful.

But these efforts to mediate did not hold, and criticism on the whole tended to divide in the nineteenth century between objectivist and subjectivist theories, accepting what Blake had aptly named a "cloven fiction." Objectivist theory is well characterized by the popular terms *realism* and *naturalism* as applied to literature and is perhaps best exemplified by Émile Zola's *The Experimental Novel* (1880), in which he imagines the writer as proceeding in respect of the external world like a medical researcher (see REALISM). Subjectivist theory is illustrated in an extreme form by the notorious conclusion Walter Pater

wrote (and later suppressed) for his *Studies in the History of the Renaissance* (1873), in which solipsism is acknowledged as the primary fact of experience: "Experience, already reduced to a swarm of impressions, is ringed round for each one of us by that thick wall of personality through which no real voice has pierced on its way to us, or from us to that which we can only conjecture to be without." This view spread into criticism at the end of the nineteenth century, in, for example, Anatole France's famous statement in *La vie littéraire* (1893) that a critic should announce that he was speaking of himself when he was presumably speaking of Shakespeare or whomever.

The principle of art for art's sake, enunciated by Oscar Wilde and others, was derived from the Kantian idea of a separate aesthetic judgment as it was affected by the subjectivist current. The emphasis now fell on the idea of the artistic work as an independent entity with its own internal being apart from the vulgar world of utility. This was a sort of objectifying of the subjective. The opposite view emphasized the social function of art, its propagandistic powers, and its radical political role. Matthew Arnold, perhaps the major British critic of the nineteenth century, sought to proclaim poetry as a cultural substitute for RELIGION, which had been shaken in his time by scientific developments. His notion of art's social function is, however, perhaps closer to the idealist than to the realist view.

As the twentieth century dawned, these opposed camps produced contending theories almost everywhere in Western culture. In Russia the Marxists opposed and finally suppressed a formalist movement. In the United States a battle for control of academic literary study was waged in the 1930s and 1940s between the entrenched literary historians and the so-called New Critics, whose views were generated from a variety of sources, including the antiromantic CLASSICISM of T. E. Hulme and T. S. Eliot, the psychologistic poetic theory of I. A. Richards, and the study of poetic ambiguity by Richards's student William Empson. Richards exhibited intense interest in the workings of language and MEANING, Empson's interests were linguistic, and Eliot treated the language of poetry as fundamental in his well-known utterance, "The poet has, not a 'personality' to express, but a particular medium, which is only a medium and not a personality." The New Criticism tended to formalism, appropriating from Coleridge the idea of organic unity and elevating irony, paradox, and drama to principles of structure.

All of these critics reflected a movement into the linguistic age, the first stirrings of which (apart from some prophetic precursors like Giambattista Vico in the early eighteenth century) had occurred early in the nineteenth century, when language became a

matter of study among syncretic mythographers and the disciplines of philology were being established. One of the principal intellectual developments of the twentieth century, STRUCTURALISM, spread from LINGUISTICS into anthropology, PSYCHOANALYSIS, and literary criticism. The seminal text was FERDINAND DE SAUSSURE's *Cours de linguistique générale* (1913), which makes central to the theory of language the principle of difference, that is, the notion that language is a system of signs (*langue*), each one of which is definable by its difference from every other SIGN (see also SIGN SYSTEM). This is the notion of a "differential structure." Literary texts now began to be treated as miniature *langues*, following Saussure. In France structuralist analyses of myths were made by CLAUDE LÉVI-STRAUSS, Jacques Lacan developed a structuralist psychoanalysis, and ROLAND BARTHES and other European critics applied structuralist principles to literary and other sorts of texts. Though in approach there was some similarity to Anglo-American criticism, from the New Critics to the influential work of Canadian critic Northrop Frye, the language of structuralist analysis, taken from linguistics, was different.

By the time this new language had invaded U.S. criticism, structuralism had already given way in France to the poststructuralist critiques of philosopher Jacques Derrida, who showed that taken to its logical conclusion structuralist theory required abandonment of any notion of the unity of a text based on the principle of a "transcendental signified," or ultimate meaning lying outside the text itself. The ancient Aristotelian concept of unity having been "deconstructed" on the principle that language is an infinite chain of signifiers down which meaning endlessly escapes, indeterminacy won the day. Texts were now regarded as "open," not "closed," and respect for the "play" of language was advocated.

Determinate meaning had been called into question by other critical theories as well, but not with such wholesale results. The principal opposition to structuralism in Europe came from phenomenological criticism, which emerged mainly out of German philosopher Edmund Husserl's attack on the subject-object problem, resulting in his famous assertion that consciousness was always the consciousness of something. Phenomenology created a new form of textual interpretation, or *hermeneutic*, as the German critics following in the tradition of biblical interpretation liked to call it. Phenomenology, however, soon ran up against the complications of language theory. Rather than detaching language from consciousness, as was the tendency of structuralism, phenomenological hermeneutics saw it as mediating between the author and the world and time. Interpretation was seen to be deeply implicated in temporality, and important consideration was given to the relation

between so-called temporal horizons, both a reader's horizon and a text's. Hermeneutics had to read the difference between the two horizons rather than look upon the text as something independent of the temporal location of its interpretation.

Meanwhile deconstructive criticism, under the influence of its major practitioner in the United States, Paul de Man, emphasized the radically tropological and therefore rhetorical nature of all language and the unreliability—from the point of view of a desire to find in it stable meaning—of any text. Under de Man's gaze a text constantly undermined (in its tropes) the meanings apparently intended.

Three other critical movements showed the influence of these same tendencies, sometimes by opposition to or at least from anxiety about them. In Germany various attempts were made to relocate the center of a text—lost in deconstruction—in the reader (see READING THEORY). *Receptionsästhetik* sought to establish such a center in the relationship between a text's production and its reception as a historical process. Other reader-oriented theories in the United States sought to appropriate notions of competence, or intuitive understanding of literary texts, from Noam Chomsky's linguistics, or fell back on some concept of cultural consensus. There was also a revival of a socially oriented criticism, usually with Marxist roots and sometimes identified with the Frankfurt school of critical theory that had flourished in the 1930s (see COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT; MARXIST THEORIES OF COMMUNICATION). Considerable uneasiness was expressed with deconstruction, which appeared to be a renewal of the formalism attacked decades before. Finally, the literary wing of the feminist movement attacked the exclusion of women writers from the "patristic" canon of great literary works and subjected the whole question of canon formation to study (see FEMINIST THEORIES OF COMMUNICATION; LITERARY CANON). Literary criticism by now had greatly enlarged the range of what interested it. History, BIOGRAPHY, AUTOBIOGRAPHY, scientific writing, and, above all, philosophy were subjected to critical readings. Indeed, *literature* threatened to become so inclusive a term as to mean anything written, and *text* had come to mean anything, verbal or not, that might be subject to treatment as a differential structure. And so what Plato had regarded as dangerous deviation came in many quarters to be the norm. It can fairly be said that these recent events have greatly disturbed the critical world and brought it to a crisis that may very well presage a new age beyond the linguistic one.

See also POETICS.

Bibliography. Hazard Adams, compl., *Critical Theory since Plato*, New York, 1971; Hazard Adams and Leroy Searle, eds., *Critical Theory since 1965*, Tallahassee, Fla., 1986;

G. M. A. Grube, *The Greek and Roman Critics*, Toronto, 1965; Christopher Norris, *Deconstruction: Theory and Practice*, London and New York, 1982; John Sturrock, ed., *Structuralism and Since: From Lévi-Strauss to Derrida*, Oxford and New York, 1979; Bernard Weinberg, *A History of Literary Criticism in the Italian Renaissance*, Chicago, 1961; René Wellek, *A History of Modern Criticism, 1750–1950*, 4 vols., New Haven, Conn., 1955–1965; William K. Wimsatt, Jr., and Cleanth Brooks, *Literary Criticism: A Short History*, New York, 1957.

HAZARD ADAMS

LITERATURE. See FACT AND FICTION; POETICS; PROSE; STYLE, LITERARY. See also specific genres of literature.

LITERATURE, POPULAR

Much critical controversy surrounds popular literature, but the term itself is difficult to define. *Popular* can be taken to mean "of the people, democratic" or "best-selling, widely consumed." It is paradoxical that on occasion "elite" works of literature (such as Lord Byron's) can be popular even though "the people," politically understood, have little to do with them as either subject matter or consumers. *Literature*, for its part, is a term used both for canonized works of agreed cultural value (see LITERARY CANON) and, more neutrally, for anything circulated in printed form. Thus a "literary" writer like Charles Dickens can be regarded as popular, and a private-eye writer like Mickey Spillane, whose fiction can by no stretch of definition be termed "literary," is undeniably in the business of producing popular literature. Perhaps closest to the widely accepted meaning of popular literature is the German term *Trivalliteratur*, which denotes mass-produced READING matter of no cultural pretension.

Origins

In a sense, the history of literature is the history of its inexorably growing popularity. An advancing reproductive technology has played a leading part in this process (see PUBLISHING—HISTORY OF PUBLISHING). The successive inventions of papyrus and parchment in the ancient world, followed by the arrival of paper in Europe from China via the Arabs around the twelfth century, allowed for an ever-wider circulation for the written word. In fact, British historian James W. Thompson has asserted that the use of paper in Europe was the largest single factor responsible for the RENAISSANCE. The transformation from manuscript roll to manuscript codex (bound sheets) presaged the form of the BOOK before the innovation of the PRINTING press in the mid-fifteenth century. It is estimated that by 1500 there were some

THE
Merry Life and Mad Exploits
 OF
CAPT JAMES HIND
The great Robber of England.



NEWCASTLE: PRINTED IN THIS PRESENT YEAR.

Figure 1. (*Literature, Popular*) Page from an English chapbook, 1652. From John Ashton, *Chap-books of the Eighteenth Century*, London: Chatto and Windus, 1882, p. 433.

twenty million books in Europe for a population of about eighty million. But cost and limited LITERACY meant that the reading of books was an elite activity for a century or so after WILLIAM CAXTON published the first English book in 1477. Nor was it only the common people who were excluded; in early modern Europe a substantial number of the nobility and churchmen were illiterate.

In general, European popular CULTURE remained an oral, instrumental, visual, and physical set of practices centered on songs, simple musical performances, games, and repartee (see MUSIC, FOLK AND TRADITIONAL; SONG). But in the fifteenth and six-

teenth centuries it was made literary by the circulation of almanacs, broadside ballads, jestbooks, anecdotal or folkloric narratives, and simplified romances of chivalry (see ROMANCE, THE). In the Elizabethan period FICTION was already stratified into high literary romance, like Sir Philip Sidney's *Arcadia* (1580), vernacular romances and tales aimed at the artisan middle class, and crude tales for street sale in inexpensive PAMPHLET form.

Before the arrival of early forms of newspaper, broadside ballads were often sharply political and topical. Jestbooks—loose collections of anecdotes, riddles (see RIDDLE), and comic tales—represent temporary solidification in printed form of spoken comic monologue and badinage. Some have proved remarkably durable. The escapades and witty sayings of “Howleglas” or Till Eulenspiegel, for instance, originated in Antwerp, Belgium, in the early sixteenth century and circulated throughout Europe. They survived as chapbooks in the nineteenth century and can still be found in children's literature in the twentieth. Almanacs, which were often posted on walls, served as calendars (see CALENDAR), horoscopes, and entertaining compendia of trivia.

All these popular literary commodities multiplied in the 150 years after Caxton and represent a broad and ragged edge between literary and ORAL CULTURE, never quite belonging to either category. They continued as ephemeral and fugitive street wares among the semiliterate at least until the mid-nineteenth century. The popular almanac and jestbook did not disappear but were absorbed into popular journalism. One can trace this legacy to modern scandal sheets like the *National Enquirer* in the United States. See also NEWSPAPER: HISTORY.

From Oral to Literary Culture

A significant technical advance occurred around the beginning of the eighteenth century, in the form of the chapbook (*Volksbuch* in German; *bibliothèque bleue* volumes in France). These were small paper-covered pamphlet-size booklets, measuring about three and a half by six inches, embellished with crude woodcuts. They were sold by chapmen, or peddlers, in England, *colporteurs* in France, usually for one penny or two sous (the price of a pound of bread in pre-Revolutionary France). The chapbook survived well into the nineteenth century, catering to the sizable marginally literate segment of the population (Figure 1).

Assessing the size and competence of reading publics is difficult. It has been estimated that in the seventeenth century as much as half of the British adult population was in some sense literate. In Russia, by contrast, 90 percent of the population was illiterate until as late as 1850, which may account

for the extraordinary vitality of the orally transmitted FOLKTALE in that country. But the illiterate were not necessarily excluded from reading matter. Oral and literary cultures interconnected at innumerable points. It is clear, for instance, that a great deal of public reading aloud took place, in which a lettered citizen would disseminate books to a less literate audience. For the semiliterate, eighteenth-century favorites like *Robinson Crusoe* in England and poet Ludovico Ariosto's works in Italy, although originally written for upper-class readers, were adapted as short, simple chapbooks (just as the same works were later simplified for children).

Vital and attractive as it frequently is, the content of early popular literature tends to be highly repetitive. This sameness has a complex relationship to the anonymous and essentially collective nature of early popular literature. It did not originate in a single mind and was not legally protected as private property. Hence it was subject to countless reproductions and represented a stock to which individual interpreters or performers might add their own personal seasoning.

In the eighteenth century there emerged a kind of core curriculum of staple printed texts, usually for Sunday reading, such as the Bible in one of its vernacular forms or, for the English reader, John Bunyan's *Pilgrim's Progress*. Originally published in 1678, this work, an allegory of the individual's hard passage through life, had gone through at least two hundred editions by the end of the eighteenth century. Other core texts were John Foxe's *Book of Martyrs* (1563) and Daniel Defoe's *Robinson Crusoe* (1719; Figure 2). The durability of these classics of early working-class literature is remarkable. The working-class FAMILY typically might have one limited set of books, as it might have one set of bedroom furniture to last a lifetime and to be passed on to children. The notion of a diet of constantly changing reading matter for the masses is a relatively modern development.

In the mid-eighteenth century in Europe, and particularly in Germany, an awareness that popular literature could be something more than primitive subliterate emerged. The critic Johann Gottfried von Herder celebrated the German *Volkstied* (folk song) as the embodiment of the national sensibility. The Grimm brothers are said to have done the same for the German folktale early in the nineteenth century. The cult of folk literature during this period had an important influence on the growth of ROMANTICISM and European nationalism. Essentially it was valued as the pure emanation from the soul of the people. Herder's dictum was "*Das Volk dichtet*" ("The people make poetry"). More recently popular literature has usually been seen as something directed to rather than originating from the people.



Figure 2. (*Literature, Popular*) "Crusoe meets Friday." From Daniel Defoe, *The Life and Adventures of Robinson Crusoe*, London: J. C. Nimmo and Bain, 1882 ed., vol. 1, p. 262.

The Novel as a Popular Form

Eighteenth-century England also saw the rise of the novel, the principal vehicle of the modern popular culture industry. Samuel Richardson's *Pamela* (1740), Henry Fielding's *Tom Jones* (1749), and most influentially *Robinson Crusoe* established patterns for a multitude of imitators. The novel (as opposed to mere NARRATIVE in print) required the confluence of many elements: a cultivated reading public, a large disposable income (an early novel like *Pamela* cost as much as feeding a laboring family for a week), LEISURE time (middle- and upper-class women were an important part of the novel's audience), legislative initiatives (the first COPYRIGHT act was passed into law in 1709), and advanced productive and distributive capacities, which in turn entailed metropolitan centralization. Circulating LIBRARY systems, established around the 1740s in Germany and England,



Figure 3. (*Literature, Popular*) *Kit Carson on the War-Path*, a nineteenth-century dime novel. The Bettmann Archive, Inc.

gave the middle class wide access to an item priced in bookshops as a luxury. The novel was a recognizable commodity by the end of the eighteenth century—so much so that in the 1790s there was a widespread conviction that as a form it had had its day and, like the chivalric romance, was to be relegated to literary history.

In fact, the novel gained in strength in the early nineteenth century with the worldwide popularity of Sir Walter Scott, who paved the way for Dickens. Using SERIAL issue and illustration (both pioneered in France), Dickens expanded the middle-class readership of fiction into the millions. Although the eighteenth-century novel and its Victorian successor were essentially bourgeois (both as a commodity and in terms of IDEOLOGY), they set up the apparatus by which popular literature in the nineteenth century was to be packaged, merchandised, and sold back to the working class. In the process the old fluidities of oral popular culture were lost. The German critic WALTER BENJAMIN asserted, paradoxically, that the

novel entailed the death of storytelling. The story (Benjamin was thinking principally of the Russian folktale) is a democratically owned thing passed on from person to person. The novel is a fixed, unalterable commodity, sold in the marketplace and largely protected as the author's private property. The various stories and ballads based on Robin Hood mutated with the accidents of place and period; Dickens's *The Pickwick Papers* is the same text that it was when first published in 1836.

Rise of the Mass Reading Public

For all their unprecedented sales, the kinds of fiction produced in the nineteenth century by Eugène Sue and Alexandre Dumas in France or by Dickens in Victorian England were not popular in the sense of appealing to the least literate classes. In France school inspectors sent out by the government in 1833 were appalled to find chapbooks in the hands of pupils throughout the country. In England up to the 1840s there was a vigorous underworld of penny serials and street ballads catering to the influx of newly urbanized semiliterates from the countryside. Fiction for the masses in the early nineteenth century was mostly ultraviolet "penny bloods," or "dreadfuls." Some have achieved popular folkloric status. For example, J. M. Rymer's *Varney the Vampyre* (1847), as gentrified by Bram Stoker's *Dracula* in 1897, has become a twentieth-century perennial. The universal EDUCATION acts implemented in Europe from the mid-nineteenth century on homogenized the reading public. The rich store of penny bloods did not disappear but was laundered and recycled for juvenile readers. This constituency grew explosively in later decades. The British *Boy's Own Paper* (1879–1967), for instance, claimed a readership of a quarter of a million in the 1880s. The *Boy's Own Paper* was in fact one of the more successful middle-class attempts to sanitize popular literature, the unlicensed vigor of which often makes authorities uneasy.

Homogenization of the reading public was accompanied by commercial rationalization. The turn-of-the-century book trade efficiently served as a mosaic of distinct reading publics. Juveniles made up one such market. Women were catered to by specialist magazines and romances. Men had adventure tales, crime stories, and (clandestinely) PORNOGRAPHY. Within each category there were social stratifications, between, for instance, the library-supplied romance for the middle-class woman and the sixpenny magazine sold in the sweetshop to the mill girl.

One of the most interesting developments of the late nineteenth century was the revelation that for the first time in history works might be ambitious in literary terms and also achieve mass sales. There emerged the so-called middlebrow best-seller, the first of which was probably Mrs. Humphry Ward's

UNCLE TOM'S CABIN;
OR,
LIFE AMONG THE LOWLY.

BY
HARRIET BEECHER STOWE.



VOL. I.

BOSTON:
JOHN P. JEWETT & COMPANY,
CLEVELAND, OHIO
JEWETT, PROCTOR & WORTHINGTON
1852.

Figure 4. (*Literature, Popular*) Title page from the first edition of Harriet Beecher Stowe's *Uncle Tom's Cabin*, 1852. Courtesy, O. T. Smith Collection, Wake Forest University Library, Winston-Salem, North Carolina.

Robert Elsmere (1888). This high-minded thesis novel sold by the millions in Britain and the United States. The wide appeal of subsequent best-sellers bears witness to a significant embourgeoisment of modern popular literature.

Printed POETRY ceased to be a popular item in the twentieth century, except in the Soviet Union, where state patronage kept it alive. Working-class poetry, as originally found in the oral ballad (see ORAL POETRY) and later in the printed broadsheet, was absorbed into the music hall and vaudeville, from there into the sheet music industry, and then into the modern popular record industry (see MUSIC, POPULAR).

Marketing Popular Literature

One of the main contributions to popular literature in the nineteenth century was the development in the

United States of increasingly efficient ways of selling the product. This was most spectacularly evident in the dime-novel phenomenon. The innovation is usually attributed to New York publisher Erastus Beadle, whose dime edition of Anne S. Stephens's *Malaeska, the Indian Wife of the White Hunter* (1860) sold in the hundreds of thousands and inspired a flood of affordably priced imitations, all with lurid pictorial covers. Like *Malaeska*, many celebrated pioneer values of the frontier and popularized Western history among the Eastern urban masses (see WESTERN, THE; Figure 3). The idealistic Horatio Alger rags-to-riches tales were among the most successful dime novels produced by the new fiction factories.

The best-seller list and the apparatus of promotion that went with it were developed in the United States in the 1890s, and the history of popular literature in the twentieth century became the history of the best-seller. Best-sellers had been around for some time: Harriet Beecher Stowe's *Uncle Tom's Cabin* (1852) sold millions worldwide (Figures 4 and 5), and the novel *St. Elmo* (1866), by Augusta Evans [Wilson],

A CABANA DO PAE THOMAZ

OU

OS NEGROS NA AMERICA.

CAPITULO I.

ONDE O LEITOR TOMA CONHECIMENTO
COM UM HOMEM HUMANO.

NUM dia de fevereiro, gelado e inclemente, dois *gentlemen*, a uma hora adiantada, bebiam juntos n'uma casa de jantar ricamente mobilada d'uma pequena cidade do Kentucky. Não existia presente nenhum criado, e os dois personagens, cujas cadeiras estavam proximas, pareciam occupar-se d'um assumpto d'alto interesse.

Julgamos dever denominá-los *gentlemen*, ou pessoas finas, por decoro. Um delles, to-

1

Figure 5. (*Literature, Popular*) First page of a Portuguese translation of *Uncle Tom's Cabin*. From Harriet Beecher Stowe, *A Cabana do Pae Thomaz*, Lisbon, 1853, p. 1.

was so popular that at least a dozen U.S. towns were named after its hero. But the U.S. book trade of the twentieth century succeeded in attuning and directing the reading public's enthusiasms, making popular literature a secure, multimillion-dollar industry.

Twentieth-century best-sellers are characterized primarily by their immense sales, usually in paperback. It is not easy to see why certain books appeal at particular historical moments. Why, for instance, was the western writer Zane Grey sensationally popular after the 1929 stock-market crash or Erich Segal's *Love Story* (1970) the favorite novel in the United States at the height of the Vietnam war? The term *best-seller* acquired a new significance in the 1970s when a generation of blockbusters led by Mario Puzo's *The Godfather* (1969), Peter Benchley's *Jaws* (1974), and William Peter Blatty's *The Exorcist* (1971) sold ten million copies or more in two or three years. New tie-ins, by which films sold books and books sold films, combined to produce supersellers on a massive scale. Alex Haley's imaginative AUTOBIOGRAPHY of a black family, *Roots* (1976), went from a best-selling book to worldwide success as a television miniseries. In 1983 Colleen McCullough's romantic saga of Australian life, *The Thornbirds*, was made into a U.S. television miniseries that reached an estimated two hundred million people across the globe within a few months—probably the largest simultaneous consumption of a single work of fiction in history.

Critical Approaches

These blockbusting single titles are not the whole of modern popular fiction; they are partnered by a GENRE system that concentrates not on single items but on a category of works. Among the most popular are MYSTERY AND DETECTIVE FICTION, SCIENCE FICTION, gothic and horror, romance, and westerns, each with its own distinct group of readers. Genre fiction has been fruitfully examined in terms of its relatively few basic "formulas." Historically, the dominant genres can be traced back centuries. The horror fiction of a writer like Stephen King, for example, owes an evident historical debt to the late eighteenth-century gothic tales of Ann Radcliffe, and it is not too difficult to find links with the witchery pamphlets that were popular reading in sixteenth-century Europe.

Studies of popular literature have dealt not only with its content and history but with the conditions under which it is produced (see ARTIST AND SOCIETY; AUTHORSHIP). Contemporary theorists have also begun to investigate the social influences at work in the consumption of popular culture, such as the existence of particular TASTE CULTURES, and the role of the reader in constructing MEANING and defining the

reading experience (see READING THEORY). These varied approaches go beyond conventional dismissals of popular literature as trivial and escapist, adding depth to LITERARY CRITICISM's exploration of the values and themes that it may be said to embody, as well as to our understanding of its functions.

Bibliography. Brian W. Aldiss, *Billion Year Spree: The True History of Science Fiction*, New York, 1973; Richard Altick, *The English Common Reader: A Social History of the Mass Reading Public*, Chicago, 1957; Peter Burke, *Popular Culture in Early Modern Europe*, New York and London, 1978; John G. Cawelti, *Adventure, Mystery, and Romance*, Chicago, 1976; James D. Hart, *The Popular Book*, New York, 1950, reprint Westport, Conn., 1976; Richard Hoggart, *The Uses of Literacy*, London, 1957; Victor E. Neuburg, ed., *The Batsford Companion to Popular Literature*, London, 1984; John Sutherland, *Bestsellers*, Boston and London, 1981; Ian P. Watt, *The Rise of the Novel*, Berkeley, Calif., 1957, reprint 1974.

JOHN SUTHERLAND

LOBBYING

A term coined in the United States in the 1830s to describe the gathering in the lobbies of Congress of agents representing special interests to further their causes. Viewed as communication, lobbying involves the identification of appropriate decision makers, techniques to establish and sustain communication channels with officials, selection and transmission of persuasive messages, and reinforcement of effective networks of influence.

Dimensions. Lobbying presents two dimensions of communication that allow comparisons of lobbying activity across political systems. First, lobbying ranges in character from formal to informal. Nations with formal systems recognize the role of the lobbyist as legally designated and defined. In the United States, for example, the rights of association and petition are protected in the Constitution; at national and lower levels, specific legislation requires lobbyists to register their backing and expenditures for public scrutiny. Considerably less formalized are the tacit exchanges and understandings by staff members of organized groups that delegate the function of representing group interests to one another and to official functionaries, despite the absence of clear-cut legal sanctions.

On a second dimension, lobbying ranges from the full-time, paid, professional activity of designated specialists (i.e., lobbying as a vocation) to the part-time, ad hoc discussions among members of influential elites with no direct responsibilities for communicating group interests (i.e., lobbying as an avocational by-product). These two dimensions yield

four categories of communication activities: formal-vocational, formal-avocational, informal-vocational, and informal-avocational lobbying. Although there are cross-national differences in emphases, no political system is completely without any one of the four.

Formal channels. Foremost among the formal-vocational lobbying strategies are PRESSURE GROUP activities. These consist of direct efforts by legally designated group representatives to persuade public officials. In the United States, for example, it is commonplace for lobbyists to talk directly with legislators, promising future support in exchange for favorable consideration in legislation pending before the deliberative body. That talk might include promises of financial support in an upcoming ELECTION, vote trading on the floor of the legislature, or even bribery. More commonly, however, pressure strategies consist of lobbyists providing services to legislative, administrative, and judicial officials. Organizations devote considerable resources to researching relevant arguments, statistics, assessments, and other forms of information that they channel to governing officials via testimony before legislative committees, administrative appeals, amicus curiae briefs, and other means. More common in European political systems is legal representation on policy-making bodies of agents of organized groups. Organizations may be asked to designate representatives to governing bodies or, alternatively, have policy authority vested in them by legal means. For example, in Great Britain both labor (through the Trades Union Council) and business (through the Confederation of British Industries) have had appointed membership on a variety of public bodies, and in the Federal Republic of Germany many occupational groups exercise formal regulatory authority.

Although formal relationships between governing officials and interest-group advocates on an avocational basis take numerous forms, two occur in a sufficient variety of political systems to warrant specific mention. One strategy involves strengthening contacts between governing and nongoverning elites. Thus, in the United States, formal discussions linking administrative and legislative officials with leaders of business, agriculture, labor, science, technology, civil rights groups, citizen lobbies, environmentalists, and other special interests are commonplace. Which communication patterns take precedence is a function of the political party in power and the matters perceived as mutually antagonistic or beneficial.

In European political systems the practice is more institutionalized, with nongovernmental elites granted formal, representative contacts with administrative and legislative officials. Such ties blend into a second strategy of formal-avocational communication, consultation, which may involve explicit representation of organizational spokespersons on policy or advi-

sory boards—as in Great Britain—or ad hoc conversations between private and public leaders. In any case the purpose of the strategy, as with interaction between private and public elites generally, is to make consultation timely in order to bring group views into the policy process *before* rather than after decisions are made. This opens the process to group representation while building widespread support for government decisions.

Informal channels. Informal contact and communication between lobbyists and official audiences are no less important strategies than formal means. A major portion of the professional lobbyist's efforts goes toward sustaining informal ties. Organizations desirous of protecting and enhancing their influence positions—the “haves”—budget large sums for entertaining public officials, providing honoraria for speaking engagements, expenses-paid tours, and both overt and covert gifts. Organizations aiming at opening communication channels—the “have-nots”—can ill afford to shortchange their paid lobbyists either. Less at issue in informal arrangements are efforts to influence official decisions on specific policies than attempts by haves and have-nots to secure access, that is, to build a relationship of mutual trust between the professional lobbyist and the public official. In that relationship of informality, even ambiguity, each political actor depends on the other. Through reciprocal trust and interdependence the very definition of the continuing policy situation, a necessary prelude to defining specific policies, is forged by lobbyist-official communication.

Finally, lobbying takes place informally through intermediaries rather than by face-to-face contacts between governing officials and professional or amateur lobbyists. In the United States strategies include efforts to influence officials by persuading their constituents to support policies the lobbyists advocate. These extend to forms of “grass roots lobbying”—arranging direct contacts between constituents and the officials in public and private forums, lobbying officials' personal friends, letter and telegraph campaigns inundating officials with constituents' pleas, PUBLIC RELATIONS campaigns, corporate ADVERTISING, contributions to election campaigns, and so on. In other nations, including Italy, lobbyists attach themselves to a favored political party; thus group and party fortunes ebb and flow together.

See also AGENDA-SETTING; POLITICAL COMMUNICATION; PUBLIC OPINION.

Bibliography. Raymond A. Bauer, Ithiel de Sola Pool, and Lewis Anthony Dexter, *American Business and Public Policy*, 2d ed., Chicago, 1972; Lewis Anthony Dexter, *How Organizations Are Represented in Washington*, Indianapolis, Ind., 1969; Henry W. Ehrmann, ed., *Interest Groups on Four Continents*, Pittsburgh, Pa., 1958; Carol

S. Greenwald, *Group Power*, New York, 1977; Lester W. Milbrath, *The Washington Lobbyists*, Chicago, 1963; David Bicknell Truman, *The Governmental Process*, New York, 1951.

DAN D. NIMMO

LOCKE, JOHN (1632–1704)

English philosopher and founder of modern epistemology. John Locke played a vital part in the development of modern scientific thought and communication. Educated on the medieval model, he was nevertheless deeply influenced by the writings of French mathematician and philosopher René Descartes. Descartes's theory that a distinct idea of oneself is the key to personal identity would become one of the foundations of Locke's philosophy. Locke could have remained an Oxford scholar during his entire life, but in 1667 he became adviser to Lord Ashley (later the earl of Shaftesbury). Through Ashley he became interested in colonial affairs, in economics, and in the controversy over the Protestant succession to the throne. This controversy forced Locke's mentor to flee to Holland in 1682; a year later Locke also had to leave England. His exile lasted until 1689. When he returned to England Locke brought with him *An Essay Concerning Human Understanding*, the work for which he is known today. The last fifteen years of his life were marked by increasing fame, wide-ranging correspondence, and material comfort; he died in 1704.

It is Locke's *Essay* that is of greatest interest to the student of communications. It laid the foundation of modern epistemology—the study of human knowledge—and remains one of the clearest descriptions of empiricism. Locke's *Essay* contains three significant points: his definition of the mind as a “white sheet of paper” written on by sense-impression, his treatment of the creation of complex ideas, and his analysis of words as signs of ideas rather than of things.

Locke asserted that the newborn's mind is a *tabula rasa*, or clean slate. Knowledge arises through the accumulation of sense-impressions and through reflection on their connections. A child sees a coin, for example, and notes its shape, its mass, and its markings and coloration. Over time the child sees other coins identical in some respects (what Locke calls primary qualities) but slightly different in other respects affected by external conditions (secondary qualities). If an unknown piece of metal is presented the child recalls those other examples, with their known range of appearances, and either places the new sample in the existing set of coins or creates a new category.

Thus the mind develops ideas corresponding to



Figure 1. (*Locke, John*) Michael Dahl, *John Locke*, ca. 1696. National Portrait Gallery, London.

each set of memories; these ideas can be integrated to yield new ideas not directly related to immediate sense-impressions. In this way abstractions—what Locke calls “modes, substances, and relations”—are developed (e.g., the concepts of magnetism or cause and effect). This pattern was later incorporated by Scottish philosopher David Hume into his theory of association of ideas, a theory crucial to modern psychology.

Finally, Locke devotes a long section of his *Essay* to the way we communicate with others: through words that signify ideas, not things. Traditionally it was believed that words represented things; Locke was the first to propose that words actually signify our ideas of things, mental pictures we employ in a kind of verbal shorthand. The word *gold*, he notes, stands not for a particular lump of metal but for a substance corresponding to a complex idea of “colour, weight, fusibility, fixedness, &c, which gives it a right to that name.” People fail to communicate clearly because they use words that signify different things to themselves and their listeners, or because the words they choose do not truly reflect their own ideas. The only way to eliminate such flaws in communication, Locke argues, is “to use no word without a signification.” Locke's call for a descriptive dictionary that would serve as the standard for word use was finally answered at the end of the nineteenth

century with the publication of the *Oxford English Dictionary*, which was based on his principles. See also JOHNSON, SAMUEL; LANGUAGE REFERENCE BOOK.

Modern theorists have rebutted many of Locke's assertions about logic and psychology, but by highlighting the question of knowledge and by interposing the idea between stimulus and response, between things and words, Locke created a model of human experience that remains valid.

Bibliography. Richard I. Aaron, *John Locke*, 3d ed., Oxford, 1971; Maurice William Cranston, *John Locke: A Biography*, London and New York, 1957.

HARTLEY S. SPATT

LOGIC. See SYMBOLIC LOGIC.

LOWENTHAL, LEO (1900–)

German-born U.S. sociologist, literary historian, and media scholar. In the discordant debate over popular CULTURE few observers have argued as voluminously and persuasively as Leo Lowenthal. His dominant thesis has been that mass culture, particularly as studied in terms of its historical antecedents, is deleterious to modern living. Through numerous books, articles, and monographs, over a fifty-year period Lowenthal has decried the "decline of the individual in the mechanized working process of modern civilization." The resulting displacement of folk ART (see also FOLKLORE) and of "high" art, in his view, has brought about a standardized and mendacious mass culture whose main characteristics are stereotypes and manipulated consumer goods.

In a well-known study Lowenthal examined biographies in popular U.S. magazines from 1900 to 1941. By sorting out national heroes along political, business-professional, and ENTERTAINMENT lines, he found that "idols of work" (i.e., those in business, politics, and industry) were dominant in the early years of the twentieth century but were displaced by "idols of consumption" (i.e., persons from entertainment and SPORTS) as the country moved ahead to World War II. That *People* magazine would surpass its parent, *Time*, in circulation in the 1980s was not a surprise to Lowenthal.

In *Literature, Popular Culture, and Society* (1961) Lowenthal foresaw the media's constantly growing use of reports about the lives, loves, squabbles, and divorces of celebrities. He termed these so-called human-interest stories "a kind of mass gossip." However, these stories are not to be confused with simple trivia better confined to the gossip column. In a highly selective way the stories cover situations that the managing editors of such financial bonanzas as

People and *Ebony* take to be representative of the lives of their readers, who can thus identify with their favorite surrogates.

Throughout his career Lowenthal utilized CONTENT ANALYSIS to study the nexus between society and culture. By relating historical changes in society to dominant themes and images of content he was able to delineate what he called the "unbridgeable difference between art and mass culture."

Although his academic affiliation in the United States was primarily as a sociologist, Lowenthal was equally at home in history, philosophy, and particularly literature. He frequently drew on the works of writers such as Friedrich Nietzsche, Blaise Pascal, and Gustave Flaubert to expostulate against today's popular culture. In a mass-aculturated society, he contends, the media essentially gratify only lower needs and ipso facto are irrevocably doomed to serve as vehicles of inferior products. He questions whether social science methodology is able to deal adequately with the problems of contemporary social culture. As a humanist he voices concern lest too many social scientists engage themselves solely with the mere quantifiable aggregates of people.

Lowenthal was consistent in his critique of mass culture from the time he came to the United States in 1933, a refugee from Nazi Germany. Before his emigration he had served as a senior research associate at Frankfurt's famed Institute for Social Research with such noted scholars as THEODOR ADORNO and Max Horkheimer. From 1940 to 1954 he was a lecturer in sociology at Columbia University, where he worked with another distinguished refugee, PAUL F. LAZARFELD, at the Bureau of Applied Social Research. He also served as director of research for the Voice of America from 1949 to 1954. Subsequently he became a professor at the University of California, Berkeley, for the remainder of his academic career. A four-volume collection of Lowenthal's essays and monographs was published in 1982–1984.

See also COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT.

Bibliography. Leo Lowenthal, *Literature and the Image of Man*, Boston, 1957; idem, *Literature, Popular Culture, and Society*, New York, 1961, reprint 1968; idem, *Literature and Mass Culture*, Vol. 1, *Communication in Society*, New Brunswick, N.J., 1984.

DAVID MANNING WHITE

LUCE, HENRY (1898–1967)

U.S. editor and publisher, cofounder, editorial chief, and principal owner of *Time*, *Fortune*, and *Life* magazines and related enterprises that profoundly



Figure 1. (Luce, Henry) Miriam Troop, *Henry Luce*, 1955. National Portrait Gallery, Smithsonian Institution, Washington, D.C.

influenced U.S. journalism and PUBLISHING (see MAGAZINE). Born in Shantung Province, China, Henry Robinson Luce was one of four children of missionary parents. He was raised in an atmosphere of Calvinist moral principles, belief in EDUCATION, sympathy for the emerging republican REVOLUTION in China, and love for the United States.

After strict training at home and at an English school in Chefoo, Luce went to the Hotchkiss School in Connecticut and to Yale. At Yale he and a classmate, Briton Hadden, speculated about one day starting a publication that would make people better informed about public events. After they graduated in 1920 Luce studied at Oxford and then worked at the *Chicago Daily News*. The two rejoined at the *Baltimore News* in 1922.

Almost immediately they agreed to start a weekly NEWSMAGAZINE, planning at first to call it *Facts* but settling on the title *Time*. Using family and Yale connections, they raised eighty-six thousand dollars and on March 3, 1923, launched the first issue. Aimed at "the busy reader," *Time* was refreshingly different from older, soberer media. It was breezy, opinionated, terse, and witty, spurning "objectivity."

At first it had no regular correspondents; its editors interpreted, rewrote, and condensed daily newspaper reports. A fast-growing audience liked its neat summaries and unique writing style. Introduced by Hadden, this style was marked by reversals of sentence structure, the linking of colorful adjectives to names in the news, and often the juxtaposition of facts more for effect than for fairness. "Timestyle," as it became known (portmanteau words were one of its features), was at once entertaining, infuriating, and open to satire. At its best it reflected Luce's demand that his editors and writers avoid "commonplace" language. After about 1940, however, the regular correspondents' field reports were often rewritten and distorted to reflect Luce's intensely conservative, pro-Chiang Kai-shek policies, and several writers resigned in anger.

At the beginning Luce managed the business end and Hadden the editorial side. Hadden died in 1929 at age thirty-one, and Luce became editor in chief, holding that post actively until 1964. He held no corporate posts himself, but he sought out as executives talented, creative men who shared his aims and could develop his strategies. At the same time, he monitored operations closely, constantly challenging staff members.

In 1930 came the launching of the luxurious monthly *Fortune*. Its aims were to "give business a literature," "show how business works," and report on business personalities. *Fortune* did not shrink from exposing corporate sin.

Luce's early interest in broadcasting led in 1931 to a RADIO series, "The March of Time," adapted to NEWSREEL film in 1935. The episodes were often overly dramatized, even to the use of actors and simulated dialogue. But they were extremely popular for almost twenty years, and from the beginning they spurred Luce's interest in PHOTOJOURNALISM. Since 1932 he had been studying the journalistic use in Europe of miniature, wide-lens, fast-shutter cameras such as the Leica. By 1936 he was ready to launch the immensely successful *Life* magazine. He envisioned *Life* as an educational medium, reporting, through pictures and some major articles, a wide range of world and domestic news, using topflight photographers and writers and a slick, oversized format. During World War II *Life*'s vivid photographs of war and home-front scenes had strong impact. Further photographic technology was a factor in launching, in 1953, the pace-setting *Sports Illustrated*.

Books engendered by the firm's materials were published sporadically after 1930, and in 1959, under the corporate name Time, Inc., Time-Life Books was established as a major enterprise, issuing mail-subscription series of informative books, profusely illustrated, spiritedly written, and stylishly produced.

Additional developments under Luce included film and television ventures; talks leading to the acquisition of the book firm Little, Brown; and a graphic arts laboratory, highly influential for some years. Luce in his last years poured his energies into promoting a theme he called "the American Century." Meanwhile he had created an aggressive communications complex that was able to grow and change with the times.

Bibliography. Robert T. Elson, *Time, Inc.: The Intimate History of a Publishing Enterprise*, 2 vols., ed. by Duncan Norton-Taylor, New York, 1968, 1969; John Kobler, *Luce: His Time, Life, and Fortune*, New York, 1968; Curtis Prendergast and Geoffrey Colvin, *The World of Time, Inc., 1960–1980*, New York, 1986; W. A. Swanberg, *Luce and His Empire*, New York, 1972; Theodore H. White, *In Search of History*, New York, 1978.

CHANDLER B. GRANNIS

LUMIÈRE, LOUIS (1864–1948) AND AUGUSTE (1862–1954)

Leading French manufacturers of photographic equipment, chiefly renowned for their invention of the cinematograph, the device that on December 28, 1895, at the Grand Café in Paris, first showed projected MOTION PICTURES to a paying audience and launched the cinema era. The brothers Louis and Auguste Lumière had an agreement that all their innovations would be jointly credited, but Louis seems to have been the chief inventor of the cinematograph and to have shot many of the first Lumière films,

which were mainly vignettes of French middle-class life: a baby being fed; a train arriving at a provincial station; workers leaving a factory; fishermen and their nets; the demolition of a wall—followed, in a trick reversal, by its sudden resurrection from the rubble.

The cinematograph had an unusual feature that decisively influenced film history. A compact portable camera, it could with adjustments become a projector or a printing machine. This meant that an *opérateur* trained by the Lumières could go to a foreign country, hold showings of Lumière films, and meanwhile shoot and exhibit local items (developed in a hotel room) that would enrich the Lumière collection. With this strategy in mind the Lumières embarked on an extraordinary exploitation plan. They held up the Paris premiere until they had trained more than a dozen *opérateurs*. Then, immediately after the triumphant debut, these were dispatched far and wide. Within two years they had introduced the cinematograph on six continents. By the end of 1897 the Lumière collection comprised some 750 short films, including such items as a Spanish bullfight, gondolas on a Venice canal, camels at the pyramids in Egypt, an elephant procession in Phnom Penh, German dragoons leaping hurdles, a New York street scene, and the coronation of Czar Nicholas II in Russia. Each *opérateur* handled a succession of premieres. The man who introduced the wonder into India went on to Australia and from there sent back film of the Melbourne races. Meanwhile, another had reached Tokyo. Throughout this two-year period the Lumières had refused to sell cinematographs, maintaining total control of the invention.

Figure 1. (*Lumière, Louis and Auguste*) Louis and Auguste Lumière. National Film Archive, London.

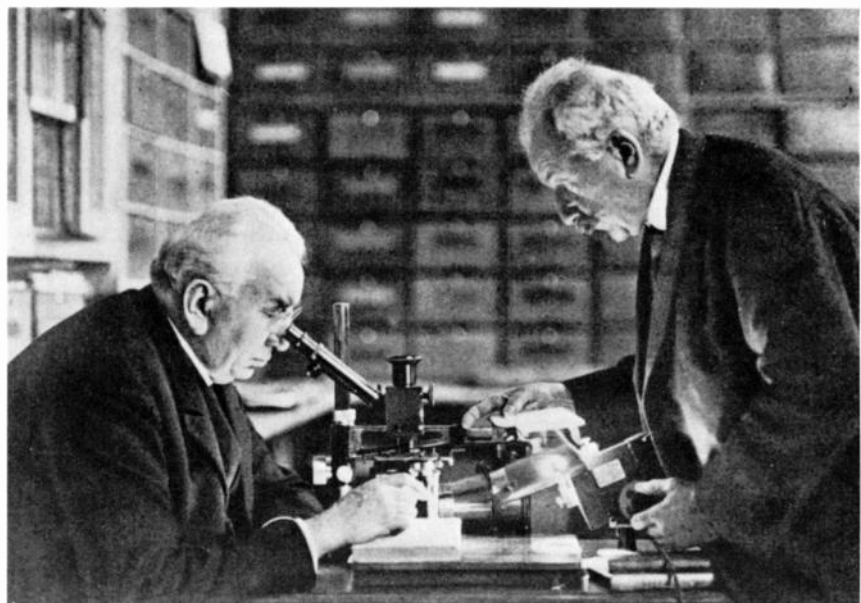




Figure 2. (Lumière, Louis and Auguste) A Polish poster for the Lumière cinematograph, Krakow, 1896. State Historical Society of Wisconsin, Erik Barnouw Collection.

At the end of 1897, as abruptly as the campaign had begun, the Lumières announced their intention of withdrawing from production and exhibition in order to concentrate on what they considered their specialties, manufacture and invention. Cinematographs would now be for sale. By that time a host of cinematographers, with rival equipment from many sources, were traversing the globe.

The Lumière whirlwind campaign had left its mark in many ways. Motion picture production was beginning almost simultaneously at various locations throughout the world. The word *cinema* (from *Cinématographe*) had been planted firmly in many of the world's languages. And the film industry had begun with a DOCUMENTARY emphasis that would continue for some years, until the ascent of the fiction film. The Lumières meanwhile went on to other

interests, including a remarkable color process for still PHOTOGRAPHY, the *autochrome*, which produced works that closely resembled pointillist paintings. It continued in use until the 1920s.

Bibliography. Georges Sadoul, *Louis Lumière*, Paris, 1964. ERIK BARNOUW

LURIA, ALEKSANDR (1902–1977)

Soviet psychologist, neuropsychologist, aphasiologist, and semiotician whose primary interest was the relationship between LANGUAGE and mental functioning (see SEMIOTICS). After finishing his university education in Kazan, where he had been born and raised, Aleksandr Romanovich Luria undertook several research studies motivated by diverse psychological theories, including the psychoanalytic theories of SIGMUND FREUD and CARL JUNG (see also PSYCHOANALYSIS). In 1923 he joined the staff of the Institute of Psychology in Moscow, and in 1924 he met Soviet psychologist and semiotician LEV VYGOTSKY, with whom he worked closely until Vygotsky died of tuberculosis in 1934. During this decade Luria helped develop a theoretical framework that would guide the research he and many other Soviet psychologists carried out for the next several decades. This framework, which was grounded in Marxist theory as well as in the findings of psychology and other social sciences, came to be known as the cultural-historical approach to mind. The primary goal of the approach was to devise an account of human mental processes that would specify how they are related to particular sociocultural contexts. Among its fundamental tenets were the claim that human communicative and psychological processes are shaped by the tools and signs (see SIGN) that mediate them, and the claim that the origins of human mental processes are to be found in social life.

Luria's post-Vygotskian research revolved around three related issues. First, he carried out cross-cultural studies in cognitive functioning. To test some of the claims of the cultural-historical approach, he conducted, in Soviet Central Asia in the late 1920s and early 1930s, the first of several studies that focused on how forms of mental functioning such as abstraction, deduction, reasoning, problem solving, and self-awareness are related to the emergence of LITERACY and other characteristics of modern sociocultural settings. See COGNITION.

The second topic that concerned Luria in his research and clinical practice was the regulative function of SPEECH. Building on his own ideas about the relationship between internal and external processes as well as on Vygotsky's ideas about social, "egocen-

tric," and inner speech, he performed a series of studies on the development of self-regulative speech in children. His focus was on the ways in which social speech gives rise to self-regulative speech and on the neuropsychological processes involved in the transition of self-regulative speech from an overt to an internalized form. These studies led him to make a series of claims about the social-communicative origins and semiotic structuring of self-regulation in CHILDREN and about the cerebral organization of inner speech.

The third focus of Luria's research was the neuropsychology of language and mental functions. In this area he made many of his most original and significant contributions to the understanding of human mental processes. Much of this research was motivated by the clinical work he carried out after finishing medical school in the late 1930s. On the basis of his experience in treating patients with war-related brain injuries during World War II, Luria devised a systematic account of various types of traumatic aphasia (see SPEECH AND LANGUAGE DISORDERS), which served as the foundation for refining his account of the "functional systems" involved in neuropsychological processes. This functional-system approach, in turn, led him to produce what is perhaps the twentieth century's most comprehensive analysis of neuropsychological disturbances of communicative, perceptual (see PERCEPTION), and cognitive processes. At the time of his death Luria was deeply involved in the formation of the new discipline of neurolinguistics.

Bibliography. Aleksandr R. Luria, *The Working Brain: An Introduction to Neuropsychology* (in Russian), trans. by Basil Haigh, New York, 1973; idem, *The Making of Mind*, ed. by Michael Cole and Sheila Cole, Cambridge, Mass., 1979; idem, *Language and Cognition*, trans. and ed. by James V. Wertsch, New York, 1981.

JAMES V. WERTSCH

LUTHER, MARTIN (1483–1546)

German theologian. Martin Luther set off the movement that became known as the Protestant Reformation, a religious and social upheaval that owed much of its impact to its coinciding and interacting with another radical development: the unprecedented possibility for large-scale communication created by the invention of PRINTING. The central contribution that printed documents made to the success of the Reformation signaled the catalytic role that printing would thenceforth play in Western social, cultural, and political life. Fundamental changes in Western beliefs and social structures emerged from the meshing of these two revolutionary developments.

While still an Augustinian monk and parish preacher in Wittenberg and professor of biblical theology at that city's new UNIVERSITY, Luther arrived at the two basic views that would later become central to Protestantism and that constituted a fundamental challenge to prevailing Catholic teachings and practices. He asserted (1) the sole authority of the Bible as the source of God's word (as opposed to the Catholic emphasis on the authority of the papacy and of clerical councils) and (2) salvation by the inward act of individual faith alone (in contrast to the traditional Catholic idea of salvation by works and participation in the sacraments). Luther posted his Ninety-five Theses on the door of the Schlosskirche (castle church) in Wittenberg on October 31, 1517. That document originated in specific protest against the Catholic church's sale of indulgences (see CRUSADES, THE) but also reflected his new general beliefs. The action thrust Luther into the public eye as a religious re-



Figure 1. (*Luther, Martin*) Lucas Cranach, *Portrait of Martin Luther*, 1529. Uffizi, Florence. Alinari/Art Resource, New York.

former and can be thought of as the single precipitating event of the Reformation.

Between then and 1521—when in January Pope Leo X finally excommunicated him and in April the secular Diet of Worms declared him a criminal and banned his writings—Luther came into increasing conflict with ecclesiastical authorities, grew increasingly popular with students and the German people (among his chief supporters were the German nobles who resented the secular power of the papacy and its draining of finances away from their regions), and published a series of what in retrospect can be called Reformation manifestos. In such writings as “Address to the Christian Nobility of the German Nation,” “A Prelude concerning the Babylonian Captivity of the Church,” and “Of the Freedom of a Christian Man,” Luther expanded on his religious ideas (e.g., defending the moral validity of the individual conscience, asserting the priesthood of all Christians against a separate and privileged hierarchy, and denying the validity of the Mass and of the doctrine of transubstantiation) and called for secular action when the church would not reform itself from within (*see PAMPHLET*). In the following year Luther was forced to live in hiding at secluded Wartburg Castle under the protection of the elector of Saxony, beginning while there his monumental and unprecedented translation of the Bible into the German vernacular (New Testament, 1522; Old Testament, 1534).

From 1522 on, Luther had to devote himself to the consolidation of the new church that, in effect though not by original intention, he had founded. Steering between the Catholics on the one hand and the more extreme German religious reformers whom he denounced on the other, and aided substantially by associates like Philipp Melancthon and Justus Jonas, Luther created reformed rituals—including a liturgy in the vernacular—that became basic state-

ments of the new faith (*see RITUAL*). However, because of disagreements with foreign reformers like Huldrych Zwingli and John Calvin over the doctrine of the Eucharist, Luther was not successful in maintaining a transnational Protestant unity, and in 1530 the newly designated Lutherans drew up their separate articles of faith in the Augsburg Confession.




By the time of Luther's death, the individualistic tendencies within his reformation movement had helped produce a markedly different European social, political, and cultural order. European society was no longer united under a single church but was marked by the existence of several; many individual nobles found in the new Protestantism a useful basis for revolt against imperial or otherwise centralized political structures (in Germany the new Lutheran churches even became territorial churches, subject to the authority of the local Protestant princes); and the “ordinary individual” gained a potentially greater status than ever before known in Western, and perhaps world, culture.

Writing, especially writing in the vernacular LANGUAGE of the common people, was one of Luther's chief tools for communicating his reform beliefs. It is unlikely that those beliefs would have had the transforming scope and impact that they did without a medium like printing that could disseminate them widely and bring them into the experience of the common person, either by the act of private READING for the literate (*see LITERACY*) or simply by a large-scale distribution that made them potentially available for discussion by all. The Reformation thus became one of the first arenas to demonstrate the power that printing could have as an agent of widespread cultural and social change.

See also RELIGION; RENAISSANCE; SCRIPTURE.

JOSEPH CADY

M

(em), the thirteenth letter of the modern and twelfth of the ancient Roman alphabet, represents historically the Greek *mū* and the Semitic *mēm*. The Phœnician form of the letter is , whence the early Greek and Latin , , M. Its phonetic value has varied little. . . .

MCLUHAN, MARSHALL (1911–1980)

Canadian literary and communications scholar. During the 1960s Herbert Marshall McLuhan enjoyed widespread fame for his work on the cultural implications of the mass media. Imitating the sloganizing style of ADVERTISING, a number of his oracular pronouncements became international catchphrases.

A Catholic convert who took his doctorate in English at Cambridge in 1942, McLuhan's early academic career in both the United States and Canada was unexceptional—until the publication in 1962 of *The Gutenberg Galaxy: The Making of Typographic Man*. The book built on nonliterary interests McLuhan had first displayed more than a decade earlier in *The Mechanical Bride: Folklore of Industrial Man* (1951). The body of ideas was further developed in *Understanding Media* (1964), McLuhan's most enduring and widely disseminated work. Thereafter he returned to many of the same themes, at times in increasingly idiosyncratic and picture-magazine-like texts (e.g., *The Medium Is the Massage*, 1967).

Canada and Canadian scholarship sparked McLuhan's interest in communications. The critical importance of physical communications in Canadian history and the interaction of technology and society were major themes in the work of some of his contemporaries, especially HAROLD INNIS, an economic historian. Innis argued that communication technologies confer monopolies over knowledge and "bias" the time and space dimensions of social life. Accordingly, for McLuhan technology was largely an external force that conditioned society far more than technology was conditioned or determined by society. However, McLuhan's examination of technologies did not include any consideration of their histories or the social circumstances affecting their DIFFUSION.

Catholicism informed his central vision of typographic man—that is, humankind after the PRINTING press—as somehow "fallen" from the state of grace enjoyed by tribal peoples. McLuhan argued that phonetic writing transformed the oral (i.e., spoken word) into the visual (i.e., printed word). Printing also shaped private and individualized logic and consciousness. Typographic man lives by eye rather than by ear. Declaring that aural communication demands greater imaginative work on the part of receivers than does visual communication, McLuhan suggested that it is richer. In his view print is the model of all subsequent industrialized processes, confining and limiting imagination because of its strict lineality. In McLuhan's individual terminology, print is a "hot" medium, whereas television is "cool" in that its relatively "low definition" (e.g., poor picture quality) engages the viewer more actively than does print, which, with its "high definition," encourages detachment (i.e., less involvement) as well as relative isolation. In general there is little evidence to support

McLuhan's psychological arguments. Critics assert that they represented, at the very least, technological overdeterminism or very imprecise metaphors.

McLuhan was also deeply influenced by his Celtic ancestry, the poetic source of the arresting and unique style of presentation he developed. Increasingly distanced from the norms of academic discourse, he attempted to sum up his ideas as a series of aphorisms, or "probes" as he called them. These were designed to goad his audience into a greater awareness of the situation created by modern media technology. Probes such as "the medium is the message" or "the global village" gained wide currency. But the core of his theoretical contributions is that the new media, new communications technologies, are extensions of our bodies. They create new environments whose major effects, inherent in their existence, are the creation of new modes of perception, new types of sensory experiences, and new social relationships.

McLuhan particularly impressed the world of advertising and television (see TELEVISION HISTORY). A charismatic and provocative performer when interviewed, he appeared to be suggesting that television, and COMMERCIALS in particular, marked the road back to the lost preprint Eden. That his vision was darker than this remained hidden from those in the media promoting him.

He was a very controversial figure, feted by many but also rudely dismissed. "Impure nonsense, nonsense adulterated with sense," was the view of one contemporary critic of *Understanding Media*. By the mid-1970s the critics had prevailed. McLuhan's most enduring contribution lies in the fact that he helped to establish the mass media among the intelligentsia as a proper object of study, perhaps more by his own celebrity than by his methodology or the weight of his ideas.

See also COMMUNICATIONS, STUDY OF; MASS COMMUNICATIONS RESEARCH; MASS MEDIA EFFECTS.

BRIAN WINSTON

MAGAZINE

Periodical publication that contains in each issue an assortment of items. The term *magazine*, meaning "storehouse," originally suggested diverse content, but in recent times most magazines have become highly specialized, each attracting a sharply defined audience with items relating to a specific range of interests—which are usually, at the same time, designed to attract support from advertisers serving those interests. Most periodicals can be squeezed, sometimes uncomfortably, into four broad categories: consumer magazines, trade and technical magazines, public relations or company publications, and literary and scholarly journals.

Consumer magazines, usually ADVERTISING-



Figure 1. (*Magazine*) Newsstand in Paris. Courtesy of the French Government Tourist Office.

supported, find their constituencies among the general public, although most aim at segments of it. Trade and technical magazines, including specialized business magazines, are directed at relatively small, highly specific audiences in trades, businesses, industries, and professions to which they carry news and specialized information about their occupational fields. PUBLIC RELATIONS periodicals are issued by corporations, government agencies, colleges and universities, and other institutions to promote their interests among employees, customers, clients, and opinion leaders. Most literary and scholarly journals are published without commercial intent, though they may solicit advertising to help defray costs.

No precise statistics on the number of magazines have been compiled, but it is clearly enormous. In 1984 *Facts on File* estimated as follows: Africa, 863; North America, 12,947; South America, 3,550; Asia, 41,164; Europe, 70,602; Oceania (including Australasia), 8,415; and the USSR, 4,772.

History

The magazine was born in Europe in the seventeenth century, a few decades after the newspaper (see NEWSPAPER: HISTORY). One of the earliest was the *Journal des Scavans*, founded in Paris in 1665. Originally it carried abstracts of books, but later it ran original material as well. Like successful magazines ever since, it was widely imitated, both on the European continent and in England. In a wave of European magazine making in the late seventeenth and early eighteenth centuries, some periodicals forsook sober edification for sheer amusement; some answered questions supplied by their readers; others, like the *Tatler* and Addison and Steele's *Spectator*, introduced a high literary quality to magazine journalism.

Perhaps the first magazine recognizable as a prototype of what magazines were to become was the invention of Edward Cave of London (1691–1754), a cobbler's son who had worked as printer and editor. His *Gentleman's Magazine* (1731–1907) is generally credited with being the first periodical to use the designation *magazine*. Both the term and the basic format had spread to Germany by 1747. Both were also adopted by publishers in the British North American colonies.

A decade after the birth of *Gentleman's Magazine*, the first two magazines appeared in the American colonies, three days apart. They were Andrew Bradford's *American Magazine* and Benjamin Franklin's *General Magazine and Historical Chronicle*, both published in Philadelphia and dated January 1741. However, magazines were slow to take root in American soil: Bradford's magazine died after three issues, Franklin's after six. Until 1794 there were never more than three magazines at one time in the United States, and probably none had a circulation of more than fifteen hundred. A period of growth began in the nineteenth century—from a dozen magazines in 1800 to a hundred in 1825 to six hundred in 1850. They generally circulated only within a fifty-mile radius until the mid-nineteenth century, when magazines of national outlook and circulation began to emerge.

A boom in magazine making after the Civil War pushed the number of periodicals from seven hundred in 1865 to thirty-three hundred in 1885. But publishers tended to neglect the great and growing middle class. Between the genteel monthlies like *Atlantic* (founded in 1857) and *Harper's* (founded in 1850) at one extreme and trashy story papers at the other, there was a sparsity of magazines.

Rise of consumer magazines in the United States. When the modern magazine was born in the last years of the nineteenth century, it was, in retrospect, an almost inevitable consequence of the changes that had begun to alter the U.S. landscape after the Civil War. The industrial and technological revolution was

changing the economy from an agricultural to an industrial one and was providing the publisher with improved tools such as speedier PRINTING presses to reach large audiences and photoengraving to replace handcrafted illustrations. Mass production and improved transport were opening up national markets beyond local or regional ones. Steady increases in population, abetted by a flood of immigrants, and higher levels of LITERACY, the result of the spread of popular EDUCATION, were creating a middle-class audience with considerable buying power and LEISURE time that made it a desirable target for advertisers. Meanwhile, Edward W. Bok (1863–1930), editor of the *Ladies' Home Journal* for three decades after 1889, had begun to demonstrate the enormous potential of a magazine that closely matched its readers' concerns.

Beginning in 1893, publishers like Frank Andrew Munsey (1854–1925), S. S. McClure (1857–1949), and Cyrus Curtis (1850–1933) capitalized on those changes and cut the basic pattern that magazine publishers traced thereafter. By filling their magazines with content reflecting popular taste and often selling them for less than production cost, they attracted an advertising volume that supported their enterprises. They opened new markets for magazines, which continued to grow with the new century and gradually spread throughout the world. The flood of consumer magazines took in all continents, especially after World War II.

The rise of new media competing for public attention—MOTION PICTURES, RADIO, television (see TELEVISION HISTORY), and others—was for a time seen as a mortal danger to magazines. But in fact their rise encouraged a worldwide proliferation of magazines catering to enthusiasts for the new media. By the 1980s, for example, India was reported to have seven hundred magazines aimed at film fans. Countries throughout the world had specialized magazines for television viewers, often modeled on *TV Guide* (see Table 1). And as broadcast media heightened interest in SPORTS, they seemed to bring a new spurt to sport magazines, usually with a national emphasis.

Rise of trade and technical magazines. The trade and technical press can trace its ancestry back to the Dutch and English lists of current commodity prices in the seventeenth and eighteenth centuries and to the shipping lists and public sale reports in the United States in the eighteenth and nineteenth. By the early nineteenth century forerunners of the specialized business press had begun to emerge in the United States. However, they encountered difficulties similar to those of the early general magazines: reader indifference, lack of advertising support, high production costs, a primitive distribution system.

The growth of the specialized business press in industrialized nations paralleled the growth of com-

Table 1. TV Magazines

<i>In 1985 each of the following was among the ten highest-circulation magazines in its area.</i>	
Australia	<i>TV Week</i>
Austria	<i>Hörzu</i>
Belgium	<i>Téléoustique</i>
Denmark	<i>TV Bladet</i>
Egypt	<i>Al-Izaawal Television</i>
France	<i>Télé 7 Jours</i>
Federal Republic of Germany	<i>Hörzu</i>
Ireland	<i>RTE Guide</i>
Italy	<i>TV Sorrisi e Canzoni</i>
Japan	<i>TV Guide</i>
Mexico	<i>Tele-Guia</i>
Netherlands	<i>Avrobode</i>
New Zealand	<i>New Zealand Listener</i>
Norway	<i>Se og Hor</i>
Portugal	<i>TV Guia</i>
Spain	<i>T. P. Teleprograma</i>
Switzerland	<i>Tele</i>
United Kingdom	<i>Radio Times</i>
United States	<i>TV Guide</i>

Source: *The World Media To-day* [1985] (Les temps médias), Paris, 1984—.

merce and industry. In the United States the first trade and technical publications dealt with manufacturing, commerce, mining, and transportation. Their second broad phase saw the rise of publications directed at the professions (see PROFESSION). By the early 1970s the specialized business press had begun to edge into yet another direction—high technology. Thereafter periodicals covering research and advances in such fields as computers, electronics, robotics, and genetic engineering appeared in escalating numbers (see COMPUTER: IMPACT).

The thrust of editorial content changed over time. In new or young industries and professions, specialized business publications found their first need as teachers. As timely continuing textbooks, they concentrated on practical, didactic, readily applied information. Their editorial staffs were hired more for technical knowledge than journalistic skills. But as basic knowledge became codified and new means arose for its dissemination, the magazines increasingly stressed news of advances in their specialized fields. Their staffs became persons with communications expertise rather than exclusively technical knowledge.

The strength and importance of trade and technical periodicals seem especially related to the state of a country's commercial and industrial development. The specialized business press is both a force for and a beneficiary of such development. It is the only communications medium with a natural MONOPOLY; no other medium reaches its audiences with the kinds of specialized information that it carries.

Company publications. Once known as "house organs," company publications are of three broad types: internal, for readers within the sponsoring organization; external, for opinion leaders, customers and potential customers, shareholders, and the like (see *OPINION LEADER*); and combination, for both internal and external audiences. They range in circulation from a few hundred copies to more than a million, in quality from the amateurish to the professionally polished and handsomely illustrated.

Their origins can be traced to ancient Chinese court circulars. An early U.S. example is Franklin's *Poor Richard's Almanack*. A scattering of the periodicals appeared in the nineteenth century. But their big growth has been in the twentieth century, especially after World War II. No doubt contributing to their rise were the sense of public relations that permeated business and industry, the growth of labor unions and the labor press, the complexity of modern industry, and management's desire to explain and defend the free enterprise system in a period of widespread *GOVERNMENT REGULATION*.

Literary and scholarly journals. Literary magazines have been characterized by brief lives, uncertain funding, low circulations, and high hopes. They have been a medium for experimentation in literature and the arts, sometimes a herald of new ideas, trends, and movements. Many celebrated writers such as T. S. Eliot, Robert Frost, and Eugene O'Neill published their early work in them. Scholarly journals have experienced similar uncertainties, although support from universities and scholarly societies has sometimes provided for some stability.

Medium

The importance of magazines as a communications medium—the number of magazines, the range and nature of their content, the use people make of them, and their relative prestige—varies from nation to nation. Their importance is tempered by historical, cultural, economic, and political factors. The penetration of magazines into the adult population is generally highest in the most industrialized nations, whether capitalist or socialist, but magazines are considerably less numerous in socialist countries. In the more orthodox socialist societies government supervision is a controlling factor, but magazines cater to a wide variety of interests, serving both mass and specialized audiences. In the Soviet Union they may issue from industry groups, worker organizations, educational associations, and other entities. As disseminators of information and attitudes regarded as desirable, magazines seem to be secondary in importance to newspapers but are a significant supplement. In the less orthodox socialist countries material from

outside circulates with varying degrees of freedom, mainly in urban centers. Yugoslavia has been comparatively free of barriers in this respect. See *CENSORSHIP*.

Role of advertising. In most of the leading capitalist nations, advertising, by defining the role of the publisher as basically a dealer in audiences, has influenced the nature as well as the relative prominence of magazines. Whether consumer magazines can flourish depends on several conditions: the size, educational level, and affluence of markets for goods and services; the extent to which producers are able and willing to spend money to reach those markets; the availability of other media for reaching those markets; and the amount of competition from magazines beyond a nation's borders.

Ultimately the vitality of consumer magazines in any given nation depends to a large extent on the nature of the newspaper and broadcasting industries. Whether a country has mainly national dailies or mainly local ones, whether it has large-circulation newspaper supplements akin to magazines, whether its television system bans or severely restricts advertising, whether television time is costly or relatively inexpensive—all these conditions affect the volume of advertising and the prosperity of advertising-supported magazine industries.

So does the amount of competition that a native magazine industry gets from magazines published outside the nation's borders. As early as 1906 one writer complained that Canadians read more U.S. magazines than Canadian ones. Because U.S. publishers amortized their costs at home, he said, they could compete unfairly with Canadian publishers. Some seventy years later the Canadian government took measures to foster indigenous periodicals. In the decade after 1973 the number of Canadian magazines increased substantially, as did the volume of advertising placed in them. In Austria, where magazines from the Federal Republic of Germany predominate, development of a native industry has been inhibited. Other European countries in which outside magazines compete strongly with the local product include Belgium, Ireland, and Switzerland.

Role of publisher. The role of the publisher has given a certain family likeness to magazine publishing in various nations throughout most of the Western world. As dealers in audiences, publishers need invest comparatively little in capital equipment unless they choose to. Printing, subscription solicitation, subscription fulfillment, audience and market research—those and other service functions can be contracted out to others (see *PRINT-AUDIENCE MEASUREMENT*). The publisher's basic stock is editorial content that will engage readers and an audience that will attract advertisers. Hence the industry has remained relatively accessible to the entrepreneur with an idea for

a new magazine and with the capital to start and nurture it.

Industry

One family likeness is in the structure of the industry. Although there are local variations, the basic pattern is similar in nation after nation: Australia, Canada, Finland, Italy, the Netherlands, Portugal, Spain, Sweden, the United Kingdom, the United States, the Federal Republic of Germany, and others. In each a handful of dominant publishers accounts for a disproportionately large share of circulation and advertising lineage. But beneath those corporate peaks lies the body of the industry, a large number of ever-changing smaller magazines that serve an ever-changing spectrum of interests. The large publishing houses may have an overall competitive edge, yet the total number of magazines, their growth in numbers, and the range of interests they appeal to suggest that the industry generally is not closed to newcomers. In the United Kingdom six major companies account for about 70 percent of consumer magazine advertising. Nonetheless, the period 1966–1974 saw the birth of between 59 and 173 new consumer magazines each year. Altogether there were 1,013 new consumer magazines, 1,317 trade and technical. (However, the gain in total numbers was reduced by the deaths of 892 consumer and 1,034 trade and technical publications.) In Denmark three large companies once dominated the industry—Aller, Det Berlingske Hus, and Gutenberghus-Bladene. Palle Fogtdal, whose experience had been limited to editing a trade paper, broke into publishing in 1954. He sensed that specialized publications could compete successfully with the general-interest family magazines that dominated the scene. Thirty years later his company stood among the majors.

Circulation. Several nations have magazines with circulations that exceed a million each issue, among them Canada, Finland, France, the Federal Republic of Germany, Italy, Great Britain, the Soviet Union, and the United States. However, not even in the United States, where two magazines have each maintained sales of more than 17 million, is the magazine with multimillion circulation typical. The number of U.S. magazines with circulations of a million or more grew from about twenty-five in the mid-1920s to about seventy three decades later. Although some publishers continued to push for huge circulations, the race for enormous numbers that began with the advent of television in the mid-1950s had all but ended by the late 1960s and early 1970s with the deaths of the *Saturday Evening Post* (1969) and the picture magazines *Look* (1971) and *Life* (1972). Of the four hundred magazines belonging to Audit Bu-

reau of Circulations in 1979, 41 percent had circulations of under 150,000 and 70 percent under 500,000. Many of the new magazines in the 1970s and 1980s started with circulations of 50,000 or under. In France the circulations of consumer magazines in the early 1980s ranged from 10,000 to 3 million; the average for the specialized press was around 37,000.

Specialization. The specialization that characterizes U.S. magazines has become a feature of periodicals in many parts of the world. Although U.S. magazines have long been specialized, their editorial focus began narrowing after World War II. Increases in leisure time and disposable income gave millions of people the time and money to engage in a host of activities that had formerly been the perquisites of the privileged; television surely sharpened public interest in some of those activities. In the 1960s and 1970s editorial focus became even finer. For instance, the traditional women's home-service magazines were joined by periodicals for liberated women, university women, weight-conscious women, sports-minded women, health-conscious women, working mothers, military wives, and so on. On a less grand scale than in the United States, specialization affected parts of the industry in much of Europe, accompanied by the growth of magazines catering to hobbies and leisure activities.

Internationalization. After World War II magazine publishing took on an international cast, although a few publishers had essayed markets abroad long before then. *Harper's* published a British edition as early as the 1880s; its British rival, *Strand*, had a U.S. edition in the 1890s. In the 1920s and 1930s Conde Nast, Hearst, and Macfadden all issued magazines abroad. *Reader's Digest* began its international operations in 1938, Time Inc. in 1941. Other U.S. publishers got a taste of publishing on a global scale during World War II when a number of them brought out special overseas editions for the armed forces. From then on one U.S. magazine after another sought readers abroad.

In the early 1980s *Reader's Digest* had some forty international editions in seventeen languages. *Business Week*, *Newsweek*, and *Time* issued editions—mainly for government, business, and opinion leaders—in major areas of the world. The Soviet Union, whose domestic trade and technical magazines carried advertising from western Europe and the United States, exported periodicals in many languages to promote the sale of Soviet goods and the idea of Soviet trade.

A few publishers from abroad looked to the United States not only for editorial concepts but also for markets. In 1969 Robert Guccione brought his *Penthouse*, already a success in Great Britain, to the United States. Daniel Filipacchi, a major French pub-

lisher, unsuccessfully tried to revive *Look* in 1979. The British *Economist* in 1981 launched a North American edition printed in the United States. Gruner + Jahr of Hamburg, the Federal Republic of Germany's largest magazine company, in 1978 chose New York as its second publishing capital because of limits on expansion at home. Its U.S. properties included *Parents* and a company that printed more than a hundred magazines for other publishers.

Adaptability. Throughout its history the magazine has been a remarkably adaptive medium. It has adapted to what some observers once perceived as technological threats to its vitality or even its existence: the automobile, sound movies, radio, television. It has adapted to a shifting social scene and to changes in the nature, tastes, and concerns of its audience. Since the mid-1960s some observers have seen new ways of generating, storing, and disseminating information as ultimately diminishing if not eliminating the role of the magazine in the communications system. Once again the magazine will more likely adapt than perish.

See also PUBLISHING.

Bibliography. Elliott Anderson and Mary Kinzie, eds., *The Little Magazine in America: A Modern Documentary History*, Yonkers, N.Y., 1978; Benjamin M. Compaine, *The Business of Consumer Magazines*, White Plains, N.Y., 1982; David P. Forsyth, *The Business Press in America, 1750-1865*, Philadelphia, 1964; Walter Graham, *English Literary Periodicals*, New York, 1930; George T. Kurian, ed., *World Press Encyclopedia*, 2 vols., New York, 1982; Frank Luther Mott, *A History of American Magazines*, 5 vols., Cambridge, Mass., 1938-1968; Theodore Peterson, *Magazines in the Twentieth Century*, 2d ed., Urbana, Ill., 1964; Starch INRA Hooper, *World Advertising Expenditures*, 17th ed., Mamaroneck, N.Y., 1983; *Stern Magazine, Consumer Magazines in Europe*, Hamburg, 1981.

THEODORE B. PETERSON

MAP. See CARTOGRAPHY; GRAPHICS; MAP PROJECTION.

MAP PROJECTION

The transformation of a spherical surface (earth) to a flat surface (map projection) will somehow distort angular relationships, directions, and possibly sizes (see Figure 1). In terms of communication there are four categories of map projections with the following objectives:

1. To preserve true relative sizes of surface areas. Called *equivalent* or *equal-area*, they necessarily distort angles and shapes.
2. To preserve true angular relationships around each point although not among distant points.

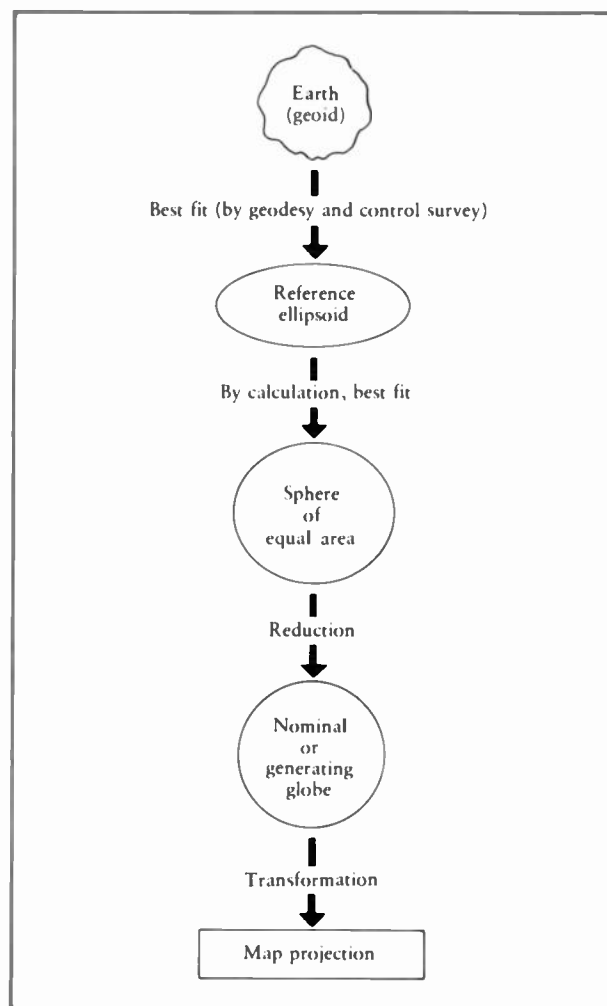


Figure 1. (*Map Projection*) The map projection process: the systematic rearrangement of the planet's meridians and parallels. Redrawn after B. D. Dent, *Principles of Thematic Map Design*, © 1985, Addison-Wesley Publishing Company, Inc., Reading, Mass., p. 45, fig. 2.10. Reprinted with permission.

Called *conformal* or *orthomorphic*, they necessarily distort relative sizes and most shapes.

3. To preserve true directions (azimuths) from one point to all others. Called *azimuthal* or *zenithal*, their property may be combined with either equivalence or conformality.
4. To present an acceptable image. Often called *compromise*, an imprecise term, they distort both sizes and shapes to some degree.

Equivalence and conformality are mutually exclusive. Except for precise measurements, the distortion in small areas in most commonly used map projections is negligible but is readily apparent in maps of large regions.

Map projections may also be described by the developable surfaces (can be flattened without

stretching) to which the sphere has been projected in fact or in theory. Thus there are *cylindrical*, *conic*, and *azimuthal* (plane) projections, some of which are equivalent, conformal, or compromise. Equivalent or compromise projections that show the entire earth within a bounding shape, such as an oval, are named *pseudocylindrical*.

The projections used by the ancients, primarily for the celestial sphere, were azimuthal, developed by projecting the spherical surface to a tangent plane from some point. All great circles through the center of the projection are straight lines, and all azimuths from the center are correct. They began to be used for terrestrial maps in the fifteenth and sixteenth centuries, when the display of the sphericity of the earth was an important objective. Some azimuthal projections were used in the ancient world as well as today. For example, a *gnomonic* projection is from the center of the sphere, which is one's position when viewing the firmament. All great circles appear as straight lines, useful for a navigator laying out a course. An *orthographic* projection is from infinity, which provides the realistic effect of looking at a globe map. And a *stereographic* projection is from the point on the sphere opposite the tangent plane. It is conformal, and any circle or circular arc on the sphere remains truly circular on the projection. Since the sixteenth century other azimuthal projections have been devised, most notably one that adds the property of equivalence to the attributes common to the azimuthal class (see Figure 2).

In the fifteenth and sixteenth centuries the greatest achievements in geographical communication were cartographic. The writings of Claudius Ptolemy (ca. 90–160 C.E.) were introduced to Europe during the fifteenth century and made scholars and artists aware of the geographical coordinate system and of the problem of arranging the *graticule* (the system of lines indicating latitude and longitude) as a base for maps. Many projection systems were devised.

Sailing charts also began to show the graticule, but as perpendicular straight lines, usually spaced equally. These plane (or plain) charts were useful only for right-angle sailing, that is, either east-west or north-south. Any other constant bearing plotted on them as a straight line was incorrect because a *rhumb*, a bearing maintaining a constant oblique angle with the meridians, is a complex curve (*loxodrome*) on the earth. In 1569 the famous Flemish cartographer Gerardus Mercator (1512–1594) devised a projection on which all rhumbs plot as straight lines (see Figure 3). The graticule is rectilinear, but the parallels poleward are spaced increasingly farther apart to match the meridian expansion, with the poles at infinity. Mercator's projection (also conformal) has been employed for several hundred years for all nautical charts but is a poor choice for any other use

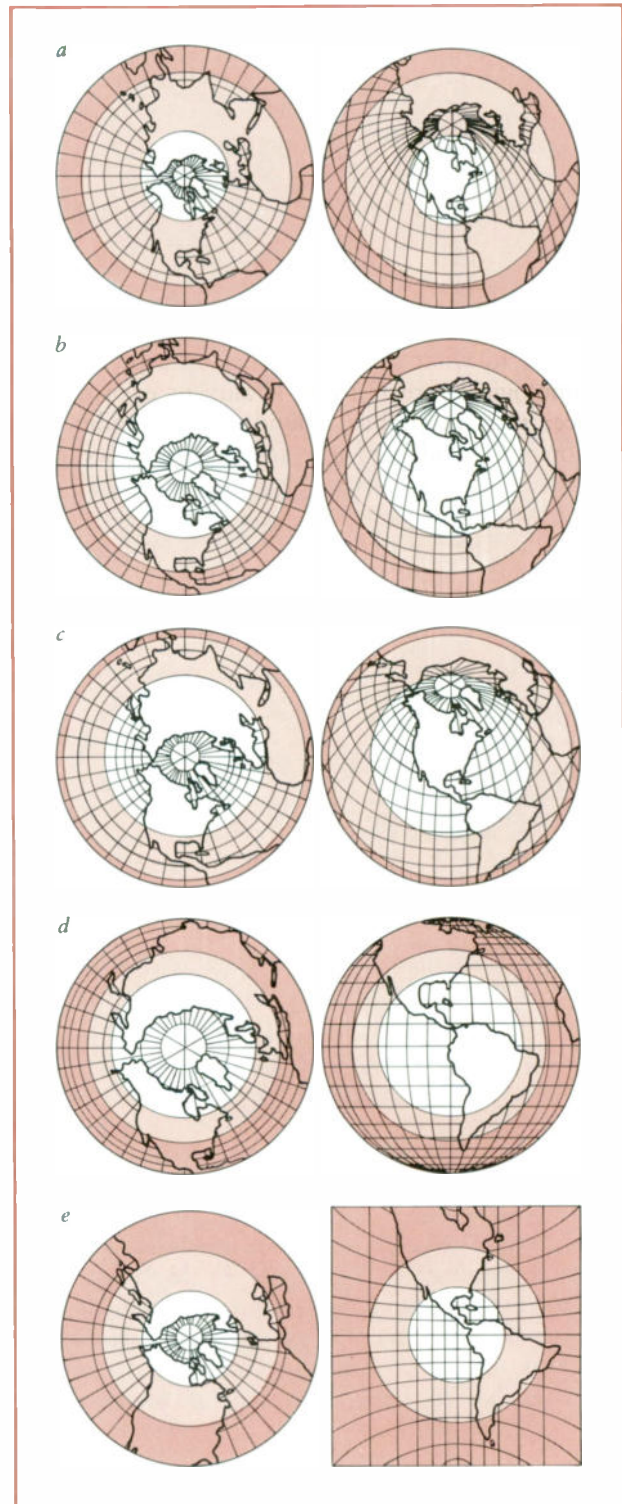


Figure 2. (*Map Projection*) The five well-known azimuthal projections, developed by projecting the spherical surface to a tangent plane from some point: (a) stereographic, (b) Lambert's equal area, (c) azimuthal equidistant, (d) orthographic, (e) gnomonic. Redrawn after A. H. Robinson, R. D. Sale, J. L. Morrison, and P. C. Muehrcke, *Elements of Cartography*, 5th ed., New York: John Wiley & Sons, 1984, p. 101.

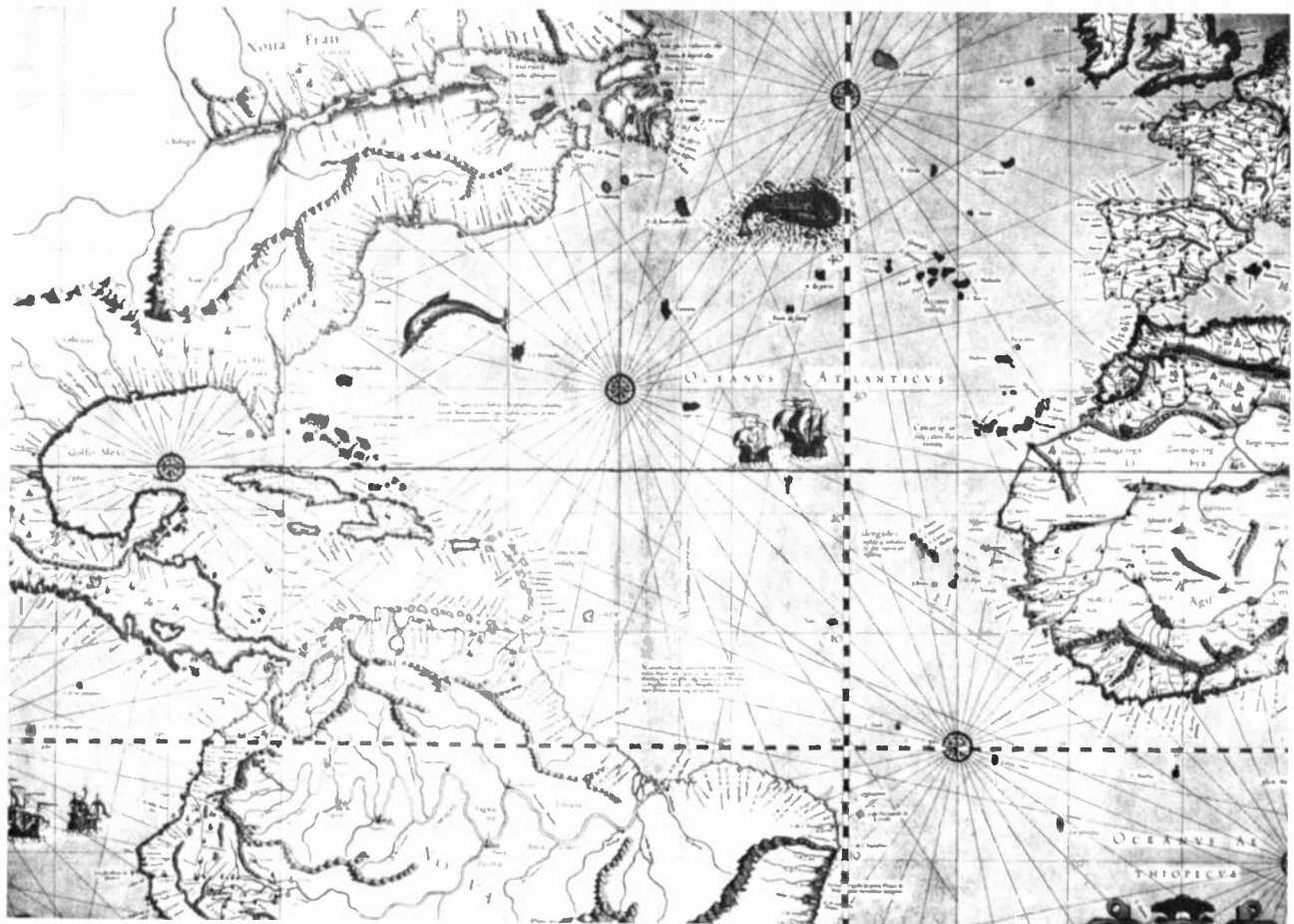


Figure 3. (*Map Projection*) A section of Mercator's Map of the World (1569) in atlas form. Courtesy of the Library of Congress, Geography and Map Division.

because of extreme size and shape distortions in the middle and high latitudes. Nevertheless, it is commonly seen.

Since the fifteenth century interest in the subject of map projections has steadily expanded. Hundreds have been devised, and it is not uncommon for a new projection or a variant to be used for a particular map or map series (see Figure 4). Maps on which angles and directions are important, such as meteorological maps, air and sea navigation charts, topographic maps, and all maps showing rectangular grid coordinates, employ conformal projections. Maps

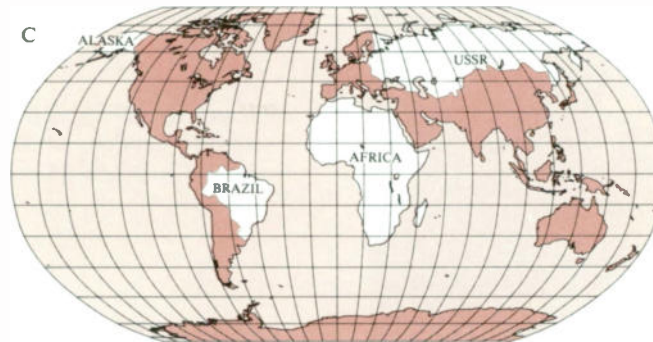
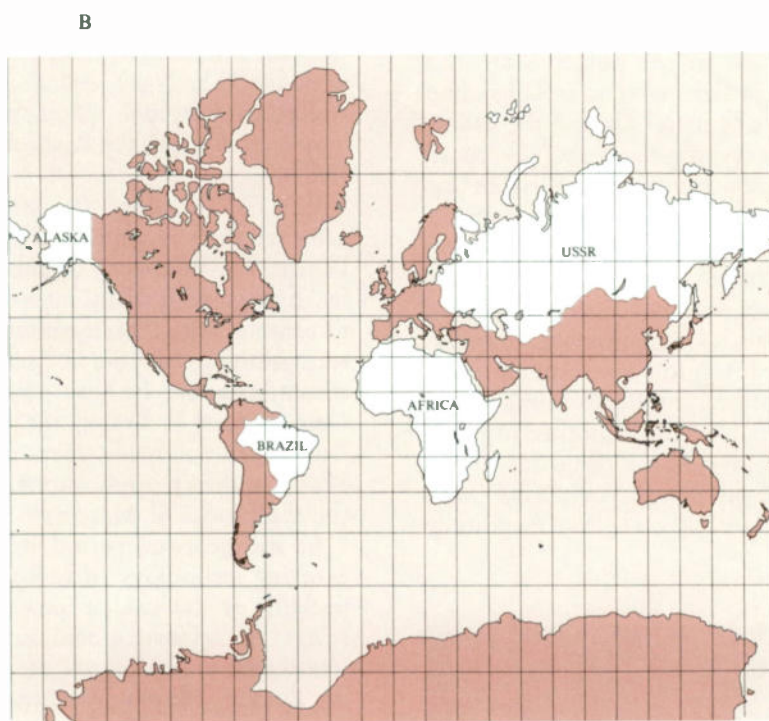
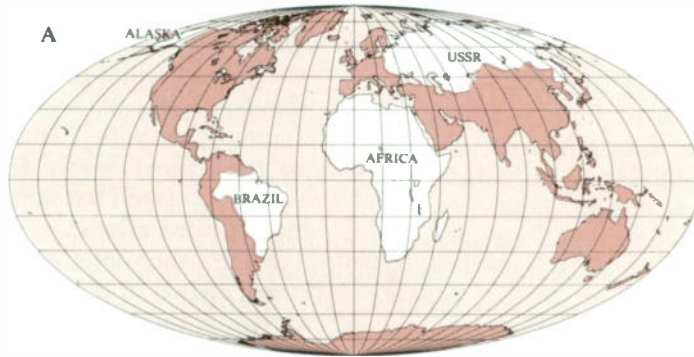
for general use, such as those in atlases, books, and census reports, usually employ equivalent or nearly equivalent compromise projections, of which there are scores from which to choose. SATELLITE images are on very complex projections.

See also CARTOGRAPHY; EXPLORATION; GRAPHICS.

Bibliography. D. H. Maling, *Coordinate Systems and Map Projections*, London, 1973; Arthur H. Robinson, Randall D. Sale, Joel L. Morrison, and Phillip C. Muehrcke, *Elements of Cartography*, 5th ed., New York, 1984.

ARTHUR H. ROBINSON

Figure 4. (*Map Projection*) Three world map projections all derived from the same generating globe, that is, they are all the same nominal scale. Mollweide's pseudocylindrical projection (A) is one of many equivalent (equal-area) transformations that display all regions in their correct relative sizes. Unfortunately, equal-area projections that show the earth within a single shape, such as an oval, necessarily greatly distort some shapes. Mercator's projection (B) is conformal, and its unique merit is that all rhumbs plot as straight lines, an attribute of immense value for navigation. It grossly enlarges sizes and distorts shapes in high latitudes, and the poles are infinitely distant. Robinson's projection (C) is neither equal-area nor conformal. It is one of several compromise projections that attempts to achieve a balance between the distortions of sizes and shapes. Note, for example, the relative sizes and shapes of Alaska (586,412 sq. mi.) and Brazil (3,286,470 sq. mi.), Africa (11,677,240 sq. mi.) and the USSR (8,649,489 sq. mi.) in each projection. Graphic by the University of Wisconsin Cartographic Laboratory. ▷



MARCONI, GUGLIELMO (1874–1937)

Italian inventor whose demonstration of wireless TELEGRAPHY set the stage for the development of RADIO and later television (see TELEVISION HISTORY). Guglielmo Marconi's mother, who was Irish, left home to marry the much older Italian gentleman her family had wanted her to forget. Guglielmo was raised on the Marconi estate in northern Italy and received part of his education from tutors. Rejected for admission to the University of Bologna, he busied himself at home with electrical experiments. It was a time of widespread speculation about electromagnetic waves—called Hertzian waves because German physicist Heinrich Hertz (1857–1894) had shown how to produce them via a spark leaping across a gap. It was widely theorized that the waves might be used to send messages, and numerous scientists were working on means to do so. At home, Marconi's activities worried his father, who saw Guglielmo doggedly moving pieces of metal around the estate, burying some and then digging them up. The youth was, in fact, perfecting something he called an *antenna* and testing the effects of grounding both his sending and receiving apparatus. By 1895, using Morse code dots and dashes, Marconi showed that he could send a message one and a half miles, and his father began to take his experiments seriously. Information about the invention was sent by letter to the Italian Ministry of Posts and Telegraphs. When it expressed no interest, Marconi's mother resolved to take her son and his invention to England.

Sir William Preece of the British Post Office, himself a wireless experimenter, perceived the magnitude



Figure 1. (*Marconi, Guglielmo*) Guglielmo Marconi. Smithsonian Institution, Washington, D.C.

of what Marconi had achieved and the implications for the British Empire and its far-flung shipping. Long-distance demonstrations on land and then off-shore quickly raised investment capital, and in 1897 the Wireless Telegraph and Signal Company, later renamed Marconi's Wireless Telegraph Company, was formed, with Marconi in charge of development. The equipping of ships and of shore stations to communicate with them was promptly begun. For the next twenty years England was the center of Marconi's career, but the Marconi enterprise quickly became international.

In 1897 the young inventor traveled to the United States, invited by the *New York Herald* to report the America's Cup race by wireless so that the *Herald* could have the news on the streets before the ships returned to shore. It became the sporting event of the year and also gave Marconi a chance to negotiate with the U.S. Navy and to form a subsidiary, the American Marconi Company, which would ultimately evolve into the Radio Corporation of America (RCA).

In 1901, sending the single letter S, Marconi achieved the first transatlantic wireless transmission. During the following decade he advanced wireless technology with many innovations: the tuning dial, directional antennas, magnetic detectors. In 1909, in recognition of his role in creating the age of wireless communication, he was awarded (jointly with the German Karl F. Braun) the Nobel Prize in physics. During the following years, and throughout World War I, military applications of his inventions were the chief focus of Marconi's work.

In the postwar period he played a part in the evolving technology of radio, interesting himself especially in the use of shortwaves and microwave relays to achieve global distances. He devised a worldwide communications system linking the British Empire. Marconi eventually settled in Italy and won numerous awards from his native land. At his death, in accordance with his wishes, he was buried at Bologna near the scene of his boyhood experiments.

Bibliography. W. J. Baker, *A History of the Marconi Company*, London, 1970; W. P. Jolly, *Marconi*, New York, 1972; Degna Marconi, *My Father, Marconi*, New York, 1962.

HARTLEY S. SPATT

MARTIAL ARTS FILM

Popular film GENRE dating from around 1970 and featuring heroes and heroines skilled in the martial arts, particularly Chinese boxing, karate, and judo. Most early martial arts films were made in Hong



Figure 1. (*Martial Arts Film*) Bruce Lee, in *Enter the Dragon*, 1973. The Museum of Modern Art/Film Stills Archive.

Kong with Asian actors and settings, but they have been profitably exported throughout the world. The films are notable for their action scenes of mostly hand-to-hand combat, and the depiction of fighting is often gruesome and explicit. Chinese boxing traditions make use of hardened fists and feet, crushing grips, leaps, magic, and a philosophy of rigorous training and self-discipline, all ingredients that Westerners think of generically as kung fu.

Martial arts films have been termed the “cinema of vengeance” because revenge is frequently employed as a plot device. This allows the graphic depiction of VIOLENCE and permits the hero or heroine to exact retribution with self-righteous fervor, a sentiment the audience is encouraged to share. Sex is strikingly absent; only the most chaste romances are permitted, and female leads are almost invariably covered from neck to ankle in trouser suits. A recurring feature of the films is mutilation—blindness, amputation, severe wounds from which much time and training are needed to recuperate. Stories often require the main character to undergo a period of intensive study under a martial arts expert or master, learning the special techniques and advanced fighting skills needed to avenge a wronged family member or friend. Other plot elements sometimes introduced include rival martial arts schools, one bad and one good; the arrival of experts in other martial arts traditions such as Thai, Korean, or Japanese; and the acquisition of supernatural powers. In many of the early films principal villains were Japanese or Occidentals, indicating an appeal to a particular audience.

The genre has antecedents in Asian THEATER,

FOLKLORE, and literary tradition, but its immediate precursors were the Japanese samurai or sword-fight films (*Chambara*), which became an immense commercial success in Japan in the 1950s and, as wartime anti-Japanese sentiment receded, were profitably exported to much of the rest of Asia. Their emphasis on boldly drawn protagonists and on action rather than dialogue made them Asian versions of the popular “spaghetti westerns” and action films that they followed into the markets of the Middle East, Africa, and South America. The sword-fight film evolved rapidly from an early reliance on theatricality and obvious tricks. The American western (*see WESTERN, THE*) introduced an element of individualism in the form of the one-on-one duel, and it polarized the dramatic struggle into one between good and evil. These influences were apparent in director AKIRA KUROSAWA’s classic sword-fight films *The Seven Samurai* (1954), *Yojimbo* (1961), and *Sanjuro* (1962), which owed much to the shoot-out tradition of the western film. Kurosawa’s works established an entirely new style of “Eastern” western, and their worldwide success inspired many imitations in Japan itself, most notably a series about a blind swordsman called Zatoichi. The protagonists in these films were no longer the haughty samurai of historical fact but became instead the quirky individualists of movie myth, fighting for justice rather than privilege and using cunning and skill to achieve their ends. These characteristics were embodied in such STARS as Toshiro Mifune in the Kurosawa films and Shintaro Katsu as Zatoichi.

The early center of film production in China was Shanghai, but production began in Hong Kong when

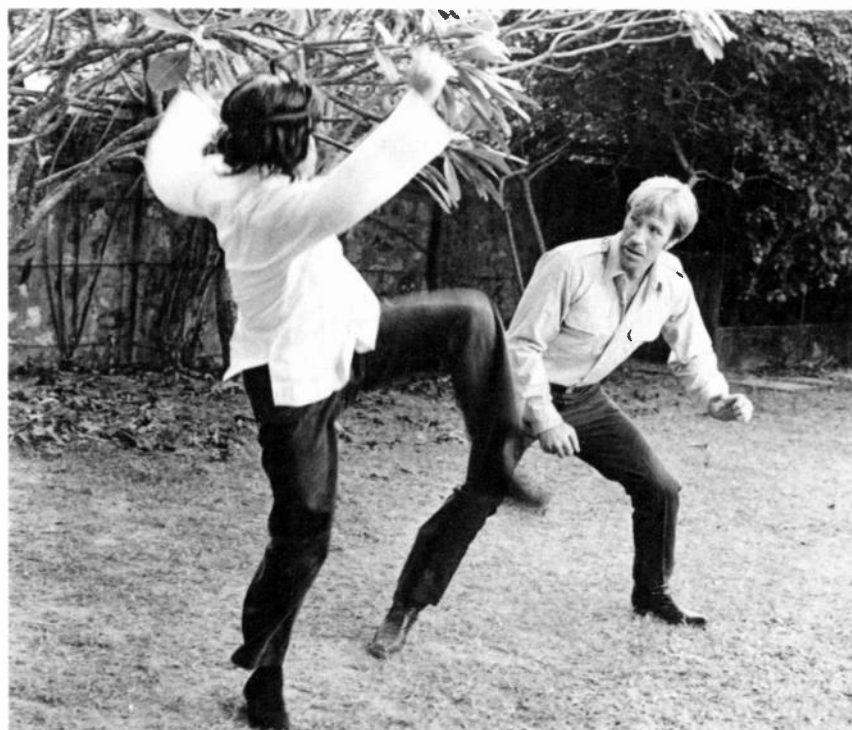


Figure 2. (*Martial Arts Film*) Chuck Norris in *Forced Vengeance*, 1982. The Museum of Modern Art/Film Stills Archive.

the arrival of sound technology in the 1930s (*see* MOTION PICTURES—SOUND FILM) created a demand for films utilizing different Chinese dialects, traditions, and stars. The Japanese invasion of China and the 1949 civil war caused much moviemaking talent and capital to flee Shanghai for Hong Kong, which in the 1950s became a base for Chinese-language film production in several dialects. The market for these films was mainly among overseas Chinese in Taiwan, Malaysia, Singapore, Thailand, Vietnam, Indonesia, Borneo, the Philippines, and North and South America.

Throughout the 1960s, as business conditions in Asia boomed, Hong Kong film producers sought ways to break out of the confines of the overseas Chinese market. Dialect films were dying out, and fewer big-budget films were being made in Mandarin, the national dialect. After some attempts at coproduction with Japan and other countries it became apparent that action films were the key to success. Hong Kong filmmakers seized on the Japanese sword-fighting formula and began to vary it for Chinese audiences by introducing Chinese martial arts traditions and stars.

Just as Japanese stars Mifune and Katsu served to focus and enhance the tradition in which they worked, Chinese star Bruce Lee refined and became identified with the emerging martial arts film. Lee was only one star among many in Hong Kong—including Wang Yu, Lo Lieh, Angela Mao, Ti Lung, and David Chang—and his routines were often derived from

other films. But Lee's films were the first to achieve crossover success in the North American market, leading to international publicity for himself and for the martial arts genre. The worldwide success of *The Big Boss* (1971) and *Fist of Fury* (1972) enabled Lee to write and direct *Way of the Dragon* (1972) and to coproduce his last film, *Enter the Dragon* (1973), with Warner Brothers. His sudden death in 1973 helped to make him a legend offscreen as well as on. While most martial arts films had been set in the past and derived characters and events from historical narratives, Lee's films used contemporary settings, and some of his villains were Westerners. Lee presented the forbidden to Asian and Third World audiences: the Oriental vanquishing the Occidental, nonwhite overcoming white.

Martial arts films draw on diverse traditions in theater and cinema, both Eastern and Western. Fight scenes are an integral feature of Chinese and Japanese popular DRAMA, yet although the combat techniques of the martial arts film are indigenously Eastern, much of their NARRATIVE style and character psychology derive from the American western. Just as westerners inspired Kurosawa's samurai films, which in turn spurred imitations in Japan and Hong Kong, the martial arts genre has fed back into U.S. popular cinema its characteristic elements of self-righteous revenge and exultant violence. Its influence can be discerned in the work of Chuck Norris, a world-class karate champion, who, after playing the chief villain in Lee's *Way of the Dragon*, carried the martial arts

genre back to the United States and into a series of films showcasing his own talents and even into the phenomenally popular Rocky and Rambo films of Sylvester Stallone, which depict the hero's single-minded and ultimately successful quest for revenge.

Bibliography. Verina Glaessner, *Kung Fu: Cinema of Vengeance*, New York and London, 1974; I. C. Jarvie, *Window on Hong Kong*, Hong Kong, 1977; Marilyn D. Mintz, *The Martial Arts Films*, New York, 1978.

IAN JARVIE

MARX, KARL (1818–1883)

German political philosopher. Karl Heinrich Marx studied law and philosophy at the Universities of Bonn and Berlin, and at the latter he came into contact with a group of radical thinkers, the “Young Hegelians,” who expressed a liberal intellectual opposition to the Prussian autocracy. But he soon became dissatisfied with the persisting influence of German idealist philosophy on their thought and with the purely cultural nature of their criticism. As Marx declared in an 1837 letter to his father describing the reorientation of his interests, he determined to seek “the Idea in the real itself,” and from 1843 on he turned to the study of political economy as an indispensable foundation for a realistic theory of society and established his first contacts with the developing socialist movement.

The social theory at which Marx arrived, generally known as historical materialism, asserts that the crucial factor in the development of human society has been the growth of productive forces and the succes-

sive changes in the organization of labor and production, from which changes in the whole structure of society follow. The principal agents in this historical process, after the early stage of “primitive communism,” when human beings first appeared in the evolutionary chain, are the major social classes—owners of the means of production on one side and those who contribute their labor, the “direct producers,” on the other—and Marx and Friedrich Engels roundly declared in the *Communist Manifesto* (1848) that “the history of all hitherto existing society is the history of class struggles.” Marx’s subsequent life work was devoted to the analysis (mainly economic) of modern capitalist society and its development, the growth of the working-class movement, and the conditions for a transition to socialism.

Marx did not write systematically or at any length on LANGUAGE and communication. In his brief references to language in his early writings he emphasized above all that language, like consciousness in general, presupposes human interaction, and Engels later elaborated this view by relating the emergence of language to the development of human labor as a cooperative activity (*see* MARXIST THEORIES OF COMMUNICATION). Nevertheless, there are two aspects of Marx’s thought that have an important bearing on communication. One is his conception of IDEOLOGY as a phenomenon that arises directly out of class divisions but also plays a partly independent role in sustaining the rule of a dominant class by helping to unify that class and creating a degree of consent among the ruled. Furthermore, Marx attributed great importance in the political struggles of his own time to the development of class consciousness in the working class, and this clearly involves the elabora-

Figure 1. (*Marx, Karl*) Portrait of Karl Marx carried in a parade of striking coal miners in the Borinage district of Belgium. From Henri Storck and Joris Ivens, *Borinage*, 1933. Storck collection.



tion of a counterideology, namely, socialism. All class conflicts, it may be said, are ideological conflicts in which rival worldviews, constructed through language and communication, confront each other. Some later Marxists may have overemphasized the critique of ideology or of CULTURE, at the expense of economic analysis, in what has been called the “dominant ideology thesis,” but such critique has an important place in Marx’s own thought, although it is not systematically developed.

A second theme that links Marx’s ideas with communication is to be found in his discussion of the later development of capitalism and the transition to socialism. In the *Grundrisse* notably, Marx gives particular attention to the implications of the “knowledge revolution” in modern societies: “to the extent that large scale industry develops, the creation of real wealth becomes less dependent on labour time and on the amount of labour used than on the power of the agents which are set in motion. . . . Their ‘powerful effectiveness’ . . . depends upon the general state of science and the progress of technology.” Later in this passage Marx notes “the extent to which general social knowledge has become a *direct force of production*, and . . . the conditions of the social life process have been brought under the control of the general intellect.” In broad outline, therefore, Marx foresaw the development of automation and the advent of the “information society,” but this aspect of his analysis of economic development has not yet received the attention it deserves.

Bibliography. Tom Bottomore, ed., *Karl Marx*, Oxford, 1979; David McLellan, *Karl Marx: His Life and Thought*, London, 1973; Maximilien Rubel, *Marx: Life and Works*, London, 1980.

TOM BOTTOMORE

MARXIST THEORIES OF COMMUNICATION

This topic is discussed in two articles:

1. Origins and Development
2. Third World Approaches

1. ORIGINS AND DEVELOPMENT

Neither KARL MARX nor Friedrich Engels wrote directly and explicitly on communication, but it is clear that they recognized the importance of specifically human means of communication through LANGUAGE and symbols. The distinctive feature of Marx’s theory is that communication is essentially a social phenomenon in two senses: first, that language itself, like consciousness, presupposes human interaction and “only arises from the need, the necessity, of inter-

course with other men”; and second, that the communication of ideas and the transmission of CULTURE in all societies beyond the earliest tribal communities take place in a distorted “ideological” form because “the ideas of the ruling class are in every age the ruling ideas.”

Language

The first of these conceptions was developed further by Engels in his unfinished essay on “the part played by labour in the transition from ape to man” (1876), in which he argued that “the development of labour necessarily helped to bring the members of society closer together by increasing mutual support and joint activity. . . . In short, men in the making arrived at the point where *they had something to say to each other*”; and he concluded that “comparison with animals proves that this explanation of the origin of language from and in the process of labour is the only correct one.” Later Marxist writers generally emphasized the social and historical nature of language in opposition to theories (such as that of U.S. linguist Noam Chomsky) of an innate, biologically determined human capacity to speak a language. However, differences emerged between those who laid stress on the universality of linguistic structures, which could be related to work as a universal condition of human life, and those who conceived of language mainly as an ideological phenomenon that had, consequently, a class character.

In the USSR the conception of language as a class phenomenon that originates as a means of class rule and is determined in its development by class struggle was expounded by N. Y. Marr in the 1930s, and his views became the dominant influence in Soviet LINGUISTICS. Marr’s views overshadowed those of MIKHAIL BAKHTIN, who also treated language as an ideological phenomenon but argued that since the same language is spoken by various classes, it is not determined by class struggle and is rather a locus within which class struggle takes place. Subsequently the preeminence of Marr’s doctrine was ended by the publication of Joseph Stalin’s article “Marxism and Linguistics” (1950), which argued that language lies outside the base/superstructure model and should be seen as a working tool that can serve different social systems.

In a different Marxist tradition the Hungarian philosopher and literary critic György Lukács suggested in his earlier writings (e.g., *History and Class Consciousness*, 1923) that the development of language might be studied from the aspect of “reification” and “alienation,” and this approach has been followed by some later scholars. The Italian linguist Ferruccio Rossi-Landi, in *Linguistics and Economics*

(1977), begins by outlining a conception of the production and circulation of commodities and the production and circulation of sentences as being “the same thing,” in the sense that everything that has value (and hence MEANING) is always a product of human work. In later chapters he analyzes the notions of “linguistic capital,” “linguistic private property,” and “linguistic alienation.” He concludes with some comments on the programming of social behavior, which involves three conditioning factors: modes of production, ideologies, and programs of communication (verbal and nonverbal).

Rossi-Landi’s conception has some affinities with the ideas of French sociologist Pierre Bourdieu and his colleagues at the Center for European Sociology (Paris) concerning “cultural capital” and the “pedagogic action” through which a dominant group or class is able “to impose meanings and to impose them as legitimate by concealing the power relations which are the basis of its force,” thus adding a “specifically symbolic force to those power relations.” More generally this work emphasizes the role of language and culture in the reproduction of an existing form of society, and the attention given to the processes of social and cultural reproduction is characteristic of much recent Marxist theory.

This focus is particularly evident in the theory of language and communication deriving from Marxism but involving a systematic reconstruction of Marx’s thought that has occupied a central place in the work of German social theorist Jürgen Habermas. In *Communication and the Evolution of Society* (1979) Habermas establishes a clear distinction between “purposive-rational action” and “communicative action” and argues that both forms of action have played an essential part in the evolution of human societies: “We can speak of the reproduction of human life, with homo sapiens, only when the economy of the hunt is supplemented by a familial social structure. This process . . . represented an important replacement of the animal status system . . . by a system of social norms that presupposed language.” His proposed reconstruction of historical materialism is summarized as follows: (1) the concept of social labor is fundamental, because the evolutionary achievement of socially organized labor and distribution precedes the emergence of developed linguistic communication; (2) the specifically human mode of life can be adequately described only if the concept of social labor is combined with that of the familial principles of organization; (3) rules of communicative action cannot be reduced to rules of instrumental or strategic action; and (4) production and socialization, social labor, and care for the young are equally important for the reproduction of the species. Thus the familial social struc-

ture, which controls the integration of both external and internal nature, is fundamental.

Habermas’s basic ideas are developed more comprehensively in his two-volume *Theory of Communicative Action*, the main theme of which—the process of rationalization in modern societies—is related to a philosophical analysis of reason as embedded in language use and communicative action. His intention is to show the different forms of rationality of action by an analysis of the “interconnections of action orientations, types of knowledge, and forms of argumentation” and of the general contextual conditions in which discourse takes place. Habermas’s argument makes possible an analysis of “systematically distorted communication” produced by the intrusion of power relations or other disturbances into the context of discourse (and there is a resemblance here to Bourdieu’s notion of symbolic violence) and also the establishment of a connection between the concept of society and the concept of underlying “life worlds” that are reproduced through the medium of communicative action.

Marxist conceptions of language have been diverse and in recent years have been strongly influenced by general developments in linguistics (including psycho- and sociolinguistics). Katalin Radics and János Kelemen have concluded that even though a Marxist theory of language (in several versions) gives primacy to the social character of language and to social communication, “this focus on the social character may be suspended in the course of devising a formal representation of grammatical structures” (see GRAMMAR). The question of whether a theory has a Marxist character, they observe, is not to be decided at the level of grammatical description “but on that level where our knowledge of human language is integrated with the totality of our knowledge.” It is evident that in the past few decades language and communication, as elements in social reproduction, have acquired a much more prominent place in Marxist thought as a whole.

Ideology

The second major concern of Marxists with communication has produced a large and diverse literature on IDEOLOGY. Marx’s theory of ideology was set out in *The German Ideology* (vol. 1, pt. 1), a joint work with Engels that was completed in 1846 but not published until 1932, and in a famous passage in the preface to *A Contribution to the Critique of Political Economy* (1859):

The totality of these relations of production constitutes the economic structure of society—the real foundation, on which legal and political superstructures arise and to which definite forms of social consciousness correspond. The

mode of production of material life determines the general character of the social, political and spiritual processes of life. It is not the consciousness of men that determines their being, but on the contrary, their social being determines their consciousness.

Later Marxists interpreted this statement of the influence of the economic base on the cultural-ideological superstructure in various ways. Engels presented the "materialist conception of history" in a series of letters written in the 1890s to J. Bloch, C. Schmidt, Franz Mehring, and W. Borgius. After referring to different realms of ideology distinguished by their closer or more remote connection with the economic basis of society, he asserted that the production and reproduction of real life is the "ultimately determining element in history," not the *only* one, and emphasized that there is an interaction of the various elements in all historical situations.

Others in the first generation of Marxists began to study in detail particular spheres of cultural communication. In Germany Mehring published a pioneering work, *Die Lessing-Legende* (1893), which helped to establish a Marxist sociology of literature and of intellectual history; and G. V. Plekhanov, the "father of Russian Marxism," analyzed the socioeconomic influences on art in *Art and Social Life* (1912), arguing that whereas art has a utilitarian origin in the needs of social life, aesthetic enjoyment eventually becomes a pleasure in its own right. A leading Austro-Marxist, Karl Renner, in his classic study *The Institutions of Private Law and Their Social Functions* (1904), reviewed the changing functions of legal norms in response to changes in society and more particularly to changes in its economic structure (see LAW AND COMMUNICATION). He claimed that law played an active part in maintaining or modifying social relations and was not a mere passive reflection of economic conditions.

However, Italian Marxist ANTONIO GRAMSCI developed most fully the idea of an independent influence of cultural communication in his conception of hegemony as the exercise by a dominant class of moral and intellectual leadership, the content of which is provided by those intellectuals who "give the class homogeneity and an awareness of its own function not only in the economic but also in the social and political fields." Gramsci argued that the relationship between intellectuals and economic production is not as direct as in the case of social classes but is mediated by the whole fabric of society, and that there is a gradation of functions and superstructural levels from the economic base upward. A major distinction is that between the sphere of civil society, in which hegemony is exercised as a means of securing the consent of the mass of the population to the general direction of social life imposed by the dominant class,

and the sphere of state coercive power, which legally enforces compliance.

Two principal themes have emerged, therefore, in Marxist discussions of the communication of ideas, values, and ATTITUDES: the dependence of mental life on the "relations of production" constituted by the ownership of productive forces and the consequent class relations, and the (relatively) independent role of mental life in the reproduction or transformation of a form of social life. Much Marxist scholarship since the early studies by Mehring and Plekhanov has been devoted to analyses of the dependence of cultural products of all kinds—RELIGION, morals, law, art, and literature—on the economic structure of society. One major field of inquiry has been the "worldviews" of different classes, which Lukács analyzed in *History and Class Consciousness* in terms of the consciousness of the bourgeoisie and the proletariat. The attention given by Marxist thinkers to class ideologies stimulated the development of a general sociology of knowledge, largely through the work of German sociologist Karl Mannheim (especially in *Ideology and Utopia*, 1936). Lukács's work was also the starting point for the studies by French sociologist Lucien Goldmann. In *The Hidden God* (1956) Goldmann related the "tragic vision" expressed by Blaise Pascal and Jean Racine to the "closed situation," and consequent impossibility of effective action, of the rising bourgeoisie—the *noblesse de robe*—in seventeenth-century France. Later, in *Towards a Sociology of the Novel* (1964) and *Cultural Creation in Modern Society* (1971), he presented his views on the development of the novel and cultural creativity in capitalist societies.

In Lukács's *History and Class Consciousness* there was already a very strong emphasis on the quasi-independent role of consciousness and communication in maintaining, reproducing, or changing the existing form of society. It was expressed in the view (also formulated by V. I. Lenin) that a "correct" class consciousness of the proletariat, which is essential for a successful political struggle, can be brought to it only from the outside, by socialist intellectuals. This presents, in a stronger form, ideas similar to those of Gramsci about the important role of those intellectuals, organically related to social classes, who elaborate social doctrines that either sustain an existing culture or prefigure a new civilization. In recent Marxist thought the emphasis on intellectual and cultural processes in social life has become still more pronounced. Thus in the structuralist Marxism of French philosopher Louis Althusser a society, or social formation, is conceived as a hierarchy of structures or practices—economic, political, ideological, and scientific—in which the economic is causally primary or determining only in "the last instance"

(in Engels's phrase), and the other structures have a large degree of autonomy. Ideology—the whole cultural realm excluding what can be defined as science—is conceived as the representation of “the imaginary relationships of individuals to their real conditions of existence” and as being “indispensable in any society if men are to be formed, transformed and equipped to respond to the demands of their conditions of existence.” The construction and communication of ideology as a system of images, myths, ideas, and concepts is thus presented as having a vital role to play in every society, although the limits of that role are not precisely defined and the nature of economic determination “in the last instance” is not clearly explicated.

It is in the critical theory of the Frankfurt school, however, that consciousness and ideology assumed their most prominent and independent character as factors in social life, to such an extent that many commentators regard the later work of the school as a radical abandonment of Marxist thought. The fundamental themes of critical theory—the sustained attack on positivism and scientism in social thought and on the whole scientific-technological culture of the advanced industrial societies—were stated in essays published by Max Horkheimer in the 1930s and in his later work, in collaboration with THEODOR ADORNO, on the “culture industry” (*Dialectic of Enlightenment*, 1947). These themes were developed further during the period of the school's greatest influence in the 1950s and 1960s. In its last phase, and notably in Herbert Marcuse's *One-Dimensional Man* (1964), critical theory presented a conception of modern capitalist societies as being dominated not by a particular class but by an ideology (“instrumental rationality” or “scientism”) and asserted a necessary connection between the domination of nature through science and technology and the domination of human beings. The strength of this ideology, according to Marcuse, has virtually eliminated the possibility of revolt and a radical transformation of society through its incorporation of the working class into the existing social system. A vestigial hope of emancipation is to be found only in the practice of cultural criticism and the appeal that a counterculture may have for diverse marginal social groups.

The idea of ideology as the most powerful force in assuring social cohesion and continuity by the pacification of subordinate and potentially rebellious groups has itself been vigorously criticized, and the successors of the Frankfurt school have in some respects qualified the doctrine. Habermas, in his essay on “technology and science as ‘ideology’ ” (1970), argues that class antagonisms in the advanced capitalist societies have become latent but have not been abolished and that any reformulation of Marx's so-

cial theory needs to retain the model of forces of production and relations of production, though expressed in a different form as “work” and “interaction.” In more recent writings, as indicated earlier, he specifies these two processes as being equally vital in the evolution of human societies.

Overview

The Marxist contribution to studies of communication has been important and influential, above all in raising questions and formulating theories about the social context of the production and diffusion of ideas and values in very diverse realms, from that of the mass media to the social relations in which science and technology are developed and applied. More recently Marxist thinkers have also contributed more directly to the analysis of language and discourse, again with an emphasis on the social context, and have entered more fully into current sociological controversies about the relationship between objectively constituted structures of society and the intentional actions of language-using human agents.

See also COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT.

Bibliography. Tom Bottomore, *The Frankfurt School*, Chichester, Eng., and London, 1984; Pierre Bourdieu and Jean-Claude Passeron, *Reproduction in Education, Society and Culture* (La reproduction), trans. by Richard Nice, London, 1977; Lucien Goldmann, *Cultural Creation in Modern Society* (La création culturelle dans la société moderne), trans. by Bart Grahl, Oxford, 1977; Antonio Gramsci, *Selections from the Prison Notebooks* (Quaderni del carcere), ed. and trans. by Quintin Hoare and Geoffrey Nowell Smith, New York and London, 1971; Jürgen Habermas, *Theorie des kommunikativen Handelns*, 2 vols. (The Theory of Communicative Action, Vol. 1, trans. by Thomas McCarthy, Boston, 1984), Frankfurt am Main, 1981; Dave Laing, *The Marxist Theory of Art*, Brighton, Eng., 1978; Jorge Larrain, *Marxism and Ideology*, London, 1983; Herbert Marcuse, *One-Dimensional Man*, Boston, 1964; Katalin Radics and János Kelemen, “Linguistics,” in *A Dictionary of Marxist Thought*, ed. by Tom Bottomore, Oxford and Cambridge, Mass., 1983; Ferruccio Rossi-Landi, *Linguistics and Economics*, The Hague, 1975.

TOM BOTTOMORE

2. THIRD WORLD APPROACHES

Marxist theories of communication fall under the general category of *critical theories*, which are characterized by a variety of approaches and contributors, many of them from the Third World. The periodization adopted below is somewhat arbitrary but useful for purposes of discussion. The chrono-

logical order in which theoretical questions appear does not mean that old and new theories cannot coexist and compete against each other (see CLASSIFICATION).

Communication and Wars of Liberation (after 1945)

The principal contribution of the Third World to theoretical reflection on communication springs from the communication practices of the many national liberation movements in Africa, Latin America, and Asia after the end of World War II (see AFRICA, TWENTIETH CENTURY; ASIA, TWENTIETH CENTURY; LATIN AMERICA, TWENTIETH CENTURY). The lessons to be learned from those practices are recorded in several important texts that show the strategic role information and communication have in the context of a general struggle against oppression. Some examples are the now well-known works of the Chinese leader Mao Zedong (1893–1976) and those of the Argentinian revolutionary Ernesto “Che” Guevara (1928–1967). Both leaders recognized the importance of information management and communication as decisive elements in the acquisition of power. Mao argued, for example, that “to overthrow the existing political system, it is always necessary, above all else, to create public opinion and to work in the ideological domain. It is thus that the revolutionary classes proceed as well as the counterrevolutionary classes” (see PUBLIC OPINION).

Perhaps because of its technical characteristics (transportability, ease of use, low cost, etc.), RADIO has played an important role in liberation movements. Frantz Fanon (1925–1961), a psychiatrist from the French Caribbean colony of Martinique, closely linked to the Algerian National Liberation Front (FLN), wrote in *This Is the Voice of Algeria*:

Before 1954, the radio was, in the psychopathological realm, an evil object, anxiogenic and accursed. After 1954, the radio assumed totally new meanings. . . . The foreign technique, which had been “digested” in connection with the national struggle, had become a fighting instrument for the people and a protective organ against anxiety.

La voix de l'Algérie libre (The Voice of Free Algeria) started broadcasting from Tunis at the end of 1956 and was followed in 1958 by *Radio Rebelde*, an initiative of Guevara, through which Cuban guerrillas provided support with broadcasts from the liberated territory of Sierra Maestra.

Every national liberation movement has produced its own analyses on the use of media (e.g., the POSTER, newspaper, radio, and film) based on the specific conditions of its struggle (see NEWSPAPER: TRENDS). This tradition extends from the Vietnamese war of liberation beginning in the 1940s against the French through FRELIMO (Mozambique Liberation Front)

in the 1960s to the Farabundo Martí Front in El Salvador in the 1980s. In this context the essential questions addressed by critical MODELS OF COMMUNICATION have been (1) With what classes and groups should one ally oneself to form a front of resistance? and (2) How should one establish links and define common interests with and between these classes and groups? The contributions of the various liberation movements to critical communication theory differ considerably because of the diversity of origin of these movements.

One of the most important contributions is rooted in the concepts of mass war, popular war, or the mass line, which inspired Mao in particular. Here communication becomes relevant mainly in relation to a decisive objective: educating, mobilizing, and organizing a whole people to participate in resistance. Unlike Guevara, for whom PROPAGANDA was to serve an immediate armed struggle, Mao placed communication within a more general cultural context. One of the issues Mao analyzed was the role of intellectuals (e.g., writers, artists) as mediators. In his talks on literature and art at Yanan (May 2, 1942) he discussed the links between intellectuals and other social classes within the perspective of a mass line. Like the Italian Marxist ANTONIO GRAMSCI several years earlier, Mao wanted to establish organic links between the people and the intellectuals (producers and transmitters of knowledge). This theme was to be at the center of the Chinese Cultural Revolution (1966–1969), during which sharp attacks on the social division of labor between intellectual and manual work were made.

Another major contribution of Mao was the rupture with the economic tradition and class reductionism, which was the predominant theoretical outlook in the Communist world movement up to the 1950s. Mao tried to grasp the specificity of the anti-imperialist contradictions in terms that were different from mere class contradictions. Apart from class contradictions (capitalist–working-class antagonism), Mao analyzed another contradiction—the people on the one hand, the leaders or dominant sector on the other—and insisted on taking into account the changing composition of “the people.”

The concept of mass war has had a profound effect on liberation movements throughout the Third World, particularly on those against Portuguese colonization in Guinea-Bissau, Angola, and Mozambique. From a communications perspective the contributions of Amílcar Cabral (1921–1973), head of the African Party for the Independence of Guinea-Bissau and Cape Verde (PAIGC), are important. Cabral defined the war of liberation as a cultural act (“a cultural fact and an act which is productive of culture”) and analyzed the concept of *cultural identity* in all its contradictions. The need to take into account ethnic-

ity and the diversity of groups within classes meant that the problem of cultural identity could not be reduced to class alone (as orthodox Marxism would argue).

Before the ethnic question became prominent through African revolutionary movements and the writings of their leaders (like Cabral's *National Liberation and Culture*, published in English in 1970), one of the few theoreticians to have tackled this problem was the Peruvian José Carlos Mariátegui (1895–1930) in the 1920s. A journalist and founder of a politico-cultural journal, *Amauta*, Mariátegui was considered one of the first Marxist theoreticians in Latin America. He criticized the eurocentric orientation of the Third International (1921) and what he thought was its inability to address the question of the Indian (80 percent of the population of the Andean countries) as a revolutionary figure. Through his criticism of the Western tendency to focus on the urban, industrialized proletariat, Mariátegui began to lay foundations for reflection on popular cultures.

Cultural Dependency (after 1960)

During the 1960s the second phase of critical communication theories in the Third World began to emerge. The construction of these theories followed three main lines: (1) criticism of the theory of modernization, (2) the emergence of dependency theories, and (3) the global critique of a functionalist sociology of the media (see DEVELOPMENT COMMUNICATION).

The first steps toward a Marxist theory of social communication in Latin America are closely tied to criticisms of the notion of development prevalent during the 1960s and to efforts to show the links between the processes of communication in society and evidence of foreign political domination and socioeconomic exploitation. Theories of economic dependency and the reproduction of inequalities between the industrialized countries (the "center") and the underdeveloped countries (the "periphery") were to supply the first models for analyses of *cultural imperialism*. This was seen not only as unequal power relations among countries in the production and distribution of cultural commodities (e.g., television programs, films, and books) but also as the imposition—explicit and implicit—of organizational models for the media. Subsequent analyses also have attended to the internal inequities existing in many Third World countries.

Among the Marxist and critical theories of communication produced in the Third World in the 1960s and the first half of the 1970s, works by Latin American researchers are the most prominent. Interest in this area can be explained as much by the level of capitalist "development" of the means of communication (Latin America accounts for more than

60 percent of Third World media, the greater part of it in private hands) as by the radicalization of many intellectuals linked to the popular classes. This helps explain why critical research circles in Latin America have had such a strong influence in the debates on a NEW INTERNATIONAL INFORMATION ORDER, which began in earnest during the 1970s. If this period can be characterized globally by an increased consciousness of the mechanisms of international subordination, one should not, however, forget the conceptual advances forged in other domains. The genesis of critical research in Latin American countries again provides a model.

The first center of critical research appeared in Venezuela in 1967 and focused on two concerns. One was linked to the world of journalism, analyzing the dependence of national media on international press agencies (Héctor Mújica and Eleazar Díaz Rangel). The other included the first studies of television, which questioned functionalist theories on the effects of the media (Antonio Pasquali, Marta Colomina, and Eduardo Santoro). Through Pasquali Venezuelan critical research developed its own epistemology, largely inspired by the Frankfurt school. In the 1970s the specific contribution of Venezuelan research was the idea of planning and developing national communication policies (Osvaldo Capriles and Alfredo Chacón). This idea would be refined through contacts between researchers and various social and economic actors capable of participating in the development of a national communication policy for Venezuela.

The second center of Latin American critical research appeared in Chile (Michèle and Armand Matelart and Mabel Piccini) and Argentina (Eliseo Verón) around 1968. In the beginning European STRUCTURALISM (represented by ROLAND BARTHES, Louis Althusser, etc.) was an important influence, but it was not the only one. Historical studies on the nature of the local bourgeoisie and its hegemony over the media were carried out from 1969 on. In Chile the period of Popular Unity government (November 1970–September 1973) marked an increasing distance from structuralism. The principal activity during this period was no longer making ideological readings of the dominant media or demystifying the messages of power but addressing the question of what to do about the media. It was time to measure the inadequacy of orthodox Marxist theories on agitation and propaganda. The presence of a bourgeoisie that remained in control of the majority of the media forced researchers to pose new questions on the nature of mass cultural production. Studies appeared on genres, the ideology of professionalism in journalism, popular participation in the media, and the process of media reception (see SELECTIVE RECEPTION). In these studies, done between 1971

and September 1973, the receivers no longer were seen as passive consumers operating within a stimulus-response model but as capable producers of their own communications and decoders of messages on the basis of their own social experiences. This first phase of the formation of critical theory in Chile was inseparable from the context surrounding the creation of media under popular control during the Popular Unity government (workers' and peasants' newspapers, television programs open to popular participation, etc.). The coup d'état of General Augusto Pinochet marked the end of this phase. The second phase took off with the development of numerous analyses of popular cultures and popular resistance under the military dictatorship from 1976 onward.

The third focus of Latin American critical research is less localizable geographically, for it was to be found in many Latin American countries during the 1960s. It developed from a critique of the theories and policies inspired by *diffusionism*, particularly the policies applied within the framework of agrarian reform and the "modernization" of rural areas. The different philosophical and political theories had one common concern: to break with the vertical schema of diffusionist communication and to develop *horizontal* communication by using the experience of learners in the learning process. In the field of popular EDUCATION and LITERACY one pioneer stands out: the Brazilian Paulo Freire, who applied his ideas on consciousness-raising first in Brazil before the military coup in 1964 and then in Guinea-Bissau. His conceptions have profoundly marked pedagogical theories, not only in Latin America but also in Europe and North America. In the field of the media two pioneers of the critique of diffusionism have been the Bolivian Luis Ramiro Beltrán and the Paraguayan Juan Díaz Bordenave.

Major contributions were also made by researchers from other cultures during the same period, especially from Asia. Many were inspired by the philosophy of *self-reliance*, promoted by both MOHANDAS GANDHI in India and Mao in China. Theories of communication that acknowledge a debt to the philosophy of self-reliance have guided numerous studies critical of the expansion of advanced technologies, demanding respect for cultural identity and diversity. In India and Tanzania, for example, the notion of self-reliance has guided research on the question of appropriate technologies for developing countries and has provided the basis for a radical critique of development models in both East and West. This critique applies to both capitalism and orthodox Western Marxism.

Through the philosophy of self-reliance, popular participation has been recognized as a fundamental need on the same level as education, FOOD, and shelter. This recognition has implications not only

for the development of horizontal forms of communication but also for the very conception of research. In assessments of the research to be done, questions about the nature of the social actors under study have also arisen. With these questions in mind ideas of *research-action*, *participative research*, and *militant research* have appeared. This new methodological approach is counter to traditional research in which researchers see the people and/or groups making up the universe of their study only as sources of information and basic analytical data. In proposing the integration of the relevant actors into the very process of research, an old idea of Marx is revived: it is not enough to interpret reality; one must also transform it. Thus a new model of national development and national communication that is closer to local needs and resources has gained ground, as has a new perspective on international relations and relations among different cultures.

Popular Cultures (after 1980)

The studies carried out during the 1960s were characterized by the reliance on monolithic theories of power, of which the most prominent representative was the French Marxist philosopher Louis Althusser. By the 1980s Althusser's influence had faded in favor of Gramsci's theory of *hegemony*, a concept better suited to account for power as a site of negotiation, mediation, and construction of alliances between groups and classes. The determination of social uses for communication technologies has become the central question: What is the relation between the media and society? What is the link between construction of democracy and the system of communication?

These concerns fit in with the evolving strategies of resistance by specific social groups. In addition to the traditional organizations of the working class (e.g., trade unions, political parties) various social movements have emerged and have cut across class divisions to represent a new social consciousness: feminist, antinuclear, ethnic and popular movements, and others (see FEMINIST THEORIES OF COMMUNICATION). The appearance of specific movements broke up the centralizing tendencies characteristic of orthodox Western Marxism. In this context the demand for popular cultures arose in opposition to a single culture organized from above.

The concept of popular culture as it has been defined by critical research in the Third World should not be confused with its definition in the United States or with that of the functionalist sociological tradition that has equated popular culture with mass culture. Popular culture is here defined as a series of practices of resistance by groups and social classes that do not have the power to define what is to be the legitimate culture. These practices of resistance to a social order are also practices of construction of

a collective identity and of new social relations. But while there is a large consensus on this basic definition of popular culture within critical research, approaches have been extremely varied. Because of its different shades of meaning popular culture is of interest to many disciplines: sociology, anthropology, history, linguistics, literature, and so on (see LITERATURE, POPULAR). However, because "the people" and "popular" are susceptible to numerous political interpretations, some have preferred to define *popular* in terms of so-called popular classes (workers, peasants). Others have gone beyond this exclusively class vision and have tried to define its multiclass aspects.

Beyond these differences the concept of popular culture has for some years guided a new type of study, especially in Latin America, on the consumption of the media. It has also oriented a series of analyses and experiments of popular participation in various technological media (VIDEO, computers, radio, press) and, particularly in Africa, has been behind the revival of so-called traditional media (THEATER, puppets, songs, folktales, etc.). Furthermore, the concept of popular culture has inspired renewed research on mass culture. The principal question has become how to set up within the capitalist media systems a dialectical exchange, albeit unequal, between popular culture and mass culture. Because of the issues raised by this question, new forms of research on popular genres in radio and television have begun.

See also COMPUTER: IMPACT; DRAMA—PERFORMANCE; FOLKTALE; MUSIC, FOLK AND TRADITIONAL; PUPPETRY.

Bibliography. Frantz Fanon, *Studies in Dying Colonialism* (L'an V de la révolution algérienne), New York, 1965; Elizabeth Fox de Cardona and Luis Ramiro Beltrán, *La comunicación dominada*, Mexico, D.F., 1981; Paulo Freire, *Pedagogy of the Oppressed* (Pedagogía del oprimido), trans. by Myra Bergman Ramos, New York, 1970; International Association for Mass Communication Research, *New Structures of International Communication: The Role of Research*, Leicester, Eng., 1982; Mao Zedong, *On Literature and Art*, Beijing, 1967; Armand Mattelart and Seth Siegelaub, eds., *Communication and Class Struggle: An Anthology*, 2 vols., New York, 1979, 1983; Tran Van Dinh, *Independence, Liberation, Revolution: An Approach to the Understanding of the Third World*, Norwood, N.J., 1986.

ARMAND MATTELART

MASK

The mask is used on all the continents of the world and has a long history. The English words *person* and *persona* derive from *persona*, the Latin word for "mask." Although masks are often admired as works

of ART in themselves, their communicative character cannot be understood without considering their use, which is generally in PERFORMANCE, as part of a costume. They communicate meanings through transforming the wearer.

One can dispute whether people are masked when they put on makeup, or even dark glasses, which have also come to be used in some Melanesian and African masquerades, along with ringing the eyes in contrasting pigment. Formally comparable mask ensembles can be used for very different occasions. On the other hand, an African community's masking repertoire may include a mask that is never seen, but only heard, as an eerie cry in the night. It is possible to relate such different manifestations by comparing and contrasting the type of transformation intended and its degree of distance from ordinary humanity.

Masks very often seem to present a supernatural world by appearing and being used in ways that are taken to be nonnatural. Often the mask and its ensemble are both larger than life, and the FACE is oddly placed in relation to the body, as when a masker is covered in raffia and the mask is borne on top of the head. It may even disappear, the masker being enveloped in a cylinder of cloth. Maskers do not walk, but DANCE, or wear stilts, and may appear to levitate. They do not talk, but squeak, growl, or roar. They are believed to incarnate spirits, to be ancestors, deities, or mythical animals. When masks on their own communicate power, this seems derivable from their transformative and therefore recreative capacity. Some masks, for instance, embody ancestral powers when used by their descendants, rather like the effigies that in so many times and places have represented and therefore reproduced the dead. However, the French anthropologist CLAUDE LÉVI-STRAUSS has analyzed variants in mask DESIGN, along with other artifacts (see ARTIFACT), as significant of patterns in their communities, without referring to their transforming character in performance.

It seems that the face is the main point at which human identity is communicated, and communication largely passes through the face. If cognitive and affective growth depends on interaction, much of this comes from the imprinting on the infant of the speaking, smiling, or frowning adult face. Children also learn through their interactions with others that something hidden is still there (what psychologists have called the "peekaboo" phenomenon). This paradox is also a component of masking.

To change, replace, or obliterate a face by a mask signals at the least a change of identity. At the most, this real transformation of appearance is identified with a transformation of essence. The meanings communicated by donning masks differ between audience and wearers—since these at least must know who they originally are—as well as between individuals and cultures (see MEANING). Viewers may also re-



Figure 1. (Mask) Xipe Totec mask. Mesoamerican, fifteenth century. Basalt. Reproduced by courtesy of the Trustees of The British Museum.



Figure 2. (Mask) Kwele mask, Zaire, nineteenth to twentieth century. Wood, coloring. The Metropolitan Museum of Art, New York, The Michael C. Rockefeller Memorial Collection, Bequest of Nelson A. Rockefeller, 1979. (1979.206.8)

spond to the detailed SYMBOLISM of mask ensembles, since this is a part, and sometimes a key part, of symbolism in the wider CULTURE. Face masks contradict the ordinary expressiveness of faces by their fixity, but this suits the communication of single, stereotypic aspects of personality. When animals are enacted, they are identifiable by selected characteristics in mask and in movement. Very often they too are spirits in a community's cosmology, mythical beasts or monsters. The overall shapes and movements of masked dancers may be more significant, communicatively, than the mask per se or its internal symbolism.

Maybe because masks in performance conjoin opposites, they often dramatize crossovers from one state to another, including life and death (*see* ART, FUNERARY). They may become ancestors, appearing from the world of the dead to connect with the world of the living. Masks are widely used in rites of transition, which move participants from one social state to another. They are used in initiation ceremonies marking the passage into adulthood. In Africa such masks may be represented as "living in the forest": they have a secret, nighttime side and are owned by cults restricted mainly or wholly to men; in their daytime manifestations, out of the forest into the community, they may also be taboo to women. Although it is often thought that illegal viewing may result in barrenness, women are sometimes allowed to touch masks in order to gain fertility. In the forest initiates may be "eaten" or "killed" by giant masks and required to crawl through the wearers' legs, signifying rebirth. Such rites present females as part of the natural world, males as part of human cultural achievement, while day and night are metaphors for openness and secrecy (*see* METAPHOR). Masks often deal with GENDER differences. Some New Guinean masquerades, for example, have been explained as permitting male display through the guise of animals.

Besides being used to induce growth and plenty, the arrival and departure of performing masks may effect periodic or seasonal alterations in a community's life. In West Africa, masks "come out" at stages in the agricultural cycle. Although mask use there as elsewhere is generally reserved for men, even if women are depicted, some communities in Liberia, Guinea, and Sierra Leone divide themselves into gender-distinct groups that alternately "rule the land" and initiate their members. Chinese dragons "beat the bounds" and clear the community's way to the New Year. When masks are used in rites of exorcism, as in Sri Lanka, they signal a special time for curing and act to transform patients as well. The carnivals of Europe and the Americas (which can include elements of African origin) mark a special time when everyday roles are set aside, and the world is turned topsy-turvy. Masks can be the signs of or means to

larger-scale inversions in “rites of reversal,” as when masters and slaves change places. Circus clowns, with their masklike painted faces and bulbous noses, offer audiences a holiday from real life, but serious rituals to transform participants’ status may also include clowning as well as transvestism, obscenity, or other travesties. Is social order being reaffirmed or subverted?

Other mask events mock human efforts to classify and control. The masquerades so popular in eighteenth-century Europe freed participants from normally rigid conventions of class and gender relations. At masked balls or masquerading parties, guests put on dominos—eye masks—to signal the abeyance of social identity, just as they wore cloaks to conceal clothing that indicated precisely one’s rank and gender. Plays and novels from that period suggest that the convention of masking afforded women in particular “unofficial” sexual freedom. The domino still serves as a sign of romance and discreet sexual adventure and evokes images of period glamour. Because it merely defamiliarizes the face, the domino is alluring rather than frightening.

Masks in rituals and carnivals rarely speak: they appear, and this is their message. When they are believed to be spirits or means of channeling supernatural energy and fertility to the human environment, the sounds they make may be interpreted by their attendants as authoritative messages. Some masks are considered embodiments of order and justice. In West Africa, young Okpella men *en masque* legitimately enforce rough justice. Medieval European mummers sometimes made their disguises a cover for real attack. Similarly the “portrait masks” of American Northwest Coast Indians incarnated ancestors and were used in healing rituals and by secret societies that danced enactments of cosmological myths at community feasts or potlaches. These performances apparently upheld the legitimacy of the existing social order, its ranks and limitations of privilege.

If one accepts that the superhumanness of a masked figure is an illusion, then one can see this illusion might benefit the mask’s controllers. Clearly, masks have been and are used to legitimate human decisions and statuses, to instill fear in subordinates, and to keep women “in their place.” These functions are aided by the rules of *SECRECY* that so often organize masking. Such rules exclude all but a few people from knowing how a mask assemblage is put together and can mean that others do not realize there are human wearers. The uses to which some masks are put cannot, however, explain their existence, still less all their occasions of use, for instance in *FESTIVAL* and carnival, where pretense is frank and social control is not a major aspect of a performance. Excluded outsiders do in fact very often know that men are dancing as masks and even who they are.



Figure 3. (*Mask*) José Rodríguez, devil mask, Acatepec, Guerrero, Mexico, ca. 1938. Carved and painted wood. Mask collected by Donald and Dorothy Cordry and presently in the Mexican Mask Collection of the Institute of Latin American Studies, The University of Texas at Austin. Photograph by Gibbs Milliken.



Figure 4. (*Mask*) Seneca cornhusk mask from the Six Nations Reserve, Ontario. Cornhusk and black fur. © Denver Art Museum 1985. Photograph by Otto Nelson.



◁ Figure 5. (*Mask*) Helmet mask of the Elema tribe of the Gulf of Papua, Papua New Guinea, twentieth century. Barkcloth, paint, raffia. The Metropolitan Museum of Art, New York, The Michael C. Rockefeller Memorial Collection, Gift of Nelson A. Rockefeller, 1958. (1978.412.725)

In seventeenth-century England the royal family and court acted in allegorical “masques,” the most famous produced by Inigo Jones and written by such figures as Ben Jonson. Shakespeare’s *The Tempest* includes both a masque and an antimasque, a frequently accompanying reversal of the masque’s themes. These early musicals can be compared with other festivals and “triumphs” performed for the glorification of RENAISSANCE rulers, but here masquerading flattered the performers, not the populace, that rulers had superhuman virtues. For all their lavishness, these masques were simple in terms of plot and character, presenting typifications that are comparable to far more meagerly endowed performances of folk art, to the European commedia dell’arte, or to contemporary masking in Mexico. Such anonymous maskers claim authority through their roles, in which they often satirize contemporary conditions and mock stereotypic errors.

If masks are understood as a means of communication, we can see their suitability for what they are commonly supposed to do: support belief in ancestral spirits, effect social transitions, heal the sick, legitimate power or criticize it. We want to know what masks meant in past times, for instance in Greek and Roman rituals, but have only incomplete representations and references. The uses of masks, however, are so widespread, if varied, that they may be plausibly adduced. Masks are nevertheless not intrinsically necessary to achieve the stated tasks, which indeed are often carried out by different means, in communities otherwise comparable to those of mask users. Islam and Christianity, for example, are inimical to beliefs in the spiritual power of masks. With conversion to these religions, as with secularization, mask performances tend to become ENTERTAINMENT or are forbidden altogether. The abnormal and simplifying characteristics of face masks are more suited to the public displays of festival and carnival, or the huge arenas where classical Greek tragedies were solemnly performed, than to modern, naturalistic ACTING, though masks have been adapted to create Brechtian alienation, antinaturalistic and ritualistic effects in the THEATER.



◁ Figure 6. (*Mask*) Tlingit Dead Man mask, Alaska, nineteenth century (?). Wood, paint, metal, leather. The Metropolitan Museum of Art, New York, The Michael C. Rockefeller Memorial Collection, Bequest of Nelson A. Rockefeller, 1979. (1979.206.440)

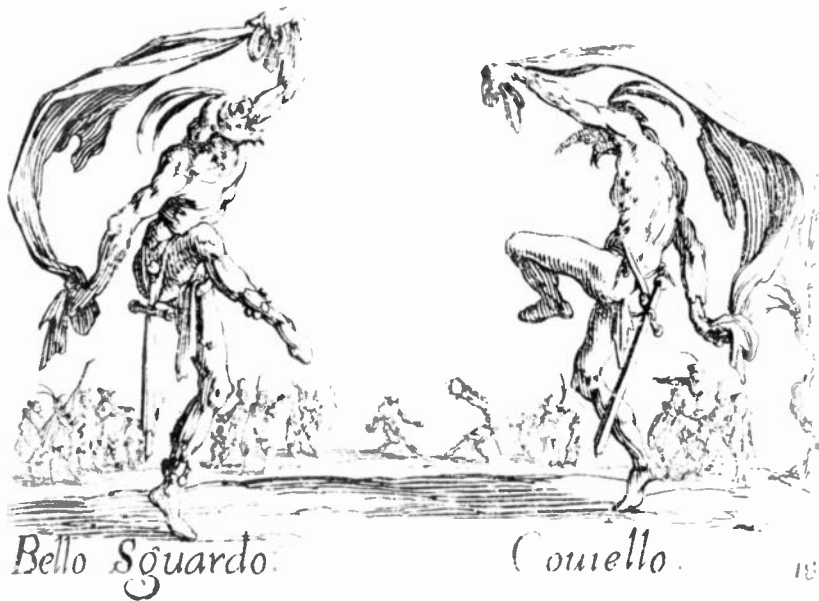


Figure 7. (Mask) Jacques Callot, *Bello Sguardo and Coviello*. Courtesy of the Library of Congress.



Figure 8. (Mask) Ku Klux Klan: two Klansmen during a night meeting on Long Island. The Bettmann Archive, Inc.

When masks are used to make actors collectively anonymous, they reverse contemporary individualist expectations, in which masks are assumed to hide the real personality, not to contribute a revealing transformation. Mask use always implies a philoso-

phy of personality, but not a single, specific one. In a fresh context, there will be reinterpretation, as when Westerners admire masks detached from their use to become aesthetically appealing MUSEUM objects. Yet among all the modern conditions that inhibit the power of some mask performances, maskers still create uncanny surprise, as at Halloween. The most frightening are terrorists in stocking masks. Such disguises create fear by the same means as helmets and monstrous visors in earlier times: they seem inhuman because they are faceless.

Bibliography. Donald Cordry, *Mexican Masks*, Austin, Tex., 1980; Alfred Gell, *Metamorphosis of the Cassowaries*, London, 1975; J. C. H. King, *Portrait Masks from the Northwest Coast of America*, London, 1979; Michael Leiris and Jacqueline Delange, *African Art*, New York, 1968; Emmanuel Le Roy Ladurie, *Carnival in Romans*, New York, 1979; Claude Lévi-Strauss, *The Way of the Masks*, Seattle, Wash., 1982; David Napier, *Masks, Transformation, and Paradox*, Berkeley, Calif., 1986.

ELIZABETH TONKIN

MASS COMMUNICATIONS RESEARCH

Research into mass communication belongs neither to any single academic discipline nor exclusively to the social sciences, although it has its center of gravity in sociology and psychology. The problems with which it deals are essentially those posed by the actual working of mass media institutions—the press, cinema, radio, television, and so on—rather than by any body of theory.

Certain basic and problematic features of mass

communication have shaped the field of research: the volume of messages transmitted, their public character, and their relevance to many aspects of personal and social life and to the working of modern societies. First, there is the problem of accounting for the output through a systematic description of what is produced and distributed (*see* CONTENT ANALYSIS). Second, because mass communications involves the dissemination of messages with little record of or control over reception, it is the task of research to supply the means of accounting for an audience that might otherwise be invisible and unknown (*see* RATING SYSTEMS: RADIO AND TELEVISION). Third, there are questions about the effects and the effectiveness of mass communication—what happens in consequence of the media and how well the media achieve their chosen goals (*see* MASS MEDIA EFFECTS). Although emphasis has been placed here on practical questions stimulated by an established and growing social institution, these seemingly simple and global questions have provoked controversy and theoretical activity as well as research.

If there has been any dominant or overarching theory, which is arguable, it has probably been a version of “mass society” theory, which emphasizes the power of mass media as high-status, remote, and one-way sources of standardized messages with considerable attraction for and influence on audiences. The main questions for mass communications research will be dealt with according to the threefold division established (at the risk of some distortion), because most questions eventually call for attention to all three areas. It will be readily apparent how numerous and interrelated are the subquestions that can be generated by the specified topics. To deal with each area, some attention must be given to the history of research traditions and to the variety of approaches that are in evidence (*see* COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT). The variations of emphasis over time and place often reflect changing historical circumstances and climates of opinion, so closely are mass media related to their societies. British scholar Jeremy Tunstall suggested, with some justification, that mass communications research is essentially a U.S. invention, but such research activities, like the telecommunications institutions themselves, are now diverse and worldwide, and the salient questions for research quite often differ from one country or area to another.

Media Output Research

Two lines of research must be distinguished from the outset. One relates to *mass communicators*, their organizations, and the media institutions of a given

society; the other relates to the *messages* made and sent. The latter has a somewhat longer history, which began mainly as an offshoot of effects research, in such matters as the power of the press to shape political events (*see* POLITICAL COMMUNICATION). This issue stimulated the wish to assess the degree and direction of editorial (or proprietary) influence in news reporting.

To some extent, content research was coextensive with research into PROPAGANDA in the early decades of the twentieth century. Subsequently, attention was directed to the analysis of MOTION PICTURES, RADIO, and popular literature (*see* LITERATURE, POPULAR) out of a concern with behavioral and moral effects in matters of crime, VIOLENCE, or sex. The motive was often that of social regulation, and in early content research there was a tendency to substitute the more available evidence of content for the largely missing evidence of effect—a confusion that later investigators tried to avoid. From the 1930s onward there has been a broader interest in the social and personal values disseminated by way of mass media, and in the implications for the quality of social and cultural life. An important early impulse in this direction was provided by the emigration to the United States of members of the Frankfurt school, including THEODOR ADORNO, Max Horkheimer, and LEO LOWENTHAL.

The arrival of content analysis as a field of research was marked by a classic statement from Bernard Berelson, in which he defined it as “a research technique for the objective, systematic and quantitative description of the manifest content of communication.” Since then there have been major developments of theory and method reflecting two main and contrasting features: (1) the availability of computers to carry out the otherwise very laborious task of actual analysis, allowing elaborate multivariate studies of complex texts and large sets of data; and (2) a shift of emphasis toward qualitative analysis and a concern with latent or connotative MEANING. The latter has called for a revision of methods and a borrowing from the humanities, especially from SEMIOTICS and STRUCTURALISM (*see* LÉVI-STRAUSS, CLAUDE). The demands of qualitative analysis, particularly of nonverbal messages, have put a considerable strain on the concepts and methods of content analysis as envisaged by Berelson, because of the departure from quantitative and systematic procedures that is usually involved. In many respects, however, the scope and appeal of content research has been enhanced.

Aside from the fundamental matter of finding relevant category systems for media content, five research questions representing somewhat different concerns have been central:

1. Does content reflect or correspond to the reality of the society in which it originates, and if not, in which direction does it deviate, and whose or what reality is represented?
2. Which values are promoted or symbolically rewarded in content, and which are neglected or punished?
3. Does media information meet criteria of quality in such matters as objectivity, diversity, independence, balance, and accuracy?
4. Is there bias, whom does it favor, and what accounts for it?
5. More fundamentally, what is the essential structure of media texts and forms, and how is this related to the symbolizing modes employed in the surrounding culture?

The methods of content research are diverse and still developing, tending to distribute on a continuum. At one end content is broken up into units of meaning that can be treated statistically (as in surveys of populations), while at the other end a text or a genre has to be treated as a complex whole in which many meanings are encoded and require expert and sensitive decoding procedures. In consequence, the results of content research are almost as diverse as content itself, although a general conclusion is that media content does not and cannot reflect the society directly, but rather offers a selective view (or views) of the social world, shaped by the social and cultural context of production and by the presumed expectations and interests of the particular audience envisaged.

Research on Media Institutions

The tradition of research on media organizations appears to have begun with an interest in the special occupations that developed around mass communication, especially those of filmmaker and journalist. It was further stimulated by an awareness of the significance of the selection process that media interpose between the "social reality" and the audience (see *SELECTIVE RECEPTION*). This awareness was captured in the concept of the gatekeeper, a term coined by KURT LEWIN in the 1940s. A fuller consideration of media selection led to research into the whole process of production and to a concern with the many possible influences, not only on selection but also on the shaping of the message to meet the practical needs of the production process. These influences stem from several main sources: the culture and politics of the society expressed through pressure from other social institutions, the economics of the media operation, the technologies employed to col-

lect or transmit media content, the relevant professional and craft norms and requirements, and the specification of functions for the intended audience. The main questions tackled in research on media institutions are indicated by these categories and are closely connected with questions of content, since they relate primarily to the kind and degree of influence on the message sent.

Two other lines of research address questions of similar importance. First, there are issues derived from the relationship that mass communicators and their organizations have to their society (e.g., the degree of scope for creativity and independence for communicators within an organization, and the internal relations of conflict or cooperation among the various mass communicator roles). Second, there are questions concerning the relationship between the media organizations and the audience, especially how the latter is to be known and regarded. The methods of media organization research are mainly those of participant observation or surveys of chosen categories of media workers, although one should not forget the role of historical, legal, and political research on media policy and law (see *LAW AND COMMUNICATION*). Given that it is hard to generalize about findings, it has nevertheless become clear that media content bears strong marks of its context of production and that the latter is shaped by a network of formal and informal ties to the rest of the society.

Audience Research

The initial phase of audience research derived from the needs of the media industry to plan its activities rationally and to render account to advertiser, SPONSOR, or society. The need to quantify audiences for media with no sales or user record (initially radio) was rapidly supplemented by requirements to know much more about all media audiences. From an early point in the history of research, attention was given to the motivations of the audience and to the functions that media reception might exercise in the rest of social life. The name of one of the pioneers of mass communication research, PAUL F. LAZARSFELD, is closely associated with this and other kinds of audience research undertaken at Columbia University (New York) during the 1940s.

Aside from commercial requirements, an interest in special publics has developed out of a concern with social effects, and attention has been paid to the child audience and to other audiences based on group characteristics or particular kinds of content (see *CHILDREN—MEDIA EFFECTS*). While *quantitative* ratings (measures of audience size) have always taken first place in audience research because of their rel-

ative lack of ambiguity and their practical utility, there has been a persistent concern with assessing the *qualitative* response of the audience to try to discover the degree of, and basis for, attraction to many kinds of media output. Thus the purposes of audience research may be summarized as beginning with relatively "hard" matters concerning who attends to what content in what degree, and extending into "softer" areas concerning the motives for choices; the processes of selective attention, PERCEPTION, and interpretation; and the ATTITUDES and attachment of audiences to content and sources.

Early definitions of mass communication presented it as a somewhat impersonal, unidirectional flow from remote sources to many scattered individuals. Although much research into media consumption has incorporated this view and has been conducted much like other market research, an important strand of research has been concerned with the social character of audiences. Here the focus of attention is on the degree to which audiences interact internally, share a conscious social identity, have ties of attachment or loyalty to chosen media, and actively choose and use media content. A landmark in the history of audience research was the discovery that audiences do have an internal structure and may be stratified according to interest in particular content and to status relations affecting the relay of messages and influence (see OPINION LEADER).

Subsequent efforts in audience research reflect some of the concerns mentioned, especially the attempt to measure motivation and expectation and to grapple with the consequences of media fragmentation and abundance. The balance of power has shifted somewhat away from the sender and toward the receiver, and audience research problems are increasingly defined by the needs and interests of the receiver. The basic methods of audience research have not changed greatly over time, relying mainly on the survey of persons, the automatic recording of television reception, and the keeping of media time-budget diaries, but there has been much conceptual and methodological development in the area of audience motivation and satisfaction. Researchers have tried to establish the reasons for media use, the expected or obtained satisfactions, and the application of what is gained from media to other areas of social experience. This so-called uses-and-gratifications research tradition has connections with content as well as effects research, because it offers a way of categorizing (according to the audience's type of motive or satisfaction) and may identify intervening variables for studying media effects (given that certain audience motives may be a precondition of certain effects). The results of audience research are largely to be found in the many quantitative descriptions of audiences, but there has also been a growth in un-

derstanding of the determinants and functions of media reception.

Media Effects Research

Neither the basic problems nor the methods of media effects research have changed greatly over several decades. Problems include all manner of responses to media content, especially those that concern change or reinforcement in line with the direction of messages (see PERSUASION). Methods are still mainly those of the experiment or the survey of audience and content, by way of which correspondences can be sought between the message and the knowledge, beliefs, attitudes, and opinions of the receiver. What has changed, however, are ideas about the processes at work and about the ways in which media effects are likely to be manifested. In turn, this carries certain implications about methods of inquiry.

Early research sought to establish simple correspondences between media stimuli and immediate responses. It was quickly discovered that the relationship between message (as sent and apparently received) and response (as observed) is always mediated by numerous conditions that can affect the outcome. These conditions have to do with characteristics of the source, of the message itself, of the channel, of the receiver, and of the context of reception. Without knowledge of such variables, no prediction or interpretation of effect is possible, and each potential effect situation is in some respects unique. Most early research concentrated on small-scale experiments of persuasive influence in which media presentation (source) variables could be manipulated or of campaign situations thought of as field experiments in which many variables could be studied simultaneously. Experiments produced more precise information but little basis for generalization outside the laboratory. The more naturalistic settings of the campaign revealed the working of processes of relay and diffusion from message to effect, involving those variables of context and audience structure already noted.

The campaign is itself only one of numerous ways in which potential influence reaches the media public. The phenomena that have received the most attention reflect the dominant expectations and fears in relation to mass communication: various kinds of campaigns, including political (see ELECTION), commercial, and public information; use of media for EDUCATION and training (see AUDIOVISUAL EDUCATION); the promotion of development, especially in rural areas and the Third World (see DEVELOPMENT COMMUNICATION); the possible effects of media on behavior and attitudes in issues like aggression or criminality; and the socialization of the young (see CHILDREN—DEVELOPMENT OF COMMUNICATION).

Research in all these areas continues to take place, modified by a greater awareness that all kinds of content can have a wide range of effects, often unintended or unpredicted.

A landmark in the history of effects research was provided by Joseph Klapper's (1960) assessment of the field, in which he placed a good deal of emphasis on the selective role of the audience in any effect process and assessed the media as more likely to reinforce than to change or convert. Research findings indicating that INTERPERSONAL COMMUNICATION and DIFFUSION can play an important part in the flow of information and influence made a contribution to this assessment. The so-called limited-effects model of the media has been much debated and modified in the ensuing years, but subsequent theory and research have given support to something more like the original version of the media as a powerful mechanism of change and control in society, albeit often in indirect or concealed ways.

The grounds for this revision may be explained by recalling several observations supported by research. First, media of all kinds generally carry messages having other sources of social support. Second, effects often show themselves in the long run and may be missed by relatively short-term experiments or surveys. Third, the basis for effect is often cognitive rather than affective, irrational, or directly behavioral. The media provide a certain range of materials that contain information and ideas about the social environment and about values, norms, and opinions. The audience can fashion a view of the world and a set of values and opinions from these materials. The media can also offer models for social behavior (*see* SOCIAL COGNITIVE THEORY). They tell their publics about wider relations of power and status in society. The ubiquity, volume, and relative consistency of this flow of messages make some influence probable, especially where alternative sources are few and dependency on the media is great. Because the media have become a legitimate institution for recognizing social status and directing attention in society, they can have an influence on the standing of other institutions and of social groups. Fourth, the media have increasingly provided the channels of communication for other institutions, such as the political system, and are consequently involved with other lines of force in society. Finally, the culture made and disseminated by mass media has come to be the culture of the society, or of most of its members. It is now necessary to acknowledge long-term institutional and cultural effects as well as effects on individuals. All this imposes a strain on a research apparatus that has been developed mainly for short-term studies of individuals and aggregates, and presents a challenge that has not yet been fully met. Some attempts to grapple with it can be seen in projects concerned

with CULTURAL INDICATORS and "cultivation," which seek to measure the significant features of the media "message system" and to relate changes in this to changes over time in society, culture, and opinion (*see* CULTIVATION ANALYSIS).

Divisions and Directions

Not surprisingly, mass communication research is not only diverse but also subject to internal debate and conflict about problem definitions, methods, and the interpretation of findings. A small number of principal dimensions structure the field and can be briefly described. One concerns the choice between more subjective, cultural, and humanistic approaches and those that are more objective, scientific, and quantitative. The difference affects choice of problem as well as of method. Adherents of the former approach pay more attention to content, culture, and meaning, while those of the latter tend to concentrate more on the measurement of audience and effects. A second dimension separates those who put more weight on the media themselves as prime movers from those who emphasize society and social structure as determinants of whatever influence mass communication may exert. To hold the former view implies an emphasis on the medium and the message, and the attachment of significance to the sensory characteristics of the vehicle by which messages arrive—to print or to electronic media as such, as did the Canadian scholars HAROLD INNIS and MARSHALL McLuhan.

A third, more ideological division derives from alternative philosophies of society and political theories. On the one hand, the media may be regarded as a rather unified, hegemonic instrument of power for a dominant elite or class; on the other, as a pluralistic system, responding to multiple and changing needs of society and public. The former view is represented in some early mass society theory (e.g., in the work of C. Wright Mills) and in more recent Marxist versions of media theory (*see* MARXIST THEORIES OF COMMUNICATION). There are implications for research in that the "dominant media" view directs attention to questions of ownership, control, and ideology in messages, while the "pluralist" view pays more attention to differential audience choice, use, and response.

In the history of mass communication research, certain other divisions have surfaced, of which the most significant may be that between what Lazarsfeld termed *critical* and *administrative* research. The former stresses the role of the researcher as independently representing the interests of society or a chosen theory; the latter refers to work directed at assisting and evaluating the work of the media, usually from within media organizations themselves. Both kinds of re-

search continue to coexist, using similar methods often enough but separated sharply by purpose. At some point the question "Research for what?" has to be addressed. The alternative answers lead researchers in different directions and, often, to different conclusions.

The main challenges and choices facing mass communication research may be briefly summarized. The first concerns changes taking place in the media, as they multiply and take new, often less "massive" forms, posing new problems for studying a more diversified media institution, output, and audience. These problems are both conceptual and methodological. A second issue is that of the internationalization of media, requiring a shift of focus from a local or national level to media research on questions of global political and social change. Here the international flow of information and possibilities of "cultural imperialism" are the main objects of attention (see NEW INTERNATIONAL INFORMATION ORDER). Third, there are more vocal demands by minorities and social groups and more access and control of media channels, and research is often associated with these demands (see MINORITIES IN THE MEDIA). Fourth, the inextricable involvement of mass communication with other social institutions tends increasingly to invalidate the boundaries that have been drawn around this research field. Mass communication research is no longer easy to keep separate from other kinds of communication research or from wider questions of social life.

See also AGENDA-SETTING; CONSUMER RESEARCH; PRINT-AUDIENCE MEASUREMENT.

Bibliography. Bernard Berelson, *Content Analysis in Communication Research*, Glencoe, Ill., 1952, reprint New York, 1971; Elihu Katz and Paul F. Lazarsfeld, *Personal Influence*, Glencoe, Ill., 1955; Joseph Klapper, *The Effects of Mass Communication*, Glencoe, Ill., 1960; C. Wright Mills, *The Power Elite*, New York, 1956; Jeremy Tunstall, *The Media Are American*, New York, 1977.

DENIS MCQUAIL

MASS MEDIA. See CABLE TELEVISION; MAGAZINE; MINORITIES IN THE MEDIA; MINORITY MEDIA; MOTION PICTURES; NEWSPAPER: HISTORY; NEWSPAPER: TRENDS; RADIO; TELEVISION HISTORY.

MASS MEDIA EFFECTS

Although empirical research on mass communications is traditionally divided into studies of audiences, content, and effects (see MASS COMMUNICATIONS RESEARCH), the predominant concern is with effect. In this view, audience research and CONTENT ANALYSIS are efforts to infer the likely effects of a message

or medium from its RHETORIC and its reach. Such inferences, however, tend to attribute more power to the media than empirical studies of effect are able to substantiate. Nor do these studies support popular belief—shared by politicians and advertisers—that the media are able to change the minds of ("brain-wash") vast numbers of people. Rather, empirical research is generally satisfied with evidence that the media are effective under certain conditions ("indirect" effects) and only on some fraction of the audience, not so much by "conversion" as by "reinforcement" or "activation" ("limited" effects). Such influence on even 1 percent of smokers or voters or consumers, for example, implicates large numbers of people and may be of considerable social significance (see CONSUMER RESEARCH).

Research Traditions

Early empirical research sought to measure the effectiveness of media campaigns. These campaigns were thought capable of directing the atomized, alienated individual in the mass society in what to think, choose, or do (e.g., to make a decision between candidates for political office or consumer products or to look with favor or disfavor on a cause such as intergroup tolerance, the United Nations, or a wartime enemy). When these hypothesized effects proved to be elusive, researchers turned their attention to specifying (1) the complexities of the influence process, that is, the conditions of greater and lesser effect, and (2) alternative conceptualizations of effect. The history of the field may be read as a persistent search for effects that better describe the social roles of the mass media. Thus successive traditions of media research have considered whether the media can tell us *what* to think, *with what* to think, *when* to think, *who* should think, what to *believe*, what to *think about*, *how* to think, what *not* to think, *where* to belong, and what to *feel* (see Table 1). The search for alternative conceptualizations of effect is motivated, at least in part, by the belief that more adequate conceptualizations will unveil more powerful effects. See COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT.

Persuasion studies. The view of mass communications as agencies of PERSUASION found that media influence is mitigated (sometimes enhanced) by the rhetoric of message and of medium; by the "defensive" behavior of audiences in their selective exposure, perception, and retention of messages (see SELECTIVE RECEPTION); and by the networks of interpersonal relations (see NETWORK ANALYSIS) in which opinions, ATTITUDES, and actions are anchored and diffused. In the course of specifying these intervening variables early work made plain that the process of media influence was less total (exposure is selective),

Table 1. Summary Descriptions of Media Effect Traditions

Research Tradition	Image of Audience Member	Societal Context	The "Text"	Basis of Involvement	Hypothesized Effects		Theory Roots	Typical Method	Key Question	Some Basic References
					Individual	Societal				
campaign studies	atomized decision maker	mass society	persuasive appeals	ubiquity of message; consonance of appeal	change opinion, action	moblization, participation, control	social, behavioral psychology	field experiment; panel survey	what to think, choose, do (short term)	Hovland, Janis, Kelley (1953); Klapper (1960)
gratifications; dependency	active seeker; multiple needs, roles	differentiated, pluralistic	resource material; "toolbox"	needs, interests, dependency	gratify needs, interests; unanticipated effects	societal stability	functional sociology	retrospective survey	with what to think; from what to choose	Blumler & Katz (1974); Ball-Rokeach & De-Fleur (1982)
diffusion	active seeker	social networks	information, innovation	need to keep up	improve situation or status	evolutionary change, development	rural sociology, anthropology, epidemiology	ethnography; retrospective and sociometric survey; measures of time of adoption	when to think	Rogers (1983); Katz, Levin, and Hamilton (1963)
knowledge gap	information processor	stratified	instrumental information	needs, interests, problems	gain information	widen social gap	cognitive psychology	field experiment	who should think	Tichenor et al. (1970)
child socialization	<i>tabula rasa</i> ; seeks adult status	other socializing agents	role models, values	identification	crystallize beliefs, behavior, self-concept	societal stability, reproduction	sociology, social psychology	longitudinal survey	what to believe, how to behave (long term)	Comstock et al. (1978); Wright (1986)
agenda-setting	citizen	forum of public opinion	social issues	need for orientation	revises, adopts agenda	shared social focus	political science; journalism	content analysis, survey	what to think <i>about</i>	McCombs (1981)
technological	information processor	social formations	media attributes, codes	ubiquity of medium; participation in decoding	patterns of thought, personality	social organization; integration	technological determinism; humanities	neuropsychology; historical research	how to think, where to belong	Innis (1951); McLuhan (1964); Eisenstein (1979)
ideological (critical)	passive, atomized	mass society	hegemonic	need for orientation, belonging, escape	accept hegemonic reality; false consciousness, reassurance	legitimate status quo; control	neo-Marxism	message analysis	what not to think	Horkheimer & Adorno (1972); Gouldner (1976)
psychoanalytic (cinema); textual	regressive, lonely voyeur	malaise, discontent	teasing, nonstop flow	need for identification; escape	frustration; vicarious pleasure; arousal; identity	consumerism	psychoanalysis (Lacan); symbolic interactionism; humanities	introspection, content analysis; experiment	what to feel	Tannenbaum (1980); Metz (1982); Horton & Wohl (1956); Houston (1984)
sociological	role in institution, class; demography	differentiated	social reality; conflict management	membership	belong; conform	social integration, consensus, control	Durkheim, symbolic anthropology	survey	where to belong (with whom to think)	Lazarsfeld & Merton (1948); Lang and Lang (1984)

less direct (response is contingent on others), and less immediate (influence takes time) than had been assumed. Theoretical room had to be made for the countervailing power of individual selectivity and interpersonal relations—two of the most elementary processes of social psychology—and for time (*see* INTERPERSONAL COMMUNICATION).

In addition to yielding only limited and indirect effects, early studies prematurely narrowed the concept of effect to the success of (1) persuasive messages (2) on the opinions (3) of individuals (4) in the short run. Research concentrated on the message rather than the medium; on purposive influence rather than information, IDEOLOGY, or ENTERTAINMENT; on isolated individuals rather than small groups (*see* GROUP COMMUNICATION) or social institutions; and on the short run rather than the long run.

Uses and gratifications. Alternative conceptualizations are evident in two other traditions of work known as “uses and gratifications” and DIFFUSION. Both follow from and react against the assumptions of campaign studies. Gratifications research builds directly on the notion of selectivity, adding that viewers choose messages and media not only to defend prior opinions and habits but also to satisfy needs, interests, and strivings. The use of the media for escape, for the achievement of social mobility, or for reassurance are examples of the foci of this work, which links communications research with the study of popular culture. Studies of the gratifications provided by the SOAP OPERA, for example, anticipated current humanistic interest in the genre of television as a focus for problems of identity, gender conflict, and even our anxiety about survival. The world, says the soap opera, will continue, albeit from crisis to crisis.

The media are seen here as a social utility and the “reader” (receiver) as a selective consumer. The earliest work in this tradition coincided with the earliest campaign studies but became more central as greater power came to be attributed to the audience. Whereas campaign studies see the media as a force-feeder, gratifications researchers see the media as a cafeteria or “toolbox.” Methods of the former are field experiments, panels, and before-and-after surveys; the latter use retrospective interviews that credit audiences with high self-awareness. Rooted in FUNCTIONAL ANALYSIS, gratifications research has contributed to the proposition (*see* below) that the nature of the involvement, role, or dependency in which “readers” contact the media constrains uses, gratifications, and potential effects.

Diffusion. Gratifications research may be said to build on the notion of cognitive selectivity, but diffusion research builds on the idea that interpersonal networks filter media messages and influence their interpretation and evaluation. Studies of the diffusion of new fashions, products, technologies, and ideas

show how the media stimulate awareness of an innovation over time, space, and social structure and trigger interest in other sources of influence in the adoption process. Diffusion studies shifted attention from the individual to the small group of interacting individuals and, to a certain extent, to characteristics of the larger society such as stratification or centralization that affect the flow of influence. This work also reconnected the study of mass communication with the more traditional communications concerns of disciplines such as anthropology, archaeology, history of religion, and epidemiology. If campaign studies may be said to address the proposition that the media can tell us *what to think*, diffusion studies suggest that the media tell us *when to think*—when it is our turn to be in fashion, for example—and gratifications research proposes that the media tell us from what to choose or *with what to think*.

The knowledge gap. Two further traditions of work on effect that are also anchored in the intervening variables of selectivity and interpersonal relations, respectively, are “knowledge-gap” studies and research on the role of the media in socialization. Knowledge-gap studies explore the possibility that the media may widen rather than narrow the information differential between social classes. Researchers, therefore, are particularly interested in the role of the knowledge-gap phenomenon in perpetuating inequality and in the conditions under which gaps may be overcome. Knowledge-gap studies may be said to address the proposition that the media tell us *who should think*.

Socialization. Socialization studies address the questions of *what to believe* and *how to behave*, framed in the long run and as a function of the interaction among media and other agents of socialization such as parents (*see* FAMILY), peers, and teachers (*see* POLITICAL SOCIALIZATION). Thus, for example, learning from television is enhanced if CHILDREN view with a parent or are members of certain types of families. Some researchers in this area are convinced that there is evidence to warrant the attribution of direct effects, given the primacy of children’s experience with the media. It is argued, for example, that a diet of television programs that feature incidents of VIOLENCE increases the likelihood of aggressive behavior in both the short run and the long. Evidence on the effect of media depiction of real and fictional violence—especially “justified” aggression, as in prizefights or retaliation—argues for a small but significant modeling or imitative effect, tempered, however, by factors such as social approval. *See* SOCIAL COGNITIVE THEORY.

Because each of these traditions of research has had to account for factors that intervene between a message and the targeted attitude or action, they are called models of limited or indirect effects. By contrast, three other traditions of work have proposed

models of direct (i.e., unmediated) effects. They are AGENDA-SETTING studies, technology studies, and ideological studies.

Agenda-setting. Agenda-setting studies address the proposition that the media tell us *what to think about*. Broadly defined, the power of the media to focus and shift public attention underlies concepts such as “status conferral,” “media amplification,” “moral panics,” and “media events,” as well as the idea that the media—not only the news—constitute a forum or bulletin board in which society’s central issues are aired for consideration. Agenda-setting, in turn, affects decision making. The evaluation of a candidate for political office, for example, may be influenced by whether domestic or foreign-policy issues dominate the agenda. As in diffusion research, a measure of time is needed to establish priorities among the agendas of the media, the political parties, and the public. See POLITICIZATION.

At first it was supposed that such effects would not be affected by prior personal and interpersonal commitments, but this is not the case. Media agendas are more acceptable to those in “need of orientation,” and media are more successful in mobilizing attention to issues that are not salient in the personal lives of the public. Agenda-setting studies, therefore, are better classified as a tradition of limited effects.

The technological approach. Technological theorists such as MARSHALL McLuhan, on the other hand, believe that for any epoch the predominant medium of communication powerfully shapes personality and social structure by enlisting a particular mental regimen to process the information encoded in the technology. Thus decoding of print is said to lead to sequential thinking, which involves notions of before and after, causality, rationality, and—because linear decoding takes time—deferred gratification. In other words, the media are said to teach us *how to think*. Because the medium rather than its content is the causal agent, the defensive processes that intervene in the flow of messages are theoretically irrelevant. Technological theories positing long-term effects on mind and society have not been the subject of much empirical research on individuals.

At the level of *institutions*, however, research on the social history of media technologies connects papyrus and highways with bureaucratic empires (see WRITING MATERIALS), the diffusion of print with the Protestant Reformation (see PRINTING), the mass-circulation newspaper with European nationalism (see NEWSPAPER: HISTORY), TELEGRAPHY with the integration of the U.S. economy, television with the breakdown of PRIVACY, and so on. These studies emphasize physical (rather than message) attributes of the media such as precision (Elizabeth Eisenstein’s “fixity,” McLuhan’s “hot”), ubiquity, and simultaneity. They also account for the ways in which social definition, deployment, and control of the me-

dia are harnessed and contested by competing social forces. They argue, on the whole, that media technologies contribute to the shaping of social organization; that is, they tell us *where to belong* or with whom to think. They are also linked with mass-society theories in sociology and political science that conceive of the media as establishing direct connections between leaders and masses at the expense of secondary institutions such as political parties, parliaments, or churches (see GOVERNMENT-MEDIA RELATIONS; POLITICAL COMMUNICATION). Franklin D. Roosevelt’s “fireside chat,” early national advertising campaigns, and television evangelism are examples of attempts to establish remote loyalties over the heads of local politicians, retailers, and churches, respectively (see ADVERTISING—HISTORY OF ADVERTISING; RADIO).

Ideology. Ideological effects, the other tradition claiming powerful and direct effects, is also of long standing and has also been little studied empirically. So-called critical or cultural studies are often contrasted with empirical studies, but this is a confusion of theoretical orientation and methodology. Drawing on the neo-Marxism of the Frankfurt school and its successors (see ADORNO, THEODOR), ideological theorists consider that all other traditions of communications research have wrongly focused on change, whereas the “true” effect of the media is in the *thwarting of change*. For the critical effects traditions the strengthening of prior opinions, attitudes, and actions as a result of exposure to media “reinforcement” is not simply a residual effect—the result of selectivity and interpersonal communication—but *the* powerful effect achieved by propagating the legitimacy and taken-for-grantedness of common sense and existing social arrangements. Reinforcing these extant views of “social reality” serves the stability of the system and the well-being of its elites. Once considered manipulative, current ideological theories perceive the process of hegemony as endemic to media representation and reproduction of “reality.” Empirical research in this tradition presents the media as purveyors of a coherent image of social reality to heterogeneous mass audiences for whom media consumption forms an increasingly important bond and who often favor mass media (television in particular) over interpersonal influence and alternative sources of information (see CULTIVATION ANALYSIS; CULTURAL INDICATORS). Methodologically, the ideological tradition raises the question of how to study an effect such as the slowing or absence of change.

Other Approaches

In addition to ongoing work within the above-mentioned traditions, research on media effects continues to explore (1) still other conceptualizations of effect that may reveal the elusive power of mass

communications and (2) still more subtle processes that intervene among media, messages, and their audiences. Further conceptualizations of effect are pointed in several directions. One direction goes counter to the cognitive bias of media research and focuses on the hypothesis that the media tell us *what to feel*. Examples may be drawn from the psychological work on the role of the media in stimulating and channeling "arousal" and from the psychoanalytically inspired studies of the gratifications and frustrations of cinema audiences and television viewers in their interactions with what they see on the screen. These studies contribute importantly to the redemption of the neglected concept of entertainment.

On the whole, however, most studies of media effects tend to deepen the existing cognitive bias. Indeed, it is possible to suggest that there is a shift away from the sociopsychological study of persuasion and influence toward the study of information—its control, its diffusion, its processing, its utility, its effects (see INFORMATION THEORY). Traditions of research on diffusion, knowledge-gap, agenda-setting, and to a certain extent campaign studies have been concerned with information, but the new media technologies have made this concern even more salient. At the individual level these studies treat the effect of the new media on patterns of accessing and managing information and on the new media's consequences for what to think, how to think, and so on. At the institutional level, the new media have reverted attention toward social theories of media technologies, somewhat neglected because of their overdeterminism. The case studies of the institution-building roles of the printing press, the telegraph, and other media still await a sociologically informed effort to generalize about the "careers" of new media and their effects that have resulted from the interaction of technological potential, elite and professional control (see PROFESSION), and patterns of popular usage. See COMPUTER: IMPACT.

An example that combines all these emphases—cognitive, affective, and integrative—comes from a tradition of study of the live broadcasting of public ceremonies. Pioneered by Kurt Lang and Gladys Lang, current research on televised events such as the pope's pilgrimages, royal weddings, the Watergate hearings, and the Olympics focuses attention on the ability of live television to declare "time out," to evoke the sense of occasion, to highlight a value, to define what is "real," to engender what anthropologist Victor Turner has called *communitas*. This integrative effect of the media, acting also to link individuals to one another and to the "center," corresponds to one of the major concerns of French sociologist ÉMILE DURKHEIM. These studies remind us again of the hypothesized power of the media to define, but also to defy, social boundaries.

There is a revival of interest in societal-level effects of the media both as technology and as content. One finds renewed attention, originating in both functional and critical schools, to the role of journalism in exacerbating, suppressing, and smoothing processes of conflict and change. Sociologists and political scientists are equally interested in institutional effects of media that are *not* mediated by effects on the mass, such as the role of the media in the making of foreign policy, in the design of political campaigns (see ELECTION), and in the organization of RELIGION. Ironically some of these effects are based on the assumptions made by institutional elites about the powerful (but unproved) effects of the media on the masses.

The continuing search for better or more varied conceptualizations of effect is joined with the continuing effort to specify the conditions and processes by means of which such effects are achieved. Thus major media events provide one of the rare examples in which early assumptions about the conditions of maximal media influence are fulfilled: attendance is almost "total," and message delivery is unmediated (direct) and immediate (simultaneous). Moreover, viewers don ceremonial and institutional roles such as mourner, juror, or sports fan, and effect is thereby enhanced.

In this respect the notion of patterns of involvement, arising from psychological theories of COGNITION and affect and from sociological theories of role, serves as a basis for a multidisciplinary attack on the neglected questions about the experience of viewing (or reading) and why people devote so much time and attention to the media (see LEISURE). Moreover, it serves as a call to humanists and sociologists to rejoin the ranks of communications researchers. For example, the concept of reader involvement or role—expanding the notions of audience selectivity and activity—has become the focus of a notable convergence among critical, literary, and functional theorists. Certain critical theorists have recently turned from their own readings to the empirical study of audience readings. The idea that a text may be read oppositionally, not just hegemonically, by real readers makes room in critical theory for ideological change. At the same time, and related to the revival of the idea of polysemic texts, literary theorists are finding interest in the roles that real readers assume in the "reception" of texts. For their part, gratifications researchers are occupied with the idea of "negotiated" readings in which meanings, and consequent effects, emerge from the interaction between texts and readers-in-roles (see MEANING).

Thus election campaigns, as conceived by the group of researchers headed by Jay Blumler, encounter readers in different roles, and these role differences influence patterns of meaning, use, and effect. Re-

lated work suggests that the differential availability of "public space" for political discussion is what accounts for the differential use of TELEVISION NEWS in different societies. Reader decodings of the same texts are seen to vary by the nature of reader involvement, which in turn is a function of the role of reader or viewer in different cultures, different societal contexts, different educational levels, and so on. The concepts of involvement and role add psychological and sociological depth to the persistent concern with the conditions under which the media and their messages vary in meaning, use, and effect.

Further study of media effects, therefore, will have to choose among competing assumptions about the nature of viewer involvement and decoding. The elementary debate over the extent of audience "activity" is still unresolved. At the individual level there will be greater emphasis on shared information and affect, less on persuasive influence. Greater formalization will be given to the variety of media effects and to the conditions of their maximization. Methodologies for the study of long-run effects will be further developed. At the societal level emphasis will be placed on the role of media technology and content in defining social boundaries, in the management of conflict, and in the organization of institutional realms such as politics, markets, religion, EDUCATION, and leisure.

Bibliography. Sandra Ball-Rokeach and Melvin L. DeFleur, "A Dependency Model of Media Effects," in *Intermedia*, 2d ed., ed. by Gary Gumpert and Robert Cathcart, New York, 1982; Jay G. Blumler and Elihu Katz, eds., *The Uses of Mass Communications*, Beverly Hills, Calif., 1974; Jennings Bryant and Dolf Zillmann, eds., *Perspectives on Media Effects*, Hillsdale, N.J., 1986; George Comstock, Steven Chafee, Nathan Katzman, Maxwell McCombs, and Donald Roberts, *Television and Human Behavior*, New York, 1978; Aimee Dorr, *Television and Children: A Special Medium for a Special Audience*, Beverly Hills, Calif., 1986; Elizabeth L. Eisenstein, *The Printing Press as an Agent of Change: Communication and Cultural Transformation in Early Modern Europe*, 2 vols., Cambridge and New York, 1979; Alvin W. Gouldner, *The Dialectic of Ideology and Technology*, New York, 1976; Lawrence Grossberg, "Strategies of Marxist Cultural Interpretation," *Critical Studies in Mass Communication* 1 (1984): 392-421; Max Horkheimer and Theodor Adorno, *The Dialectic of Enlightenment (Dialektik der Aufklärung)*, trans. by John Cumming, New York, 1972; Donald Horton and Richard Wohl, "Mass Communication and Para-Social Interaction," *Psychiatry* 19 (1956): 215-229; Beverle Houston, "Viewing Television: The Metapsychology of Endless Consumption," *Quarterly Review of Film Studies* 9 (1984): 183-195; Carl I. Hovland, Irving L. Janis, and Harold H. Kelley, *Communication and Persuasion*, New Haven, Conn., 1953; Harold A. Innis, *The Bias of Communication*, Toronto, 1951; Elihu Katz, Martin L. Levin,

and Herbert Hamilton, "Traditions of Research on the Diffusion of Innovation," *American Sociological Review* 28 (1963): 237-252; Joseph Klapper, *The Effects of Mass Communication*, Glencoe, Ill., 1960; Gladys Engel Lang and Kurt Lang, *Politics and Television Re-viewed*, Beverly Hills, Calif., 1984; Paul F. Lazarsfeld and Robert K. Merton, "Mass Communication, Popular Taste, and Organized Social Action," in *The Communication of Ideas*, ed. by Lyman Bryson, New York, 1948; Maxwell E. McCombs, "The Agenda-setting Approach," in *Handbook of Political Communication*, ed. by Dan Nimmo and Keith Sanders, Beverly Hills, Calif., 1981; William J. McGuire, "The Myth of Massive Media Impact," in *Public Communication and Behavior*, Vol. 1, ed. by George Comstock, New York, 1986; Marshall McLuhan, *Understanding Media: The Extensions of Man*, New York, 1964; Christian Metz, *The Imaginary Signifier (Le signifiant imaginaire)*, trans. by Celia Britton, Annwyl Williams, Ben Brewster, and Alfred Guzzetti, Bloomington, Ind., 1928; Everett M. Rogers, *Diffusion of Innovations* (1962), 3d ed., New York, 1983; Michael Schudson, *Advertising, the Uneasy Persuasion: Its Dubious Impact on American Society*, New York, 1984; Percy H. Tannenbaum, ed., *The Entertainment Functions of Television*, Hillsdale, N.J., 1980; P. J. Tichenor, G. A. Donohue, and C. N. Olien, "Mass Media and Differential Growth in Knowledge," *Public Opinion Quarterly* 34 (1970): 158-170; Charles R. Wright, *Mass Communication: A Sociological Perspective*, 3d ed., New York, 1986.

ELIHU KATZ

MASS OBSERVATION

Mass observation (M-O) was created in Great Britain in the years immediately preceding World War II. Although it was a unique enterprise, to be understood it must be placed in the context of the DOCUMENTARY movement. That is, it was part of a number of ways of using different cultural forms to represent everyday life. The idea of using impersonal forms of recording to express faithfully the experiences of ordinary people lies at the heart of the documentary desire to use art in the service of society. More specifically, M-O pioneered methodologies of social research to discover what ordinary people felt and thought about contemporary events and to disseminate its findings to the public at large.

M-O was created, following a correspondence in a radical British weekly, by Tom Harrisson, Humphrey Jennings, and Charles Madge. (Jennings largely dropped out after the first major study was published to work in documentary film, although his first film, *Spare Time*, is thought to display the influence of M-O concerns.) The first phase of M-O was therefore governed largely by the interests and activities of Harrisson and Madge. Harrisson had worked in ornithology and anthropology, particularly in East Asia, whereas Madge was a reporter—with a repu-

tation as a poet—who worked for a popular tabloid in 1935–1937.

The initial impetus that brought these men together was a conviction that democracy, in the sense of a mass electorate, had not yet developed adequate means of mass participation in opinion formation. They felt that although contemporary society had greater facilities for information than ever before, people were isolated and alienated, resulting in and reinforcing a climate of ignorance, fear, and hunger for symbolic integration. The founders shared a critical concern with the prevalence of RUMOR, superstition, GOSSIP, and “mass wish-situations” in popular life, particularly with regard to the responses people made to national and international events. In setting up M-O the organizers saw themselves as providing both a scientific study of popular life and a means through which ordinary people could regain a sense of social identity. The knowledge M-O was to collect was a counterweight to the illusions of politics and ADVERTISING, a necessary foundation for a more democratic social order.

M-O was therefore partly a reaction to perceived inadequacies in conventional measurements of PUBLIC OPINION but also, more positively, an expression of a conviction that social changes, particularly new forms of mass communication and entertainment, had generated new modes of social consciousness that required corresponding innovations in forms of representation. M-O was to provide an “anthropology of ourselves” that would transmit public ATTITUDES from the people to the people.

The history of M-O can be divided into three phases. The first was the years 1937–1940, when a number of initiatives were pioneered; the second phase was during the war, when M-O redefined its work in the context of needs for more effective domestic PROPAGANDA; and finally, the years since 1949, when M-O became a market research agency. Later interest has been particularly engaged by the innovations in social documentary that M-O pioneered in its first phase. (Attempts to revive the spirit and practice of the original project occurred even in the early 1980s.)

The uniqueness of the M-O enterprise in this initial phase lay in the recruitment of amateur observers who either responded to questionnaires or sent in day reports and diaries. The rationale for this policy was that a corpus of observations by ordinary people would provide unique insights into popular feelings and behavior. The accumulation of a mass of observations would transform subjective impressions into objective knowledge. It would provide a chart or map of collective habits and social behavior. An attitude that contemporary society was a strange cultural landscape that needed novel methods of exploration was consistent with other types of doc-

umentary initiative but was also a challenging elaboration of innovations in community studies in the United States. M-O was, however, fiercely independent of conventional academic concerns. Its founders wished to document a collective social reality, but only in ways that would be immediately accessible to those who lived that reality so that it would in turn help to reshape that reality.

It was probably inevitable that the innovations in ideas and methods that inspired M-O in the early years should have generated several different types of observational study. From the beginning M-O had two headquarters—one based in Madge’s home in London and the other based around Harrison in Bolton (called *Worktown* in M-O publications). The London group collected reports from observers nationwide on a very wide range of topics, most characteristically focusing on the observers’ experiences on specific days. It was hoped that the heterogeneity of the responses would enable the editors in London to compile an authentic picture of public opinion and behavior. The most famous of the day studies concerned the Coronation Day of George VI in 1937 (published as *May 12th*). It was a particularly interesting example, since it was the first time a royal ritual had been made instantly available nationally through mass broadcasting.

The work in Bolton was more akin to participant observation than the collection of unstructured diaries and observations. A number of people traveled north to paint, photograph, observe, and work in Bolton and associated towns such as the holiday resort of Blackpool. Once again a very rich archive of contemporary life was accumulated, but the profusion of material was generally too great to be handled (the only publication exclusively based on this material is *The Pub and the People*). Fascinating pictures of British tastes and attitudes were rescued from the many projects, and these had a strong political as well as cultural impact. However, the outbreak of the war precluded further developments in opinion formation through popular research.

In fact the initial objectives of M-O were changing quite quickly under the pressures of experience, greater realism, and changing circumstances. The onset of the war against fascism, however, catalyzed arguments within the organization. Madge and Harrison had increasingly been at odds personally, and Harrison’s decision to make the services of M-O available to the Ministry of Information led to Madge’s resignation. He felt that the dangers of research as a form of social control, which had been sensed from the beginning, were intensified when a method of popular observation became a servant of government rather than of the people. The politics of social knowledge had always been fundamental to the M-O enterprise, and the relationship with govern-

ment raised issues that altered the character of the research enterprise. Subsequent work became more dominated by full-time research workers; it became a specialist rather than a popular form of inquiry.

This is not to imply a simple equation of politicized research with the earlier work and more "professional" research with the latter. The studies of popular responses to the "phony war" (*War Begins at Home*) and the mobilization of women workers in industry (*War Factory*), for example, were useful and important studies, but the research was increasingly administrative rather than expository. As part of this process statistical information became more important, although the element of qualitative observation remained a defining feature and gave the research a distinctive character that remained controversial.

Financing a novel enterprise such as M-O had always been tricky. In the early days the support of people such as the publisher Gollancz had been crucial, in combination with an ingenious mixture of lecture fees, royalties, gifts and subsidies, and small pieces of sponsored research. In the second phase the opportunities for market research were more thoroughly explored. During the war years several M-O books and pamphlets were published under the auspices of the Advertising Service Guild, which in itself marks a distinctive step away from the polemical engagements of the early years toward more manipulative studies of public opinion. The personnel also changed during these years. Harrison, who was in the army from 1942 to 1946, could not adapt to England after the war and went back to East Asia. Although a number of committed individuals had remained with the organization, in the postwar years there was a lack of clear objectives. Eventually in 1949 M-O became Mass Observation Limited, an unusual but nevertheless strictly commercial market research organization. Partly in order to attract clients and partly to meet the criticisms of the rapidly growing world of academic social science, M-O's research practices became more standardized with more emphasis on quantitative research profiles. A unique research initiative had been absorbed into the domains of conventional knowledge.

In the history of social research M-O has usually been dismissed as an eccentric, if fascinating, digression from the mainstream. M-O was always populist rather than academic in orientation, theory was deliberately eschewed, and the somewhat indiscriminate enthusiasm for information meant that the researchers were often swamped by their material. The lack of rigor in designing the collection of observations also meant that while the ARCHIVES of the organization proved fascinating for students of recent social history, they were difficult to use. Despite these drawbacks, however, M-O's importance lies in the challenge it posed to the status of science and exper-

tise in interpreting public opinion. While its methods remained vulnerable to the criticisms of academic social science, in retrospect we can see that the group was attempting to pioneer an entirely different relationship between researcher and community, a prospect that remains to be explored.

See also CINÉMA VÉRITÉ; MASS COMMUNICATIONS RESEARCH; MASS MEDIA EFFECTS; PERSUASION; POLITICAL SOCIALIZATION.

Bibliography. Angus Calder, "Mass Observation, 1937–1949," in *Essays on the History of British Sociological Research*, ed. by Martin Bulmer, Cambridge, 1985; Angus Calder and Dorothy Sheridan, eds., *Speak for Yourself: A Mass Observation Anthology, 1937–1949*, Oxford, 1984; Thomas H. Harrison, *Living Through the Blitz*, London, 1976; Tom Jeffery, *Mass Observation: A Short History* (Centre for Contemporary Cultural Studies, occasional paper, SP no. 55), Birmingham, Eng., 1978; Humphrey Jennings and Charles Madge, eds., *May 12th Mass-Observation Day Surveys: An Account of Coronation Day*, London, 1937; Charles Madge and Thomas H. Harrison, eds., *Britain*, London, 1939; idem, *Mass Observation*, London, 1937; idem, *War Begins at Home*, London, 1940; idem, *War Factory*, London, 1943; J. Sommerfield and Bruce Watkin, *The Pub and the People*, London, 1943, reprint (with a new introduction by Tom Harrison) 1971.

DAVID CHANEY

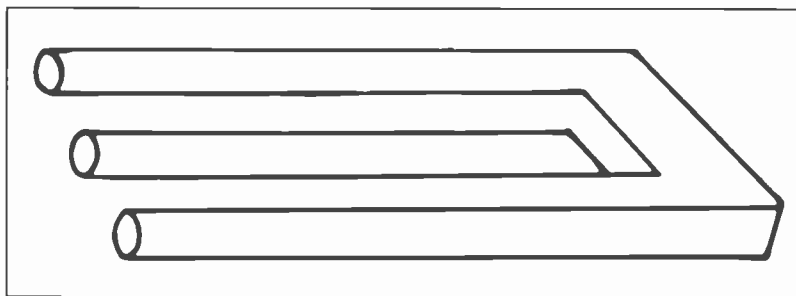
MATHEMATICS

There are two principal factions in modern mathematics: "pure" mathematicians develop the subject for its own intrinsic value; "applied" mathematicians develop the subject in order to solve practical, real-life problems. Purists compare themselves to architects and their applied colleagues to skilled laborers. As they see it purists are the truly creative persons, coming up with the ideas that applied mathematicians then merely use as tools. Applied mathematics, well-known purist Peter Halmos once said, is "just plain bad mathematics. [I]t solves problems about waterways, sloping beaches, airplane flights, atomic bombs, and refrigerators; but just the same, much too often it is . . . badly arranged, sloppy, untrue, . . . unorganized, and unarchitected mathematics."

In rebuttal, applied mathematicians see themselves as having all the qualifications of purists plus the additional credential of wanting and knowing *how* to apply the fruits of their creativity to serve humanity. As applied mathematician Morris Kline once put it, "the greatest contribution mathematicians [have] made, and should continue to make, [is] to help Man understand the world about him."

This disagreement among mathematicians has had great impact on how and what children are taught

Figure 1. (*Mathematics*) Facing the impossible. According to Gödel's theorem, trying to prove that pure mathematics is logical is as futile as trying to make sense of this visually ambiguous figure. From R. L. Gregory, *Eye and Brain: The Psychology of Seeing*, London: Weidenfeld and Nicolson, 1966, detail from cover.



about mathematics. The highly publicized and ill-fated “new math” of the 1960s, for example, was largely the brainchild of pure mathematicians. The unprecedented emphasis on rigor and fundamentals overtaxed both teachers and parents, many of whom found themselves unable to help with their children’s homework. “The movement to teach rigorous mathematics was and is a mistake,” says Kline. “The mathematics that is most important . . . and attractive to students is the kind that applies to their world.”

Origins and Development

Historically, applied mathematics preceded pure mathematics. The Egyptians first used mathematics four thousand years ago for agricultural and commercial reasons. They used formulas to compute acreage, storage space, profits, taxes, and other such practical matters. These formulas were surmised from real experience, not abstract reasoning. They were mathematical rules of thumb akin to today’s Dolbeer’s law, which describes the relationship between air temperature and the chirping of crickets (air temperature in degrees Fahrenheit is equal to one-quarter the number of chirps per minute plus forty, or $T = N/4 + 40$).

Precisely because it was so empirical, Egyptian mathematics could also be mystifying. The formulas were useful, but many of them had no logical explanation. An Egyptian would believe in them because they appeared to work and not because of an understanding of *why* they worked.

In contrast, pure mathematics had its origins in ancient Greece. Unlike the Egyptians, the Greeks were disinclined to use formulas that had no apparent logic to them. Merely because a formula worked was insufficient reason for the Greeks to rely on it. The only mathematics they considered reliable was that which could be surmised from logical, not empirical, evidence.

Thales of Miletus (625?–?547 B.C.E.) is generally credited with having been the first person in history to introduce the concept of a logical proof into mathematics. But it was ARISTOTLE who fleshed out the concept some two centuries later by writing the

first book on deductive logic. Aristotle titled his classic work the *Organon* (Greek for “instrument of reason”). In it he spells out fourteen rules and several canons by which conclusions can be surmised logically from assumptions.

Aristotle’s canons include the law of identity (everything is identical to itself), the law of contradiction (nothing can both be and not be), and the law of the excluded middle (something is either true or false; there is no third possibility). The canons were intended to express verities that most of us would call common sense, whereas the rules were a distillation of Aristotle’s meticulous study of syllogisms.

A syllogism is a three-step exercise in deductive reasoning of the form

(If) all men are mortal
(and if) Socrates is a man
(then) Socrates is mortal.

The first two statements are assumptions; the third statement is the conclusion, which, as Aristotle put it, “follows of necessity” from the assumptions. We may doubt the credibility of the assumptions, Aristotle explained, but if the rules of deductive reasoning have been followed there is no doubting the conclusion.

Because it was so logical, Greek mathematics could be irrelevant or downright fanciful. For example, Aristotelian logic permits one to argue that

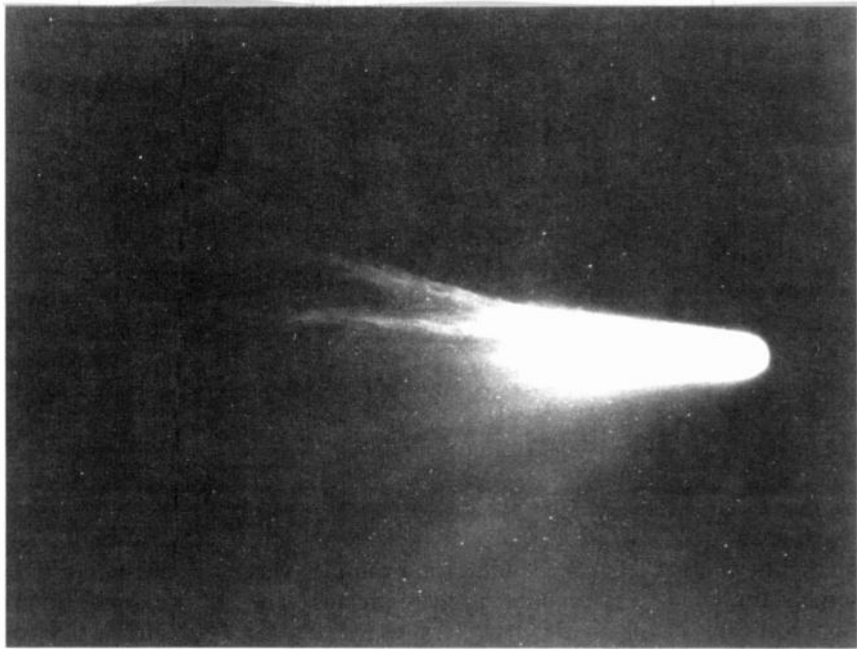
(If) three unicorns are worth one mermaid
(and) one mermaid is worth three elves
(then) one unicorn is worth one elf.

The argument is logical, but it is not useful or true in terms of what we know to be real. See SYMBOLIC LOGIC.

Applied Mathematics

True to their dissimilar origins, pure and applied mathematics today remain related but distinct subjects. Applied mathematicians are like scientists; pure mathematicians are like poets, constrained by the rules of reason and rhyme. Whereas applied mathematicians and scientists wish to describe the real

Figure 2. (*Mathematics*) Predicting the future. Photograph of Halley's comet taken from CT10, March 7, 1986. Using mathematics, astronomers can predict the exact itinerary of Halley's comet, the precise moment of a solar eclipse, and the particulars of many other celestial phenomena. The Bettmann Archive, Inc.



world, pure mathematicians and poets endeavor to describe the world of their own imagination.

Both pure and applied mathematics are basically quantitative disciplines, but the two rely on completely different standards of proof. In judging the validity of a formula or thesis, applied mathematicians ask: Is it relevant? Can it be used to describe something in the real world? Like scientists testing a hypothesis, applied mathematicians rely on their powers of observation to determine the answer.

Perhaps the quintessential example of applied mathematics is arithmetic, the study of numbers (*see NUMBER*). People who know nothing else about mathematics understand the relevance of arithmetic. Millions use it every day to balance checkbooks, follow recipes, compute mileage, and calculate the best deal when shopping for groceries.

Another outstanding although less widely known example of applied mathematics is the calculus, the study of infinity. It was first developed in the seventeenth century by Isaac Newton and Gottfried Leibniz, and it has become the mathematical basis of modern science, used by astronomers to compute the path of Halley's comet, by physicists to design a nuclear bomb, by chemists to estimate the efficacy of a new drug, and by biologists to describe fetal development.

Applied mathematics, to put it briefly, is the extremely precise language of science. When used properly it is virtually unambiguous. In contrast, social languages such as English are about 25 percent ambiguous.

Pure Mathematics

In judging the validity of a formula or thesis, pure mathematicians ask: Is it logical? Can it be surmised, following the rules of Aristotelian logic, from a set of explicitly stated assumptions? Unlike scientists,

pure mathematicians rely on their powers of pure reason to determine the answer.

Perhaps the most familiar example of pure mathematics is ordinary geometry, the study of shapes. Geometry originated in ancient Egypt as bits and pieces of practical knowledge about land surveying and ARCHITECTURE. The word *geometry* derives from the Greek for "to measure the earth."

The fundamental ideas about points, lines, planes, and solids were gleaned from everyday experiences with landmarks, footpaths, farmers' fields, and granite blocks. The important geometrical concept of parallel lines as lines that never meet was likely associated in Egyptian minds with such earthy phenomena as plow lines or the ruts dug into roads by two-wheeled carts.

By Euclid's time, around 300 B.C.E., there had been accumulated hundreds of geometrical rules of thumb. Euclid showed how they all could be deduced logically from just ten assumptions. These assumptions, moreover, were quite believable, including apparent truisms such as "A straight line can be drawn from any point to any other point," "All right angles are equal to each other," "If equals are added to equals, the sums are equal," and "The whole is equal to the sum of its parts."

There were mathematicians who challenged some of Euclid's assumptions, but, as Aristotle had shown, there was no doubting the conclusions. Euclid's theorems were all if-then arguments derived strictly according to the rules of logic. As a result Euclidean geometry was a model of pure mathematics.

Theoretical Implications

Twentieth-century mathematicians in both the pure and the applied traditions have made startling discoveries about the two most important questions: Is mathematics as a whole logical, and is mathematics

as a whole relevant? The first surprise is that despite their impressive efforts, pure mathematicians have not been able to prove that mathematics as a whole is logical. In fact, they have come to the unsettling conclusion that it is actually *impossible* to prove such a thing.

The first to recognize this was Viennese logician Kurt Gödel. In 1931 he proved that there will always be mathematical truths that cannot be established as being true, using the rules of Aristotelian logic. Gödel reached that conclusion by considering a statement akin to "This statement cannot be proved true, using the rules of Aristotelian logic." What Gödel soon realized was that this statement leads inescapably to a logical contradiction. Suppose, on the one hand, we prove it to be true, using the rules of Aristotelian logic. Then by its own assertion it is false. Now suppose, on the other hand, we prove it to be false. Then by its own assertion it is true. Either way there is a logical contradiction. And yet in a rather bizarre way, precisely because of our inability to establish it as being true or false, the statement *is* true: "This statement cannot be proved true, using the rules of Aristotelian logic."

Gödel proved that mathematics is and always will be riddled with an indefinite number of these unprovable truths. If mathematical knowledge is thought of as a body of laws, then Gödel proved that there will always be loopholes in the laws. Try to eliminate the ambiguities by passing new laws, he demonstrated, and new loopholes will inevitably be created. Is mathematics logical? The answer is permanently ambiguous.

Applied mathematicians also have arrived at a surprising answer to their own age-old question, Is mathematics relevant? The answer appears to be yes, but the reasons for it are not very clear. Mathematics is relevant in the sense that it can be used to represent physical reality exceedingly well. Only with mathematics are we able to account for the movement of planets around the sun, the shapes of molecules, and the color of the sky. "The book of Nature," as Galileo once asserted, "is written in the language of mathematics."

Puzzlingly, pure mathematics has proved to be every bit as relevant as applied mathematics. That is unexpected considering that pure mathematics is created to be logical, not necessarily realistic. Abstract mathematical creations such as negative numbers, imaginary numbers, and matrices were invented by pure mathematicians and had no purpose other than to help make mathematics more logical. Yet each one of these ideas has since been found to describe some real phenomenon. Negative numbers, for example, can be used to describe a novel form of matter called antimatter. Imaginary numbers can be used to describe the fourth dimension of time. And matrices

can be used to describe the world of the atom, centerpiece of modern quantum physics.

If only a few pure mathematical ideas had turned out to have some relevance in describing the natural world, then the coincidence might be considered nothing more than chance. But in fact the coincidence is great enough to have compelled the German mathematician, physicist, and Nobel laureate Eugene Wigner to speak of it as the "unreasonable effectiveness of mathematics" in describing reality. Mathematics does not merely invent ideas that just happen to describe physical reality; rather, the mathematical imagination seems to be an extra sense with which we literally perceive the natural world (*see* MODE). If thought of in this way, the coincidence between the natural world and the mathematical world is not any more mysterious than the coincidence between the natural world and the world revealed to us through the five senses.

If a mathematical sixth sense does exist, modern biology suggests that it probably evolved, just as did all the animal senses, in order to enhance our survivability as a species. "Perceiving . . . reality," as the French biologist and Nobel laureate François Jacob put it, "is a biological necessity." In this view, therefore, abstractions like negative numbers, imaginary numbers, and matrices are not merely figments of a mathematician's imagination; by virtue of helping us to perceive more accurately the world around us, they are instruments of our survival.

Bibliography. David Bergamini et al., *Mathematics*, New York, 1963; Michael Guillen, *Bridges to Infinity: The Human Side of Mathematics*, New York, 1983; Morris Kline, *Mathematics and the Search for Knowledge*, New York, 1985; Lynn M. Osen, *Women in Mathematics*, Cambridge, Mass., 1974, reprint 1982; Dan Pedoe, *The Gentle Art of Mathematics*, New York, 1958, reprint 1972; Jagjit Singh, *Great Ideas of Modern Mathematics: Their Nature and Use*, New York, 1959.

MICHAEL A. GUILLEN

MAXWELL, JAMES (1831–1879)

Scottish physicist whose electromagnetic equations helped provide the theoretical basis for later advances in communications technology, including RADIO and television broadcasting. James Clerk Maxwell was born into a well-to-do family in Edinburgh, Scotland. His mother died when he was eight years old, and he was raised by a father who encouraged his interest in science. After attending the University of Edinburgh for three years, he studied MATHEMATICS at Trinity College, Cambridge University, graduating in 1854.

Maxwell's academic career included two more years at Cambridge as a bachelor-scholar and a fellow, and professorships at Marischal College (Aberdeen) and King's College (London). From 1865 to 1871 he devoted himself solely to his research; in 1871 he reluctantly gave up his independent study to become the first professor of experimental physics at the Cavendish Laboratory of Cambridge University.

Maxwell sought to pull together the many discrete experimental results in a given area—or, as he put it, “to deduce the most general conclusions from the data at our disposal.” He made advances in such fields as color vision, the kinetic theory of gases, and statistical mechanics.

But Maxwell's greatest achievement—and the one with the most important implications for communications—was his unification of the fields of electricity and magnetism. Maxwell's advancements in this area built on the work of MICHAEL FARADAY, who rejected the predominant view that electricity and magnetism could be explained in terms of action at a distance (i.e., that they act on distant objects directly, with nothing intervening). He postulated the existence of “lines of force” extending in every direction from a magnetic pole or an electric charge. Together all the lines of force associated with a particular magnetic pole or electric charge constitute a field of force, he believed. Faraday, however, was an experimenter, not a mathematician, and his field ideas were not widely accepted. Maxwell, on the other hand, was a skillful mathematician. After reading Faraday's *Experimental Researches in Electricity*, he spent years consolidating and expanding Faraday's work and developing his own electromagnetic theory. Eventually Maxwell was able to express this synthesis in mathematical notation—his groundbreaking equations, in which the idea of fields was central.

The term *Maxwell's Equations* means almost universally to physicists and engineers a certain set of four tensor equations connecting electric and magnetic flux densities and electric and magnetic field strengths with the electric charge density. If mathematical results are translated into physical facts, the equations account for all the experimental results known at Maxwell's time and, within certain limitations, today.

Wavelike characteristics had previously been noted. However, Maxwell's electromagnetic theory, as expressed by his equations, maintained that any change in electric and magnetic fields will result in the propagation of electromagnetic waves. Furthermore, the equations predicted not only that light consists of electromagnetic waves but also that electromagnetic radiation exists at wavelengths longer and shorter than light. Thus the theoretical foundations of telephony, radio, television, and radar and the use of



Figure 1. (*Maxwell, James*) James Maxwell. The Bettmann Archive, Inc.

X rays, infrared rays, and ultraviolet rays owe much to Maxwell (*see also* SPECTRUM).

Maxwell's Equations have had a great practical impact and a philosophical impact of nearly equal importance. The significance of the replacement of the widely held belief in action at a distance with the field theory implicit in Maxwell's Equations was summed up by the physicist Albert Einstein: “This change in the conception of Reality is the most profound and the most fruitful that physics has experienced since the time of Newton.”

JOHN G. BRAINERD

MEAD, GEORGE HERBERT (1863–1931)

U.S. philosopher and social psychologist, one of the founders of the school of thought that came to be called symbolic interactionism. The son of a Congregational minister, George Herbert Mead eventually turned away from his religious upbringing. While attending Oberlin College he met Henry Castle, with whom he established a close relationship and whose sister Helen he married in 1891. Castle persuaded Mead to join him in graduate studies at Harvard. There Mead was influenced by Josiah Royce, in

whose philosophical idealism he found liberation from theology and Puritan ethics.

After studying physiological psychology in Berlin, Mead in 1891 joined the University of Michigan's philosophy department, which was chaired by JOHN DEWEY. Dewey and Mead formed a lifelong friendship, and when Dewey was appointed head of the University of Chicago's philosophy department in 1894, Mead followed him, remaining at Chicago until his death in 1931.

Along with Dewey and CHARLES HORTON COOLEY, Mead laid the foundations of symbolic interactionism. Besides Dewey, several influences played a major role in the development of Mead's thought. Hegelian idealism initially provided him with a broad context for inquiries into the nature of human experience, though in later years Mead turned to more empirical approaches. WILLIAM JAMES's *Principles of Psychology*, particularly its treatment of the human mind, presented, Mead believed, more scientific explanations of human nature. Another great influence was CHARLES DARWIN's theory of evolution, which inspired Mead to view the emergence of human nature and consciousness not in terms of immutable essences but as a process.

According to Mead, consciousness is responsible for the emergence of human beings as a distinct species. The individual's consciousness, in turn, emerges from a process of social interaction—from communication with other organisms—and requires reflexivity (the ability to reflect upon oneself, to become an object to oneself).

Mead begins his analysis of self-consciousness (which, he says, is what distinguishes a human being from a mere organism) by addressing the question of how an individual can get outside himself or herself experientially in such a way as to become an object to himself or herself (a process he calls self-indication). The answer lies in the ability to view oneself from the perspective of another—as the subject of another's reflections. In group settings the individual must internalize the generalized viewpoint of the social group to which he or she belongs—that is, he or she must take the position of the "generalized other" vis-à-vis himself or herself. Self-indication, Mead feels, is thus possible only when one perceives oneself as part of a social group; self-consciousness is impossible in isolation. Discussing mind and self, Mead said:

A self can arise only where there is a social process within which this self has had its initiation. It arises within that process. For that process, the communication and participation to which I have referred is essential. That is the way in which selves have arisen. That is where the individual is in a social process in which he is a part, where he does influence himself as he does others. . . . And there he turns back upon himself, directs himself. He takes

over those experiences which belong to his own organism. He identifies them with himself. What constitutes the particular structure of his experience is what we call his "thought." It is the conversation which goes on within the self. This is what constitutes his mind. For it is within this so-called "thought," of course, that he interprets his experience.

Human communication is made possible by the capacity of people to be objects to themselves. Human communication differs from other species' processes of communication because it uses significant symbols, which are gestures (including verbal gestures) that have identical meanings to ourselves and to others (see GESTURE). Communication with significant symbols—that is, human communication—occurs when a message affects not only others but also the individual who initiated it. Only humans can incorporate as part of their behavior the impact that a communication directed to others has had on themselves. Communication among humans is thus determined, according to Mead, by the reflexive capacity of people—by their self-consciousness. As Mead maintained: "Through the use of language, through the use of the significant symbol, then, the individual does take the attitude of others, especially these common attitudes, so that he finds himself taking the same attitude toward himself that the community takes."

Mead himself published only a few papers and no books. His work became known to sociologists and social psychologists at the University of Chicago through the graduate students who took his courses, disseminated his ideas and his notes and unpublished writings, and collected their own lecture notes from his classes for what became the book *Mind, Self, and Society*. Recognition by philosophers came later, as Mead's notes and writings were published posthumously. Mead's work has been very influential in social psychology, sociology, and the field of human communication. In communications it has been a foundation upon which the symbolic interaction perspective has been built.

Bibliography. Don F. Faules and Dennis C. Alexander, *Communication and Social Behavior: A Symbolic Interaction Perspective*, Reading, Mass., 1978; B. Aubrey Fisher, *Perspectives on Human Communication*, New York, 1978; George Herbert Mead, *The Individual and the Social Self*, ed. with an intro. by David L. Miller, Chicago, 1982; idem, *Mind, Self, and Society*, ed. with an intro. by Charles Morris, Chicago, 1934, reprint 1962; idem, *Movements of Thought in the Nineteenth Century*, ed. by Merritt H. Moore, Chicago, 1936; idem, *The Philosophy of the Act*, ed. with an intro. by Charles Morris, Chicago, 1938; idem, *The Philosophy of the Present*, ed. by Arthur E. Murphy, Chicago and London, 1932.

ABRAHAM NOSNIK

MEAD, MARGARET (1901–1978)

U.S. anthropologist. Margaret Mead's pioneering work in cultural anthropology contributed significantly to the evolving discipline of communications. She made extensive use of PHOTOGRAPHY and CINEMATOGRAPHY for documentation and analysis and in so doing was an important catalyst in the rise of the ETHNOGRAPHIC FILM and an influence on the DOCUMENTARY film field in general. Her work in Samoa made her a leader and inspiration to women who sought but because of their GENDER were denied opportunities for similar work in exotic places. Together with her teacher FRANZ BOAS and her close associate Ruth Benedict she made the notion of cultural patterns, developed by Benedict in her *Patterns of Culture* (1934), scientifically respectable.

Born in Philadelphia, Pennsylvania, Mead attended DePauw University for one year, transferred to Barnard College, where she received her B.A., and completed her graduate work at Columbia University, where she received her Ph.D. in 1929. When she was not away doing fieldwork her home base was New York—at the American Museum of Natural History,

where she was a curator of ethnology, and at Columbia University, where she was a member of the Department of Anthropology.

Mead learned to be an observer early in life. Her grandmother encouraged her to observe and keep notes on the behavior of her younger sisters, and this early training was invaluable for work in a field in which systematic observation and recording was one of the major methodologies. Mead contributed to many areas in anthropology—CULTURE and personality studies, research on child-rearing practices and sex roles, culture change, cultural patterns, NONVERBAL COMMUNICATION—and knew that one methodology was not suitable for work on all research problems. She was not afraid to borrow methodologies from other disciplines and to apply them to problems in anthropology. Her use of cross-cultural data to explore theoretical issues, as evidenced in *Sex and Temperament in Three Primitive Societies* (1935), presaged the development and expansion of area files and the exploitation of comparative techniques previously used by biologists but largely neglected by anthropologists. She was among the earliest users of the right-angle prism for studies of human commu-



Figure 1. (Mead, Margaret) Margaret Mead visiting families in Byun Gede, Bali, in 1959. Twenty years previously, she had lived in and observed this same village community. Copyright Ken Heyman.

nicative behavior (although some contemporary ethnologists unfortunately neglected her work and had to rediscover this important technique). A most elegant example of this approach is provided in *Balinese Character: A Photographic Analysis* (1942), a study done with her third husband, GREGORY BATESON. Mead and Bateson made many films together. She felt that photographic or film data were valuable checks against errors in observation and gave the researcher the freedom to study and reinterpret what had been observed away from the activity itself. One of Mead and Bateson's best-known films, *Bathing Babies in Three Cultures*, reflected her interest in mother-child interaction and nonverbal communication. Mead also did seminal work in the dynamics of conferences and workshops (*The Small Conference: An Innovation in Communication*, with Paul Byers, 1969). Finally, she succeeded to a scarcely equaled degree in making the popularization of difficult scientific issues a respectable activity for academics.

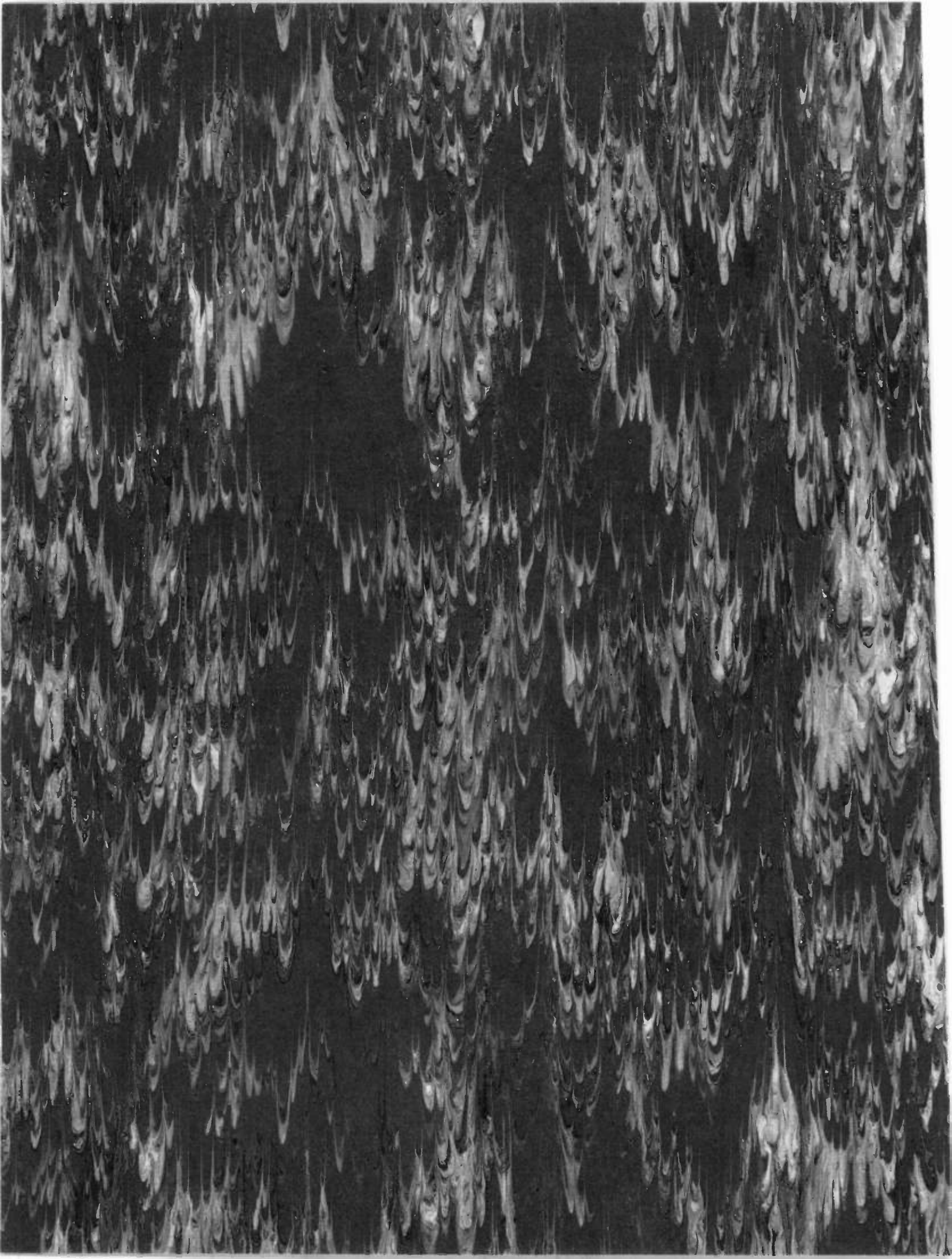
Mead's interests were wide ranging, and she believed in the value of interdisciplinary research. She "adopted" young women and men in various cognate disciplines—sociology, psychology, zoology—and explored with them issues of common interest. Thus she pursued questions on the importance of early maternal attachments with clinicians as well as discussing imprinting in geese with students of Konrad Lorenz. She did more than compel these surrogate offspring to review their ideas from new perspectives; she also brought them together and thus forced them

to conduct their discourse in a jargon-free fashion. It was not a coincidence that a common thread in all their work was an interest in functional and structural features of communication. This effect was reinforced by Bateson, with whom many also had contact.

Mead's image has often been viewed as controversial, but that could be taken as a tribute to her willingness to allow herself to reflect publicly on issues of popular concern. The hundreds of popular articles she wrote or generated defy cataloging, addressing as they do virtually every contemporary problem. Her ability to express ideas in the idiom of her audience, another evidence of her communication skills, and her studious avoidance of ad hominem attacks on presumed adversaries contributed to her becoming the best-known and among the most-admired figures in twentieth-century anthropology. In 1979 she was posthumously awarded the U.S. presidential Medal of Freedom.

Bibliography. Mary Catherine Bateson, *With a Daughter's Eye: A Memoir of Margaret Mead and Gregory Bateson*, New York, 1984; Joan Gordon, ed., *Margaret Mead: The Complete Bibliography, 1925–1973*, The Hague, 1976; Jane Howard, *Margaret Mead: A Life*, New York, 1984; Margaret Mead, *An Anthropologist at Work: Writings of Ruth Benedict*, Boston, 1959, reprint Westport, Conn., 1977; idem, *Blackberry Winter: My Earlier Years*, New York, 1972, reprint 1985.

PETER H. KLOPFER



International Encyclopedia of Communications

ERIK BARNOUW
Editor in Chief

GEORGE GERBNER
Chair, Editorial Board

WILBUR SCHRAMM
Consulting Editor

TOBIA L. WORTH
Editorial Director

LARRY GROSS
Associate Editor

Volume 3

Published jointly with
THE ANNENBERG SCHOOL OF COMMUNICATIONS,
University of Pennsylvania



OXFORD UNIVERSITY PRESS
New York Oxford

Oxford University Press

Oxford New York Toronto
Delhi Bombay Calcutta Madras Karachi
Petaling Jaya Singapore Hong Kong Tokyo
Nairobi Dar es Salaam Cape Town
Melbourne Auckland

and associated companies in
Berlin Ibadan

Copyright © 1989 by the Trustees of the University of Pennsylvania

Published jointly by
The Annenberg School of Communications,
University of Pennsylvania,
and Oxford University Press, Inc.,
200 Madison Avenue, New York, New York 10016

Oxford is a registered trademark of Oxford University Press

All rights reserved. No part of this publication may be reproduced,
stored in a retrieval system, or transmitted, in any form or by any means,
electronic, mechanical, photocopying, recording, or otherwise,
without the prior permission of Oxford University Press.

Library of Congress Cataloging-in-Publication Data

International encyclopedia of communications / Erik Barnouw, editor-in-chief . . . [et al.].

p. cm.

Bibliography: p.

Includes index.

1. Communication—Dictionaries. I. Barnouw, Erik, 1908–
P87.5.15 1989 001.51'0321—dc19 88-18132 CIP

ISBN 0-19-504994-2 (set)

ISBN 0-19-505802-X (vol. 1)

ISBN 0-19-505803-8 (vol. 2)

ISBN 0-19-505804-6 (vol. 3)

ISBN 0-19-505805-4 (vol. 4)

Acknowledgments of sources of illustrative materials appear in captions
throughout this work. Conscientious efforts have been made to locate owners
of copyrights on illustrative materials and to secure their permission to use
them herein. If any illustration has been inadvertently used without proper
acknowledgment of its source, the publishers invite notification by copyright
owners so that a correction can be made in future printings.

2 4 6 8 9 7 5 3 1

Printed in the United States of America
on acid-free paper

International
Encyclopedia of
Communications



THE UNIVERSITY OF PENNSYLVANIA

The International Encyclopedia of Communications
was conceived, developed, and edited at
The Annenberg School of Communications,
University of Pennsylvania.

Editorial Board

GEORGE GERBNER, *Chair*

Professor of Communications and Dean, The Annenberg School of Communications,
University of Pennsylvania

DAVID ATTWOOLL

Editorial Director, Reference and General Books,
Oxford University Press, Oxford

ERIK BARNOUW

Professor Emeritus of Dramatic Arts, Columbia University

PETER CLARKE

Professor of Communications and Dean, The Annenberg School of Communications,
University of Southern California

LARRY GROSS

Professor of Communications, The Annenberg School of Communications,
University of Pennsylvania

SHELDON MEYER

Senior Vice-President, Editorial, Oxford University Press, New York

MAURICE B. MITCHELL

Former President and Editorial Director,
Encyclopaedia Britannica, Inc., Chicago

WILBUR SCHRAMM

Director Emeritus, Institute for Communications Research, Stanford University,
and Distinguished Center Researcher Emeritus, East-West Center, Honolulu

TOBIA L. WORTH

Former Editor, Encyclopedia Section, Professional and Reference Book Division,
McGraw-Hill Book Company, New York

M

(continued)

MEANING

In any theory of communication the notion of meaning is bound to occupy a central place. Communication is achieved through the use of perceptible signs that carry a message between the participants (*see* SIGN). Thus words, gestures, and the like are said to mean something, and people who use them are able to mean something in doing so. These two aspects are interdependent: people can mean something because there are meaningful signs at their disposal, but these signs are meaningful because they are used to express what people mean to convey. Recent controversies about meaning turn on this distinction. *See also* GESTURE; MODE; SIGN SYSTEM.

The word *meaning* is but a derivative of the verb *to mean*. The scope of the latter, however, reaches beyond the domain of communication. In specifying the sense pertinent to this discussion, the theory of English philosopher H. Paul Grice, first proposed in his article "Meaning" (1957), will be examined.

Consider the contexts: "These spots mean measles" and "The murder of the crown prince means war." Notice first that in these cases nobody means anything by the spots or the murder. Notice second that it is the presence of the spots on a body that means measles, not the spots by themselves; spots, unlike words, have no meaning. Yet there is an element in these contexts that shows some similarity to meaning in the domain of communication. To the beholder the spots point beyond themselves; they warrant an inference to their cause, the measles. With the murder the inference goes the other way. The war is not its cause but its likely result.

Intention

Another use of the verb *to mean* is still not the one we are after. Consider, for example, "I meant to mail that letter today" and "I did not mean to hit you."

In these contexts *mean* is a near synonym of *intend*. Here, obviously, people mean something but not by employing a sign. Intentions play a crucial role in explaining meaning in communication too, but that is a more complex story.

The purpose of any communication is to influence the beliefs, ATTITUDES, and consequently the behavior of the recipient. Needless to say, such an influence can be exerted by other devices as well. Suppose A wants B to stop a car in front of a gate. One way of doing it is for A to cut down a tree and let it fall across the road. This obviously would not be an act of communication but physical interference. Another way is the following: A spreads some twenty-dollar bills on the roadway. Most likely B will stop but not because of any communication. Indeed, the tree and the bills do not mean anything.

There is a third way to achieve the same result. A may stand in front of the gate and raise a hand or even shout "Stop!" when B arrives. Whether or not B actually stops, communication will take place as soon as B understands what A meant by the gesture or the utterance, namely, that A wants B to stop. In this case both of the requirements mentioned above are fulfilled: that gesture and that word mean something, and A meant something in employing them. And B may understand A; that is to say, B may come to realize A's intention in using those signs, namely, that A wants B to stop because of recognizing that intention.

Contrast this with another case. A young man fakes a limp when appearing before the military draft board. His intention is clear: he wants them to come to believe that he is an invalid and send him home. Did he try to communicate? No, because he did not want his intention to be recognized.

Human communication takes many forms, in both the aims and the means employed. Consider the variety of such speech acts as statements, orders,

exhortations, promises, and apologies. Quite obviously the point of these utterances ranges from attempting to modify the listener's beliefs and attitudes to trying to influence conduct. Notice, however, that in all these cases communication is achieved once the addressee has understood the message; compliance is not required. Even if the speaker is not believed or obeyed, the force of the speech act and the listener's understanding of it will not be impaired. Meaning and understanding are not matters of behavior.

Since humans are not mind readers, the communicative intention of the sender has to be manifested in an observable fashion; that is, it has to be encoded in some tokens perceivable by the senses: signs, gestures, or words uttered or written down. These tokens, furthermore, must be recognizable by the recipient as expressions of that intention. The link between intentions and tokens, moreover, cannot be one established by nature, such as the causal relation between measles and the spots or between fire and smoke. Otherwise we would all speak the same LANGUAGE. Instead, in all human societies conventions connect tokens to intentions so that they can be used by the sender and understood by the addressee. Tokens satisfying this requirement are said to have meaning or to be meaningful, and the system of such (mainly verbal) tokens available to a given community is called a language.

The Nature of Meanings

A great deal of the philosophical discussion concerning language has centered on the problem of what kind of entities meanings are in themselves, that is, as distinct from their carriers. Are they mental or physical, concrete or abstract? The problem of language learning has provided a strong stimulus to seek meanings in the physical world. In the past decades, however, the futility of such a quest has been progressively acknowledged, mainly because of the work of Austrian philosopher LUDWIG WITTGENSTEIN.

In order to appreciate his approach, consider the notion of being valuable or having value. In Western societies bank notes, diamonds, and pieces of gold have value, but flies and common pebbles do not. Now the question What is value? is certainly not to be answered by looking for an entity in the physical world or out of it in which value would reside. The correct approach is to observe what we do with bank notes and contrast it with our treatment of pebbles. In Wittgenstein's terms, how do these things figure in our way of life? Roughly speaking, valuable objects play a role in the exchange of property. In a similar way the meaning of a word or a sign is to be established by observing its use in communication.

This approach spawned the slogan "Meaning is use," which is not quite right, as the slogan "Value is exchange" would not be. What is true is that as value is potential for exchange, meaning is potential for use in communication. Potentials, however, though distinct from their actualizations, have to be understood through these actualizations. The subtle lesson of Wittgenstein is this: Do not ask what meanings are, but look and see how words are used, how they are learned, and how their meanings are conveyed and codified, for example, in dictionaries—in short, what their place is in the life of society and CULTURE.

Meaning and Language Learning

Given the fact that the message to be transmitted is conventionally tied to the observable tokens, potential communicators have to learn which tokens are suitable for the encoding of various messages. In other words, they have to learn a language. *See also* LANGUAGE ACQUISITION.

There are two obvious difficulties involved in this endeavor. The first is that potential messages are infinite in number, but a learnable language must have a finite repertory. Accordingly, any possible message must be decomposable into elements for which the language provides means of encoding. Chemistry suggests an analogy: the number of possible compounds is without limit, yet the number of elements and the ways of combining them are finite. In language, too, the available words, grammatical structures, intonation patterns, and so forth form a finite, thus learnable, set. The adequacy of the language implies, then, that our thoughts, in which the messages are conceived, must have an analogous structure. This fact prompted some people to claim that we also think in a language, be it the natural language itself or an innate "language of thought" also capable of internalizing the rules of the natural language: its syntax (GRAMMAR), SEMANTICS (the meaning of words), and pragmatics (features of discourse). The first alternative would imply that infants and mutes have no thoughts, whereas the second leads to the conclusion that all natural languages must have the same basic structure mirroring the native endowment of the human mind. This claim, originally advanced by such rationalist philosophers as René Descartes and Gottfried Leibniz, has recently been revived by U.S. linguist Noam Chomsky and his followers, and it is the center of a lively controversy.

The other difficulty arises because words and structures are used to express the communicative intentions of the speaker. The language learner, however, has no direct access to these intentions. What elements of the public language correspond to what

features of the message to be transmitted? The evidence has to be circumstantial. There are behavioral and circumstantial indications of what people intend to do and similar clues about what they intend to say. St. Augustine, who fully appreciated this problem, had this to say about his own progress in his *Confessions*:

My elders' . . . actions clearly showed what they meant, for there is a kind of universal language, consisting of expressions of the face and eyes, gestures and tone of voice, which can show whether a person means to ask for something and get it, or refuse it and have nothing to do with it. So, by hearing words arranged in various phrases and constantly repeated, I gradually pieced together what they stood for, and when my tongue had mastered the pronunciation, I began to express my wishes by means of them.

The need to include external situations in the process of language learning prompted philosophers throughout history to look for a word-to-world shortcut in the theory of meaning, bypassing unobservable intentions altogether. Two relations could qualify for this role: reference, linking names to things; and truth, connecting sentences to states of affairs.

The first approach, followed by thinkers from PLATO to English philosopher Bertrand Russell, equates meaning with denotation: as proper names denote individuals, so common names (and adjectives, verbs, etc.) denote such abstract entities as forms, universals, classes, properties, and relations. This account, however, is bound to become highly artificial when extended to adverbs, prepositions, and connectives, not to mention indexicals (*now, this, I*) or speech-act markers (*promise, censure*). Again, the paradigms of this approach, namely, proper names, are hardly meaningful: what does the word *Churchill* mean? One may ask, finally, what has been gained by eliminating unobservable intentions in favor of unobservable abstract entities?

More recently, particularly as a result of the work of Polish-born logician Alfred Tarski and U.S. philosopher Donald Davidson, the notion of truth is invoked to account for or to replace altogether the notion of meaning. This view is proposed in various forms, often with great sophistication. Roughly speaking, the claim is that knowing the meaning of a sentence is knowing its truth conditions—what has to obtain in the world to make it true. But since possible sentences form an infinite set, a further move is needed to keep the language learnable—a recursive procedure that derives the truth conditions of all sentences through their logical form from the satisfaction conditions of a finite number of predicates. A predicate is “satisfied” by all objects of which it is true. An extension of this approach accounts for the

meaning of all sentences in terms of the set of possible worlds in which they are true.

The semantics based on truth is hardly less objectionable, however, than the one grounded in reference. First of all, the dimension of truth is applicable only to some speech acts (statements and the like) but not to others (orders, promises, and the like). Why, then, should the former domain be regarded as privileged with respect to meaning? Wittgenstein, for example, envisaged a language game consisting only of commands. Yet words in that language would have meaning, the absence of truth notwithstanding. Again, sentences containing such intentional words as *believe* and *want* cannot be viewed as logical products of their ingredients.

Finally, a recent development initiated by U.S. philosophers Hilary Putnam and Saul Kripke concerning the meaning of such “natural kind” words as *fish, water, and gold* casts doubt on the claim that knowing the meaning of such words amounts to knowing truth or satisfaction conditions. Only experts in the various scientific fields know these conditions, and they discovered them only recently (e.g., water is H₂O, gold is the element with atomic number 79). Yet for ages people used such terms effectively and thus knew their meanings. And the ancients who defined fire as “the hot and dry element” still knew what their word for it meant. The link tying these words to their referents seems to be historical, and people are able to use the words because of their familiarity with certain paradigms or stereotypes current in the culture, for example, “that heavy yellow metal used in making jewelry” for *gold*. Needless to say, the results of scientific progress may filter down and alter some of these stereotypes.

Thus the meaning of such terms reveals a social dimension: ordinary speakers defer to the experts, first, to discover the real nature of the referents of these terms and to determine thereby the extension of their applicability, and, second, to update and refine the stereotypes used in common practice. Quite obviously such a division of labor is not restricted to natural kind words but also applies to the terms of ART, technology, politics, RELIGION, and other social practices (think of such words as *sonata, radar, inflation, baptism*). Just as meaning is not “something in the world,” it is not “something in the head” of individual speakers either. It may be the function of an interplay between speakers, experts, and even the features of the physical and human environment.

Lexicography

Lexicography, the art of compiling dictionaries, is the professional enterprise concerned with the meaning of words. Indeed, dictionaries can be viewed as

instructions for using the words of a language. Bilingual dictionaries do this mainly by giving the equivalent word in the other language, with added remarks when necessary. Monolingual dictionaries may also use synonyms, but their basic move is to "define" the meaning of words. A careful look at dictionary entries teaches more about the notion of meaning than any philosophical speculation. Meaning is tied to use; dictionary entries describe that use in a systematic manner and thereby give the meaning. The fact that these descriptions are couched in the same language presents no difficulty; one has to use words to describe anything. *See also* LANGUAGE REFERENCE BOOK.

The lexicographer's work consists of two stages: first, find out what words mean, and, second, sum up the results in dictionary entries. The former task has two sources: observation of the circumstances in which people use a certain word and examination of the sentences in which the word is placed. The importance of these sources varies greatly. Such words as *ouch*, *hello*, and *hurrah* represent one extreme. They need not occur in sentences, and their meaning can be established entirely by the observation of speakers. Purely grammatical and logical words represent the other extreme. Words like *and*, *nevertheless*, and *almost* occur in any discourse, and their role is to give form to sentences regardless of their content.

Most words fall between these extremes. Although, no doubt, observation of speakers and circumstances may be helpful in discovering what such words as *cat*, *run*, *yellow*, or *good* mean, their meaning is more distinctly revealed by the regularities governing their use in sentences. These regularities indicate their grammatical role (noun, adjective, verb, etc.) and impose restrictions on possible co-occurrences with other words. Cats eat and sleep, but stones do not; stones crack and melt, but cats cannot. This kind of information is conveyed by saying that *cat*, for example, is an animate noun. Similarly, *yellow* and *good*, both adjectives, differ greatly, not only in their co-occurrences with other words (*good weather* but not *yellow weather*) but even in their grammar on a more sophisticated level. A person can be good at and a thing good for something or other but not yellow at or for anything. Verbs, too, differ significantly in their grammar: think of intransitives, transitives, or even more demanding verbs, such as *compare* and *assign*.

Thus grammar and co-occurrences represent a far more important source of lexical information than direct observation of speakers. Linguists have no great difficulty discovering the meaning of words in a dead language with no speakers, provided a large enough body of texts is available along with some

information about some features: a few translated sentences, well-placed inscriptions, and similar clues.

The lexicographer's real art manifests itself in the second stage of work, in trying to convey the meaning of words in a concise and perspicuous fashion. Although attempts have been made to establish the general form of dictionary entries (particularly in the writings of U.S. philosopher Jerrold J. Katz), no such pattern can work in all cases because of the great variety of words. We can, however, list the most prominent devices used in compiling lexical entries.

1. *Discourse markers* indicate the special circumstances in which some words are used (like "greeting" or "apology") or the special field to which they belong (e.g., chemistry, law, tennis).
2. *Syntactic markers* give the word's grammatical status in terms of a detailed theory of syntax.
3. *Semantic markers* assign words to categories of increasing specificity. Indeed, the old-fashioned favorites genus and specific difference are but anticipations of a more advanced and detailed system. These markers correspond to and account for the co-occurrence restrictions mentioned above.
4. *Distinguishers* single out an individual item within the class defined by the semantic markers, for example, "large striped Asiatic feline quadruped" for *tiger*, "color of fresh blood" for *red*, "ingest food through mouth" for *eat*, and so forth. This is the place where the stereotypes mentioned above are to be given. In some dictionaries even pictures are used to generate a visual scheme for the recognition of a species of animal, plant, or garment. This represents a far echo of the old empiricist doctrine that meanings are something like pictures in the mind. If it is available the scientific definition or formula may be added: " H_2O " for *water* and "element with atomic number 79" for *gold*, for example.

In many, perhaps most, cases these devices will not be apt or sufficient. Thus it will be up to the lexicographer's ingenuity to convey the meaning by ad hoc definitions, the use of synonyms or near synonyms, and above all by giving examples of typical sentences in which the word is correctly used. The surprising thing is that a few such contexts are usually sufficient for the reader to gather the meaning and be able to use and understand the word in all contexts.

See also CLASSIFICATION; METAPHOR; SEMANTICS, GENERAL.

Bibliography. Donald Davidson, *Inquiries into Truth and Interpretation*, Oxford, 1984; Janet D. Fodor, *Semantics*, New York, 1977; Jerry A. Fodor, *The Language of Thought*,

New York, 1975; Jerrold J. Katz, *Semantic Theory*, New York, 1972; A. P. Martinich, ed., *The Philosophy of Language*, New York and Oxford, 1985; Hilary Putnam, *Mind, Language, and Reality*, New York and Cambridge, 1975; W. V. Quine, *Word and Object*, New York and London, 1960; Ludwig Wittgenstein, *Philosophical Investigations* (Philosophische Untersuchungen), trans. by G. E. M. Anscombe, New York, 1953, reprint Oxford, 1968; Paul Ziff, *Semantic Analysis*, Ithaca, N.Y., 1960.

ZENO VENDLER

MERGENTHALER, OTTMAR (1854–1899)

German-born U.S. inventor of the Linotype machine. The son of schoolteachers in Hachtel, Württemberg, Ottmar Mergenthaler showed great interest and skill in mechanics at an early age. Unable to afford engineering school, he was apprenticed at age fourteen to an uncle who was a watchmaker. He also took courses at night in mechanical drawing, blueprint reading, and electrical theory. In 1872 he emigrated to the United States and worked in his cousin's machine shop in Washington, D.C., and later in Baltimore, Maryland.

Printing-press technology had been dramatically advanced by this time, but type was still set by hand, piece by piece (see PRINTING). Scores of inventors had tried, with little practical success, to meet the need for mechanical composition. In 1876, while employed by his cousin in making models for patent applicants, Mergenthaler worked on a device for the lithographic transfer of typewriting for its inventor, Charles Moore, and Moore's financial backer, James O. Clephane. The device worked poorly, but it led Mergenthaler to a dedicated interest in typesetting.

Financed by Clephane and others, Mergenthaler experimented with several typesetting systems. Finally he produced a system of brass matrices (with one matrix for each character) notched for automatic sorting, stored in channels of a magazine, released by keyboard action, and (with spacebands between words) dropped into place to cast a lead-alloy line of type.

A group of publishers meanwhile became the machine's principal backers. Their leader, Whitelaw Reid of the *New York Tribune* (which first demonstrated the machine in July 1886), dubbed it the Linotype. Reid insisted that the machine be put into production immediately and would not let Mergenthaler perfect it. Sales, which were large at first, soon collapsed. The early backers regained control in 1888, enabling Mergenthaler to develop the greatly improved Simplex Linotype by 1890. Its use reduced printing costs



Figure 1. (*Mergenthaler, Ottmar*) Ottmar Mergenthaler demonstrating the operation of the “blower machine”—the first commercially successful Linotype—for Whitelaw Reid, in the plant of the *New York Tribune*. The Bettmann Archive, Inc.

and made major expansion possible in newspaper (see NEWSPAPER: HISTORY), MAGAZINE, and BOOK production.

See also TYPOGRAPHY.

Bibliography. Seán Jennett, *Pioneers in Printing*, London, 1958; I. E. Levine, *Miracle Man of Printing: Ottmar Mergenthaler*, New York, 1963; Willie Mengel, *Ottmar Mergenthaler and the Printing Revolution*, Brooklyn, N.Y., 1954; S. H. Steinberg, *Five Hundred Years of Printing*, 3d ed., Harmondsworth, Eng., and Baltimore, Md., 1974.

CHANDLER B. GRANNIS

MERTON, ROBERT K. (1910–)

U.S. sociologist whose theoretical framework for analyzing social phenomena has been usefully applied in communications research. Born in Philadelphia, Pennsylvania, Robert King Merton graduated from Temple University in 1931. In 1936 he earned a Ph.D. in sociology at Harvard University, where his thinking was influenced by his contact with such scholars as Talcott Parsons, Pitirim A. Sorokin, and George Sarton. From this intellectual experience Merton derived his theoretical framework for the analysis of social structure and functions, one of the foremost formulations of structural-functionalism in U.S. sociology (see FUNCTIONAL ANALYSIS). Merton taught sociology at Harvard from 1934 to 1940. In 1940 he moved to Tulane University and then in 1941 joined the faculty of Columbia University, where, after his retirement, he was appointed University Professor Emeritus and Special Service Professor. Among many honors, Merton was elected to the U.S. National Academy of Sciences.

Merton is best known in sociology for his seminal contributions to structural-functional theory and for studies in the sociology of medical education and the sociology of science. He has contributed directly to the study of communications through his own essays and research and indirectly through the application by others of his sociological concepts and theoretical framework. His appointment to the sociology department at Columbia began a lifelong friendship and working partnership with fellow sociologist PAUL F. LAZARFELD, who succeeded in enlisting Merton's talents and interest in the department's research arm, Columbia's Bureau of Applied Social Research (BASR). Merton served as an associate director of the BASR, and in 1976 he became cochairman of the advisory board of the BASR's successor, the Center for the Social Sciences.

Among Merton's major works on mass communications is the now classic *Mass Persuasion: The Social Psychology of a War Bond Drive* (with Marjorie Fiske and Alberta Curtis, 1946). This intensive case study of a wartime RADIO marathon bond drive conducted by a popular entertainer of the time, Kate Smith, uncovers and analyzes the processes of mass PERSUASION through mass communication. The study's research design was unusual, combining a sample survey of PUBLIC OPINION, a CONTENT ANALYSIS of the broadcast messages, and detailed focused interviews with listeners.

The latter form of research interview, which focused on the subjective experiences of people known to have been exposed to some previously analyzed situation (e.g., a radio or television program), was a technique developed and promoted by the BASR. In 1946 Merton and Patricia Kendall formalized the

procedure in a sociological journal article; in 1956 they, together with Marjorie Fiske, developed a fuller methodological exposition in *The Focused Interview*. Today the focused interview is a research technique used in commercial as well as academic communications research.

Merton and Lazarsfeld's participation in a series of lectures on problems of the communication of ideas in 1946 produced their sociologically critical essay "Mass Communication, Popular Taste, and Organized Social Action." This essay set forth their ideas on the social conditions that lead the mass media to play a conservative role in society. It introduces and conceptualizes such social consequences of mass communication as the status-conferral function ("The mass media confer status on public issues, persons, organizations and social movements"), the enforcement of social norms, and narcotizing dysfunctions (information overload may lead to apathy instead of action because one confuses *knowing* about current social and political problems with actually *doing* something about them). These concerns continue to interest communications researchers today. The essay also touches on the power of face-to-face communications to supplement mass communication, a point emerging from several communications studies at Columbia about that time (see also INTERACTION, FACE-TO-FACE).

Merton introduced the concepts of *local influential* and *cosmopolitan influential* into the ongoing research on mass communication and personal influence in "Patterns of Influence: A Study of Interpersonal Influence and of Communications Behavior in a Local Community" (1949). This study examines, among other issues, how these two types of influentials fit into the social system and what uses they make of mass-communicated news and information. The typology has been applied in communications studies and in other sociological works through the years.

Other works by Merton that address problems of communications include studies in the sociology of knowledge and of science, INTERPERSONAL COMMUNICATION and friendship formation (with Lazarsfeld), and radio and film PROPAGANDA (also with Lazarsfeld). Merton's work in the sociology of science has been particularly influential on studies of communication and information exchange among scientists. His study of friendship as social process coined the terms *homophily* and *heterophily* (the tendency for friendships to form among persons who are alike or who differ in certain characteristics or ATTITUDES), which found their way into communications research on the DIFFUSION of innovations. Earlier research on wartime propaganda (with Kendall) drew attention to the "boomerang effect" (unintended responses to propaganda).

In addition to these direct contributions to the field

Merton's general theoretical orientation and sociological concepts are relevant to contemporary communications theory and research. Some of these ideas have been explicitly applied to the field by other scholars. Three examples will be cited here. Merton's formulation of a structural-functionalist approach (1949) set the framework for the functional analysis of mass communications. His conceptualizations of role theory, reference group theory, and sociological ambivalence (1950, 1957, 1976) are relevant for research on mass communicators and audiences. Finally, Merton's theories of social structure and anomie (1938, 1957) relate both deviant and conformist behavior to social structure and are relevant for studies of the cultural values and social norms presented in mass communication content and for theoretical discussion of mass communication's role in socialization and social control.

Bibliography. Paul F. Lazarsfeld and Robert K. Merton, "Mass Communication, Popular Taste, and Organized Social Action," in *The Communication of Ideas*, ed. by Lyman Bryson, New York, 1948; Robert K. Merton, "Patterns of Influence: A Study of Interpersonal Influence and of Communications Behavior in a Local Community," in *Communications Research, 1948-1949*, ed. by Paul F. Lazarsfeld and Frank N. Stanton, New York, 1949; idem, "Social Structure and Anomie," *American Sociological Review* 3 (1938): 672-682; idem, *Social Theory and Social Structure* (1949), enl. ed., New York, 1957; idem, *Sociological Ambivalence and Other Essays*, New York, 1976; Robert K. Merton, Marjorie Fiske, and Alberta Curtis, *Mass Persuasion: The Social Psychology of a War Bond Drive*, New York and London, 1946; Robert K. Merton, Marjorie Fiske, and Patricia L. Kendall, *The Focused Interview: A Manual of Problems and Procedures*, rev. ed., Glencoe, Ill., 1956; Robert K. Merton and Patricia L. Kendall, "The Focused Interview," *American Journal of Sociology* 51 (1946): 541-557.

CHARLES R. WRIGHT

MESSAGE. See **MODELS OF COMMUNICATION.**

METAPHOR

Long regarded as a stylistic embellishment of interest only to specialists of RHETORIC and LITERARY CRITICISM, metaphor has come to be regarded as an essential tool of communication and COGNITION. Metaphors play a crucial role not only in POETRY but also in scientific, philosophical, and creative discourse of all sorts. And we have recently become cognizant of the extent to which metaphors pervade ordinary LANGUAGE.

Defining metaphor. ARISTOTLE provided the first systematic definition of metaphor in Western thought,

stating in the *Poetics*: "Metaphor consists in giving the thing a name that belongs to something else: the transference being either from genus to species, or from species to genus, or from species to species, or on ground of analogy." Aristotle thought the most significant form of metaphor to be one based on analogy. Metaphor defined in this narrower sense is opposed not merely to literal language but also to other forms of figurative language.

Metaphor has been distinguished both from literal language and from many forms of figurative language in two ways. First, the transference of MEANING is marked by some sort of incongruity, often a semantic or conceptual deviance, or, when there is no deviance, conversational incongruity (e.g., Mao Zedong's "A revolution is not a dinner party"). Second, metaphor is characterized by the use of a single expression to convey two incompatible thoughts. One term, the vehicle, carries its usual meaning; the other, known as the topic, is the subject of the metaphor. For example, if we speak of a woman's beauty in terms of the beauty of a rose, *rose* (i.e., the word itself and what is usually expressed by the word *rose*) is the vehicle, and the woman's beauty is the topic.

One attempt to capture what has been called the double semantic import of metaphor is to suggest that metaphors have what Danish semiotician Louis Hjelmslev referred to as a connotative, in contrast to a denotative, semiotic (see SEMIOTICS). A SIGN used denotatively requires a level of expression and a level of content. In certain cases, as with dialect or jargon, the level of expression itself carries content, some information additional to the meaning of the word. The Hjelmslevian scheme is generalizable to other modes of communication (see MODE). One can say that metaphors are characterized by the fact that the expression level is itself a denotative sign, which is then used to convey an additional content. Thus in the sentence "It is trust that knits up the world" the expression *knits* carries, in addition to its denotative content, a content applicable to trust, one for which we have no easily identifiable term. ROLAND BARTHES, building on the work of Hjelmslev, speaks of myth as belonging to "a second-order semiological system." Eva Kittay argues that a second-order meaning with a connotative structure is particular to metaphor.

Theories of metaphor. A useful typology of metaphor is provided by linguistic philosopher Max Black, who contrasts his own interaction theory with the substitution and comparison theories. According to the substitution theory, metaphor is a figure of speech in which the vehicle is simply a more decorative or eloquent term substituted for a plainer term denoting the topic. In this view there is no cognitive gain in the use of metaphor, although one may exploit the emotive meaning of the substituted term.

In the comparison theory the topic is implicitly compared to the vehicle. The basis of the comparison appears to be some preestablished similarity between topic and vehicle. If metaphors are implicit comparisons, then they should be paraphrasable as statements of similarity. But because a metaphor does not normally state how the topic and vehicle are similar, and because there is always some sense in which any two given things can be said to be similar, it seems singularly uninformative to claim that a metaphor can be restated as a literal statement of comparison.

Black seems to think that the substitution and comparison views fit some metaphors but claims that the theories fail to do justice to the irreducible cognitive content of many others. His interaction theory holds that a metaphor is not the simple displacement or substitution of one term for another but that metaphor engages in an interaction between, in the words of I. A. RICHARDS, two contexts. The vehicle of the metaphor brings with it a set of associated beliefs that serve as a filter or lens through which we come to understand the topic. From this perspective some features of the topic are highlighted and some recede in importance. In the process our understanding of the vehicle is modified by its interaction with the topic. Thus a cognitive metaphor permits us to understand the world in a somewhat different manner from that which is put forward in a literal statement. The interaction of vehicle and topic produces a meaning distinctive to them and therefore irreducible to a literal paraphrase.

A more sophisticated version of the comparison view developed by U.S. philosopher Donald Davidson challenges the interaction theory. Davidson argues that although metaphors are not paraphrasable into literal comparison statements, they direct us to make comparisons and analogies. Their value comes not from what they mean—which, claims Davidson, is just the literal meaning of their words—but from what they suggest (e.g., that the reader explore the possible comparisons between the things brought together in the metaphor).

Brief History

Aristotle's treatment of metaphor found its way into classical and RENAISSANCE texts on the subject. The classical writers characteristically accepted a view akin to the substitution theory of metaphor, but they celebrated metaphor's decorative effect. Both CICERO and Quintilian esteemed the ornamental in language if it were fitting and appropriate to the subject at hand. Cicero noted that whereas some metaphors arise out of the poverty of language to communicate something requiring expression, others "do not indicate poverty but convey some degree of boldness of style." Quintilian made beauty in language a vir-

tue, writing that "the flash of the sword in itself strikes something of terror to the eye." In traditions devaluing the utilitarian, metaphor is praised for its ornamental effect, and its emotive and rhetorical efficacy is brought to the fore.

In the classical tradition rhetoric, along with dialectics or logic (*see* SYMBOLIC LOGIC), constituted the art of PERSUASION. The view of metaphor as mere ornament did not appear until rhetorical theory was fully fragmented by French philosopher Petrus Ramus in the sixteenth century. Rhetoric itself was reduced to elocution or style; invention, memory, and disposition were relegated to the art of disputation. Although Ramus's division initially had a beneficial effect on metaphor for the Elizabethan poets, the Renaissance call for plain speech otherwise diminished the stature of style and elocution (*see* STYLE, LITERARY). Metaphor as well as figurative language generally was devalued and thought to serve a sometimes trivial, sometimes pernicious function, distracting the reader from the serious, communicative function of plain PROSE. Seventeenth-century British philosopher JOHN LOCKE wrote: "All the artificial and figurative application of words eloquence hath invented, are for nothing else but to insinuate wrong *ideas*, move the passions, and thereby mislead the judgment." The study of metaphor was relegated to taxonomies of figurative language. Underlying this attitude toward metaphor is a conception of language as a conduit and the mind as a passive receptacle of perceptions. The mind, unencumbered by passions and interests, records the impressions of things as they are and collects these in the form of ideas that it is then the proper business of language to communicate in similarly unencumbered prose.

The romantics challenged this trivialization of metaphor (*see* ROMANTICISM), some drawing inspiration from Italian philosopher Giambattista Vico, who insisted on the intimate relation between thought and language and on the importance of poetry and metaphor in the shaping of language, and from German philosopher Immanuel Kant, for whom the mind actively contributes to the formation of the percepts and concepts by which we engage the world. French philosopher Jean-Jacques Rousseau, another early influence, maintained the thesis that language originated in metaphor and music. For English poet Samuel Taylor Coleridge, the imaginistic fusion of the symbol "produces that ultimate end of human thought and human feeling, unity" (*see* SYMBOLISM). Coleridge's views have been important in shaping those of Richards, whose work in turn has been central to the Anglo-American tradition.

The nineteenth-century German philosopher Friedrich Nietzsche spoke of the formation of the abstract concepts as an effacement and wearing away of metaphors until they are no longer recognized as

such, just as continued use effaces the embossment on a coin until we no longer recognize the metal as a coin. He endeavored to show the metaphoric origin of language in order to emphasize the subjectivity of all linguistic utterances, his point being to show that there is no privileged discourse that expounds the truth; all discourse carries with it a perspectival, subjective stance born of our sensuous experience of the world. When we forget these metaphoric origins, which we do almost of necessity when we retreat to the security and stability of abstractions, we take refuge in the lie that these faded metaphors speak the truth.

Some Current Issues

Whereas contemporary European interest in metaphor has been shaped by the work of Nietzsche, recent Anglo-American interest in metaphor has emerged in large part as a reaction against the positivism that pervaded philosophy, psychology, and LINGUISTICS in the early twentieth century. In psychology, for example, which has turned away from behaviorism and toward cognitive theory, the challenge is to develop models of the mind that account for the predominance of metaphor in communication. That concern becomes a practical one in efforts to expand the capacities of ARTIFICIAL INTELLIGENCE. If machines are to communicate through natural language, they must be able to understand and produce metaphors. In attempting to provide a computational account of metaphor there is much to be learned about human communication; for example, how background assumptions function in both metaphorical and literal language.

Metaphor as semantics or pragmatics. In metaphor it appears that we are confronted with an utterance that says one thing and means another. Is this meaning that is not said really "meaning" at all? Black and others maintain that we can speak of metaphorical meaning and that consequently we should be able to give a satisfactory semantic account of metaphor (see SEMANTICS). Davidson counters that there is no puzzle about how we can say one thing and mean another, because there is no divergence between what a metaphor says and what it means. It is what an author has chosen to do with a sentence and how an audience construes it that gives rise to metaphor, but this is a matter of language use and not of meaning. A number of authors have taken seriously the proposal that metaphor belongs to the pragmatics of language and have suggested, with varied success, a speech-act approach to metaphor. Others have taken the position that because metaphor is not simply a linguistic phenomenon, because there are visual or even auditory metaphors, it cannot require any particular linguistic competences. More

general psychological competences, such as general propensities to analogy, are at play. Nonetheless, because each communicative mode entails its own competences and rules, it may be that unique capabilities are required to produce and comprehend metaphor in each mode. It seems most likely that metaphorical language is governed both by certain semantic rules—some of them for breaking the rules of literal, conventional language—and by pragmatic considerations that may be applicable to various communicative modes.

The interpretation of metaphor. If we agree that there is a distinctive metaphorical meaning, we need to ask how that meaning is arrived at, how metaphors are interpreted. A prevalent view, which may be called the predicate transfer thesis, claims that we interpret metaphors by projecting onto the topic those predicates or attributes generally taken to pertain to the vehicle of the metaphor. If we speak of marriage as a zero-sum game, then the predicates that apply to the concept "game"—that it is a contest, that there are contestants, that one wins at the expense of the other—may all be projected onto the topic, marriage. A related approach, the feature addition/deletion thesis (best exemplified by the work of U.S. linguist Samuel Levin), does not speak of transferred predicates but rather of transferred semantic features; that is, features that determine word meaning. This approach holds that when a term is used metaphorically the sentence will be semantically deviant, and the offending term(s) must be interpreted as losing certain features and/or adding certain others. For example, in the phrase "rosy-fingered dawn" the feature (human) would be transferred from "rosy-fingered" to "dawn." But these interpretive theories fail to consider the systematic interconnections between words and their importance in understanding metaphors.

Another approach to the interpretation of metaphors considers the systematicity of metaphor. Metaphors are readily extended. If we say that it is trust that knits up the world, then we can say of that world that it is a stuff peculiarly liable to fraying and raveling. Nelson Goodman spoke of an entire realm of labels that are transferred in the case of metaphor—if we speak of a picture as gay, then we can also speak of it as sad. Kittay, along with U.S. linguist Adrienne Lehrer, has used the notion of semantic fields to suggest that in metaphor what is transferred is a set of relations that a term (the vehicle) bears to other terms within its own semantic field. These relations reorder a portion of the semantic field of the topic. George Lakoff and Mark Johnson demonstrated the interconnectedness of many metaphors of everyday speech and showed that certain central metaphors structure how we consider whole areas of thought and action.

The deconstruction of metaphor. French philosopher Jacques Derrida, appropriating the Nietzschean view, attempted to show that metaphysical language is dominated by faded metaphors (words and concepts whose metaphorical origins have been forgotten), that the discussion of metaphor has itself been conducted in metaphorical terms, and that metaphor is grounded in a metaphysical (and metaphorical) distinction between words and their meanings. According to Derrida, metaphor self-destructs and does so in two senses. First, although metaphor is conceived of as a detour, a "provisional loss of meaning," as with all detours it must return to the "proper sense"; what is deviant and metaphorical is reappropriated by what is proper and literal. Second, the pervasiveness of metaphor in discourses that presumably are "proper" and nonmetaphorical explodes the distinction between what is metaphorical and what is literal. If we consistently find metaphor where we expect to find "proper" language, if the boundaries are so unclear, the distinction itself is misconceived. One may respond that without a distinction between the literal and the metaphorical we can make no sense of metaphor and that we can take into account some of Derrida's critique by relativizing the distinction.

Metaphor and Other Figures

Metaphor has at times been construed as including a host of other tropes, including metonymy, synecdoche, litotes, and hyperbole. Metonymy is a transfer based on contiguity, for example, as the name of an author is substituted for the author's work, a cause for an effect, a symbol for that which it symbolizes. Synecdoche, the substitution in expression of a part for the whole or the whole for a part, is often regarded as a special type of metonymy. Both involve transfers of meaning that come under Aristotle's definition of metaphor in the *Poetics*. Rather than accept metonymy as a species of metaphor, linguist ROMAN JAKOBSON suggested that metaphor and metonymy constitute two poles of linguistic competence and that studies of aphasia indicate that different pathologies affect a speaker's ability with relations based on either similarity (metaphor) or contiguity (metonymy). Litotes (understatement) and hyperbole (overstatement) again fall within the Aristotelian definition. In his discussion of metaphor Goodman includes not only litotes and hyperbole but also irony. Although all these shifts of meaning share with metaphor the transfer of meaning, in the more narrowly construed sense of metaphor the shift takes place across semantic fields or conceptual domains. In the other figures of speech shifts of meaning occur within one conceptual domain. One cannot fashion a metaphor using *knife* as a vehicle for fork or *chair* as a

vehicle for table, because both terms are understood as belonging to the same semantic field. In the case of irony, terms with different values and positions within the same field are reversed. Irony can also be used very effectively with metaphor. The character Teiresias, the blind prophet with insight, embodies an ironical and metaphorical figure in which sightedness and blindness are reversed and then transferred from the field of perception to that of intellection.

The transfer of meaning in metaphor is often related to catachresis, defined as the misuse of language. Both catachresis and metaphor have been spoken of as transfers that occur when we lack a name for what we wish to speak of, as, for example, the "leg" of a chair. But catachresis may also be more like a genuine misnomer, as when a refrigerator is referred to as an "icebox" or a graphite pencil as a "lead pencil."

But the figure most closely associated with metaphor is simile. Metaphor has at times been spoken of as a condensed simile, and simile in turn has been considered an expanded metaphor. The comparison theory of metaphor has treated the two figures as one, whereas many proponents of the interaction theory have made a deliberate attempt to dissociate them. If simile is defined as merely a comparison of one thing with another announced by the words *like* or *as*, then the interactionists are right to distinguish metaphor and simile, for metaphor requires that the two things brought together be from distinctly different domains. But if we add the constraint that a simile must be a figurative and not a literal comparison, that the things compared come from two distinct domains (cf., "Richard is as tall as an elm" and "Richard is as tall as Harry"), then metaphor and simile are distinguished not by any conceptual feature but by the linguistic (or semiotic) feature that makes metaphor a connotative structure carrying a double semantic content. One could say that in a figurative comparison or simile the word *like* is itself metaphorical.

Bibliography. Max Black, *Models and Metaphors*, Ithaca, N.Y., 1962; David E. Cooper, *Metaphor*, Oxford, 1986; Donald Davidson, "What Metaphors Mean," in *Philosophical Perspectives on Metaphor*, ed. by Mark Johnson, Minneapolis, Minn., 1981; Jacques Derrida, "White Mythology: Metaphor in the Text of Philosophy" (*La mythologie blanche*), trans. by F. T. C. Moore, *New Literary History* 6 (1975): 5-74; Nelson Goodman, *Languages of Art*, 2d ed., Indianapolis, Ind., 1976; Eva F. Kittay, *Metaphor: Its Cognitive Force and Linguistic Structure*, Oxford, 1987; George Lakoff and Mark Johnson, *Metaphors We Live By*, Chicago, 1980; Samuel R. Levin, *The Semantics of Metaphor*, Baltimore, Md., 1977; Andrew Ortony, *Metaphor and Thought*, Cambridge, 1979; Paul Ricoeur, *The Rule of Metaphor: Multidisciplinary Studies of the*

Creation of Meaning in Language (La métaphor vive), trans. by Robert Czerny, Toronto, 1978.

EVA FEDER KITTAJ

MICROELECTRONICS

Electronics and communications have, since the early days of this century, developed in a symbiotic relationship. Indeed we may think of wireless TELEGRAPHY and broadcasting as prime examples of a development in which the need to communicate over long distances was fulfilled by the application of electronics. In turn, early electronics were developed primarily to fulfill the need for communication. Other uses were, of course, found for the emerging technology of electronics, but various forms of communication always dominated the demand for electronics.

At the center of early electronics was the vacuum tube. Its invention is claimed by many, and indeed many diverse forms and aspects were invented by different individuals. The invention of the rectifying diode is usually ascribed to John Ambrose Fleming in 1904. The first amplifying tube, the triode, is ascribed to LEE DE FOREST in 1906. The first thirty years of tube development saw increasing use of electronic circuits in diverse applications such as broadcasting transmitters and receivers as well as a variety of electronic instruments.

Tubes became smaller and consumed less power; they also became more reliable and could be combined with resistors and capacitors into complex circuits. For mobile applications it became desirable to reduce the size and weight of communications equipment even further. Electronic equipment using tubes could be reduced in scale but remained too clumsy for many purposes. Particularly, airborne equipment and the so-called walkie-talkie communication system carried by infantry soldiers in World War II illustrated the need for further miniaturization.

Three developments eventually outmoded the vacuum tube: the need for very-high-frequency signal processing, especially in wartime radar applications; the construction and introduction of electronic computers; and the invention of a solid-state amplifying device—the transistor. The first two developments underlined the insoluble problems faced by electronics based on vacuum tubes, and the third represented the breakthrough that allowed a new electronics—microelectronics—to emerge and overcome the technical challenges.

The technologies affected by these innovations included radar, the computer (*see* COMPUTER: HISTORY), and a variety of telecommunications technologies. Radar is a device that transmits high-frequency electromagnetic radiation for the purpose of detecting and locating distant objects such as

aircraft or ships. The objects reflect some of the radiation, and the reflected signal is detected. To achieve this, radar technology took a step backward in order to move forward and reintroduced the older crystal detector, popularly known as a cat's-whisker detector. A major research program aimed at improving radar detectors during World War II brought great advances in knowledge of the electrical properties of semiconductors.

The electronic programmable computer, an entirely separate development, though also speeded on its way by military support, first appeared in the immediate postwar period. The monster machine ENIAC, completed in 1946 at the University of Pennsylvania, used eighteen thousand tubes, weighed thirty tons, and consumed 140 kilowatts of power. Clearly computer development could not continue on these lines, and an alternative to tube electronics had to be found.

The need for an electronic amplifier with low power consumption, high reliability, low cost, and high-frequency capability had been articulated since the early 1930s. The obvious path to follow was to use solid-state devices, similar to the cat's-whisker detector or the familiar cuprous oxide rectifier. Many solid-state amplifiers were invented, many were patented, and none worked.

After World War II, Bell Laboratories in the United States set up a research team with the goal of investigating semiconductor materials to obtain devices useful to telecommunications. The device foremost in everybody's mind was, of course, a semiconductor amplifier. After a few unsuccessful attempts the development of the ancestral device of all microelectronics, the point contact transistor, was announced on June 30, 1948 (Figure 1). The first transistors were made of germanium and looked somewhat like two cat's-whisker detectors on a single tiny piece of crystal. The device was truly an amplifier, although not a particularly good one at first.

A period of rapid development was initiated by this first announcement. The point contact transistor was soon supplanted by the junction transistor, in which the two wire contacts to the crystal were replaced by two p (positive)-n (negative) junctions in close proximity to each other (Figure 2). The art and science of manufacturing transistors made rapid strides (Figure 3). Performance improved, prices fell, and increasing numbers of manufacturers offered their wares in a rapidly growing market. Three of the main inventors of the original transistor—John Bardeen, Walter Brattain, and William Shockley—were awarded the 1956 Nobel Prize in physics for this invention.

Interestingly, much of the rapid growth in transistor manufacture was carried by small, newly founded entrepreneurial firms that were well able to search

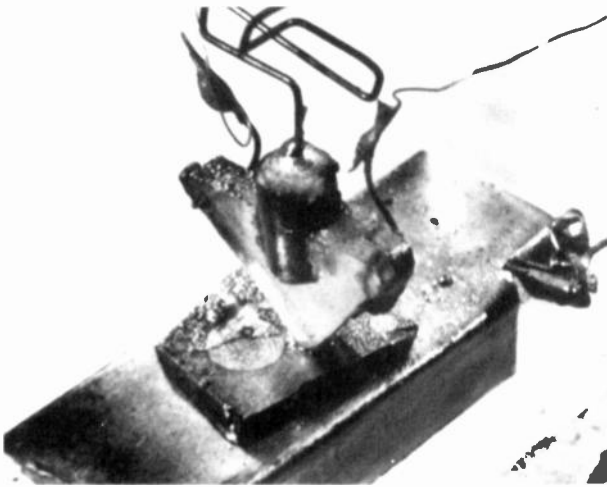


Figure 1. (*Microelectronics*) The point contact transistor, assembled in 1947. Courtesy of AT&T Bell Laboratories.

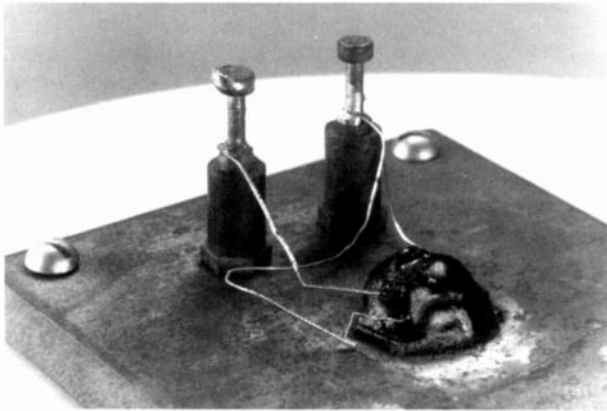


Figure 2. (*Microelectronics*) The junction transistor, assembled in 1947. Courtesy of AT&T Bell Laboratories.

out market opportunities. Transistors soon penetrated into all forms of traditional electronics but also opened up entirely new possibilities ranging from miniature hearing aids to light portable radios. TELEPHONE applications became as important as those in airborne communications, and these were soon joined by the first space ventures. A highly significant interrelationship was established between computers and semiconductor electronics. In fact, each successive generation of computers was based on new and better semiconductor electronics. The growth and improvement in computers and microelectronics are two inseparable aspects of technical progress and the capture of new markets.

The quality and performance of transistors were, to a considerable degree, determined by manufacturing methods. By about 1960 the so-called planar process began to dominate transistor manufacture.

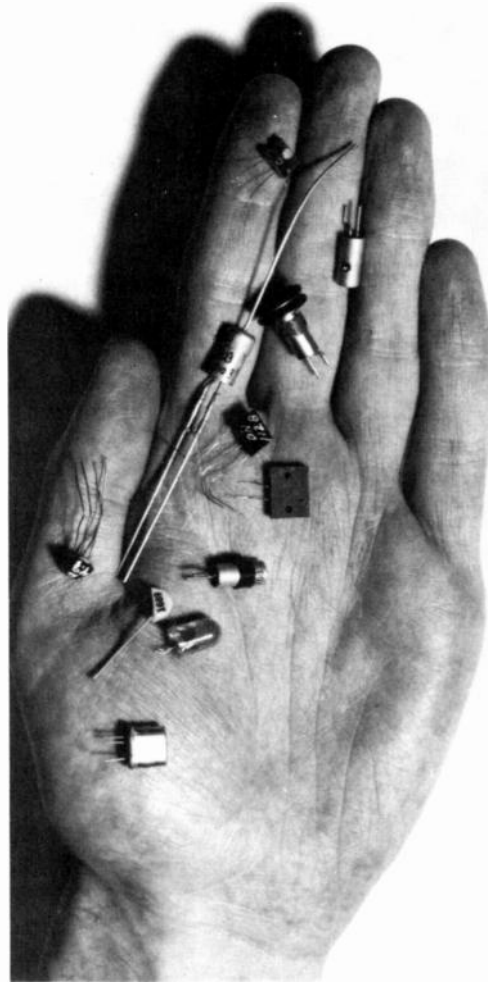


Figure 3. (*Microelectronics*) Some experimental models of the transistor, June 1953. Courtesy of AT&T Bell Laboratories.

The planar process is based on a photolithographic method of transferring desired patterns photographically onto the oxidized surface of a silicon chip, after which those parts of the oxide layer exposed to light are removed chemically. The previously important germanium was replaced by silicon, which became virtually the only raw material for microelectronics.

Very soon the question arose of why it was necessary to make single transistors and wire these together with resistors and other passive components to obtain electronic circuits when it might be possible to produce a complete circuit in a single chip by planar production techniques. This was easier said than done, but with a great deal of ingenuity the first integrated circuits were produced soon after the introduction of the planar process. Though the first attempts were only moderately successful and con-

tained only a few components in each silicon chip, success nevertheless bred success. The number of transistors per chip grew inexorably from about 5 in 1962 to 150,000 in 1982, and the price per component fell with equal rapidity. By that time the separation between components within a chip had become an unbelievable five microns (0.005mm) or less.

One of the new products made possible by microelectronics was the pocket calculator. When the newly founded firm Intel was asked in 1969 to make several different integrated circuit chips for a range of calculators, it hit upon the idea that a single design for a chip could fulfill all the needs if it were programmable. Such a chip was designed and became known as a microprocessor. It is essentially the central part of a computer, and thus the vital functions of a digital computer had been concentrated on a single tiny chip of silicon. Microelectronics came of age, and an entirely new line of development started with improved generations of microprocessors following each other in rapid progression. The development has been termed the microelectronic revolution (Figure 4).

One further technical development deserves mention. Computers are helpless unless they can store information of all kinds: operating instructions (programs), data to be operated on, data to be accessed by the user when needed. Memory chips became established in the late 1960s and were also subject to rapid development in increasing capacity and de-

creasing price. In 1968 the state of the art was to put about one thousand bits of information on a single chip, and about twenty years later there were memory chips capable of holding one million bits of information. For longer-term storage, information is held on magnetic or optical disks.

So great has been the success of microprocessors and the whole gamut of microelectronic components that virtually all electronics is turning to digital signals and signal processing. Thus, instead of producing an electrical analog to some physical quantity, such as the pitch and amplitude of sound, we now tend to produce a numerical (digital) description of the same quantity (*see* SOUND RECORDING). This development has spread into communications, and in modern installations signals are transmitted and handled as streams of digits.

The combination of digital computers and digital signals has opened up many new possibilities for telecommunication services. Yet again the growth of microelectronics has been intimately linked with the provision of communications: microelectronics is the common base linking digital data processing with telecommunications. Computing and electronic data processing have become inseparably linked with both microelectronics and communications.

See also FIBER OPTICS; TELECOMMUNICATIONS NETWORKS.

Bibliography. Ernst Braun and Stuart Macdonald, *Revolution in Miniature: The History and Impact of Semiconductor Electronics Re-explored*, 2d ed., Cambridge, 1982; Tom Forester, ed., *The Microelectronics Revolution*, Oxford, 1980; Peter Large, *The Micro Revolution Revisited*, London and Totowa, N.J., 1984; F. F. Mazda, *Integrated Circuits*, Cambridge, 1978; R. M. Warner and B. L. Grung, *Transistors*, New York, 1983.

ERNST BRAUN

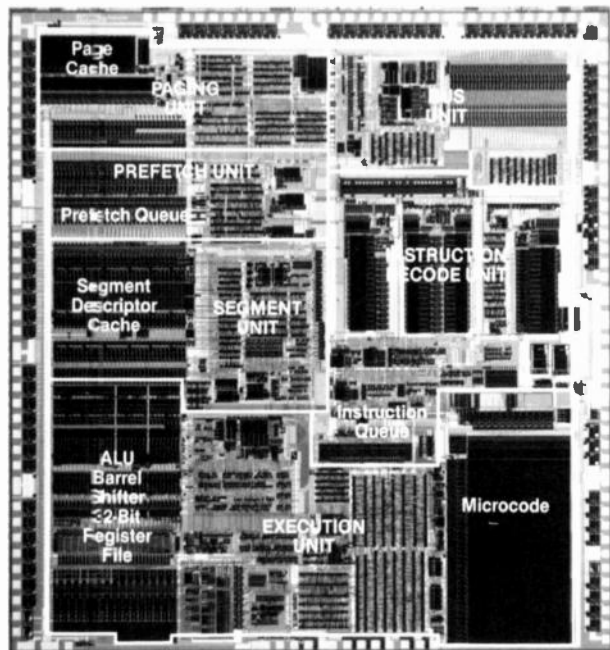


Figure 4. (*Microelectronics*) Intel's thirty-two-bit 80386 Microprocessor introduced in October 1985. Courtesy Intel Corporation.

MIDDLE AGES

The Middle Ages are delimited by two major transformations in the history of communications. At one end is the decline of the ROMAN EMPIRE, and with it the gradual disappearance of literate legal and administrative procedures in western Europe. At the other is the introduction of PRINTING using movable type invented by JOHANNES GUTENBERG and others in the 1430s.

We will probably never have a complete history of human interchange for the several hundred years that separate these two turning points. Medieval records are often poor in quality, discontinuous, and uninformative. Western Europe had profound regional variations, which resulted from accidents of geography, patterns of MIGRATION, and uneven eco-



Figure 1. (Middle Ages) The beginning of the Gospel of St. Luke. Early medieval codex in uncial script, probably from northern France. The Pierpont Morgan Library, New York. (m. 862, f. 93).

conomic development. There were different spoken languages and little agreement on the uses of LITERACY. A patchwork of laws, institutions, and kinship rules made feudal society—as it is often improperly termed—look less like an early modern state than a peasant society before the advent of science, technology, and industrialization. Only within the past two generations has the important role that the Middle Ages played in the history of communications come to be widely recognized. Much basic research remains to be done, and generalizations must be made with caution.

The Middle Ages are often pictured as a period of isolation, even darkness. But its techniques of communication grew naturally out of those of the ancient world. The linguistic background begins with the division of Latin into learned and popular forms, which was underway as early as the second half of the third century B.C.E. The major influence was Greek; the imitation of its syntax and rhetoric reinforced the separation of the written and spoken forms of Latin. More significantly, as Hellenism spread throughout the Mediterranean in the two centuries

before and after the death of Christ, Latin authors gradually adopted and effectively transmitted to the West the notion of humanism based on allegedly higher and lower branches of the same LANGUAGE (see HELLENIC WORLD). Once established in the educational system, this pattern of interpretation was applied later in diverse linguistic and social situations. It drove a wedge between the official CULTURE, which was expressed in Latin, and the various unofficial cultures, which existed in spoken Latin or the early vernacular languages. During the RENAISSANCE a similar theory of high culture based on classical GRAMMAR helped to legitimize the use of literary Italian, French, and German. This perception of the differences between learned and popular culture is one of the chief legacies of medieval linguistic development and has been a source of inspiration as well as tension throughout subsequent social, political, and literary history.

Language and writing in transition. The major phase of transition took place roughly between 200 and 600 C.E. There were three fundamental changes: the emergence of a new cursive, the development of the codex, and the evolution of the Romance languages.

The new cursive, sometimes called *scripta latina rustica*, was in use everywhere but the imperial chancery by the mid-300s, and it gave novel vocabulary and syntax a permanent graphic form for the first time. An even more important transformation took place in book production, in which the papyrus roll was gradually replaced by the parchment or vellum codex, the forerunner of the modern BOOK (see WRITING MATERIALS). The triumph of the codex was complete by the late third or early fourth century. Its popularity is thought to have arisen chiefly from the Roman Christian habit of copying the Bible into parchment notebooks. The codex was more durable than the roll and easier to read and to store; it facilitated indexing, searching for facts, and the accumulation of knowledge characteristic of the much later age of print. But it owed its success less to technical than to political factors: the Bible, as transmitted by codex, became the official sacred book of ancient society after the imperial recognition of Christianity by Constantine I in 313 C.E. In addition to changes in WRITING habits and book production, the late Latin period witnessed the emergence of a new linguistic community in Europe, consisting of the speakers of present-day Italian, French, Provençal, Catalan, Spanish, Portuguese, and Romanian. The common Latin roots of these languages have given shape to much of the Romance cultural consciousness from the Middle Ages down to the present.

Diversification of language and writing continued throughout the later ancient world and the Middle Ages. The result was a large number of spoken and

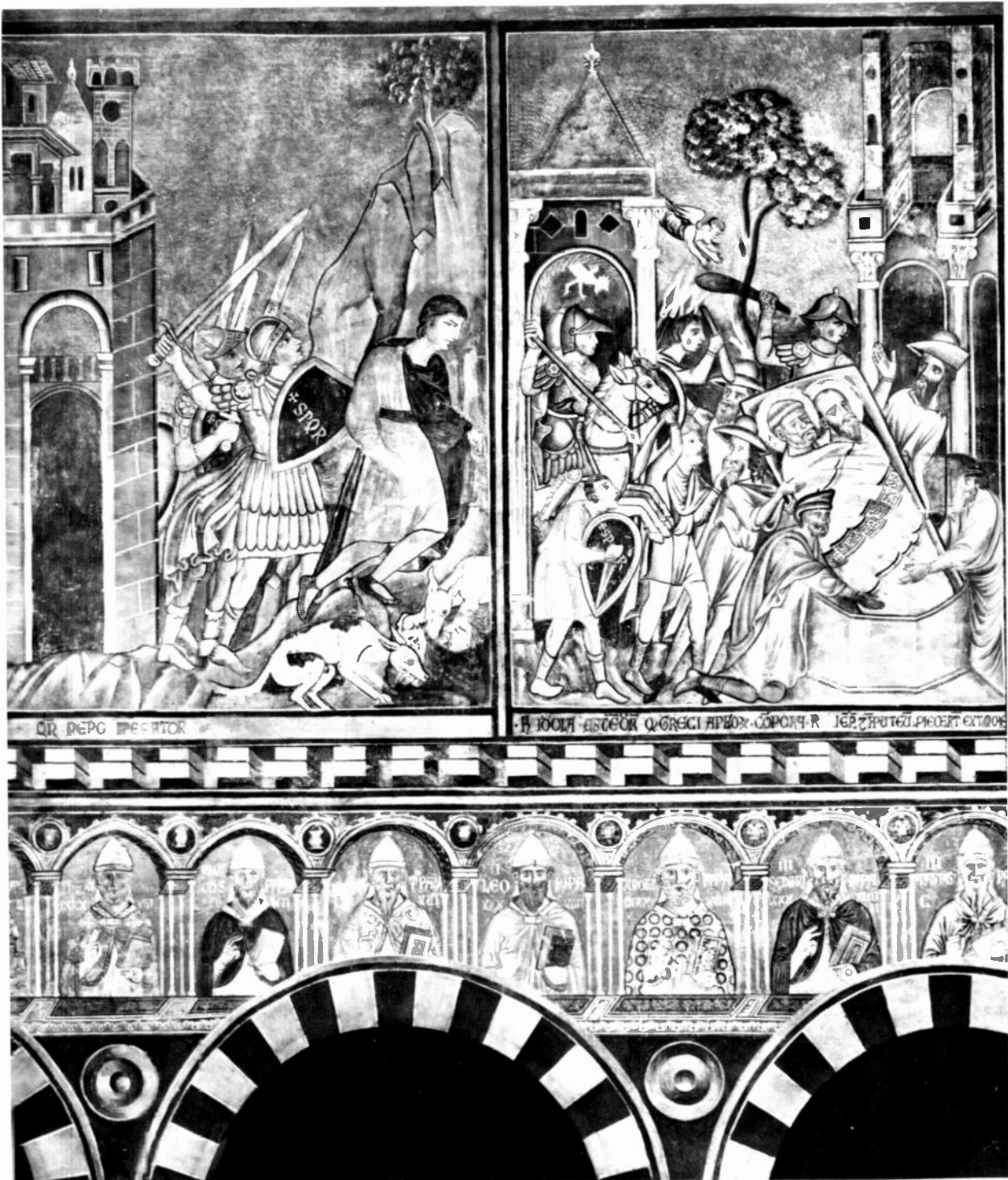


Figure 2. (Middle Ages) Romanesque wall painting, Stories from the lives of St. Peter and St. Paul, eleventh century. Chiesa S. Piero in Grado, Pisa. Alinari/Art Resource, New York.

written languages whose internal histories can only be partially and indirectly reconstructed. By the time Charlemagne died in 814 a superficial imperial unity had been reimposed on northwestern Europe. But ordinary people in different regions who were ignorant of Latin could no longer understand one an-

other. A hiatus had developed not only between spoken and written languages but among the spoken languages themselves, which had begun to evolve grammatically distinct written forms. We do not know whether writing followed speaking, as Romance linguists often assume, or vice versa, as the

Carolingian revival of Latin studies would suggest. But by the ninth century there are a number of clear indications—for instance, the provision for vernacular preaching in the Council of Tours (813)—that the linguistic environment of Europe had been irrevocably altered. Latin remained the dominant vehicle of culture; it was the only language in which grammar could be taught (Greek having virtually disappeared in the West), and it was the only written language that was widely understood. Yet the various Romance and Germanic languages existed in substance if not in grammatical form, and each was independently evolving a colloquial as opposed to a literary dimension.

The “birth certificate” of the vernacular languages is normally thought to be the Strasbourg Oaths of 842, in which the armies of two of Charlemagne’s grandsons swore oaths of alliance, each in its own vernacular. However, this was chiefly a symbolic event; only some decades after the millennium do we have evidence of a dramatic increase in the number of readers and writers (as well as visual representations of didactic material, which one finds in manuscript illustrations and Romanesque wall paintings). The textual fortunes of the vernacular languages varied considerably. For some, like Gothic, we possess only a handful of words and phrases, while for others, like Irish, Anglo-Saxon, and Old Norse, we have rich literatures. In the great works of medieval English, French, and Italian we observe Europe’s earliest modern interaction among language, texts, and society.

Role of institutions. If we turn from language to the history of institutions, the clearest guide to the growth of communications is provided by the recordkeeping activities of the church (*see* RELIGION). Long before the Edict of Milan guaranteed the corporate freedom of the church, the popes had employed Roman notaries for recording the acts of martyrs, keeping the minutes of synods, and preparing transcripts of documents. The papal ARCHIVES became the official storehouse of ecclesiastical memory. Throughout the early Middle Ages the bureaucracy remained small, but from the eleventh century on the number of transactions greatly increased, and significant changes took place. During the papacy of Benedict VIII (1012–1024), papyrus was finally replaced by parchment. Later popes clarified the style of legislative letters, reorganized the systems of writing and dating, and supervised the adoption of a clear, legible script. From Gregory VII (1073–1085) on, the papacy was given direction by a distinguished series of lawyers, all of whom insisted on procedural regularity and the systematic accumulation of information, until under Innocent III (1198–1216) a consistent archival policy finally emerged.

During the same period the growth of the economy

and of lay administration also required more ample documentation, particularly in the areas of commerce, property law, and contractual obligations. In southern Europe recordkeeping fell under the control of public scribes or notaries, whose cartularies, often astonishing in the completeness of their record of sales, debts, and contracts, first appeared in Italian towns, where secular and commercial instincts were the most highly developed. At first notaries were attached to the judiciary, but by the twelfth century they had begun to form guilds and to test prospective candidates. In the north, where customary law persisted longer, lay documentation accumulated in registers and archives and through the judiciary system. The age of bureaucracy had arrived, and along with it sophistication in the ancient art of forgery.

Role of oral traditions. The spread of writing tells only one part of the story of medieval communications. The other is related in oral traditions and by the manner in which they changed under the influence of literacy. This aspect of the question also requires some conceptual reorientation. In general, ORAL CULTURE has been viewed from the perspective of literates. This angle of vision greatly limits our appreciation of the Middle Ages, just as it restricts our understanding of how individuals communicate today in societies that carry on everyday activities by word of mouth. Such communities are not illiterate; they are nonliterate. In the Middle Ages the presence of texts is not always indicative of a high degree of functional literacy. On some occasions texts merely recorded oral legal transactions, just as written epic poems preserved oral performances, while the essen-



Figure 3. (*Middle Ages*) Bronze seal of Raimon de Mondragon, showing a vassal kneeling before his lord in the act of homage, twelfth century. Provence. Phot. Bibl. Nat., Paris.



Figure 4. (Middle Ages) Pilgrims witnessing the Last Judgment. Detail from the tympanum of Autun Cathedral, France, ca. 1130. Giraudon/Art Resource, New York.

tial act of communication was spoken, gestural, and ritualistic. On other occasions texts may have served a dispositive role, even though the signatories to a document were themselves unlettered. Most important, medieval oral discourse seldom if ever existed in isolation in the West. Like the spoken and written forms of language today, the aural and visual modes impinged on each other in a variety of ways. Whether communication took place by words or by letters is a matter for empirical investigation.

The starting point for such inquiries is the legacy of Germanic institutions in early medieval society. The clearest picture is found in law. The unwritten laws of the migratory peoples who increasingly settled on Roman soil after the second century were made up of words, rituals, and symbols. As time went on, the interaction of Roman and Germanic legal systems ultimately led to the codification of the customs of the various tribes. But scribal practices almost invariably preserved oral legal codes by imitating already functioning verbal institutions. For example, in place of signatures on a charter, one frequently had the ceremony of *manumissio*, the ritual placing of hands on the parchment. Again, witnesses did not normally record an act; Germanic

custom demanded that transactions actually be seen and heard. Twigs, branches, and pieces of sod were frequently sewn to medieval documents, and their physical presence rather than the inscribed words ratified the contract. The persistence of oral tradition is nowhere better illustrated than in the ceremony of *levatio cartae*: before the charter was written, the parchment, pen, and ink were placed on the land to be sold, from which, it was assumed, they acquired a special force. The final document was both a legal record and a quasi-magical object. Even a blank piece of parchment carried authority because of its potential associations.

The ambivalent role of texts is an aid to understanding the nature of what is called feudal society. The legal feudal bond originated as a spoken contractual arrangement between two individuals, normally a lord and a vassal, and included certain military obligations and property rights. This state of affairs persisted as late as the Carolingian age. Later, what had in principle arisen as a bond between people slowly but surely became enmeshed in the economic structures of a competitive agrarian society. Property and, consequently, the legal right to defend ownership became more important. As a result, the original oral features were either translated into written terms or, like the ceremony of investiture, retained as verbal RITUAL within an ever-widening network of written law.

By 1100 the conceptual apparatus of legalized feudalism was largely in place; by 1300 the customary laws for both secular and ecclesiastical estates were being systematically written down. Yet, despite changes in function, feudal rites were united by a number of common features throughout the Middle Ages. These included respect for the individual and his or her word, the belief in the concrete over the abstract, the formalization of obligations through ritual, and, lurking behind many ceremonies, the symbolic gestures of tribal warfare. The essential element was ritual. This, and not the written transcript of the proceedings, constituted the bond. The central ceremonies all blended the spoken, the symbolic, and the PERFORMANCE of rites. In homage, for example, the lord and the vassal stood facing each other. The vassal repeated a number of set phrases in response to statements by the lord. He then joined his hands and placed them inside the hands of his master, while the lord slowly closed his own hands over those of his dependent. The performance of such acts expressed the early medieval belief in the gift as the preferred form of material and social interchange.

Commercial expansion. From as early as the tenth century, this notion of reciprocal and redistributive exchange was effectively challenged by modern Europe's first prolonged commercial expansion. No other



Figure 5. (Middle Ages) Ambrogio Lorenzetti, *Allegory of Good Government: The Effects of Good Government in the City* (detail of fresco), 1338–1339. Palazzo Pubblico, Siena. Alinari/Art Resource, New York.

upheaval had so great an impact on the world before the Industrial Revolution. The changes were many, affecting communications in a variety of ways, but the one constant was population increase. In the countryside, marshes were drained, rivers tamed, forests cleared, and land resettled after centuries of neglect. Isolated villages came into contact with one another, and entrepreneurial lords sponsored local markets. Cash crops and surpluses appeared as peasants introduced crop rotation, metal implements, deeper plowing, and foods that gradually spread northward from Islamic lands. Rents flowed to lords from water, wind, fulling, and tanning mills. A money economy surfaced as COINS began to circulate again via either Byzantium or royal mints. The once great Roman network of roads was refurbished to permit the flow of people and goods. Long-distance routes overcame the Alps, and rudimentary medieval navigators explored the Mediterranean (see EXPLORATION). Pilgrimages, which increased in number after the millennium, helped to create the demand for land routes free of brigands, while monasteries punctuated

the pilgrimage roads to Rome, Compostela, and Jerusalem, along with hostels, which welcomed monks, entertainers, traders, and merchants, thereby creating a meeting place for the different orders of a once static society (see CRUSADES, THE).

The commercial revolution was created largely by the Italian city-states, and they derived the major benefits from it. By the twelfth century the wealth of Genoa, Pisa, and Venice surpassed the richest of business centers in the ancient world; by the early fourteenth the influence of Italian cities could be felt in England, Russia, the Middle East, India, and China. In the north the most active markets took place at the fairs of Champagne and Brie, but it was Italian merchants who created the demand for northern textiles, on which they flourished, and it was Italian financial arrangements that permitted long-distance transactions to take place in an atmosphere of confidence.

The replacement of barter by currency, the emergence of banking and credit, and, by the fourteenth century, the introduction of double-entry accounting

were symptomatic of a new mentality that affected other areas of human exchange. From the end of the twelfth century Genoese money changers offered limited banking services. They accepted deposits withdrawable on demand, they transferred payments and made current account advances, and they settled debts with other nascent banks. Soon, larger houses sprang up in Piacenza, Pistoia, Siena, Lucca, and Florence. Close links were forged between centers of banking, market, and trade; many banks invested the deposits of individuals and the liquid assets of business firms, while the bigger banks engaged in international transactions such as ransom, military pay, and loans to cash-hungry rulers. A vast network of countinghouses and correspondents opened up. The Bardi, just one house, had some 350 employees and thirty branches in Italy, North Africa, and the Levant. Banking itself progressed as the older system of legal contracts gave way to private documents, correspondence, and account books. From about 1300 on, the contracts of exchange drawn up by notaries were superseded by simple letters of payment, the forerunners of bills of exchange.

Banking services were not only used by kings and the higher nobility; they also proved invaluable to bishops, abbeys, town corporations, burghers, and even peasants. What finally emerged from the medieval commercial revolution was nothing less than a primitive type of capitalism, involving the accumulation of capital and goods; the gradual separation of management from the ownership of capital and labor; the growth of money, credit, and impersonal market forces; and above all a ruthless spirit of competition, combined with a desire for profit, toward which the church more than occasionally turned a blind eye.

Twelfth-century renaissance in law. The commercial developments originating in the south took place about the same time as the large-scale reappearance of written culture in the north known as the twelfth-century renaissance. In continental Europe the legal revival established three fields of jurisprudence—Roman law, canon law, and the codification of feudal statutes—while a more precocious environment in England, dating from Anglo-Saxon times, led to the sealed writ and the institution of the royal courts, from which sprang other deputations such as the exchequer, the bench of common pleas, and the system of itinerant justices. During the twelfth century, in both Roman and common law, written documents replaced oral TESTIMONY, and objective methods of evaluating evidence challenged the role of duels, ordeals, and compurgations. The new method consisted essentially of taking evidence from witnesses, analyzing the various factors in a case, and scrutinizing the relevant written documents.

The legal renaissance went hand in hand with the

growth of expertise in DIPLOMACY, textual criticism, and the authentication of acts. People began to think of facts not as recorded by texts but as embodied in texts, a transition of major importance in the rise of information retrieval and methods of CLASSIFICATION. The search for facts, which had hitherto been limited to memory, now shifted to the written text. The great codifications of the century—Peter Lombard's *Sentences*, Abelard's *Sic et Non*, and Gratian's *Decretum*—were inseparable from a changed attitude toward the organization and classification of knowledge.

Finally, at a more mundane level, the later twelfth century saw the definitive rise in northwest Europe of different types of written records for organizing and administering society. Some records, such as charters, testimonials, wills, and sealed memoranda, were kept by individuals. Other records were compiled by institutions as a permanent reminder of past practices and a set of guidelines for the future, such as surveys, court rolls, yearbooks, cartularies or registers, and chronicles.

Coexistence of written and oral evidence. The rebirth of literacy caused people everywhere to question the value of oral information. What resulted was a hybrid culture, in which the spoken word was rejected from some fields of knowledge and retained in others, or in which, as in the case of the Anglo-Saxon poem *Beowulf* (eighth to tenth century), oral traditions were written down in order to preserve them. Within historical writing one sees an increasing use of archival sources. Ordericus Vitalis, for instance, whose *Ecclesiastical History*, completed by 1141, is remarkable for its account of Norman life



Figure 6. (Middle Ages) Genoese banking scene. By permission of the British Library.

and institutions, exemplifies his age in lamenting the lack of written records for the period of the Scandinavian incursions, which, he says, he can only relate from "the oral traditions of old men." Yet within the same history, dreams, visions, and fantasies, none of which possessed records, are uncritically accepted as witnesses to events.

Another example of this ambivalence is found in the critical accounts of oral materials made for literate audiences. An example is the *Miracles of St. Foy*, by Bernard of Angers, in which the stories associated with the cult were gathered personally in the region around Conques sometime after 1010, and later sifted for inconsistencies. Perhaps the most radical critic of oral testimony was Guibert of Nogent, whose treatise questioning the validity of certain unauthenticated relics was completed by 1125. Guibert proposed a set of standards for assessing the claims of any holy object. He did not question that relics existed, but insisted that their claims be supported by textual proofs. He looked upon unwritten traditions as hearsay, by-products of local culture, or FOLKLORE.

Religious communication. The awakening of the critical spirit in communications is nowhere better reflected than in the history of medieval religious dissent and reform. Early reformers all championed literate standards, whether they were wandering preachers, Gregorian propagandists, or leaders of new religious orders. The impulse toward textual organization reached its apogee in the Cistercian order, in which ornament was reduced to a puritan minimum, the liturgy and prayer books standardized, and the economic planning of abbeys rationalized. But the literalistic biblical studies that supported reform also paved the way for diverse interpretations of religious texts, especially among the laity. Mass movements formed, attempted to institutionalize their messages, and inevitably came into conflict with the church.

The chief vehicle of communication utilized by such groups before the age of print was preaching. From the late eleventh century on, wandering preachers like Robert of Arbrissel and Bernard of Tiron roamed the countryside of northern France, while in Milan the Patarene movement organized rallies to harangue crowds about simony and clerical marriage. The most successful heterodox preacher of the time was perhaps Peter Waldo, founder of the Waldensians, whose life-style of apostolic poverty was imitated by the forerunners of St. Francis. Orthodox preaching received a stimulus from the tenth canon of the Fourth Lateran Council of 1215, which admonished bishops to preach publicly and encouraged the future antihetical efforts of the Dominicans. See also HOMILETICS; PUBLIC SPEAKING.

The spread of heresy via the spoken word was



Figure 7. (Middle Ages) Gilded reliquary statue of St. Foy, late fifteenth century. Trésor Ancienne Abbaye, Conques. Giraudon/Art Resource, New York.

symptomatic of a breakthrough in medieval communications, the free circulation of ideas, which was destined to play a large role in developing a skeptical, scientific view of the world. But it also gave rise to the West's earliest successful instrument of repression, the papal Inquisition, which began its unfortunate history under Gregory IX in 1233–1234. What eventually defeated the church's monopoly of religious literacy was the introduction of vernacular translations of the Scriptures. In England the lay thirst for access to the Bible was satisfied in the fourteenth century by John Wycliffe's translation. Vernacular literacy subsequently became a major issue in the Lollard movement, first in England and later under Jan Hus in Bohemia. The Hussite wars terminated with the agreement at Jihlava in 1436; only seven decades later, in 1517, MARTIN LUTHER nailed up his theses in Wittenberg.

Implications of literacy. The Middle Ages have generally been thought to differ from modern times chiefly in the use of manuscripts as opposed to printed books. But in form, design, and function, later medieval manuscript culture is continuous with the age of print, and it is arguable that printing only succeeded as it did because a literate reading public already existed. Where the Middle Ages really differed from the modern age was in the type of transition that took place within its modes of perception. In the early Middle Ages, oral communication was well suited to a society that was regionalized and in which one's role, occupation, or status was often inherited. The continuity of culture depended on individuals who verbally transmitted mores, traditions, and kinship rules. Rulers, too, were individuals whose charisma and authority involved the spoken

word. Knowledge was transferred in face-to-face encounters that united SPEECH and action and were rich in ritual and GESTURE. Society's only archive was human memory.

By contrast, in the period after the year 1000 medieval society became increasingly oriented around the scribe and the text. Written communication expanded economic and cultural horizons for some, but it also simplified a complex social environment. Through literacy, culture itself was externalized and objectified; it depended less on the individual voice than on the text by which it was recorded and transmitted. The knower was thereby separated from the known, with obvious consequences for logic, epistemology, and the birth of the scientific outlook. As the eye replaced the ear as the primary sense, and the written ALPHABET came to dominate the spoken phonetic system, social relations themselves became contextualized, and individuals, to paraphrase MAX WEBER, eventually found themselves suspended in webs of textual significance which they themselves had spun.



Figure 8. (Middle Ages) St. Gregory the Great as a scribe. Ivory panel, tenth century. Kunsthistorisches Museum, Vienna. Marburg/Art Resource, New York.

Bibliography. Erich Auerbach, *Literary Language and Its Public in Late Latin Antiquity and in the Middle Ages*, trans. by R. Manheim, London and New York, 1965; Franz H. Bäuml, "Varieties and Consequences of Medieval Literacy and Illiteracy," *Speculum* 55 (1980): 237–265; Marc Bloch, *Feudal Society*, 2 vols., trans. by L. A. Manton, London, 1961; Michael T. Clanchy, *From Memory to Written Record: England, 1066–1307*, London, 1979; Marcia L. Colish, *The Mirror of Language: A Study in the Medieval Theory of Language*, rev. ed., Lincoln, Neb., 1983; Ernst R. Curtius, *European Literature and the Latin Middle Ages*, trans. by W. R. Trask, Princeton, N.J., 1953, reprint 1973; Georges Duby, *Les trois ordres ou l'imaginaire du féodalisme (The Three Orders: Feudal Society Imagined)*, trans. by A. Goldhammer, Chicago, 1980), Paris, 1978; Herbert Grundmann, "Litteratus-Illiteratus. Der Wandel einer Bildungsnorm vom Altertum zum Mittelalter," *Archiv für Kulturgeschichte* 37 (1955): 1–65; Jean Leclercq, *The Love of Learning and the Desire for God. A Study of Monastic Culture*, trans. by C. Misrahi, New York, 1961; Paul Saenger, "Silent Reading: Its Impact on Late Medieval Script and Society," *Viator* 13 (1982): 367–414; Brian Stock, *The Implications of Literacy: Written Language and Models of Interpretation in the Eleventh and Twelfth Centuries*, Princeton, N.J., 1983; J. W. Thompson, *The Literacy of the Laity in the Middle Ages*, Berkeley, Calif., 1939, reprint New York, 1960.

BRIAN STOCK

MIGRATION

In simple terms migration is a change in place of residence of an individual or a group of people, usually on a permanent or long-term basis. It is not

otherwise easy to define migration because it includes so many different kinds of migrants and moves and so many reasons for moving. A migration may be as relatively minor a change as moving from city to city or from a rural region to a city, or as considerable as moving to a different country on a different continent. It may describe individuals moving to employment opportunities in a new industry or a large group resettling together, like the thousands of Mormons moving to establish a new home in Utah. It may be as temporary as students' periodic migration to college or the seasonal migration of laborers in response to needs for agricultural help, or as relatively permanent as the settlement of the American West in the nineteenth century.

Whatever the size and length of the migration, it is closely related to communication because communication ordinarily helps build the incentive and select the place for migration. Moreover, the migration ultimately encourages interest, continuing exchange of information, and further migration between the two places.

Who Migrates and Why They Move

Some people are more likely than others to migrate. Young adults, for example, are more likely than older ones to migrate because they are more likely to be seeking career opportunities. In middle age, people are less likely to move because they are already settled into a career and place of residence. If older people plan to move it is more often to a place of retirement than to a place offering employment opportunities.

The destinations of migrants are not randomly distributed. People are more likely to move to a larger than to a smaller community because more and better-paid employment will probably be available there. Furthermore, other things being equal, migrants are likely to move to a place they hear about frequently, and large places are more often in the news than small ones.

Voluntary and involuntary migration. A common distinction between types of migrants separates those who *want* to go and those who *have* to go. On the former side are those who follow a gold rush or a rich oil discovery, receive an offer of free land or more income, or simply want to start again in a more hopeful situation. On the other side are those who are compelled to migrate, like the African slaves brought in chains to Europe and the New World (see SLAVE TRADE, AFRICAN) and those driven by political or economic pressure or necessity. The partition of British India made it necessary for 8 to 9 million Hindus and Sikhs to be expelled from Pakistan, and 6 to 7 million Muslims from India. The revolution and civil war in Russia created a group of nearly 1.5

million international refugees. After the civil war in Spain some 300,000 Spaniards became refugees. Britain transferred 150,000 convicts to help settle Australia. Thus a large part of all migration has been involuntary.

Economic problems have also been responsible for some of the forced migrations of recent times. For example, the potato famine in Ireland in 1845 caused more than a million Irish citizens to migrate to the United States, and the economic hardships and political problems of Germany between 1848 and 1854 touched off an even larger migration from that country. It has been estimated that 80 percent of all immigrants to the United States between 1845 and 1855 came from either Germany or Ireland.

The answer to why people like these migrated is that they *had* to; they were forced out. But why did the voluntary migrants leave their homes?

The decision to migrate. Voluntary migration can generally be interpreted as a sum of individual or group responses to perceived inequalities in the distribution of opportunities. The elements appraised differ from case to case. Within a city the decision may depend on the standard and cost of housing; in deciding on longer moves, whole ways of life may be compared. In all these cases migrants are normally assumed to behave in a rational manner, evaluating the alternative locations and seeking to maximize the benefits to themselves of staying or moving. However, certain constraints are likely to intrude on any decision to change residence. One is the feasibility of moving, which requires consideration of the cost and effort, the relative cost of living, the housing allocation or financing policies of large corporations or public administration, or, on a wider scale, the immigration policies of nation-states.

Still another constraint is lack of information about opportunities and costs in the places to which one considers migrating. In the past and in less developed societies the sources of information have inevitably been highly personalized, often inaccurate and speculative. However, the efficacy even of RUMOR and informal DIFFUSION of information through a society can be seen in the large-scale migrations brought about when a climate of belief in the existence of better conditions elsewhere was created, as, for example, in European views of the limitless possibilities of life on the other side of the Atlantic (see COLONIZATION).

Personal experience has played an important role in providing the information on which a later decision to migrate could be based. Thus temporary migration or circulation has often given migrants an insight into the opportunities available elsewhere and has resulted in a permanent migration; indeed, it has been observed that temporary migration generally becomes permanent migration (if it is permitted to

do so). It has also been observed that “active” or pioneer migrants establish a “trail” that is followed by relatives, friends, and persons from the same community, who become the “passive” migrants in a continuous stream of communication and movement. This is the phenomenon of “chain migration” whereby early migrants retain ties with their places of origin (e.g., through kinship links), write letters, make occasional visits, and thus create conditions in which others decide to make a similar move; when that happens, earlier migrants commonly help in the process of settling later arrivals. This process has created migration areas that become fashionable and comfortable for certain groups. Retirement migration is an interesting example.

The information sources on which a decision to migrate can be based have become more diffuse and have involved a whole series of elements, from picture postcards to mass media. Since a potential migrant makes a decision on the basis of a subjective view of what he or she is likely to find in a new location, it is the general image of places and opportunities that is important. In longer-distance migration, therefore, a potential migrant may put together such an image from a great variety of sources: personal educational background, radio (*see* RADIO, INTERNATIONAL) and television, newspaper reports, private evidence from friends and relatives, and such specific sources as advertisements designed to encourage the migration.

Transportation, communication, and migration. Transport systems have played a considerable role in influencing migration by affecting both the cost and the effort of moving and the amount of information available. Ernst Ravenstein first observed in the nineteenth century that a “distance decay” effect normally operates within any migration system: the amount of information about a particular place declines steadily with increasing distance from that place, although significant amounts of information about large places are likely to be available even at great distances. A “gravity model” relating the migration flow between any two places to the size of the places and to the distance between them has been proposed. Recent improvements in transportation as well as modern telecommunications (*see* TELECOMMUNICATIONS NETWORKS) have reduced these constraints on migration, but distance still has a frictional effect because the actual costs of moving plus the social costs of upheaval play a significant part in the potential migrant’s appraisal of present versus other possible locations. While improvements in transportation and communication in the past certainly led to an increase in the amount of migration, that may be less true of the developed world at the end of the twentieth century. There are even some indications that the amount of migration in developed areas has

started to decline, possibly because the enhancement of modern telecommunications and transport means that there is less need for residential movement. Getting a job in a distant town no longer in every case necessitates moving there, for long-distance commuting is easier than it once was.

Three Scales of Migration

Although the basic decisions relevant to migration—the appraisal of relative opportunities and costs—enter into the majority of migration flows, the effects of migration, because of their complexity and diffuseness, can best be considered by illustrating the impact of migration on several scales.

Intercontinental migration. Migration has been the agency for diffusing humanity and peopling all parts of the world, as well as the process by which the present distribution of ethnic groups and nationalities has come about. Historically the role of migration has been immense, especially in the lands of the temperate zone settled by a process of colonization or other movements of large numbers of people from Europe. This latter effect has been especially noteworthy in countries like Canada, the United States, South Africa (the white population), Australia, New Zealand, and Argentina. Intercontinental migration has been less significant in creating the population distributions of many parts of the tropical world, where colonialism took the form of resource exploitation without settlement. However, the forced movement of large numbers of the initial populations of such tropical areas (for instance, as slaves or indentured laborers) has been of great significance in creating ethnic diversity within many receiving areas.

Although the term DIASPORA strictly speaking refers only to Jewish migration, the concept has been used increasingly as an analogy for the diffusion of other population groups such as the English (as a result of colonization), the Chinese, and the Indians. Some of the earlier patterns of long-distance migration have reversed, with large numbers of people moving from the Third World into the industrialized countries, to a large extent replacing the older movements that diffused population outward from these countries.

Interregional migration. This type of migration is generally associated with inequalities in the economic opportunities available within individual countries or subcontinents. A prime example is the massive wave of rural-urban migration that has affected almost all countries undergoing urban industrial growth. In these countries the agricultural sector has declined vis-à-vis industry, business, and services, thus creating a new spatial pattern of opportunities. However, in many other cases, particularly in the Third World, interregional movement has represented not so much

a move to real opportunities in urban areas as an escape from a lack of opportunity in rural areas. Often the opportunities that are so desperately sought in the overcrowded cities are actually minimal.

Elsewhere many regional movements have occurred as a result of the opening of new lands and internal colonization. The opening of the western United States depended largely on interregional migration by those already settled farther east, although newly arrived intercontinental migrants also played a role. More recent examples of interregional migrations to "new lands," illustrating the role of governments in manipulating information flow, are the movements from west to east across the Urals in the USSR and the interisland migration from Java to Sumatra in Indonesia.

Local migration. Locally, migration within a city, such as residential relocation, appears normally to occur more often as a response to factors of the social environment than to economic considerations. The most common reason for intraurban movement is the household's need for new accommodations.

Constraints on movement often become very apparent at this scale. Real opportunities for change of residence are often limited by institutional or institutionalized processes restricting access of certain types of people to certain types of property. The result may be patterns of spatial segregation, with local migration streams confined to certain areas and restricted from transgressing the boundaries of the segregated areas. Socioeconomic class segregation normally occurs because potential housing occupants are separated on the basis of their ability to pay. Ethnic segregation, on the other hand, is generally a result of institutional processes, such as those embodied in the South African Group Areas Act. Local migration is therefore instrumental in setting up and maintaining urban social areas and thereby perpetuating the fragmentation of urban space into areas of distinctive population composition.

The Impact of Migration

The cumulative influence of all the types and acts of migration on the history and evolution of countries, regions, and cities has been immense. A single migration event can be seen in a systems framework to have effects on a wide range of phenomena. At the center of such a framework are the characteristics of the migrant. By being subtracted from the population of the place of origin and added to the population of the place of destination, the migrant affects the characteristics of both the sending and the receiving societies. Because it occurs in a context of perceived opportunities and operational constraints, the act of migration also has an effect on that context, modifying, strengthening, or weakening it in ways that

vary from case to case. Migration is therefore at the heart of the process of evolution in human societies.

See also CRUSADES, THE; ISLAM, CLASSICAL AND MEDIEVAL ERAS; POSTAL SERVICE; SOUTH ASIA, ANCIENT.

Bibliography. Alan A. Brown and Egon Neuberger, eds., *Internal Migration*, New York, 1977; Murray Chapman and R. Mansell Prothero, eds., *Circulation in Third World Countries*, London, 1985; William H. McNeill and Ruth S. Adams, eds., *Human Migration: Patterns and Policies*, Bloomington, Ind., and London, 1978; Peter H. Rossi, *Why Families Move*, 2d ed., Beverly Hills, Calif., and London, 1980; Paul E. White and Robert I. Woods, eds., *The Geographical Impact of Migration*, London and New York, 1980.

PAUL WHITE AND ROBERT WOODS

MILTON, JOHN (1608–1674)

English poet best known for his *Paradise Lost* and *Paradise Regained*, John Milton also won a place in communications history with his *Areopagitica* (1644), an attack on press licensing and CENSORSHIP. For almost a century PRINTING in England, as in many parts of Europe, had been ruled by licensing procedures. The right to print in England was confined to the Master Printers of the Stationers Company, which maintained a register in which members were required to list books they wished to print. Official licensors reviewed all proposed publications. Printers were expected to assist in the suppression of unlicensed printing, which represented inroads on their MONOPOLY. Printers of unlicensed books were subject to severe penalties—fines, confiscation of property, imprisonment. In 1643 Milton wrote a PAMPHLET urging liberalization of divorce restrictions and was incensed by obstacles to its publication. This provoked his eloquent *Areopagitica*. Though its subtitle called it *A Speech for the Liberty of Unlicensed Printing*, it was printed as a pamphlet without the official imprimatur. Most widely quoted is the following passage:

. . . though all the winds of doctrine were let loose to play upon the earth, so Truth be in the field, we do injuriously by licensing and prohibiting to misdoubt her strength. Let her and falsehood grapple; who ever knew Truth put to the worse in a free and open encounter?

Milton's main theme was the invincibility of truth. He did not, in fact, advocate absolute freedom of expression, being mainly concerned with the stultifying effect of appointing censors ("a few illiterate and illiberal individuals") to review the works of better thinkers. He recognized the government prerogative to suppress "popish" views and indeed served as a censor of newsbooks in 1651.

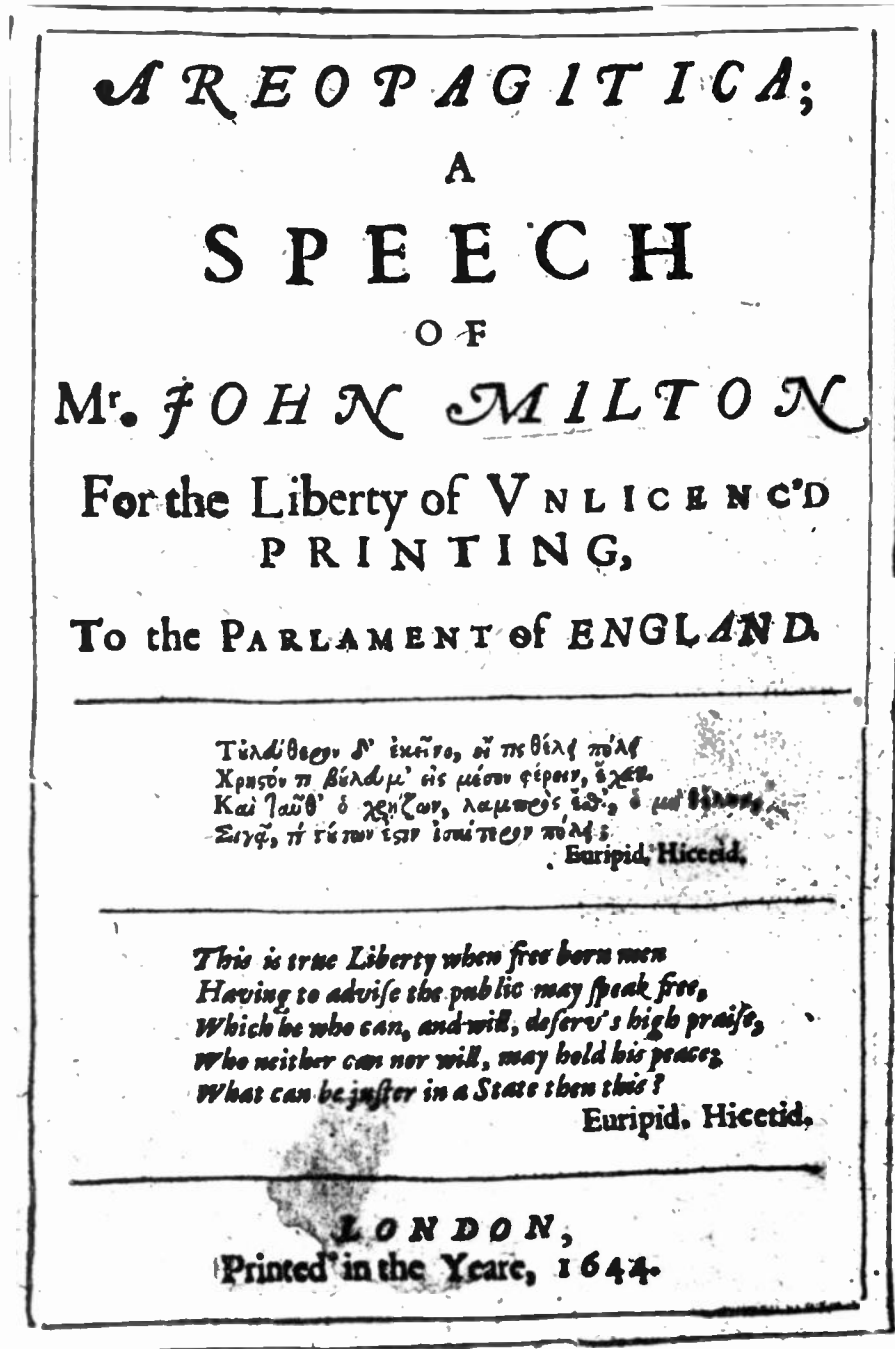


Figure 1. (Milton, John) John Milton, *Areopagitica*, 1644. The Bettmann Archive/BBC Hulton.

Areopagitica seems to have had little impact on government policy during Milton's time. When England finally abolished press licensing in 1694 it was apparently due less to philosophical objections than to mounting difficulties of enforcement. The insatiable demand for unlicensed works made enforcement almost impossible and increasingly coaxed the stationers into neglect of their enforcement duties. Milton's words, whatever their influence in his time,

are today counted as classic statements in the long and recurring struggles against censorship.

For Milton's role in struggles for the establishment of authorship rights, see COPYRIGHT.

Bibliography. Fredrick S. Siebert, *Freedom of the Press in England 1476-1776: The Rise and Fall of Government Controls*, Urbana, Ill., 1952.

CHARLES M. FIRESTONE

consciously and immediately. The second kind is more abstract, using metaphor and synecdoche, and usually conveys emotions or mood. Open and closed postures in the Western tradition, for example, convey beauty, good, and happiness in the case of the former and ugliness, evil, and sadness in the case of the latter. Likewise speed of movement is important: fast movements are associated with COMEDY and slow ones with TRAGEDY. Audiences are moved along in their understanding by this kind of symbol but usually at a subconscious level. The third category uses symbols that function like paragraph markers. They cue a change of scene or character or denote the passage of time. These include passing the hand down in front of the face, slowly closing and opening the EYES, and making one complete revolution in place. The timing and use of these three categories of symbols separate mimes who communicate successfully from those who do not.

Mime condenses time. Mime cannot take a long time to explain something; it has to be clear immediately. In addition mime consciously slows its movements and gestures because gestures executed at normal speeds are lost on an audience. Speeding up normal gestures, on the other hand, has a comic effect. Further, mime does not use the heightened rhythmical time that gives DANCE its ability to call forth a kinesthetic response. In this sense it is, even with its slowing and condensation, closer to ordinary rhythm than is dance.

Mime uses space in a condensed and economical manner as well. It creates the illusion of an expanded space that has volume, mass, and thickness. Space has tension and resistance as the body of the mime moves through it and shapes it. As Marceau has said, the mime sculpts the volume and size of what he or she portrays.

Impulse and weight, the last pair of features, are linked to time and space and are among the most important defining features of mime. Mimes begin each movement or gesture with a concentration of energy in the body and a quick release of that energy before the regular flow of the movement or gesture. This is impulse, and it gives definition and motivation to movement and gesture. It limns them, making them clear and sharp rather than undefined and shapeless. It focuses the audience's attention, although it is not a feature that most observers would notice except in its absence.

Mime succeeds in its illusions wherever the PERCEPTION of weight to the invisible is sensed. One example Marceau uses is that of the butterfly. We think of the butterfly as the epitome of lightness. If the mime is to make a convincing butterfly, however, there has to be a solidity about it. Mimes use such terms as "light-heaviness" and "feeling the weight," but there must be shadings depending on what is

being portrayed. In Marceau's mime "The Tree" he metamorphoses from human to tree and back again. He is successful because he changes the density or weight of his body to match human and tree.

Bibliography. Étienne Decroux, *Paroles sur le mime*, Paris, 1963; David Mayer, *Harlequin in His Element: The English Pantomime 1806–1836*, Cambridge, Mass., 1969; Constant Mic [Konstantin Miklashevskii], *La commedia dell'arte*, Paris, 1927, reprint 1980; Allardyce Nicoll, *Masks, Mimes, and Miracles: Studies in the Popular Theater*, New York, 1963; Bari Rolfe, ed., *Mimes on Miming*, Los Angeles, 1980; Anya Peterson Royce, *Movement and Meaning: Creativity and Interpretation in Ballet and Mime*, Bloomington, Ind., 1984; Franco Ruffini, *Semiotica del testo: L'esempio teatro*, Rome, 1978; Robert F. Storey, *Pierrot: A Critical History of a Mask*, Princeton, N.J., 1978.

ANYA PETERSON ROYCE

MINORITIES IN THE MEDIA

Media industries around the world, especially in countries with commercial mass media systems, are geared to provide services to broad, heterogeneous audiences. In consequence, the proportion of services specifically designed for social, ethnic, cultural, religious, or other minorities is generally quite small.

The degree and quality of coverage by the media of social "minority" groups such as women, CHILDREN, the elderly, the poor, and the handicapped have been criticized at several levels. First, inadequate or nonexistent coverage of minorities is considered severely damaging to vital processes of representative government. Second, the lack of fair treatment by the media and of full participation in them results in the diminution of minorities' rights and opportunities. Third, stereotyping has remained more persistent and persuasive than is acceptable to champions of equity at home and abroad. Participation by members of minority groups in communication industry organizations is often urged as a corrective measure, but the slow pace of such minority participation has been discouraging. As late as the mid-1980s, 61 percent of newspapers published in the United States employed no minority journalists (see MINORITY MEDIA). Minority employment opportunities were better on metropolitan newspapers than on local organs. At that time, out of a newspaper force of approximately forty-nine thousand, less than twenty-nine hundred were minority-group members.

All the news media are increasingly responsive to new commercial requirements useful to minorities. In the television industry, for example, modeling programming to certain audience segments—"nar-

rowcasting"—has become more pronounced. Advertisers anxious about demographics are determined to reach specific segments of the potential audience. Minorities with a long history of communications distress find themselves appreciated as marketing opportunities (see CONSUMER RESEARCH). Broadcasting has become less commercially viable than narrowcasting. The collective wealth of minority groups has proven to be an unexpected boon. Segments of the general population according to sex, age, or geographic location are of great interest to those with products or ideas to sell, and politicians and government officials are also captivated by new promotional mixes.

Minority investment in and proprietorship of U.S. instruments of communication—newspapers, magazines, RADIO and television stations—is becoming significant, even in a communications world dominated by giant conglomerates. As of 1985 there were important radio station developments: 275 programmed to blacks, 2 to Japanese-Americans, 130 to Spanish speakers, 4 to Native Americans. In that year minority newspaper enterprises included 2 dailies and 159 weeklies directed to a black audience, 5 dailies and 24 weeklies in Spanish, 10 dailies and 2 weeklies in Chinese, 6 dailies and 4 weeklies in Japanese. These small beginnings have great social and political importance and indicate a possibility of sharp change by the turn of the century.

The people of the United States received a fair warning in 1968 from the National Commission on Civil Disorders, appointed by President Lyndon Johnson and chaired by then governor of Illinois Otto Kerner. The Kerner Commission had been charged with advising the president on means of reducing racial tensions after a long summer of rioting in major cities. The commission concluded:

The nation is rapidly moving toward two separate Americas . . . [which] threatens us with two perils. . . . [F]irst is the danger of sustained violence in our cities. . . . [S]econd is the danger of a conclusive repudiation of the traditional American ideals of individual dignity, freedom and equality of opportunity.

The Kerner Commission was concerned about how implicated the press was in the conditions that led to or away from the riots. Not surprisingly the commission found that there was a failure "to portray the Negro as a matter of routine and in the context of the total society." Results of this warning have been disappointing or ambiguous.

The Kerner Commission's advocacy of a single United States, served by a communications industry that would attempt to tell the story of commonly held dreams and aspirations, did not envision any other alternative to social disaster. Nevertheless, there are other scenarios. The Hispanics of the United

States follow several. As the largest bilingual collective in the population they subscribe to the majority media services and also, in significant numbers, to Spanish-language print and electronic media. Many have little choice, being primarily Spanish speakers on a daily basis or knowing little or no English. It is estimated that at least twelve million Hispanics watched Spanish-language television in the United States in any week of 1986. Newscasts, variety shows, sports events, and *telenovelas* came from Mexico and other Latin American sources (see SOAP OPERA; SPORTS). Audiences in sixty-two U.S. cities with large Hispanic populations were served by Spanish International Network (SIN). At that time almost twenty million Hispanics lived in the United States.

Proponents of bilingual communication stress that society as a whole could be enriched if the messages carried by the media bring people together. However, some critics allege that cultural affinity to special media could cause problems, charging that cultural preferences may have unacceptable political consequences. Bilingualism in public EDUCATION, and its effects on the necessary centrality of national identification, has become an increasingly heated subject, with controversy expected to remain intrinsic to national debates over what elemental requirements should be imposed on the citizenry as a whole.

The conflict between cultural pluralism and unification of political allegiances is central to international mass media issues in both developing and industrialized nations. Developing countries are concerned with the impact of Western (especially U.S.) media programming penetration, causing media consumers around the world to become expectant pursuers of materially unattainable or culturally irrelevant goals.

To stress internal planning and emphasize relationships between minorities and the politically or culturally dominant ethnic majority, many developing countries control domestic media programming one way or another. For example, Malaysia provides news in several languages, including Bahasa, Chinese, Indian languages, and English, through government-controlled electronic media. Whatever the language, there is tremendous sensitivity to divisive issues that could possibly inflame intergroup passions. The emphasis is on reporting culturally positive news. The commercial television channel that commenced operations in the mid-1980s also is careful about interethnic amity among Malays, Chinese, Indians, and others who are all Malaysians. However, its program schedules in that period reflect a heavy dependence on U.S. television productions. Such programs as "Webster," "The Night Stalker," "National Geographic," "Cutter to Houston," "Dynasty," "Cheers," "Knots Landing," "Star Trek," "Hill Street Blues," "Hardcastle and McCormick," and "Magnum P.I."

were all in a typical week's fare, and the precise impact of such a barrage can scarcely be assessed.

Malaysia is fairly representative of a general situation in the Third World. Productions of locally important television programs are in exceedingly short supply compared with the need to explain the peoples of the nations and region to one another. Educational and entertainment materials from far away, better suited to conditions in Chicago, New York, Boston, or Los Angeles (to the degree they are suited), shape new mental realities, myths, and expectations (see EDUCATIONAL TELEVISION). Local television services, governmental and private, have accepted the available in order to avoid the alternative—a void. To differing degrees such diverse nations as Zimbabwe, Kenya, Great Britain, Singapore, and Canada have suffered from cultural dilution by their absorption of foreign programming. Because each nation is really an amalgam of minorities, the result is that important internal problems are unresolved.

The objectives of media planners include much of import to minorities who require full, fair, representative, and honest depictions. Unfortunately, positive reporting has not been as evident as stereotyping, which seeds misunderstanding.

Bibliography. Samuel P. Huntington, *Political Order in Changing Societies*, New Haven, Conn., 1968; Elihu Katz and George Wedell, *Broadcasting in the Third World*, Cambridge, Mass., 1977; D. S. Mehta, *Mass Communication and Journalism in India*, New Delhi, 1979; Bernard Rubin, *Media, Politics, and Democracy*, New York, 1977; idem, ed., *Small Voices and Great Trumpets: Minorities and the Media*, New York, 1980; Anthony Smith, *The Geopolitics of Information: How Western Culture Dominates the World*, New York, 1980; Donald F. Ungurait, Thomas W. Bohn, and Ray E. Hiebert, eds., *Media Now*, New York, 1985.

BERNARD RUBIN

MINORITY MEDIA

The term *minority media* has been used since the late 1960s to include very diverse phenomena. It is based on the general concept of "minority" that evolved in the late 1960s as a result of the political revival of ethnic and other groups known as "awakening minorities." The term includes categories such as the immigrant press, the foreign-language press, the nationality press, and, more recently, the ethnic press. As other media joined newspapers in these areas, the term *minority media* became more accurate than *minority press*. Increasingly it is used also as a replacement for the term *special-interest* (or specialized) *media*, describing such different media as a newspaper published in a foreign or vernacular LAN-

GUAGE, a RADIO station serving a certain national or tribal group, a MAGAZINE published by a religious sect, or even publications by any culturally distinct group or movement that considers itself a minority, even if it is numerically a majority. In this sense the feminist press considers itself a minority press. Similarly other media representing or directed toward minority groups, be they prisoners, fans of special types of music, or gays and lesbians, are called minority media. Even political media, if they express dissent, are sometimes included in the category of minority media. Other terms for this phenomenon are *dissent media*, *alternative media*, or *radical media*.

The status of minorities. During the twentieth century sociologists have gradually removed the statistical connotation from the meaning of the word *minority*. Thus, although minorities generally are less



Figure 1. (*Minority Media*) Front page of the first Chinese newspaper published in New York, February 3, 1883. The Bettmann Archive, Inc.

than 50 percent of the population, the variable of size is itself not crucial; as the term is used by politicians and social scientists it is more important that a minority be subordinate to the dominant group within society. This politically subordinate position, rather than its being a numerical minority, is the basic defining characteristic of a minority group and, by consequence, of its media.

Minority media thus include those that are beyond the majority media system but at the same time are numerous enough to be important in the functioning of the whole social and political system. What is more, they are very important in the lives of significant segments of modern societies, especially in multinational countries. As groups relegated to subordinate positions in the status and power structure of a society, minorities traditionally have had limited access to communications media. However, mass education at the elementary level, developments in media technology, and political democracy all made it possible for media to develop that use modern, although usually more primitive and less expensive, technologies to communicate within minority groups and even to present their values to other audiences. In addition, because those media express the distinctiveness of minorities, they can serve to strengthen the identity of minorities.

The history of the minority media is long and complex and is closely related to the place each minority occupies in the larger society. Sometimes minorities exist in a society characterized by cultural pluralism, or "peaceful coexistence" of different minorities, in which differences are encouraged to a certain extent; other societies are characterized by assimilation, or the "melting pot" approach; and still others deal with their minorities through forced integration or the total suppression of minority groups.

History. The phenomenon of minority media is as old as media themselves. However, the minority media whose histories are best known are print media, especially the foreign-language press.

In the United States the first foreign-language newspaper, the German-language *Philadelphia Zeitung*, was established by Benjamin Franklin in 1732. The first U.S. daily in a foreign language was the *Courrier français*, published in Philadelphia between 1794 and 1798. Later, in the nineteenth century, almost a thousand newspapers and magazines were published in the United States for its newest immigrants, mainly of European origin. Those publications were either in the language of the immigrants or in both their language and English. Most of them were in German.

In the nineteenth century, blacks, Native Americans, Hispanics, and other ethnic minority groups on the North American continent established their own newspapers. The first Spanish-language newspaper in

the United States was *El misisipi*, printed in 1808 in New Orleans and partly in English. A few years later, in 1828, the Cherokee Nation founded the first American Indian newspaper, the *Cherokee Phoenix*, in Georgia; it too was a bilingual paper, published partly in English and partly in Cherokee.

In 1827 the first black newspaper in the United States was created as a tool to combat slavery. It was appropriately called *Freedom's Journal*. The explanation for creating such a newspaper was short and is valid for other minority media: "We wish to plead our own case. Too long have others spoken for us. Too long has the public been deceived by misrepresentation in the thing which concerns us dearly." In the case of *Freedom's Journal* this "thing" was obvious—the abolition of slavery. In other cases it was different but similar—fighting for the rights of the minority group represented.

The peak year for the foreign-language press in the United States was 1914. Subsequently the number of titles and the size of the circulation and readership of these newspapers steadily declined. In 1924 more than 140 foreign-language dailies were published; in the 1980s fewer than 40 dailies survived. The total number of foreign-language newspapers declined from approximately 1,000 to about 200 in some two dozen languages, the majority of them in Spanish, Yiddish, Polish, Irish, Italian, and Japanese. However, during the same period electronic media such as radio and television were used increasingly by minority groups. For example, although there were only 9 Spanish-language dailies in the 1980s, more than 120 radio stations aired their programs in Spanish, and more than 600 broadcast some Spanish programming. The newest immigrants, from Asia (Vietnamese, Koreans), were increasingly involved in radio programming in their languages.

The role of minority media. The two main functions of minority media are (1) fighting for the rights of the minority and (2) giving minority members a feeling of identity, increasing their social cohesiveness, and providing an escape from homesickness and the isolation of life in a strange or hostile environment. The print media better serve the first function; they are usually militant, advocacy media featuring a journalistic style that distinguishes itself from "objective reporting." Radio and television are better suited to the second function—serving the psychological and cultural needs of minorities.

In the second half of the twentieth century the number of minority media everywhere in the world substantially increased. In Western countries this was linked to market segmentation, a strategy of dividing the mass market into many easily identifiable segments of different groups of customers. Although minorities are ideal market segments, they were neglected by advertisers for years because of their lack

of strong buying power (*see* ADVERTISING). Growing prosperity among the formerly most economically deprived minorities helped to support the media especially directed to them. This was especially true in the case of radio and television.

It is important to distinguish between minority media and minority-oriented media. The former comprise media that either are produced by minority groups or serve their cultural needs and help to fulfill their cultural, social, and political strategies. The latter comprise media that are produced not by the minority but by external groups—usually advertisers, sometimes political associations—that want to derive some advantage from the minority group. In practice the differences between media belonging to those two categories are not easy to define, but this distinction should be kept in mind when analyzing the role of different media in sustaining the cultural identity of minorities, directing their activities, and defining their relation to other minorities and to the majority. The growth in the number of minority media in Western countries is a result of the rapid increase in minority-oriented media rather than an increase in actual minority media.

In contrast there is a proliferation of minority media in Third World countries, mainly because of the political and cultural emancipation of formerly oppressed minorities and technological innovations that make it possible to employ mass media techniques even among very poor groups. This creates problems when minorities are secessionist, that is, are seeking both cultural and political independence. In the Soviet Union there has been a substantial increase in the number of minority media. However, these media are part of the centrally planned media system. Thus, while they serve certain cultural needs of minorities, especially in the sphere of language, customs, and FOLKLORE, at the same time they are used to integrate minorities into the larger political and ideological system, based on an assimilationist perspective.

The upheavals of World War II and the following years precipitated new waves of MIGRATION and new issues of minority needs and rights. The impact was felt in countries like the United States and Canada, which already had complex multiethnic societies, but also in Australia, where the population had been (except for its Aboriginal communities) predominantly of English descent. An immigration wave of the postwar years drastically altered the population pattern and gradually led to a profusion of multiethnic and multilingual media. *See* AUSTRALASIA, TWENTIETH CENTURY.

Everywhere in the world the main problem with minority media is the issue of their independence from the whole society. Too much independence threatens the social order; too little can lead to

resistance and potential revolt. The Western democracies usually resolve this dilemma by economic control, allowing only a certain degree of editorial freedom because the media are dependent on advertisers. The Third World countries most frequently use physical force to suppress the secessionist tendencies of minority media. And the Soviet Union uses the ideological concept of harmonious relations between nationalities and the political power of the Communist party to enforce cooperation among its different ethnic minorities.

British philosopher John Stuart Mill (1806–1873) wrote in his essay *On Liberty*, “If all mankind minus one, were of one opinion, and only one person were of the contrary opinion, mankind would be no more justified in silencing that one person than he, if he had the power, would be justified in silencing mankind.” The spirit of this statement can be extended to argue that the real test of media freedom is the freedom of minority media and the extent to which minorities can openly express their goals and values, even if they strongly contradict majority aims and values. The history of the freedom of minority media is therefore the history of the freedom of the media.

See also AGENDA-SETTING; CITIZEN ACCESS; GOVERNMENT-MEDIA RELATIONS; MINORITIES IN THE MEDIA; RELIGIOUS BROADCASTING; TELEVISION NEWS.

Bibliography. Burrelle's *Special Groups Media Directory*, Livingston, N.J., 1980; Anthony Gary Dworkin and Rosalind J. Dworkin, eds., *The Minority Report: An Introduction to Racial, Ethnic, and Gender Relations*, 2d ed., New York, 1982; Lauren Kessler, *The Dissident Press: Alternative Journalism in American History*, Beverly Hills, Calif., 1984; James E. Murphy and Sharon M. Murphy, *Let My People Know: American Indian Journalism, 1828–1978*, Norman, Okla., 1981; Robert E. Park, *The Immigrant Press and Its Control*, New York, 1922, reprint Westport, Conn., 1970; Bernard Rubin, ed., *Small Voices and Great Trumpets: Minorities and the Media*, New York, 1980; Edward Sagarin, ed., *The Other Minorities: Nonethnic Collectivities Conceptualized as Minorities Groups*, Waltham, Mass., 1971; Clint C. Wilson and Felix Gutierrez, *Minorities and Media: Diversity and the End of Mass Communication*, Beverly Hills, Calif., 1985; Lubomyr R. Wynar and Anna T. Wynar, eds., *Encyclopedic Dictionary of Ethnic Newspapers and Periodicals in the United States*, 2d ed., Littleton, Colo., 1976; Donald Young, *American Minority Peoples*, New York, 1932.

TOMASZ GOBAN-KLAS

MODE

Thought and knowledge exist in a variety of distinct modes—symbolic systems dependent on our biological structures and physical environment that deter-

mine the kinds of information we perceive, manipulate, and communicate. MEANING can be understood or purposively communicated only within a symbolic mode, and some minimal level of competence is the precondition for the creation or comprehension of meaning within such a mode. Information is structured according to the principles of the mode within which it is perceived, comprehended, and communicated. Information coded within a mode is only partially susceptible to translation into other modes; thus competence in creating or comprehending meanings is acquired only through experience with a particular mode.

A mode of symbolic behavior is a system of internal and external actions and operations in terms of which objects and events are perceived, coded cognitively for long-term storage and retrieval (*see* COGNITION), subjected to transformations and orderings, and organized into forms that elicit meaningful inferences from the creator and others who possess competence in that mode. Modes of symbolic behavior are not identified with specific sensory systems. They may be organized largely within a single sensory system but may also blend and overlap. The same sensory system is capable of being utilized for PERFORMANCE in various modes of perceptual organization and symbolic communication.

Codes and modes. A CODE may be defined as an organized subset of the total range of elements, operations, and structural principles that are possible in a given mode. In the simplest sense any single LANGUAGE is a code existing within the lexical mode. We encounter symbolic modes in terms of particular native codes that then shape our perceptions, memories, and cognitive processes in that mode. Phenomenologically, the code, not the mode, is the primary level of analysis. Most people need never be aware that the code they know is not coextensive with the symbolic mode—for example, that the base-ten number system is but one of many possible mathematical codes for the symbolic expression of quantities, one code within the logico-mathematical mode.

Many symbolic codes have been formalized through the invention of notation systems such as the ALPHABET, numeric and mathematical signs (*see* MATHEMATICS; NUMBER), and musical notation (*see* MUSIC THEORIES—NOTATIONS AND LITERACY). These are powerful tools for the storage and transmission of symbolic messages. Skill in decoding a notation system and retrieving the information stored in the code frees one from dependence on immediate experience and allows wide access to the heritage of CULTURE. *See also* SIGN; SIGN SYSTEM.

Primary, derived, and technical modes. The primary symbolic modes are (1) the lexical, (2) the social-gestural, (3) the iconic, (4) the logico-mathematical, and (5) the musical. It should be noted

that these modes are not all equally elaborated and formalized (or, possibly, equally formalizable), that they have many areas of interpenetration, and that they do not exhaust the total range of human symbolic activity.

Derived, or blended, modes build on one or more of the primary modes. DANCE may be the best example of this category because it combines significant elements and principles of the social-gestural and musical modes, creating a blend of NARRATIVE and expressive codes.

Technical modes of knowledge and action involve the application of competence in primary modes (e.g., the iconic, logico-mathematical, and lexical) to the understanding of physical and biological systems and structures and function as the basis of skills not primarily symbolic in nature. Such skills are involved in the production of material goods and the execution of complex nonsymbolic performances. These include the various sciences, engineering and the technologies, ARCHITECTURE, and so on, and are dependent on prior acquisition of competence in the appropriate symbolic modes.

The criteria that determine whether a mode is primary are independence and self-sufficiency. A primary mode is one that can be identified with (1) a range of objects and events or field of reference, (2) a distinctive perceptual/memory storage/retrieval capacity, (3) a set of operations and transformations, (4) principles of structuring that govern the formulation and communication of meaning, and (5) non-translatability into other modes.

Information coded in one mode cannot be fully recoded in another. The essence of a symbolic message will only be understood within the code in which it was created. There is no adequate verbal translation of an equation in differential calculus, a Bach fugue, the smile of *La Gioconda*, or a *Śiva Naṭarāja*. Each of these conveys specific meanings with precision but only in the terms of the proper mode.

Acquiring symbolic competence. The ability to comprehend symbolic meaning depends on the acquisition of competence in the mode in which that meaning exists. Like all knowledge and skill, that competence can only be acquired through action. Activities that develop and extend our competence to deal effectively with the environment seem to be inherently satisfying and thus motivating. The learning process by which we develop competencies is self-sustaining once we reach the point of being able to produce desired effects and observe the incremental extensions of our abilities. The pleasures that attend such activities can be seen in the behavior of CHILDREN absorbed in the seemingly endless repetition of manipulations and movements.

The activities by which we acquire and extend competence in the comprehension and creation of

symbolic forms, however, are a somewhat special case. In these activities we are interacting with and manipulating a social as well as a physical environment. The effects being produced and observed, as we learn to control and predict that social environment and the consequences of our actions, are not those of physical cause and effect. They are the responses of social beings, and the regularities governing them are not those of nature but of culture. A child can learn that fire burns through unambiguous physical contact but can only learn the meaning of symbolic actions and objects through interaction with other humans who respond in terms of a symbolic code. For example, SPEECH does not develop in the child as the inevitable unfolding of an innate ability; rather, it emerges through the interaction of a developing intelligence with responsive adults whose actions and reactions are consistent and ruled and who are eager to reward signs of consistency and purposiveness as they emerge in the vocalizations of the child.

The crucial aspect of the interactive learning process through which we acquire communicative competence in the symbolic modes is the recognition on the part of those who function as a source of feedback that we are engaging in behavior that is potentially meaningful. Only with such a response can we begin to identify the elements and organizational principles that determine the structuring of meanings within a symbolic mode.

Creative activity in a symbolic mode is deeply rooted in the process of comprehension in that mode. Meaning is defined by the conventions that govern the range of elements, operations, and organizational principles of a code. The ability to imply meaning intentionally is dependent on the ability to perceive and infer it. As U.S. musicologist Leonard Meyer stated, "It is because the composer is also a listener that he is able to control his inspiration with reference to the listener."

The tacitness of symbolic knowledge. In setting out to discuss the nature of science, U.S. philosopher Michael Polanyi insisted on the centrality and tacitness of skill: "The aim of a skillful performance is achieved by the observance of a set of rules which are not known as such to the person following them." Basic motor and perceptual-cognitive skills become increasingly less explicit and conscious as they become better known through practice. Skillful activity can be carried on efficiently only when we need not (or cannot) consciously attend to its ongoing physical, perceptual, and cognitive operations.

At least one reason for this often-noted tacitness of skillful action is that although we tend to conceive of conscious attention in terms of verbally coded information and thought, in fact much if not most of the physical, perceptual, and cognitive elements

of skillful performance are not amenable to verbal coding and comprehension. We know much that cannot be expressed in words but that can be communicated in other symbolic forms. This is a second sense of the tacit nature of skill and derives from the essential nontranslatability of knowledge from a symbolic mode into some assumed verbal lingua franca of individual consciousness and social communication.

Symbolic codes become involuntary and transparent structurings of thought and action governing our constructions of reality. We assimilate the world via perceptual-cognitive schemata, which, although dependent on innate neurological structures, are developed, modified, and extended through interactions with and accommodations to the environment. Knowledge is acquired and expressed through performance in a mode, and the use of that mode becomes automatic and transparent. As we become competent native speakers, words and sentences in our native language become carriers of meanings, and we no longer need to pay—or can pay—conscious attention to their actual auditory or visual characteristics. We come to hear meanings rather than sounds and do so involuntarily.

Varieties of Symbolic Experience

Every person must acquire minimal competence in some of these modes in order to be defined as normal or even as human. In all cultures the lexical and the social-gestural modes form the basic complement of competence without which an individual is labeled deviant. Beyond that, however, cultures vary widely in terms of the symbolic competencies they require, reward, or even permit. In modern Western culture, at least, it is generally assumed that special attributes (best characterized by the concept of talent) are required in order for an individual to move beyond the basics of lexical and social-gestural competence to the development of competence in the iconic, logico-mathematical, or musical modes. As British ethnomusicologist John Blacking has argued in the case of music, other cultures make radically different assumptions about the symbolic capabilities of their members.

The lexical mode. The fundamental mode of symbolic thought and communication is that of verbal language. The lexical mode is so dominant an element of human consciousness that we tend to see it as *the* embodiment of intelligence and meaning. This is amplified by the fact that the lexical seems to be unique among symbolic modes in its reflexive capabilities, permitting users to engage in metalinguistic analyses of their own communicative behavior. Yet the lexical mode must also be seen in the context of the full variety of human symbolic experience.

The social-gestural mode. Most human behavior is determined by learned, culturally specific codes that communicate to others in that culture a great deal of information about the stable characteristics and present intentions of the actor. Usually one will become consciously aware of the fact that actions and gestures carry decodable information about one's background and intentions only when one is (1) placed in a foreign culture, (2) trained to observe deliberately such processes (e.g., in ethnographic or clinical training), or (3) attempting to control consciously the information being conveyed. In the last instance one can sometimes use books on etiquette in order to pass successfully in social circles in which one was not originally acculturated. Such code dictionaries are not written for native speakers, who often regard the use of such devices as a sign that the user does not belong.

Social-gestural coding extends from FACIAL EXPRESSION, bodily GESTURE, and the negotiation of personal space (see INTERPERSONAL DISTANCE) to the patterned messages of CLOTHING, housing style and furnishings, and even FOOD habits. The analyst's axiom that "nothing never happens" reflects the fact that we constantly signal our compliance with or defiance of social-gestural codes.

The iconic mode. Iconic images are uniquely suited for communicating about the spatial, topological nature of objects and about relations between objects in space, and they are among the most effective means of expressing and evoking emotions (see ICONOGRAPHY). Visual images and symbols can convey information that cannot be formulated in the lexical or indeed any other mode (see SYMBOLISM; VISUAL IMAGE). For one thing, as U.S. scholar William Ivins noted, words are essentially "conventional symbols for similarities" and are thus incapable of communicating the unique and singular aspects of objects and events that can be depicted visually.

The potential of visual images to convey precise information about particular objects and their spatial relationships was a prerequisite for the development of scientific and technological enterprises and the dissemination of their achievements. The invention of PRINTING and other means of precise GRAPHIC REPRODUCTION of images made possible the unprecedented and rapid growth of modern science and technology.

However, the particular power of the iconic mode probably resides in the impact of the singular visual image or object. Our relationship to the world is so tied to the sensory data of visual perception, providing us with the sense of space and volume through which we construct our environment (see PERCEPTION—STILL AND MOVING PICTURES), that we may intuitively assign an undue reality to visual images. Consequently human beings have often viewed the

creators of visual works of ART—whether a two-dimensional visual image or a three-dimensional SCULPTURE—with awe for their ability to rival the creative powers appropriate to gods. In fact visual images and objects, like all symbolic constructions, are determined largely by conventions of selection, transformation, and organization that owe some allegiance to the facts of physical reality and the neuropsychology of perception yet are rooted in the historical processes of the negotiation of communicative meanings.

The logico-mathematical mode. Most adults are aware of the existence of the logico-mathematical mode as a strange and difficult terrain that they have traversed only as far as the foothills of simple arithmetic before being defeated by the demands of higher mathematics. Here, as with the iconic and musical modes, we have learned to quickly accept such defeats as proof that we lack the talent required to go further. Consequently it is difficult to appreciate the nature of thought in this mode; we must rely on the testimony of those who have mastered its challenge.

The eminent French mathematician Jacques Hadamard obtained statements from many mathematicians about their conceptions of the nature of logico-mathematical thought. The most consistent aspect of these reports was that mathematical thought is not performed in the linguistic mode. As Hadamard said of his own mathematical work, "I insist that words are totally absent from my mind when I really think." In describing logico-mathematical knowledge, Swiss psychologist JEAN PIAGET further clarifies its independence from language:

Logic . . . is not to be reduced, as some people would have it, to a system of notations inherent in speech or in any sort of language. It also consists of a system of operations (classifying, making series, making connections, making use of combinative or "transformation groups," etc.) and the source of these operations is to be found beyond language, in the general coordinations of action.

The musical mode. In every known human culture there exist musical codes of formally organized communication. As a culturally determined symbolic code, music, like mathematics, expresses and communicates specific but verbally ineffable meanings. The twentieth-century U.S. composer Roger Sessions described the musical experience in similar terms:

It seems to me quite clear that music, far from being in any sense vague or imprecise, is within its own sphere the most precise possible language. I have tried to imply this by saying that music embodies a certain type of movement rather than that it expresses it. All of the elements of this movement—rhythm, pitch, accent, dynamic shading, tone quality, and others sometimes even more subtle—are, in competent hands, kept under the most exquisite control, by composer and performer alike; the movement that is the stuff of music is given the most precise possible

shape. . . . It achieves a meaning which can be achieved in no other way.

Cultures vary widely in the degree to which they expect, cultivate, and achieve widespread competence in musical creation and performance (see MUSIC COMPOSITION AND IMPROVISATION; MUSIC PERFORMANCE). In Western societies in particular it is generally assumed that only a gifted minority possesses the talent to produce music; most people are relegated to the role of audience member. But as Blacking has argued, this musical division of labor may reflect cultural assumptions and practices more than innate potentials: "Because there are some societies whose members are as competent in music as all people are in language, music may be a species-specific trait of man."

Even as listeners, however, members of all societies draw upon a tacit fluency in the specifics of the musical codes that they have heard since early childhood. In Meyer's words, "We perceive and think in terms of a specific musical language just as we think in terms of a specific vocabulary and grammar; and the possibilities presented to us by a particular musical vocabulary and grammar condition the operation of our mental processes and hence of the expectations which are entertained on the basis of those processes."

Bibliography. Rudolf Arnheim, *Visual Thinking*, Berkeley, Calif., 1969; John Blacking, *How Musical Is Man?* Seattle, Wash., 1973; Howard Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, New York, 1983; Larry Gross, "Modes of Communication and the Acquisition of Symbolic Competence," in *Media and Symbols: The Forms of Expression, Communication, and Education* (Yearbook of the National Society for the Study of Education, Vol. 73, pt. 1), ed. by David R. Olson, Chicago, 1974; Jacques Hadamard, *An Essay on the Psychology of Invention in the Mathematical Field*, Princeton, N.J., 1945, reprint New York, 1954; Edward T. Hall, *The Silent Language*, New York, 1959, reprint 1973; William M. Ivins, *Prints and Visual Communication*, London, 1953, reprint Cambridge, Mass., 1969; Leonard B. Meyer, *Emotion and Meaning in Music*, Chicago, 1956; Michael Polanyi, *Personal Knowledge*, Chicago and London, 1958; Roger Sessions, *The Musical Experience of Composer, Performer, Listener*, Princeton, N.J., 1950, reprint 1971.

LARRY GROSS

MODELING. See SOCIAL COGNITIVE THEORY.

MODELS OF COMMUNICATION

Models simplify reality, select key elements, and indicate relationships. Communication models vary in the degree to which they are more dynamic (dealing

with process and change) or more static (dealing with structure and relationship), although both aspects are present in all communication. Models also have potential disadvantages. Simplification involves selection and may mislead by omitting important features. The more general the model, the less true it will be to any one particular case. One should be aware of such limitations and of the fact that no model is suitable for all purposes or all levels of analysis.

The initial development of communication models in the late 1940s and early 1950s was associated with the emergence of a new science of communication and the search for a general framework for locating different kinds of communication phenomena. Initially the concept of *information* seemed to offer the basis for the new science, and information was conceived of mainly as "uncertainty reduction," following contemporary thinking about CYBERNETICS. The science of communication has developed somewhat differently, retaining a humanistic component and resisting efforts to treat the subject purely in a narrow, mechanistic way. See also INFORMATION THEORY.

Most communication models employ a small number of basic concepts: a sender; a process of encoding into signals or symbols; a message; a channel; a receiver; a relationship; a process of decoding; a range of things to which messages refer ("referents"); and an actual or probable effect, intended or not. Some models incorporate a feedback link from receiver to sender.

The development of communication models has reflected advances in understanding of how communication works. The most relevant points are (1) there is selectivity in attention, PERCEPTION, and retention of messages by the receiver; (2) communication is essentially transactional, with the receiver playing an active role in the course of any communication process; (3) communication does not always flow directly from one sender to one receiver but by way of intervening processes; (4) mass communication processes involve professional mediation between senders and receivers; and (5) communication takes place in complex social systems rather than in isolated acts of transmission and reception.

Early Models

In 1948 U.S. political scientist HAROLD D. LASSWELL presented his verbal model, which became known as the Lasswell formula: "Who says what in which channel to whom with what effect?" With its roots in Aristotelian (see ARISTOTLE) principles of RHETORIC, this model remains a useful way to split the communication process into basic components. Lasswell's own use of it is seen in Figure 1. The major

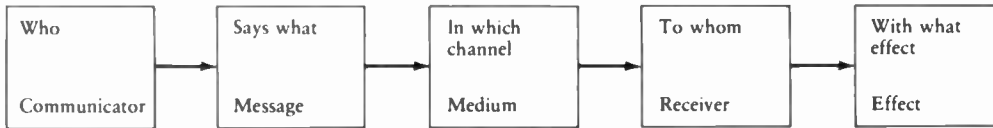


Figure 1. (*Models of Communication*) The Lasswell formula model. Redrawn after Harold D. Lasswell, "The Structure and Function of Communication in Society," in *The Communication of Ideas*, ed. by Lyman Bryson, New York: Institute for Religious and Social Studies, 1948.

value of this model lies in its use as a structuring device and in situations in which the sender has a clear intent to influence the receiver.

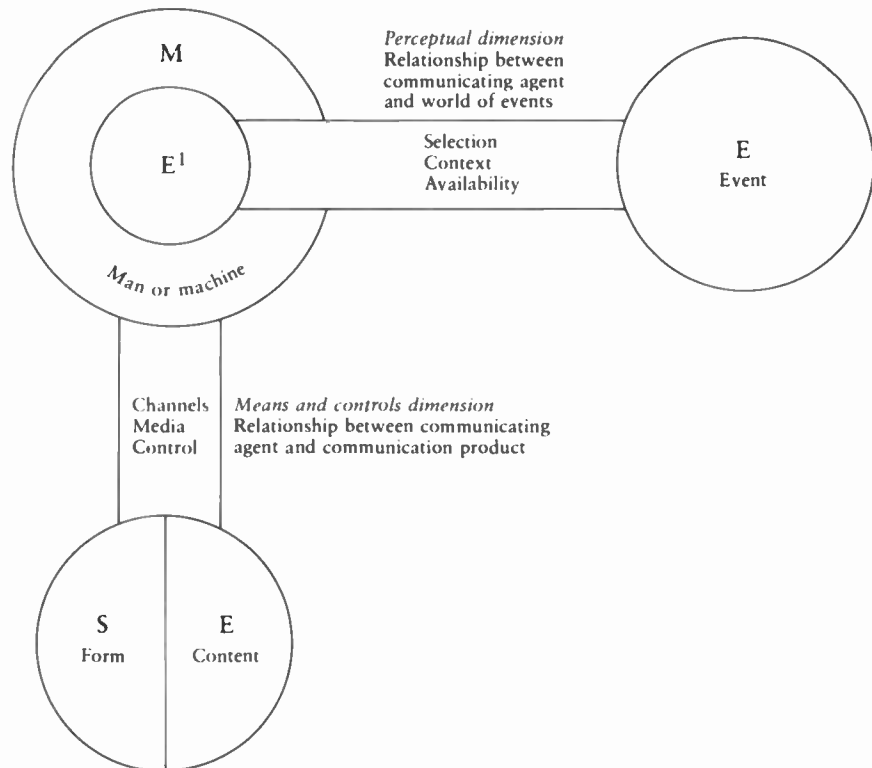
The mathematical model of communication was designed by CLAUDE SHANNON and WARREN WEAVER and was presented in 1949. It shows on the "sender" side the *source* and its *message*, which through the help of a *transmitter* is sent in the physical form of a *signal* to a *receiver*, which reconstructs the signal to another *message*, which ultimately reaches the *destination*. On its way the signal can be more or less distorted by interfering *noise*, which means that the signal received by the receiver is not necessarily identical to the one sent by the transmitter. The Shannon-Weaver model can be used on several different levels. Its original application was technical, but subsequently it was used as an analogy and was applied to different types of human communication.

The second stage in model building involved the elaboration of initial thinking to take into account the complications of human communication and the

development of devices for handling mass communication or communication in other fields. U.S. scholar George Gerbner's general model of communication (1956) has been especially influential and can be summed up in a single sentence that captures its main features: "Someone perceives an event/and reacts/ in a situation/through some means/ to make available materials/in some form/and context/conveying content/with some consequences." Figure 2 illustrates and elaborates on these features. The most important points are that Gerbner takes account of the context of communication situations and also of the participants' perception of and response to situations and communication processes. Communication situations include objective events and subjective perceptions. They are open and transactional. This model can incorporate machine as well as human processes in different combinations and at various stages.

In 1954 U.S. scholar WILBUR SCHRAMM drew on the work of CHARLES OSGOOD to emphasize the circularity of communication and to bring into the

Figure 2. (*Models of Communication*) George Gerbner's general model of communication. Redrawn after George Gerbner, "Toward a General Model of Communication," *Audio-Visual Communication Review* 4 (1956): 171-199.



picture the processes of encoding and decoding, without which messages can have no MEANING. In doing so he laid the foundation for models dealing with essential aspects of mass communication. It was left to two mass media researchers, Bruce Westley and Malcolm MacLean, to incorporate further insights from social psychology into the portrayal of how communication works. These concerned the dynamics of communication as a process of information seeking and information giving. A central idea was that communication is the outcome of a search for balance and congruence between individuals on the one hand and their environment and other persons on the other. Westley and MacLean based their 1957 conceptual model for mass communications research on T. Newcomb's model of interpersonal relations (1953), in the form shown in Figure 3. The main elements labeled in the figure are as follows:

- X: an event or object in the environment
- A: the role of "advocate" or source wishing to present a particular view of event X
- C: a mass medium (or channel) role that selects among A's and X's for further transmission to an audience (B)
- B: the audience role—the eventual "destination" for information, views, and the like
- X': the choice made by C for access to the channel (modified into X'' on the way)
- fBA: feedback from audience to advocate (source)
- fBC: feedback from audience to mass medium (C)
- fCA: feedback from a medium (C) to an advocate (source)
- X₃C etc.: observations among X's made directly by a C (mass medium) without mediation by an A

The model is important for emphasizing several distinctive features of mass communication. (1) There is a long process of selection, with several distinct

stages from event to reception. (2) Much of the communication process is nonpurposive, the role of a medium (C) being often that of neutral broker between audience interests and events or advocates and the audience itself rarely looking for specific information. (3) There are different kinds of, and variable opportunities for, feedback. (4) The whole process is open, self-adjusting, and dynamic, depending on the wider social environment and the number of alternative channels.

Models of Mass Communication and the Social System

Most of the earlier models tried to depict the communication process in a general way. Later several scholars in the field recognized the need for more specific models that would deal, for example, with mass communication.

One of sociology's contributions to mass communication model building has been to point to the relationships between the mass communication process and other processes in society. An example of this is the 1959 model of U.S. sociologists John W. Riley and Mathilda White Riley. In the graphic presentation of this model in Figure 4 one sees the exchange of messages between communicator and receiver, both of whom are tied to primary groups and find themselves in a larger social structure surrounded by an all-embracing social system. Communicating and receiving communications, the individual may find that this social web will mediate and influence the impact of the mass media.

That the mass communication system from a social-psychological standpoint may be quite complicated is shown in a model from 1963 by German communication researcher Gerhard Maletzke, whose "Schema des Feldes der Massenkommunikation"

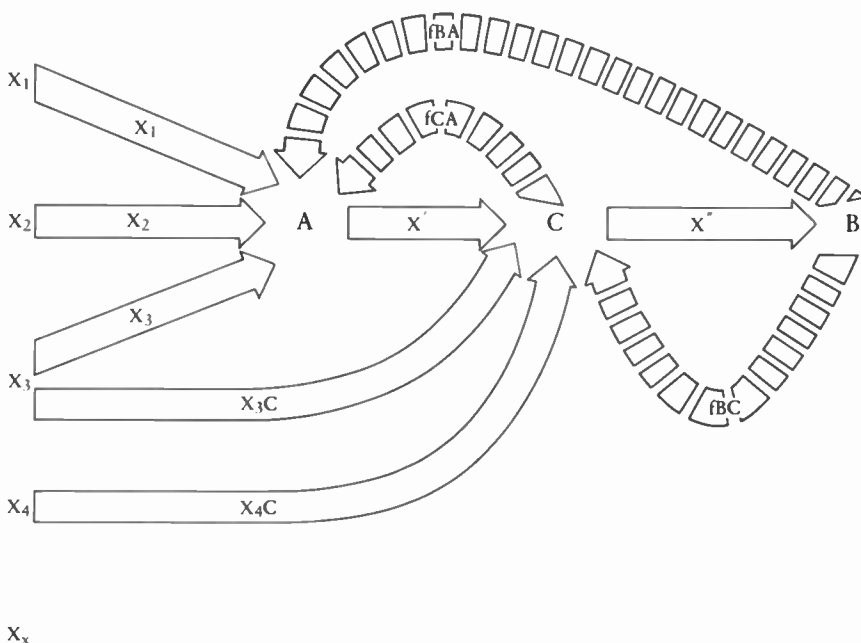
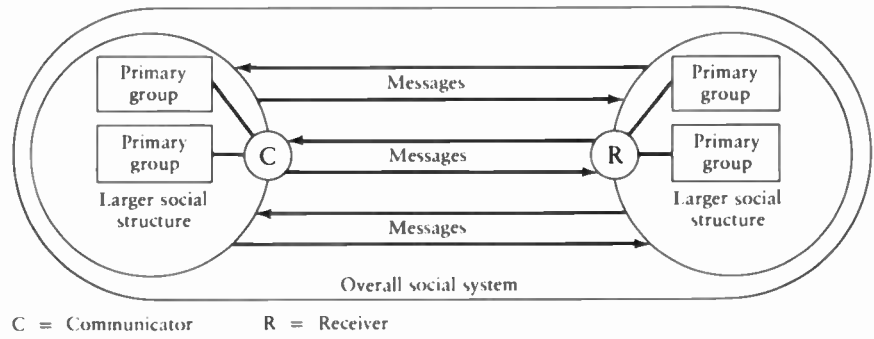


Figure 3. (*Models of Communication*) Bruce Westley and Malcolm MacLean's conceptual model of mass communication. Redrawn after Bruce H. Westley and Malcolm MacLean, "A Conceptual Model for Mass Communication Research," *Journalism Quarterly* 34 (1957): 31-38.

Figure 4. (*Models of Communication*) John W. Riley and Mathilda White Riley's communication system framed by a societal system. Redrawn after John W. Riley and Mathilda White Riley, "Mass Communication and the Social System," in *Sociology Today*, ed. by Robert K. Merton et al., New York: Basic Books, 1959.



(Schema of the Field of Mass Communication) can be seen as an effort to summarize much of the research completed up to that time. The factors that have to be taken into account are shown in Figure 5. Maletzke's model has also proved useful as a structuring device for his comprehensive work *Psychologie der Massenkommunikation* (Psychology of Mass Communication), in which each factor and relationship is described and analyzed.

Communication Effects on Individuals

From the beginning a central issue about communication has been its effects on receivers. Despite the emphasis on intervening variables and social context, research on MASS MEDIA EFFECTS had too much

practical significance for the hypothesis of direct effect to be abandoned. Concern about the unintended, cumulative effects of television on CHILDREN was especially influential. In this connection a distillation of findings from a large amount of research by George Comstock and others (1978) led to a model to handle effects from television on individual behavior. This is presented schematically in Figure 6. The terms used in the model are as follows:

- TV act: any form of human behavior shown on television
- Inputs: messages from television and associated attributes
- TV arousal: extent to which a person is motivated to perform any act in a current situation

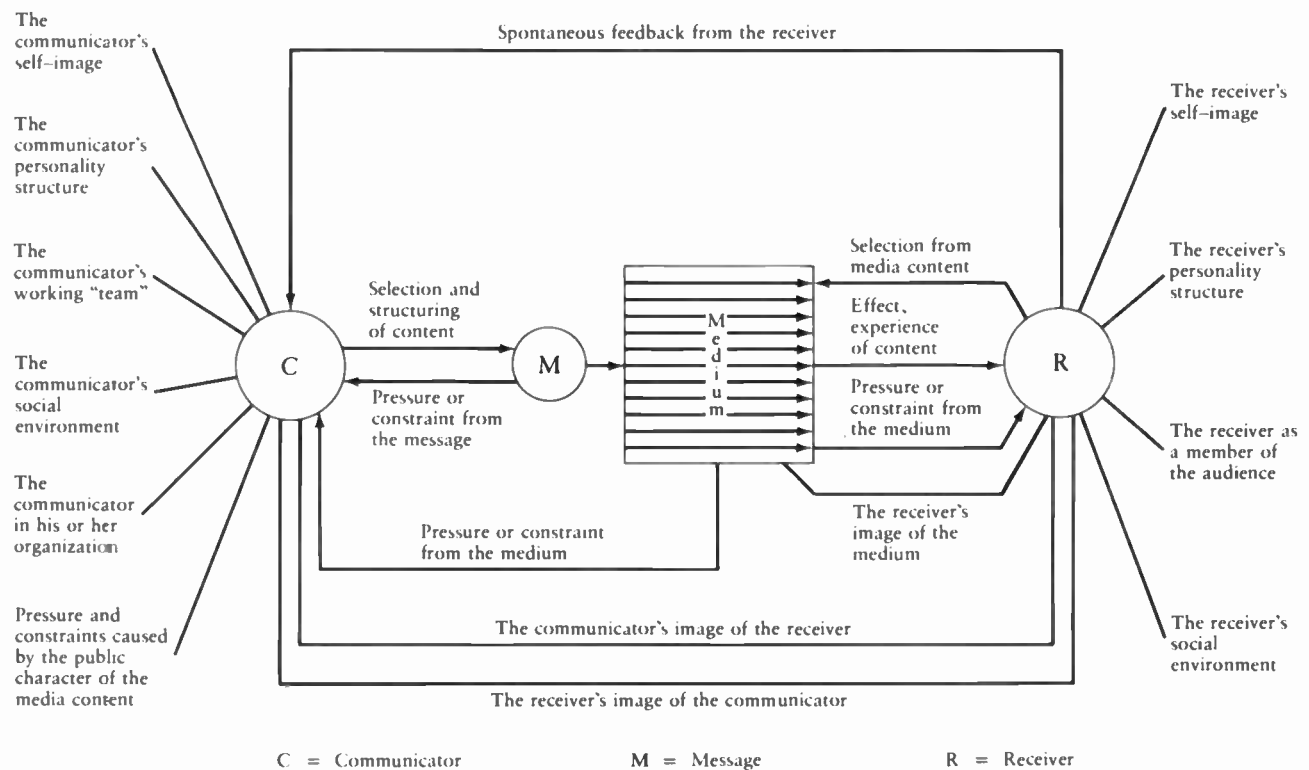


Figure 5. (*Models of Communication*) Gerhard Maletzke's schema of the process of mass communication. Redrawn after Gerhard Maletzke, *Psychologie der Massenkommunikation*, Hamburg: Verlag Hans Bredow-Institut, 1963.

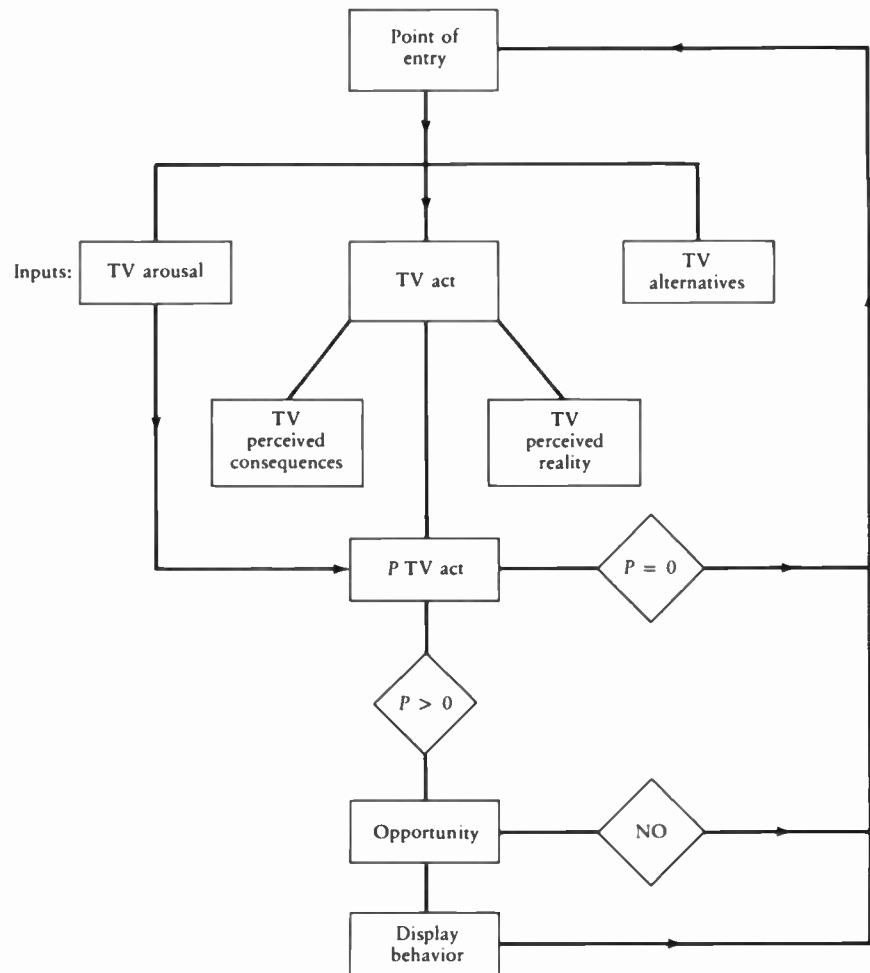


Figure 6. (*Models of Communication*) Model of television's effect on behavior. Redrawn after George Comstock et al., *Television and Human Behavior*, New York: Columbia University Press, 1978.

- TV-perceived consequences: sum of all positive minus all negative values that are learned from television and that go with a given act
- TV-perceived reality: degree to which a person perceives the television portrayal (TV act) to be true to life
- TV alternatives: other (relevant) social behaviors shown on television
- p TV act: probability of carrying out TV act
- Opportunity: real-life chance of putting TV act into practice
- Display behavior: observable performance of social behavior shown on television

This is a probability model in that no effect is intended, but more exposure is likely in general to lead to more effect. Higher probability of effect is associated with higher arousal (interest, excitement), behavior displayed with more positive than negative associations, greater relative prominence of displayed behavior, greater realism, and opportunities for putting behavior into practice (a necessary condition). The effects envisaged can be prosocial as well as

antisocial, the process of effect being essentially the same in both cases.

The model treats behavioral effect as an outcome of a sequential learning process that may be repeated endlessly, with cumulative probabilities of change, depending on the factors mentioned. The underlying model remains that of stimulus-response. The model abstracts the television experience from the complex web of social life and the context of viewing, but it is a useful tool for experimental research and a guide to rational thought about unintended effect. Television is treated as the functional equivalent of any other experience or display from which a behavior might be learned, and the model could thus be used for other kinds of communication situations.

The two-step flow of information model by Elihu Katz and PAUL F. LAZARSFELD (1955) suggests that (1) mass media messages by and large reach people indirectly, that is, they are mediated through and influenced by social relationships; (2) knowledge and dissemination of media content often are transformed into personal influence; and (3) mass communication should be treated in connection with

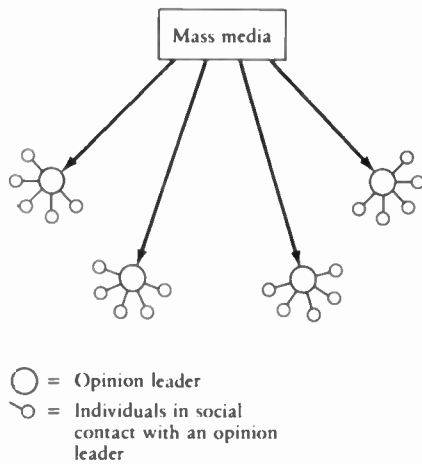


Figure 7. (*Models of Communication*) Elihu Katz and Paul Lazarsfeld's model of the two-step flow of information. Redrawn after Elihu Katz and Paul F. Lazarsfeld, *Personal Influence*, Glencoe, Ill.: Free Press, 1955.

INTERPERSONAL COMMUNICATION systems. According to this model, illustrated in Figure 7, an OPINION LEADER will often function as an interpreter and mediator between medium and individual. The mass-mediated information will now be spread within the interpersonal network around the opinion leader. Some have argued that there may be more than two steps in this process and have therefore proposed a multistep flow of information model. Of all models, the two-step flow of information model would be one of the most widely used—in areas as diverse as rural innovation, political campaigns, and marketing of new products.

A special aspect of communications research and theory deals with the DIFFUSION of innovations. To a considerable extent the important elements and relations in several traditional models of the com-

munication process and those in a diffusion model are seen to be similar. In the diffusion version, however, the sources of messages are typically inventors, change agents, and opinion leaders; the message is the innovation and its perceived attributes; the channels may be mass media or interpersonal; and the receivers are members of social systems. In both types of model the effects are the same: knowledge, attitude change, and behavioral change. In the diffusion of innovations model, overt behavioral changes are especially emphasized.

Probably the most well-known diffusion model is that of U.S. scholars Everett Rogers and Floyd Shoemaker (1971), which describes the innovation-decision process in terms of four main stages: knowledge, PERSUASION, decision, and confirmation. In a later version Rogers (1983) adds a fifth element—implementation—between decision and confirmation. In real life, empirical evidence has shown that one or more stages may be skipped, or the stages may occur in a different order. Rogers himself has announced (1976) the passing of the paradigm represented by the model, stressing that change should not be superimposed from outside but can and should occur from below, that is, from those who seek it on their own behalf.

Using Communication

Whereas most other models take the sender as their starting point, those that deal with use of media and the gratifications they provide necessarily start with the individual member of the media audience and his or her more or less basic needs and motives for engaging in media use. A good example is the model by Olga Linné and Cecilia von Feilitzen (1972), which includes most of the elements and relations one finds in general descriptions of the theory. The actual model (see Figure 8) also gives the individual

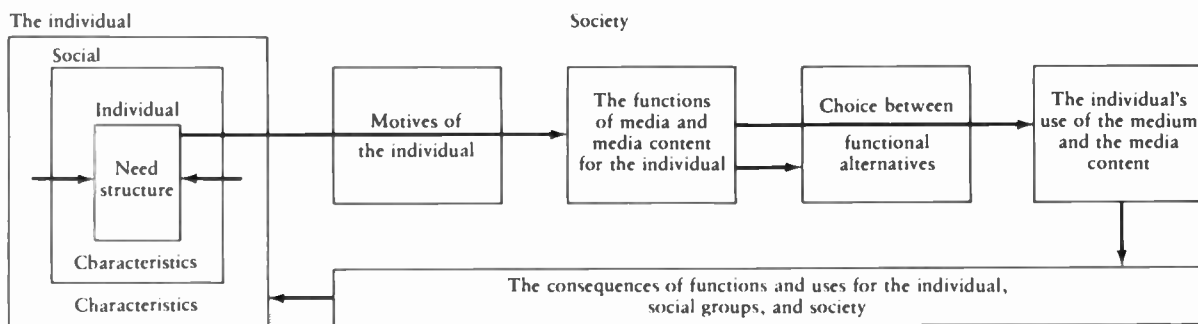


Figure 8. (*Models of Communication*) A model of media audience gratification. Redrawn after Olga Linné and Cecilia von Feilitzen, "Masskommunikationsteorier," in *Radio och TV Möter Publiken*, ed. by Rune Sjöden, Stockholm: Sveriges radio, 1972.

the choice of using media or turning to a functional alternative. The media use may or may not be functional—that is, fulfilling the individual’s needs and thereby yielding the sought-for gratifications. It may also have other consequences and effects on the individual as well as on the social environment.

A more complex version of a uses-and-gratifications model was presented by Swedish scholar Karl Erik Rosengren (1974). A major characteristic of that model was its emphasis on gratifications as solutions to what an individual would regard as problematic.

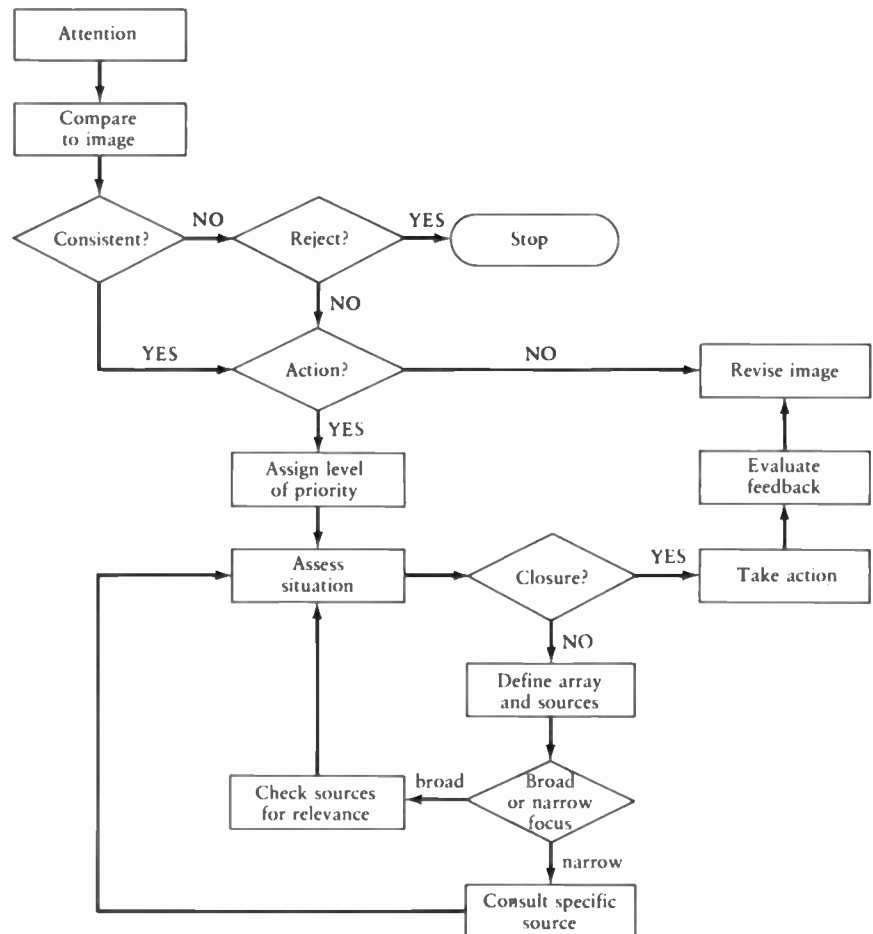
An important motive in communication is the search for information. A model drawn by Lewis Donohew and Leonard Tipton (1973) describes how information is “sought, avoided and processed” by an individual. Graphically it is in the form of a flow chart, which illustrates that the nature of the process consists of a series of consecutive choices to be made. In the flow chart (see Figure 9) the process starts with the perception of a stimulus—a piece of information—that will then be tested in terms of relevance and consistency with the individual’s image of reality. If the result is positive the next question deals with

whether action is to be taken. With a positive answer, level of priority is assigned, and after having assessed the situation, the individual can define the kind of sources for information that would be suitable. There will be a choice between a narrow and a broad focus. In the former case one decides immediately to use one specific source; in the latter the individual first reviews the sources at hand and then decides which to consult. With enough information the individual acts and evaluates the outcome and eventually ends up with a more or less changed image of reality.

Mass Media Systems: Production, Selection, and Flow

As already indicated, the process of mass communication has posed the greatest challenge to model builders because of its complexity. The main difficulties concern the representation of an elaborate institutional framework within which communication takes place and also the many factors that can intervene in organizations between the planning and

Figure 9. (*Models of Communication*) L. Donohew and L. Tipton’s model of seeking, avoiding, and processing information. Redrawn after L. Donohew and L. Tipton, “A Conceptual Model of Information Seeking, Avoiding, and Processing,” in *New Models for Communication*, ed. by Peter Clarke, Beverly Hills, Calif.: Sage, 1973.



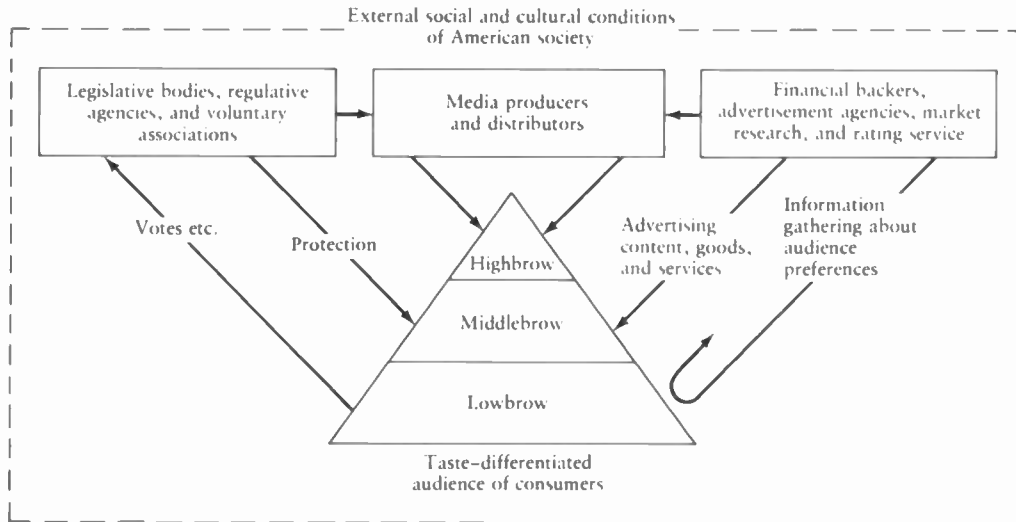


Figure 10. (*Models of Communication*) The American mass media system. Redrawn after Melvin L. DeFleur, *Theories of Mass Communication*, New York: D. McKay Co., 1966.

the realization of the message as sent. The institutional context of mass media activity varies from one national system to another, but a model depicting that of the United States (a free-market system) was drawn by U.S. scholar Melvin DeFleur (1966) and can be used for comparison with other national contexts (see Figure 10).

The drawing is a much simplified version of the original, designed to emphasize the following main points. First, the audience is assumed to be the prime mover (by its demands for media content) and can be stratified according to its tastes and interests in a way that closely corresponds to socioeconomic stratification. Second, financial support is provided to media producers by commercial agencies, whose task is to assess the size of different kinds of demand for content and to invest accordingly. Third, media organizations make and supply content, but usually not without some kind of regulation on legal, technical, social, or financial grounds, through agencies that may represent the interests of the state, the general public, or sections of the audience. The whole system thus works, driven by demand, fueled by finance, and guided by regulatory agencies. The maximization of audiences in such a system is crucial, but demand may be actively stimulated and managed as well as simply responded to. In practice several alternative organizations usually compete to meet or control demand.

The aspects of processing of content within media organizations that have attracted the most attention and that are amenable to treatment by models involve especially the selection and shaping of content. The general process of gatekeeping (see LEWIN, KURT) of media content was first described and investigated by David Manning White in 1950, using an implicit model of the kind shown in Figure 11.

This model simply shows that key figures in a media organization select from incoming material what to transmit further and what to reject at the "gates" of the organization, as it were (see the "channel role" in the Westley-MacLean model described above in Figure 3). Later researchers have drawn attention to significant additional features of this process. First, it has become clear that external sources (the advocates of Westley and MacLean) try to gain access through the gates by establishing collaborative relations with reporters, and there is a differential pressure behind such attempts. Second, in many cases of flow of news items from event to published report, several successive gates must be passed, such as local news agency, central agency editor, telegraph editor, or subeditor or chief editor of a news medium. Third, items pass gates only if they have certain favorable attributes or meet criteria of news value. Fourth, media content is usually processed to make it conform to technical and presentational criteria deployed by media organizations.

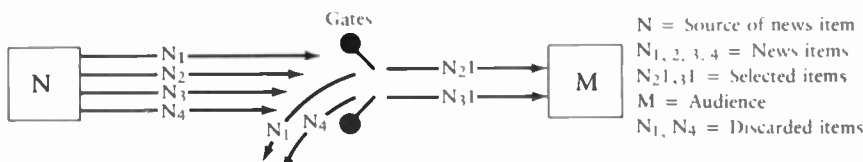


Figure 11. (*Models of Communication*) The gatekeeper model. Redrawn after David Manning White, "The 'Gatekeepers': A Case Study in the Selection of News," *Journalism Quarterly* 27 (1950): 383-390.

Conclusion

The communication model is a useful general device rather than an instrument to be applied to one particular field or to one theory. It has its biases and limitations, especially its unsuitability for dealing with cultural matters and with communication as RITUAL or expression rather than as transmission. Many models are revised or supplemented to take into account new technologies of communication. They are likely to include information-search behavior initiated by the receiver, interactive exchanges, and central registration of communication activities connected in the same network. Different patterns will be associated with different forms and uses of the new technology, and models can play a role in describing and analyzing the changes under way.

Bibliography. George Comstock, Steven Chaffee, Nathan Katzman, Maxwell McCombs, and Donald Roberts, *Television and Human Behavior*, New York, 1978; Melvin DeFleur and Sandra Ball-Rokeach, *Theories of Mass Communication*, 4th ed., New York, 1982; Lewis Donohew and Leonard Tipton, "A Conceptual Model of Information Seeking, Avoiding, and Processing," in *New Models for Mass Communication Research*, ed. by Peter Clarke, Beverly Hills, Calif., 1973; Elihu Katz and Paul F. Lazarsfeld, *Personal Influence*, Glencoe, Ill., 1955; Harold D. Lasswell, "The Structure and Function of Communication in Society," in *The Communication of Ideas*, ed. by Lyman Bryson, New York, 1948; Olga Linné and Cecilia von Feilitzen, "Masskommunikationsteorier," in *Radio och TV Möter Publiken*, ed. by Rune Sjöden, Stockholm, 1972; Gerhard Maletzke, *Psychologie der Massenkommunikation: Theorie und Systematik*, Hamburg, 1963; Everett M. Rogers, "Communication and Development: The Passing of the Dominant Paradigm," *Communication Research* 3 (1976): 213-240; idem, *Diffusion of Innovations* (1962), 3d ed., New York, 1983; Everett M. Rogers and F. Floyd Shoemaker, *Communication of Innovations*, 2d ed., New York, 1971; Wilbur L. Schramm, "How Communication Works," in *Process and Effects of Mass Communication* (1954), rev. ed., ed. by Wilbur L. Schramm and Donald F. Roberts, Urbana, Ill., 1971; idem, *The Science of Human Communication*, New York, 1963; Bruce H. Westley and Malcolm S. MacLean, Jr., "A Conceptual Model for Communications Research," *Journalism Quarterly* 34 (1957): 31-38; David Manning White, "'The Gatekeeper': A Case Study in the Selection of News," *Journalism Quarterly* 27 (1950): 383-390.

DENIS MCQUAIL AND SVEN WINDAHL

MONOPOLY

Monopolistic control over the mass media has become a subject of continuing controversy in the modern world. Modern societies, with their large, urban,

interdependent communities and popular participation in politics, need newspapers, magazines, journals, radio, television, books, cinema, and other impersonal mechanisms to disseminate public information and political discourse. Since information and ideas help shape political values, monopoly or control over the mass media is closely associated with control over politics.

Literal monopoly exists where all media in a nation are owned and operated by governments or ruling parties of governments. Some governments do not directly operate their media but achieve a high degree of control by subsidy and favoritism for sympathetic media and CENSORSHIP and criminal sanctions against nonconforming ones. In other societies the media are mostly privately owned, protected by law or tradition against substantial government interference. But in some of these countries a small number of corporations develop such dominance in the media marketplace and have such similar political and economic values that they represent a potential for monopoly and for overwhelming influence over national information and ideas.

Whether through government operation or private economic dominance, monopolistic control confers powers of censorship. It has been estimated that in the last quarter of the twentieth century a third of the print media of the world and more than half of the electronic media are not free to disseminate content that offends government or private owners of the media.

Monopoly can exist in individual media, like newspapers, or it can affect sweeping infrastructures, like telecommunications or news distribution networks. For example, the global distribution of news is basically controlled by an oligopoly; five services distribute most news throughout the world. They are the Associated Press and United Press International, based in the United States and privately operated; Reuters, based in Great Britain and privately operated; Agence France Presse, based in France with significant government participation in its administration; and Tass, based in the Soviet Union and controlled by the government. In fifty other countries the domestic news service is controlled by the state, but in a majority of nations the five international services provide virtually all news from beyond each nation's borders and control worldwide news about those nations. This dominance created an international issue between the major powers and Third World or nonaligned countries. See NEWS AGENCIES.

National variations. Total control of all media within a society is represented in the last half of the twentieth century by such countries as the Soviet Union and China, where all media are produced either by the government or by the established political party. In such countries the nature of the media

is determined by the underlying philosophy of government. In these countries the purpose of the media is not to provide a diversity of views or to produce a monetary profit, but to educate and encourage the citizens toward economic and social goals of the larger society. In a few places the goal is different, like the theological goal of *Osservatore Romano*, the monopoly newspaper of Vatican City.

In some countries the media are theoretically private enterprises but the government silences opposition media, as in South Africa and the Philippines during much of the latter part of the twentieth century. Similar monopolization over expression has been typical of military dictatorships. In many such countries the law guarantees freedom of expression, but there is an added provision, either in law or by fiat, prohibiting whatever may be deemed to undermine state power.

Where the media are free of government controls, problems of economic domination by oligopolies of private corporations have developed. In Australia, for example, there are more than 50 daily and 450 nondaily newspapers, but three corporations control every metropolitan paper and, through interlocking interests, most smaller newspapers as well as magazines, radio, and television. In Japan five companies control more than half of all national newspaper circulation, and in Canada two firms monopolize most of the media. In the United States, despite an extraordinarily high number of outlets in every medium, a few dozen corporations control most of the output of every mass medium.

Resistance to monopoly control. In most societies, including some with severe penalties for such activities, there are both open and covert attempts to resist the effects of government and private corporate control. When there is official government control, for example, there are often secret production and distribution of literature, art, and culture that depart from official norms. In the Soviet Union and Eastern bloc nations, for example, there is a tradition of samizdat, clandestine material distributed privately. Official punishment ranges from imprisonment to public denunciation.

In countries with media that are privately owned but operate under military or other stringent restrictions, there is also a high frequency of antiestablishment material, though offenders there, as elsewhere, may suffer harsh consequences. Newspapers have been closed or physically destroyed by semiofficial marauders, editors and journalists jailed or executed, and poets and other writers exiled or imprisoned. In South Africa, for example, producers of such matter can be banned under laws that, among other things, forbid future publication.

When there are private oligopolies, opposition comes in the form of smaller operations, though these sel-

dom succeed in achieving widespread distribution because of their inability to compete against the economic power of the largest operators. Political opposition to monopoly often takes the form of agitation for restrictive laws against excessive size of media corporations, prohibitions against certain mergers, or actions to force large companies to divest portions of their holdings.

In private enterprise societies, opposition to corporate oligopolies often includes government itself, which may sympathize with laws or regulations against excessive corporate size. Government leaders may react to homogeneous printed media by resorting to broadcasting to reach the public, since broadcasting is regulated and tends to conform more readily to requests of government. See TELEVISION HISTORY—GLOBAL DEVELOPMENT.

Some democratic governments support competitive media. In the Netherlands and some other nations, the state has made low-interest loans and subsidies to failing newspapers or new ones. Governments may inhibit the homogenizing effects of private monopolies on political ideas by such devices as granting professional journalists a voice in media policies, creating independent trustees to limit mergers, or limiting acquisition of existing media properties to owners deemed likely to operate in the public interest.

Government actions to inhibit private monopolies in the media have had only partial success. In Great Britain, for example, the Monopolies and Merger Act of 1965 did not prevent continued consolidation of ownership. In the United States, antitrust law did not prevent the rapid growth of concentrated ownership in communications industries such as the TELEPHONE and the computer, as well as in the major mass media.

Occasional court decisions have had an immediate and significant impact on media monopolies, though later developments have often weakened that impact. For example, the Associated Press, long the major news service for the United States, is cooperatively owned by member newspapers. For decades members could veto service to their competitors. Other news services employed similar measures, and together these severely limited formation of new newspapers. In 1945 the U.S. Supreme Court, in *Associated Press v. United States*, ruled that the press could not take such actions that had the effect of preventing others from publishing. Nevertheless, oligopolistic trends continued, reinforced by economic factors. In the United States, as elsewhere, newspaper failures have resulted in many single-newspaper cities, and a growing number of papers have come under chain ownership. See NEWSPAPER: TRENDS.

Similarly, the 1948 U.S. Supreme Court decision in *United States v. Paramount et al.* forced a drastic

reorganization of the film industry, requiring studio divestment of theater ownership, an end to block booking, and freer market access for independent producers. But the decision applied only to domestic operations. Foreign activities, increasingly important to the industry—in television as well as theatrical film—enabled the major studios to retain and even solidify their industry dominance. *See* HOLLYWOOD.

Similarly, the Federal Communications Commission, formed in 1934 with authority over the licensing of RADIO and television stations in the United States, adopted rules to limit the number of stations that could be owned by a single owner. But the economic power of the industry lay in networks and their growing ADVERTISING revenue, matters beyond FCC jurisdiction, and the FCC controls became increasingly ineffectual, particularly as network activities became increasingly international. In the 1970s and 1980s the rules were largely negated by a trend toward deregulation. *See* GOVERNMENT REGULATION.

In all these major media, leading companies were acquiring new power through ties to other industries and through transnational operations. This tended to move antimonopoly agitation from the national to the international scene.

International aspects. Internationally, all major media have posed control issues. Radio, while losing ground to television in many countries, acquired an increasingly significant international role. Because of relative ease of transmission over long distances and because the spoken word circumvents illiteracy, radio counters internal national monopolies. This can occur accidentally or by intention. It can be done for both commercial and propagandistic reasons. A lively global system of international radio broadcasting has developed in a great range of languages, often aimed at specific nations or groups within nations (*see* RADIO, INTERNATIONAL). The transistor revolution, introducing inexpensive hand-held receivers on a worldwide scale, added to the significance of this development. Television has also become an international medium in various ways, via transborder reception, cable and SATELLITE distribution, the marketing and exchange of telefilms, and videocassettes, often clandestinely distributed (*see* TELEVISION HISTORY—WORLD MARKET STRUGGLES).

Broadcasting that penetrates national borders has created tension even where there are no serious political differences, as between the United States and Canada, where most of the Canadian population lives within easy reception of U.S. radio and television stations. Such cultural and commercial differences occur also in adjacent states of Africa, Asia, Europe, and Latin America.

Though broadcasting almost everywhere is owned or regulated by government, some democratic countries have created a mechanism between government

operation and private control. In those nations a substantial portion of all radio and television is placed under the control of a body of independent citizens designed to represent the public interest, as distinct from the government or private enterprise. This exists on a large scale in the Federal Republic of Germany, Japan, and the United Kingdom. In some countries, such as the Netherlands, citizen groups that achieve a given size may be granted a portion of time of their own in the national broadcast system. In the United States, a CITIZEN ACCESS movement achieved considerable momentum in the early years of CABLE TELEVISION. Nevertheless, despite occasional mechanisms to dilute centralized control of the mass media, monopolies continue to exercise significant control over information and culture among large portions of the world population.

Bibliography. Ben H. Bagdikian, *The Media Monopoly*, Boston, 1983; Jane Leftwich Curry and Joan R. Dassin, eds., *Press Control around the World*, New York, 1982; George T. Kurian, ed., *World Press Encyclopedia*, 2 vols., New York, 1982; Dan D. Nimmo and Michael W. Mansfield, *Government and the News Media: Comparative Dimensions*, Waco, Tex., 1982; Herbert I. Schiller, *Mass Communications and American Empire*, New York, 1969.

BEN H. BAGDIKIAN

MORRIS, CHARLES (1901–)

U.S. philosopher and semiotician. Born in Denver, Colorado, Charles William Morris obtained a B.S. in 1922 from Northwestern University and a Ph.D. in 1925 from the University of Chicago's Department of Philosophy, where he studied under GEORGE HERBERT MEAD. He taught philosophy at Rice University, the University of Chicago, and the University of Florida at Gainesville, retiring in 1971.

In *Foundations of the Theory of Signs* (1938) Morris began to develop his ideas about what came to be known as the general theory of signs, or SEMIOTICS (*see also* SIGN). Influenced by C. K. Ogden and I. A. RICHARDS's *The Meaning of Meaning* and following the theory of signs developed by CHARLES S. PEIRCE, Morris declared that semiosis—"the process in which something functions as a sign"—consists of three components: the *sign vehicle* ("that which acts as a sign"); the *designatum* ("that which the sign refers to"), or *denotatum* if the sign refers to an actual object; and the *interpretant* (the sign's "effect on some interpreter").

From the relations among the sign vehicle, the designatum, and the interpreter Morris abstracted three dimensions of semiosis: *syntactics*, which studies the formal relations of signs to one another; *semantics*, which is concerned with the relations of

signs to their designata or denotata; and *pragmatics*, which studies the relations of signs to their interpreters. Each dimension is governed by its own rules, and any LANGUAGE OR SIGN SYSTEM can be characterized by examining how these rules govern its usage of sign vehicles. Syntactical rules are divided into formation rules, which determine permissible sentences, and transformation rules, which determine the sentences that can be obtained from other sentences. Semantical rules determine under which conditions a sign can refer to an object or a situation. Pragmatical rules designate "the conditions in the interpreters under which the sign vehicle is a sign."

Morris emphasized the unity of the science of semiotics. Dividing the field into syntactics, semantics, and pragmatics enables various aspects of semiosis to be studied, much as various aspects of biology are studied under anatomy, ecology, and physiology. However, the three branches are interrelated (and themselves irreducible), and no sign-using process can be fully understood unless it is examined in terms of all three dimensions.

Semiotics, Morris believed, has important implications for other sciences, not only because "every science must embody its results in linguistic signs" and scientists must therefore be careful not to confuse linguistic and nonlinguistic problems, but also because semiotics could "play an important role in bridging the gap between the biological sciences, on the one hand, and the psychological and human social sciences, on the other, and in throwing new light upon the relation of the so-called 'formal' and 'empirical' sciences." Morris himself was associate editor of the *International Encyclopedia of Unified Science*, the project for which his *Foundations of the Theory of Signs* was written.

In his later work Morris explored sign use from a behaviorist perspective and attempted to develop a general theory of value. He examined the role of signs in such diverse areas as POETRY, MUSIC, DANCE, PSYCHOLOGY, and MORALITY.

See also LINGUISTICS; SEMANTICS.

Bibliography. Charles Morris, *Foundations of the Theory of Signs* (International Encyclopedia of Unified Science, Foundations of the Unity of Science, Vol. 1, no. 2), Chicago, 1933; idem, *Signs, Language, and Behavior*, New York, 1946, reprint 1955; idem, *Signification and Significance*, Cambridge, Mass., 1964; idem, *Writings on the General Theory of Signs*, The Hague and Paris, 1971.

ABRAHAM NOSNIK

MORSE, SAMUEL F. B. (1791–1872)

U.S. artist and inventor of the telegraph and the CODE used for telegraphic communication. The ca-



Figure 1. (Morse, Samuel F. B.) Matthew Brady (or assistant), *Samuel F. B. Morse*. Courtesy of the Library of Congress.

reer of Samuel Finley Breese Morse can be divided into two parts, the first as artist and the second as inventor of the telegraph. While attending Yale, Morse became interested both in painting and in the emerging field of electricity. After graduating in 1810 he first pursued a career in painting, achieving a measure of success in England and the United States. He helped establish the National Academy of the Arts of Design (now the National Academy of Design) in New York and served as its first president.

While returning from Europe in 1832, Morse overheard a conversation about André-Marie Ampère's experiments with the recently discovered electromagnet and considered the possibility of instantaneous communication by electricity. He spent much of the voyage in a fever of creativity, arriving in New York with a set of sketches for the first telegraph. This plan already embodied the three basic elements of the final system: a transmitting device that operated by opening and closing an electric circuit; a recording device at the other end actuated by an electromagnet; and a code that converted numbers and letters into dots, dashes, and spaces. Morse continued to paint, but his attention was increasingly taken up by his plans for TELEGRAPHY, and after 1837 he painted only one portrait. He was, however, instrumental in

introducing the daguerreotype into the United States in 1839, lecturing on and teaching the new technique, which he had learned in Europe from LOUIS DAGUERRE.

Inventors in Germany, Great Britain, France, and the United States had laid the groundwork for various phases of the electric telegraph, but Morse worked with Leonard Gale, Joseph Henry, and Alfred Vail to perfect his own model. Morse encountered considerable difficulty in gaining acceptance for his telegraph, but in 1843 Congress finally voted thirty thousand dollars for construction of a telegraph line from Washington to Baltimore. On May 24, 1844, Morse sent the first message over the wire, his famous words "What hath God wrought!"

What followed was a series of legal battles pitting Morse against various other inventors and his former partners in a struggle over patent rights to the telegraph. In 1854 the U.S. Supreme Court granted Morse these rights, and he subsequently became a wealthy and successful businessman and promoter of telegraphy. Once the telegraph had proven itself, its possibilities were quickly realized, and transmission lines were pushed in every direction, linking distant parts of the United States in the first rapid communication network. Although the telegraph is now little used, Morse will be remembered as the developer of the first means for rapid distant communication.

Bibliography. Carleton Mabee, *The American Leonardo: A Life of Samuel F. B. Morse*, New York, 1943, reprint 1969; Edward Lind Morse, ed., *Samuel F. B. Morse: His Letters and Journals*, 2 vols., Boston, 1914, reprint New York, 1972.

ROBERT BALAY

MOTION PHOTOGRAPHY

Earliest photographic optics and chemistry prohibited the recording of moving subjects except for a few experiments under special circumstances. Anything that moved produced a blur on the photographic plate or paper, and this was seen as limiting the medium's inherent capacity for absolute REALISM (see PHOTOGRAPHY). The camera's inability to record motion, perceived as a problem similar to its inability to record color, was addressed almost immediately after the birth of the medium and solved step by step. The solution had widespread consequences: it made vulnerable the assumptions about the veracity of the medium, it produced a new graphic system to represent movement, and it led to the invention of MOTION PICTURES. It also furnished the basis for the study of ballistics, the training of athletes and soldiers, and the development of scientific labor management.

By the 1850s the advent of smaller cameras, faster lenses, and primitive shutter systems heralded the first widespread attempts at the photographic conquest of motion. The "snapshots" of this period showed pedestrians and horse-drawn carriages frozen into awkward postures. The attitudes fixed by the camera were quite different from anything seen by the naked eye or depicted by the artist, but because of the strength of the belief in the camera's objectivity and truth they were quickly accepted.

The use of photography to dissect a single action into its component parts was a valuable addition to the nineteenth century's ongoing investigation of the time-space relationships that constitute motion. This investigation would produce the railway, standard world time, and TELEGRAPHY, the TELEPHONE, and the phonograph.

The earliest of these photographic analyses was undertaken in 1872 in Sacramento, California, when the Anglo-American landscape photographer Eadweard Muybridge was hired by Leland Stanford to prove or disprove current theories pertaining to the gaits of the horse. Stanford, governor of California and builder of the American Central Pacific railway, hoped to apply the results of Muybridge's inventions to the training and breeding of his racehorses. Muybridge used a number of cameras (and the wet collodion process) in his attempt to get a single representative picture, but there exists no absolute proof of his success until 1878. That year, in Palo Alto, Muybridge was able to record the consecutive phases of a particular stride in exposure times ranging from 1/500th to 1/1,000th of a second. He set up a battery of cameras along the path traversed by the horse. Each camera shutter was tripped by an electrical release system devised by Stanford's railroad engineer, John D. Isaacs, and was put into action by the horse breaking wires stretched out at equal intervals along its path. Using a series of cameras to record movement had already been suggested by Thomas Rose in 1860 and Oscar Rejlander in 1873, but Isaacs's electrical installation made the Stanford-Muybridge project practicable.

The widespread publication of Muybridge's photographs caused a sensation in the United States and Europe. They were evidence that what had hitherto been established by visual perception as literal truth was mere convention; they contradicted the habitual perception of movement and revealed phases of locomotion that, being invisible, could not be validated by the unaided eye (Figure 1). In artistic circles in which direct observation was as important as interpretation, Muybridge's photographs caused a dispute over the relative merits of literal and aesthetic truthfulness. While academic artists struggled to incorporate into their work the stationary attitudes revealed by the camera, others (such as the French sculptor

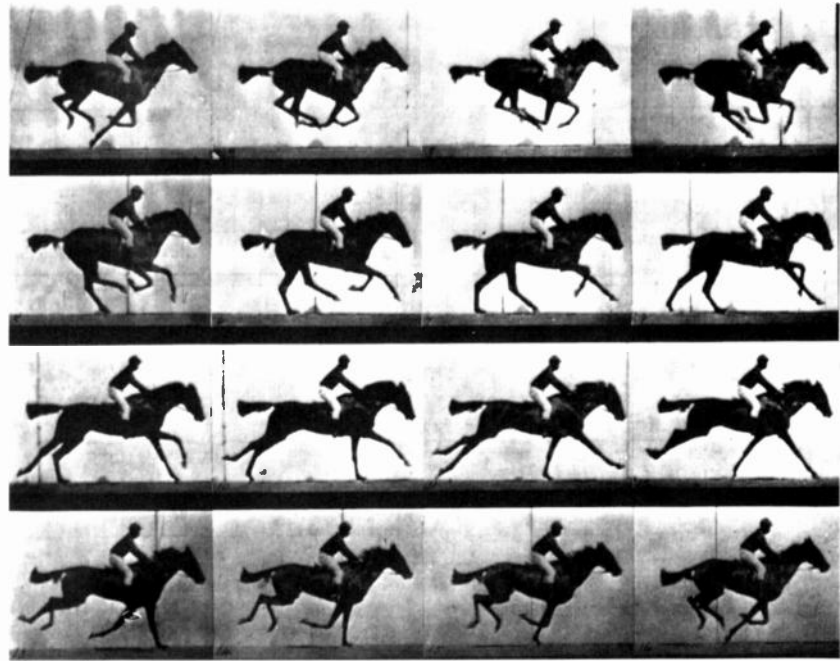


Figure 1. (*Motion Photography*) Eadweard Muybridge, *Galloping Horse*, 1883–1885. Gernsheim Collection, Harry Ransom Humanities Research Center, The University of Texas at Austin.

Auguste Rodin) insisted that movement was customarily perceived as a fluid, ongoing effect and should be rendered as such. See PERCEPTION—STILL AND MOVING PICTURES.

An invitation from the University of Pennsylvania in 1883 allowed Muybridge to expand his study and to experiment with the new gelatine bromide (dry plate) process. The result of this work, *Animal Locomotion*, was published in eleven portfolios in 1887. The complete work contained 782 plates, each one composed of from twelve to thirty-six sequentially arranged images. *Animal Locomotion* is not scientific in the sense of a quantitative analysis of locomotion: there is no indication of time passing or space traversed, and many phases of the specific movements are missing, while some plates are no more than random assemblages of disparate images. Nevertheless, the volume is a treasure trove of figurative imagery, adopted by nineteenth-century academic painters such as Jean-Louis-Ernest Meissonier of France, by the U.S. painter Thomas Eakins (who worked with Muybridge at Pennsylvania but soon abandoned his system for one similar to Étienne-Jules Marey's), by the French painter Edgar Degas, and, in the twentieth century, by the Irish artist Francis Bacon.

Marey, an eminent French physiologist, saw Muybridge's photographs of horses in 1878. Marey's scientific career had been devoted to the foundation of the "graphic method": the invention and refinement of machines that transcribed motion and converted it into graphic form. With these machines—the predecessors of modern medical electronic graph-

ing devices like electrocardiographs—he had studied the widest possible examples of human and animal locomotion. Marey was quick to understand the advantage of photography: the subject need not be connected to, or supply any motive power to, the recording instrument. After meeting Muybridge in Paris in 1881 and seeing more of his results, Marey dismissed the serial camera system as prone to inaccuracy and developed a photographic gun based on a model that the French astronomer Pierre-Jules-César Janssen had made in 1874 to record the transit of Venus. Janssen's gun, which included a revolving circular plate intermittently exposed to light by a slotted disk acting as a shutter, was improved by Marey to yield an exposure time of 1/720th of a second and used to capture birds in flight. In 1882 Marey increased the number of slots in the disk shutter and incorporated it into a fixed-plate camera whose lens was left open while a figure dressed in white passed between it and a black background. The regular intermittent activity of the revolving slotted disk allowed each phase of the movement to be recorded in its correct spatial position relative to all the other phases on the plate. Marey's system became known as chronophotography.

To alleviate the confusion of superimposition that was produced on the plate by slow movements, Marey subsequently turned the figure into a measurable graphic notation by clothing it in black and marking the joints and bones with reflecting buttons and strips of metal. Pieces of white paper were attached to animals whose dark coats were deepened with lamp-black. The resulting abstractions became the vocab-

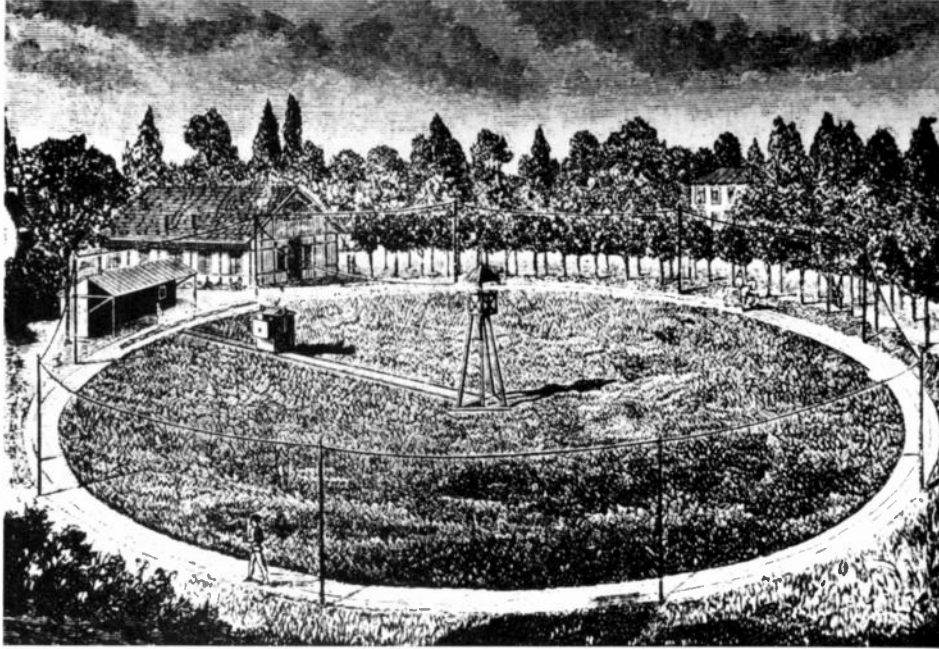


Figure 2. (*Motion Photography*) Étienne-Jules Marey's arrangement for chronophotography at the Physiological Station, Bois de Boulogne, Paris, 1882. Gernsheim Collection, Harry Ransom Humanities Research Center, The University of Texas at Austin.

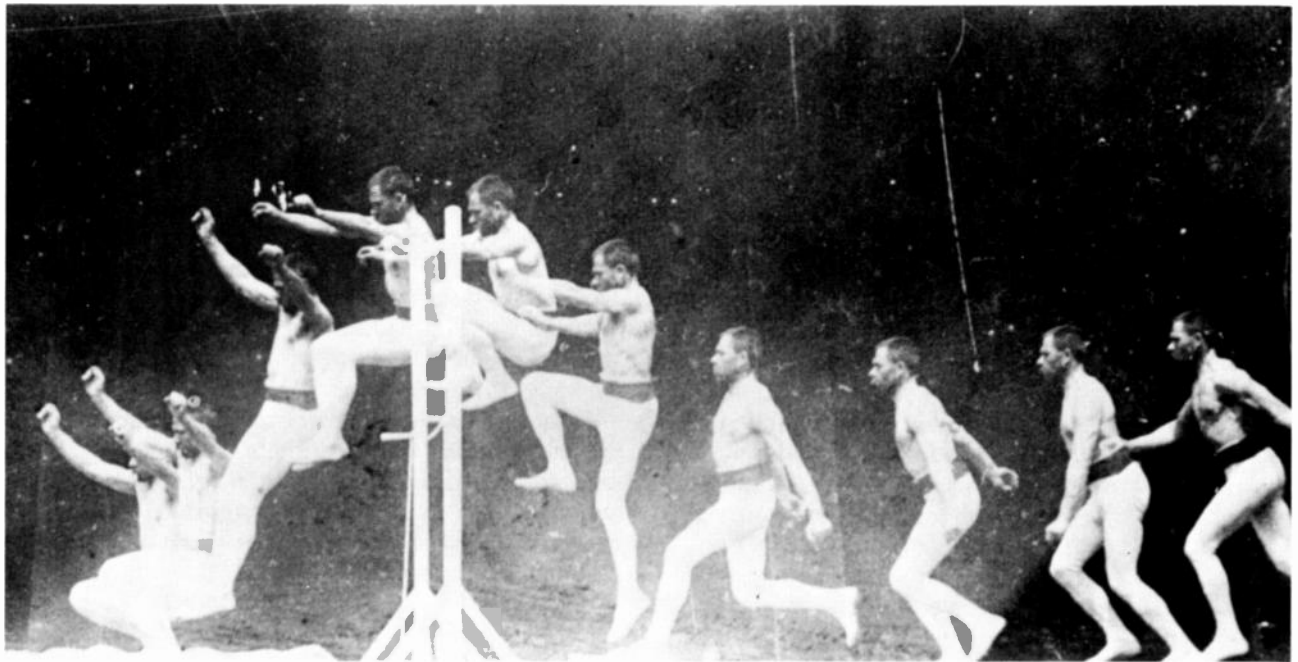


Figure 3. (*Motion Photography*) Étienne-Jules Marey, chronophotograph, 1880s. National Film Archive, London.

ulary of a new language of motion in the twentieth century.

Chronophotography, with its insistence on a single unified point of view, produced a synthesis of movement in time and space rather than a sequential analysis as Muybridge had done (Figures 2 and 3). However, until 1888 Marey was limited to recording only those subjects that could pass in front of his black hangar. Then, after experimenting with a camera containing an oscillating mirror, he substituted a roll of sensitive paper for the glass plate. Although he synthesized the photographs made in this way on a Zoetrope, he did not succeed in projecting them until 1893. He did not envisage a commercial application for either machine; his primary interest was in recording what the eye could not grasp, not in replicating what it could normally see.

Muybridge and Ottomar Anschütz, who used an improved battery-of-cameras system in his photography for the Prussian military, also synthesized the images they had made. Muybridge's Zoopraxiscope (1879) illuminated and projected painted images made from his photographs. Anschütz succeeded in projecting photographs by means of his Electrotachyscope (1887). These were just two of the many instruments (or philosophical toys, as they were then called) based on the theory of the persistence of vision that synthesized phases of movement.

Other applications of motion photography included the study of hospital inmates by Albert Londe, a doctor at the Salpêtrière hospital in Paris, who studied rapid movement between 1883 and 1893 with a single camera incorporating a corona of six to twelve lenses. The Photophone (1892) of Georges Demeny, Marey's assistant, reproduced the movement of the lips in slow motion and was used in the teaching of deaf-mutes. The study of ballistics, aided by electric spark and flash photography (initiated by William Henry Fox Talbot in 1851), was carried out by Ernst Mach and P. Salcher (Prague, 1887), Charles Vernon Boys (London, 1892), and Lucien Bull (Paris, 1899). Frank B. Gilbreth's 1912 analysis of workers' movements by means of his Cyclograph (a modification of Marey's Chronophotograph) marked the beginning of scientific labor management.

In his manifesto, *Fotodinamismo futuristica* (1913), Anton Giulio Bragaglia declared the photography of movement to be an artistic and futurist enterprise and cited the French philosopher Henri-Louis Bergson as an authority for his method, a version of chronophotography that blurred the intermediate phases of the action. But, in an official proclamation, the futurist painters publicly disassociated their movement from Bragaglia's heresy, even though their own paintings incorporated the overlapping repetitive forms first revealed by the camera. Ironically, the futurists, who celebrated new technology in any

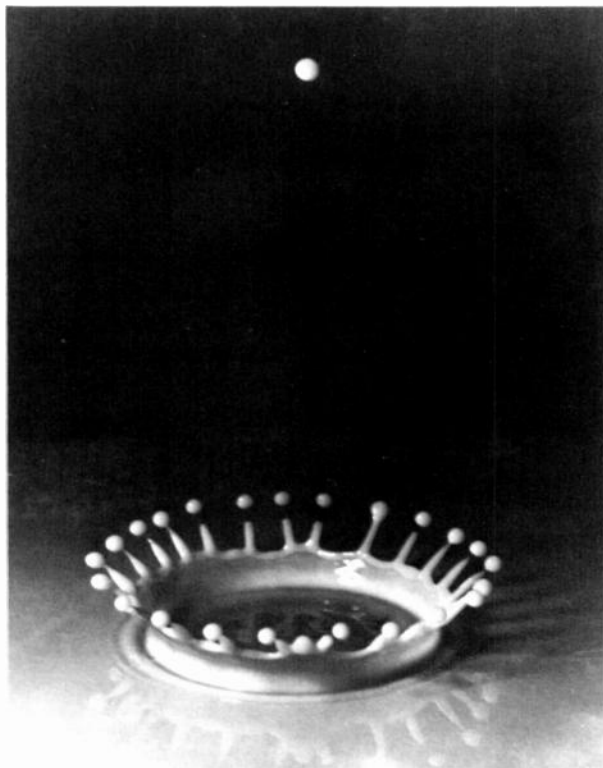


Figure 4. (*Motion Photography*) Harold Edgerton, *Milk Drop Coronet*, 1936. Gernsheim Collection, Harry Ransom Humanities Research Center, The University of Texas at Austin. Copyright Dr. Harold Edgerton, M.I.T., Cambridge, Mass.

form, could not accept the threat to the traditional hierarchy of the arts embodied by photography.

In the twentieth century, advances in the conquest of movement have evolved from further reductions in exposure times, either through high-speed shutter systems or by short-duration, single- and multiple-flash sources (stroboscopic photography). The pioneer of modern stroboscopic technology, Harold Edgerton, extended the work of both Muybridge and Marey (Figure 4), taking single exposures of events beyond the visual threshold at speeds up to one microsecond and recording successive phases of movement with electronic units capable of flashing up to a million times a second.

Bibliography. Harold E. Edgerton and James R. Killian, Jr., *Moments of Vision*, Cambridge, Mass., 1979; Helmut Gernsheim and Alison Gernsheim, *The History of Photography, 1685-1914*, 2d ed., New York, 1969; Stephen Kern, *The Culture of Time and Space, 1880-1918*, Cambridge, Mass., 1983; Anita Ventura Mozley, ed., *Eadweard Muybridge: The Stanford Years, 1872-1882*, Stanford, Calif., 1972; Aaron Scharf, *Art and Photography*, London, 1968, reprint Baltimore, Md., 1975.

MARTA BRAUN

MOTION PICTURES

The following three articles describe the rise of the motion picture:

1. Prehistory
2. Silent Era
3. Sound Film

1. PREHISTORY

In 1895 and 1896, when astonished audiences around the world had their first glimpse of motion pictures, it was both the beginning of an era and the culmination of a long, complex evolution. Diverse strands of development had come together in the invention of the motion picture.

The 1830s had seen the appearance of various popular-science novelties such as the Phenakistiscope ("deceitful view") created by the Belgian physicist Joseph Plateau, known for his studies of subjective visual phenomena. A series of painted images representing phases of a figure in motion was mounted on a disk that had slots along its rim. As the disk was revolved, a viewer saw the images in a mirror, through the slots. The sequence of images, each seen momentarily, seemed to merge into a moving figure (Figure 1). An essentially identical device, the Stroboskop ("whirling view") of Simon Ritter von Stampfer of Austria, was developed about the same time, apparently independently.

Soon afterward came the Zoetrope ("wheel of life"), in which a thin strip of pictures was mounted on the inside of a hollow cylinder. As it revolved, a viewer watched through slots in the cylinder. Again, the cycle of pictures, each momentarily glimpsed, merged into an illusion of motion. The Zoetrope remained popular for decades in homes, country fairs, and arcades (Figure 2).

These devices had used drawn or painted figures, but soon PHOTOGRAPHY became involved. In 1870 in Philadelphia, Henry R. Heyl photographed a man and a woman posed in six stages of a waltz. He mounted glass slides of the six poses around a disk, using each cycle three times. The disk was whirled in front of a light source, which projected the images onto a screen. A shutter moving in a contrary direction darkened the screen between images, so that each was seen only briefly, creating an illusion of the cyclical action of the waltz. Heyl called his device the Phasmatrope ("wheel of illusion").

A cycle of photographs was similarly used in a device unveiled in 1887 by the German Ottomar Anschütz, who used images of gymnasts and cavalry horses photographed by a series of cameras. The photographs were again mounted on a whirling disk. Because they were lit one by one by an electric spark, each momentarily, a shuttering device was not needed. The images were not projected but were observed directly by a small group of viewers through a rect-

angular slot. Anschütz called his device an Electrotachyscope ("electric rapid vision"; Figure 3).

Other experimenters, including French astronomer Pierre-Jules-César Janssen, French physiologist Étienne-Jules Marey, and photographer Eadweard Muybridge in the United States, were working in the same direction for different ends. These were scientists engaged in research who wanted to develop equipment with which some phenomenon or event could be documented (*see* MOTION PHOTOGRAPHY). Muybridge and Marey, who encouraged each other, learned to project their fragmentary image sequences, and Marey took a further important step. He switched from a revolving photographic plate to moving strips of a revolving photographic paper, and still later to celluloid strips. These permitted more extensive sequences not limited to cyclical motion.

U.S. inventor THOMAS ALVA EDISON observed the work of Muybridge and Marey at various stages and meanwhile undertook development of a device to serve popular ENTERTAINMENT rather than research purposes: the Kinetoscope, a coin-in-the-slot machine in which individuals would glimpse moving images in sequences. The development work was done almost entirely by William Kennedy Laurie Dickson, an Englishman in Edison's employ. Dickson's first working model, about 1887, placed the images on a cylinder similar to that used in early Edison phonographs, and there was thought of combining the two inventions. In later models Dickson, proceeding along the same lines as Marey, switched to strips of film, which were obtained from the Eastman Company. The Kinetoscope was demonstrated in 1893 and put on the market the following year. In penny arcades customers could now see short sequences of serpentine dancers, rope-twirling cowboys, and boxers in combat (Figure 4). Kinetoscopes were rushed to foreign markets and for a short time seemed headed for wide international success. Instead they served as catalysts for a different saga.

While Edison was intent on serving individual viewers, not group audiences (he said he did not want to "kill the goose that lays the golden eggs"), others had opposite thoughts. The idea of serving audiences had already engaged many experimenters, and others were joining in. At various times the quest involved such inventors as Louis A. A. Le Prince, William Friese-Greene, and Robert W. Paul in England; Max Skladanowsky and Oskar Messter in Germany; C. Francis Jenkins and Thomas Armat in the United States; the brothers LOUIS AND AUGUSTE LUMIÈRE in France; and others. Efforts were intensified by the discovery that Edison had failed to patent the Kinetoscope internationally—perhaps to avoid conflict over ideas derived from Marey. The race toward a "projecting Kinetoscope" thus seemed open to one and all.

Among entrepreneurs who watched the race with

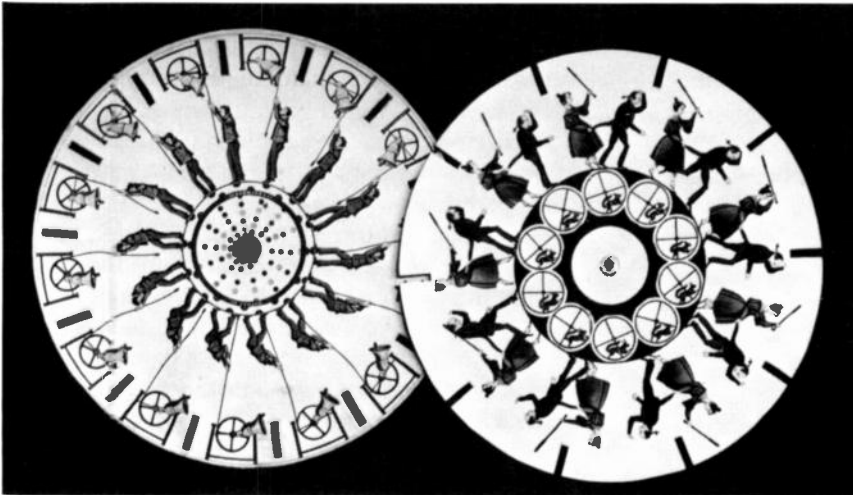


Figure 1. (*Motion Pictures—Prehistory*) Discs of the Phenakistiscope type. Trustees of the Science Museum, London.

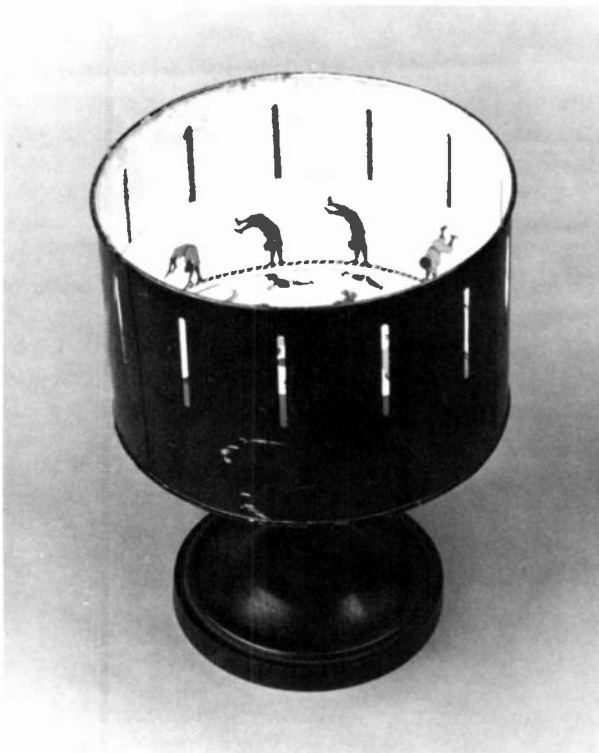


Figure 2. (*Motion Pictures—Prehistory*) A Zoetrope, manufactured by Carpenter and Westley, London, ca. 1868. Gernsheim Collection, Harry Ransom Humanities Research Center, The University of Texas at Austin.

special anticipation were magicians, the master showmen of the time. They were headliners of vaudeville programs, and many had their own magic theaters, which in major cities provided a high point for family trips. Unknown to most people, projections from hidden magic lanterns played a crucial role in many magic illusions. It had been so since the 1790s,

when Paris audiences were awestruck and even terrified by *Phantasmagorie*, a show created by the Belgian Étienne Gaspard Robertson, who called up spirits of the dead and other spectral creatures, so impressively that some in the audience fell to their knees in prayer (Figure 5). The images came from slides projected onto smoke rising from braziers in the darkened room. The twisting smoke gave the shapes an unearthly motion. The effect, in countless variations, remained in use throughout the nineteenth century.

Meanwhile, the magic lantern acquired other sophisticated applications. Duplex lanterns made possible dissolves from one slide to another, and slides acquired movable parts operated by levers. Illusions involving the choreography of projections from multiple lanterns were in the repertoire of magic theaters like the Théâtre Robert-Houdin in Paris, famous since 1845. In 1888 it was purchased by rising young magician Georges Méliès, who began showing audiences trips to the moon, journeys to the bottom of the sea, and descents into hell (Figures 6 and 7). In London the Egyptian Hall, “England’s Home of Mystery,” featured similar illusions (Figure 8). Magicians realized that the projecting Kinetoscope would be able to carry such effects to new heights. They were determined to have it for their theaters. When the Lumière brothers announced that their cinematograph would make its commercial debut at the Grand Café in Paris on December 28, 1895, it was a suspenseful moment for magicians.

The Lumières had won the technology race. Louis Lumière, the main inventor of the cinematograph, said later that all details of the mechanism had suddenly become clear to him during one sleepless night late in 1894. A prototype was soon constructed, and private showings were held in March and June 1895. At the June showing during a convention, the astronomer Janssen and others were astonished to see a film of themselves arriving for the convention on

the previous day. The cinematograph was ingenious: a portable camera that could be adapted into a machine for printing film and readjusted into a functioning projector—a whole system in one mechanism.

Louis Lumière made an unusual decision: he would not put the device on the market. Instead he arranged for the fabrication of dozens of additional machines



Figure 3. (*Motion Pictures—Prehistory*) Ottomar Anschütz, Electrotachyscope. From *Scientific American*, 1889.

and the training of *opérateurs* in their use. By the time of the premiere the company had quietly prepared for worldwide exploitation tours. In one capital after another, Lumière representatives would show “the miracle of the century, the wonder of the world,” making additional films as they went—street scenes, royalty, parades.

The premiere fulfilled expectations. Within weeks other Lumière shows were running in Paris, and representatives were en route to foreign capitals. But the magicians were dismayed. Finding the Lumières unwilling to sell the miracle-making equipment, many converged on a close competitor, Robert Paul of London. Paul, having lost the race, was ready to sell to one and all (Figures 9 and 10). In a memoir he was to recall that “an extraordinary demand arose, first among conjurers,” then among other show people. Paul’s workshop labored to fill the demand. Thanks to him, films became part of the Méliès programs at the Théâtre Robert-Houdin within weeks after the cinematograph premiere. The Egyptian Hall acquired Robert Paul equipment and began featuring “animated pictures.” U.S. magician Carl Hertz, embarking from England on a world tour in March 1896, left with a Paul projector and a few weeks later gave the first film showing in South Africa and, in August 1896, the first in Australia (Figure 11). Other magicians were racing the Lumière *opérateurs* across the globe. Audiences in many countries appear to have seen film first as part of a magic act and to have accepted it as such. They knew that world leaders and squadrons of soldiers had no business marching across a room before them; it was clearly magic.

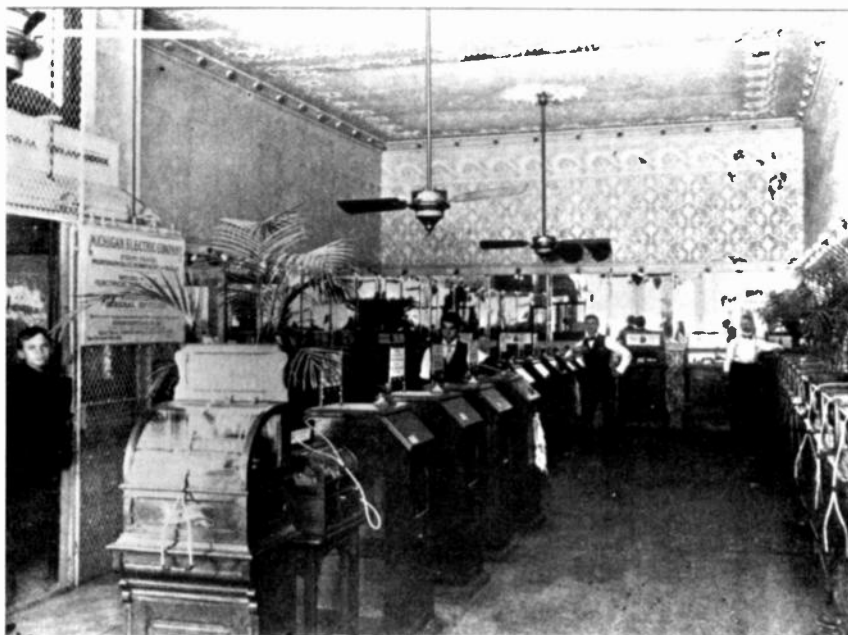


Figure 4. (*Motion Pictures—Prehistory*) Kinetoscope (and phonograph) parlor, Detroit, 1894. Courtesy of Erik Barnouw.



Figure 5. (Motion Pictures—Prehistory) Étienne Gaspard Robertson, *Phantasmagorie*, Paris, 1790s. Courtesy of Erik Barnouw.



Figure 6. (Motion Pictures—Prehistory) Georges Méliès in *Le diable géant* (The Enormous Devil), 1902. National Film Archive, London. Copyright: Famille Méliès. All rights reserved.



Figure 7. (Motion Pictures—Prehistory) Georges Méliès, *À la conquête du pôle* (The Conquest of the Pole), 1912. The Museum of Modern Art/Film Stills Archive.

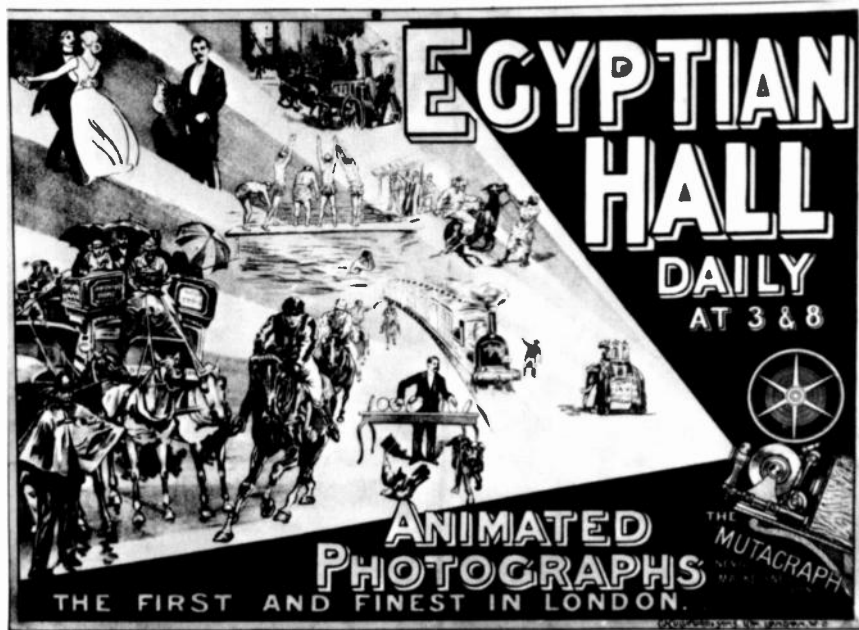


Figure 8. (*Motion Pictures—Prehistory*) A poster from the Egyptian Hall introducing Nevil Maskelyne's Mutagraph, patented in 1897. State Historical Society of Wisconsin, Erik Barnouw Collection/Museum of London.

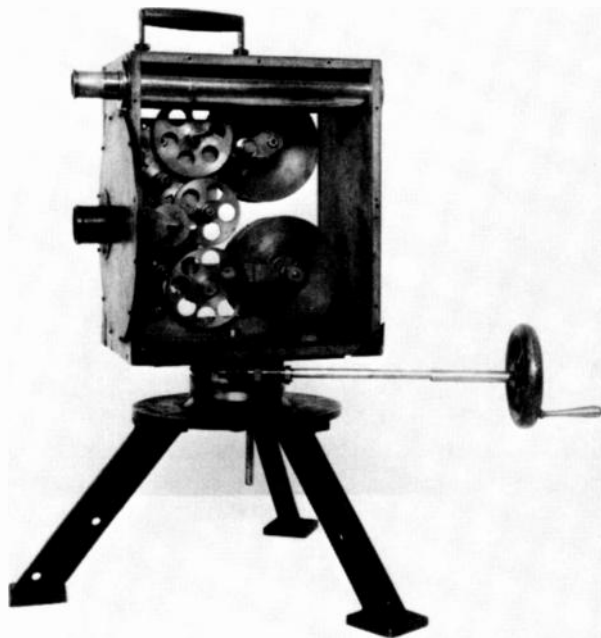


Figure 9. (*Motion Pictures—Prehistory*) Robert Paul's Kine-camera, on a revolving stand, 1896. Trustees of the Science Museum, London.



Figure 10. (*Motion Pictures—Prehistory*) Robert Paul operating his Kine-camera. From *Strand Magazine*, 1896, p. 134. Trustees of the Science Museum, London.

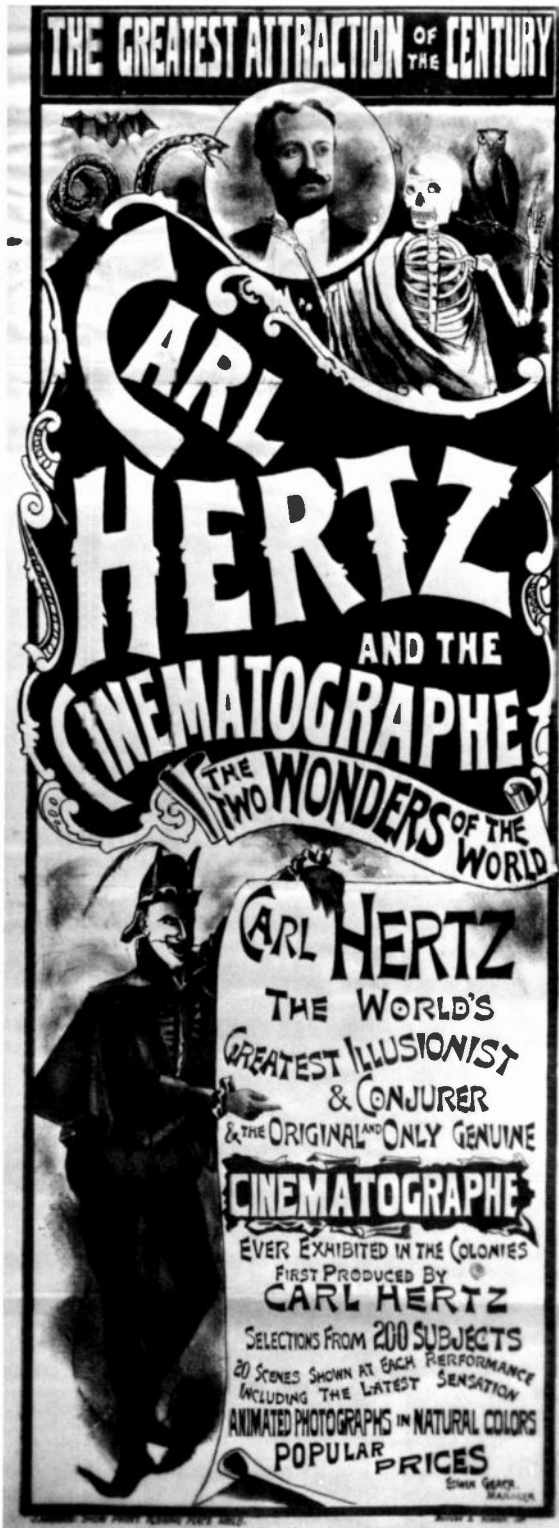


Figure 11. (Motion Pictures—Prehistory) Carl Hertz poster, Melbourne, Australia, 1896. State Historical Society of Wisconsin, Erik Barnouw Collection/Houdini Collection, Library of Congress.

For Edison, the rapid spread of the projected motion picture posed a crisis. His Kinetoscope was doomed. His agents hastily arranged to take over the projector developed by Jenkins and Armat and to present it as the Edison Vitascope, premiering it on April 23, 1896, at Koster and Bial's Music Hall in New York.

Toy makers, fairground impresarios, photographers, scientists, magicians, and others had all contributed to the invention, and all brought different ideas and traditions to the new medium. The motion picture, with this diverse heritage, readily adjusted itself to a world it would soon transform.

See also ANIMATION; CINEMATOGRAPHY; FILM EDITING; SPECIAL EFFECTS.

Bibliography. John Barnes, compl., *Precursors of the Cinema*, Part 1, *Barnes Museum of Cinematography, Catalog of the Collection*, St. Ives, Eng., 1970; Erik Barnouw, *The Magician and the Cinema*, New York, 1981; C. W. Ceram [Kurt Wilhelm Marek], *Archaeology of the Cinema*, New York, 1965; Jacques Deslandes, *Histoire comparée du cinéma*, Vol. 1, Tournai, 1966; John L. Fell, ed., *Film before Griffith*, Berkeley, Calif., 1983; Gordon Hendricks, *The Edison Motion Picture Myth*, Berkeley, Calif., 1961, reprint New York, 1972; Kenneth Macgowan, *Behind the Screen*, New York, 1965.

JOHN L. FELL

2. SILENT ERA

The motion picture era called silent is generally described as extending from the mid-1890s, when people in many countries had their first film experience, either via peepshow machine or an early projected screening, to the period 1928–1935, when most film industries switched over to production with sound. Films were, in fact, seldom silent; most were accompanied during projection by music, ranging from a single piano to a full orchestra.

It was a time of experiment. Films moved freely across borders. Since intertitles in different languages could be substituted, language was not a barrier, and influences spread rapidly, creating an international art form. Almost every aspect of film technique was pioneered by silent filmmakers, and many films of this era remain unsurpassed in their imaginative use of the medium.

Primitive Era: 1894–1908

Until 1903 a film generally consisted of a single shot and was usually less than a minute long. Various types were emerging: scenic shots of interesting locales (see DOCUMENTARY); topical shows of newsworthy events (see NEWSREEL). Others recorded acts by famous performers, as when Annie Oakley showed

off her skeet-shooting for the camera at THOMAS ALVA EDISON's studio. Nearly all films were shot in bright sunlight, either in real locations or on open-air stages with backdrops for scenery. The earliest studios, such as Edison's "Black Maria" and Georges Méliès's glass-walled studio in Montreuil (Figure 1), used sunlight exclusively. As the film industry grew more stable, more studios were built, usually on rooftops to catch daylight but occasionally enclosed to add electric light. After 1902 increasing numbers of NARRATIVE films were made.

In these early years filmmaking was mainly concentrated in France, England, and the United States, although camera operators from those countries traveled the entire world showing and making films. Distinctive filmmakers or groups emerged in each country. The brothers LOUIS AND AUGUSTE LUMIÈRE had been responsible for the first commercial showings of projected films, beginning in late 1895. Their touring projectionist-filmmakers soon built up a large catalog of brief films. Louis Lumière proved adept at varying his framing to suit the circumstances: a dynamic diagonal composition into depth for *Arrivée d'un train à La Ciotat* (The Arrival of a Train at La Ciotat Station); an intimate medium shot for *Le repas de bébé* (Feeding the Baby); a carefully balanced framing to keep the staged comic action of *L'arroseur arrosé* (Watering the Gardener) clear to the audience (all in 1895). Méliès initially copied such open-air filming, but by 1897 his talents as a magician and graphic artist had led him into the studio, where he began making fantasy films with elaborately painted scenery and skillful camera ef-

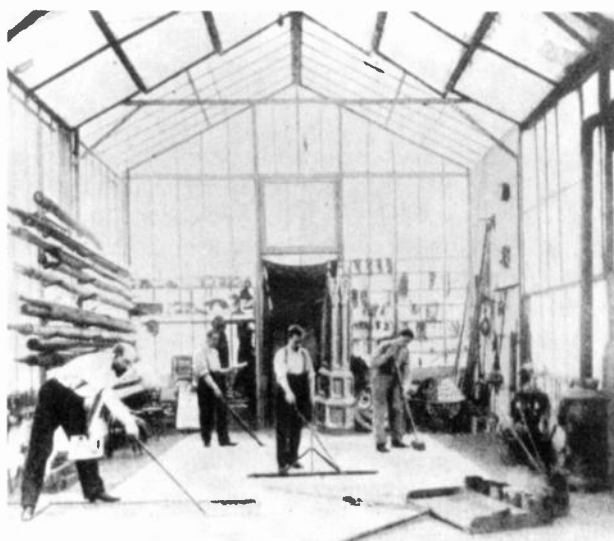


Figure 1. (Motion Pictures—Silent Era) Georges Méliès's studio, Montreuil. National Film Archive, London. Copyright: Famille Méliès. All rights reserved.

fects (Figure 2). Méliès made *Le voyage dans la lune* (A Trip to the Moon), *Cinderella*, and hundreds of others between 1896 and 1912, when increasing competition drove him out of filmmaking. In turn, Méliès's films were imitated by the powerful Pathé studio, which after the turn of the century rose to be the most successful film company in the world, a position it would hold until World War I (see PATHÉ, CHARLES).

Filmmaking in England began primarily with the work of Robert W. Paul, whose early films were brief scenics, topicals, and narrative scenes similar to those made in France (Figure 3). Around 1900, Paul, James Williamson, and G. A. Smith were working in a small group of studios in southern England known as the Brighton School. Their inventive use of close-ups, as in Smith's *Grandma's Reading Glass* (1900); trick effects, as in Williamson's *The Big Swallow* (1903); and skillful editing, as in Williamson's *Mary Jane's Mishap* (1903), were widely copied. Cecil Hepworth's 1905 *Rescued by Rover* assembled many shots of different locales, all joined by the movement of its canine hero; it was one of the most widely successful and imitated films of the primitive era. Faced with competition in world markets from French, U.S., and, increasingly, Danish and Italian films, the English cinema began to lose its prominence about 1907, until the Quota Act of 1927 bolstered British production once more.

In the United States the Edison Company tried to use its patents to gain MONOPOLY control. The American Mutoscope and Biograph Company, however, circumvented these efforts by inventing its own camera, and its main cinematographer-director, G. W. Bitzer, continued to make scenics, topicals (e.g., his coverage of the Galveston flood in 1900), and staged scenes. Biograph used the conventional rooftop studio but was inventive in its use of artificial lighting to film the Jeffries-Sharkey fight on location in Madison Square Garden in 1899 and in its early installation of electrical lighting in its indoor New York studio in 1903. Edison's main cinematographer-director was Edwin S. Porter, who kept abreast of European developments and added his own touches. His considerable influence began with the release early in 1903 of *The Life of an American Fireman* and continued that same year with *The Great Train Robbery*. Using a combination of single long shots for some scenes and brief series of shots for others, Porter built up relatively elaborate editing patterns, with characters moving from one space to another. The final scene in *The Life of an American Fireman* shows the rescue of a mother and child, first in a single shot inside their bedroom, then repeated from a vantage point outside. This use of overlapping time was an attempt to solve the problem of moving characters from place to place through a coherent line of action. Over the



Figure 2. (Motion Pictures—Silent Era) Georges Méliès, *Voyage à travers l'impossible* (The Impossible Voyage), 1904. The Museum of Modern Art/Film Stills Archive.

next fifteen years or so, filmmakers in various countries would devise other filmic strategies for handling this problem. Early Vitagraph films were consistently innovative; one of the earliest known instances of cross-cutting (editing back and forth between separate locales) occurs in its 1906 film *The Hundred-to-One Chance*.

Throughout the primitive era the popularity of films increased and production grew enormously. Distinct narrative genres began to emerge. The chase film, pioneered by the Brighton School—as in Williamson's *Stop, Thief!* (1901) and *Fire* (1902)—became the most common type of film after 1904. Pathé and American Mutoscope and Biograph became adept at long comic chases, and the genre encouraged film-

makers to string more shots together in increasingly elaborate ways. Slapstick comedies, crime thrillers, melodramas, and last-minute rescues were all common, early silent films being more oriented toward action than toward psychological drama.

As the primitive period drew to a close around 1908, the cinema was still expanding in every way. Films were longer. By 1909 the one-reel film (about fifteen minutes) with multiple shots had become standard. By the teens some companies, particularly in Europe, were making films of two or more reels, and these proved popular everywhere. More countries were now making films in significant numbers. By 1908 Danish and Italian films were becoming widely known, and the Italian industry was particularly

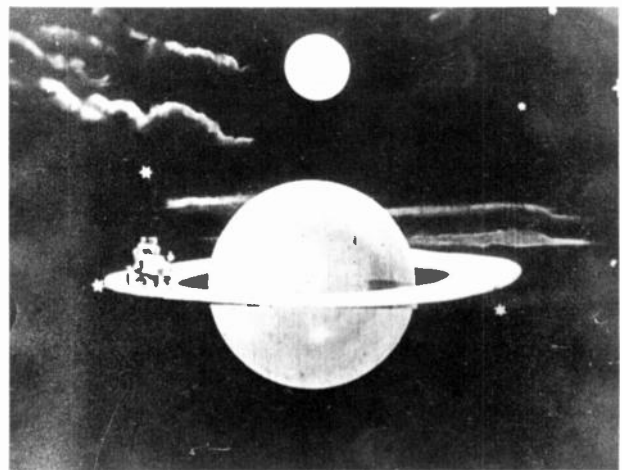


Figure 3. (Motion Pictures—Silent Era) Walter R. Booth for Robert W. Paul, *The Motorist*, 1905. National Film Archive, London.



Figure 4. (*Motion Pictures—Silent Era*) Giovanni Pastrone, *Cabiria*, 1913 (top and bottom). National Film Archive, London.

successful, growing to challenge the French films on world markets in the years before the war.

Transitional Period: 1909–1918

In the decade after the primitive period, filmmakers gradually formulated the “classical” narrative system of commercial filmmaking that has remained familiar

to the present day. In the United States this transition lasted approximately from 1909 to 1916, with the traits of what we know as the HOLLYWOOD cinema being largely standardized by 1917.

Early in this era the lengthier feature film became dominant, spurred particularly by the success of Italian epics in the early teens. While the Italian industry had turned out its share of melodramas and comic

Figure 5. (*Motion Pictures—Silent Era*) Charlie Chaplin in *The Vagabond*, 1916. National Film Archive, London/Black Ink Films.

one-reelers, its greatest popularity came with multiple-reel historical films using large sets and crowds of extras. *Quo Vadis?* (1912), *Gli ultimi giorni di Pompei* (*The Last Days of Pompeii*, 1913), and *Cabiria* (1913; Figure 4) were widely imitated internationally. During the same years popular comedy STARS made series of films with continuing lead characters: Max Linder and Rigadin in France, Pimple in England, John Bunny and various Keystone comedians in the United States, including Mack Sennett and CHARLES CHAPLIN (Figure 5). U.S. westerns, too, became internationally popular and were copied in European countries (see WESTERN, THE). The increasing length of films permitted more character development, and psychological REALISM became a more prominent trait in films of the early teens. Denmark's major company, Nordisk, became noted for the realistic characterization of its dramas. Louis Feuillade, a prominent French director, made a number of naturalistic melodramas from 1911 to 1914, including a series called "La vie telle qu'elle est" (*Life as It Is*). Similarly, U.S. director D. W. GRIFFITH, already famous for last-minute-rescue films, turned increasingly to character studies. *The Painted Lady* (1912) and *The Mothering Heart* (1913) used subtle facial expressions to dwell on characters' reactions to their situations and were part of a trend to make character traits the wellspring of narrative action. In later years, however, he became better known for epic-sized features such as *The Birth of a Nation* (1915; Figure 6) and *Intolerance* (1916).

With the beginning of World War I and a sharp wartime decline in French and Italian filmmaking, U.S. films gradually came to dominate world screens. At the same time, the Hollywood studio system was emerging, and filmmakers were developing a standardized, efficient way of making popular narrative films, leading to what has come to be called the classical Hollywood cinema. All stylistic techniques were made to serve narrative functions. Plots concentrated on goal-oriented protagonists who came into conflict with other characters. The viewer's interest was ensured when one scene raised questions that the next scene answered. Cinematic techniques enhanced narrative action, maintaining clear spatial relations and emphasizing characters' states of mind. Early in a scene editing established a locale with a long shot, then presented closer views of significant facial expressions and details in order to intensify the drama. The camera could also follow the characters with tracking and panning movements. With quick pacing, happy endings, and popular stars, Hollywood films quickly became dominant in many



Figure 6. (*Motion Pictures—Silent Era*) D. W. Griffith, *The Birth of a Nation*, 1915. The Museum of Modern Art/Film Stills Archive.

countries, and such names as Mary Pickford, Douglas Fairbanks, and Dorothy and Lillian Gish were known worldwide. By the end of the war audiences in South America, much of Europe, and Australia were more likely to see Hollywood films than any other kind.

In Europe the war had widely varied effects in different countries. French filmmaking, after a nearly complete shutdown in 1914, began to recover slowly in late 1915. Patriotic war stories were common. Feuillade made films of this type but turned increasingly to the SERIAL form, in which he scored such popular successes as *Les vampires* (1915–1916), *Judex* (1916–1917), and *Tih Minh* (1918–1919). Production in Italy remained slow throughout the war, while U.S. competition chipped away at Italy's lucrative foreign markets. But the Russian and German industries benefited from the isolation caused by the war. Neither had been a significant producing force before 1914, having depended largely on imports. When commercial routes into Russia were blocked, small companies sprang up there and began producing films. The most notable were by Yakov Protazanov, whose literary adaptations—for example, *Pilovaya Dama* (The Queen of Spades, 1916) and *Otets Sergii* (Father Sergius, 1918)—were not innovative stylistically but were well acted and popular. Protazanov would remain the most popular director in Russia through the 1920s. In the first years of the war Germany continued to depend on U.S. and Danish imports. Gradually German production companies appeared, and the government fostered them for the PROPAGANDA value of film. Notable ENTERTAINMENT films appeared as well. Many of these were in the fantasy genre, such as Paul Wegener's *Der Rattenfänger von Hameln* (The Rat-Catcher of Hamelin, 1918) and Richard Oswald's *Hoffmanns Erzählungen* (Tales of Hoffmann, 1916). Fantasy and horror films would remain a staple of German production into the 1920s (see HORROR FILM).

During these years, the adventure serial became one of the most popular forms worldwide. It reached a peak with the Pearl White serials in the United States, including *The Exploits of Elaine* (1915) and *The Iron Claw* (1916), and a host of rival projects by others in every producing country. Concentrating on exotic villains and locales, fast action, and plots that carried over between episodes at high points of suspense, serials could involve anywhere from a few episodes to dozens. One serial, *The Hazards of Helen* (1914–1917), made in the United States, ran to 119 parts.

Postwar Era: 1918–1929

As the war ended countries around the world found themselves trying to compete, against formidable odds,

with the popular Hollywood cinema. In some cases this meant imitation. In every national cinema, including the Soviet and the Japanese, features were made that closely resembled Hollywood films. However, there were also significant departures.

Scandinavia. The world became aware of a uniquely Swedish cinema. Its two major directors, Maurice Stiller and Victor Sjöström, often left the studio to film in the impressive scenery of the Swedish countryside, and landscape became a major part of the drama in such films as Stiller's *Herr Arnes pengar* (Sir Arne's Treasure, 1919; Figure 7) and Sjöström's *Berg-Ejvind och hans hustru* (The Outlaw and His Wife, 1918). Together these two directors created Sweden's brief golden era, which ended in the mid-1920s when they departed for jobs in Hollywood, where Sjöström became Seastrom.

In Denmark, Benjamin Christensen had established himself during the teens with *Det hemmelighedsfulde X* (The Mysterious X, 1913) and *Hævnens nat* (Blind Justice, 1915), melodramatic films with stark night lighting and skillful camera movement. After the war, he created one more major film, the bizarre *Häxan* (Witchcraft through the Ages, 1921), composed of startling satanic imagery. Christensen, too, departed for a brief career in Hollywood, but he was overshadowed by a man who soon became the most renowned Danish director, Carl Dreyer. Dreyer's Danish features, from *Praesidenten* (The President, 1919) to *Du skal aere din hustru* (Thou Shalt Honor Thy Wife, 1925), were sparse, restrained dramas, employing deliberately simple settings and camera techniques that eschewed the glamor of Hollywood. In the middle and late 1920s Dreyer worked in various European countries, becoming part of an international AVANT-GARDE FILM movement.

Germany. The German government bolstered the postwar film industry by restricting imports, and producers there found themselves in a strong position. They were interested in making films noticeably different from those of Hollywood in order to offer world markets a competitive alternative. One such alternative was the historical epic, which the Germans made in imitation of the prewar Italian successes. Under the skillful guidance of directors like Ernst Lubitsch and Oswald, such films did indeed succeed abroad. Lubitsch's lavish *Madame Dubarry* (1919), a story of the French Revolution, was the first German film to be widely shown abroad after the war, and it spawned a host of similar films. Lubitsch, however, was soon lured away to Hollywood.

Another, more distinctly German alternative emerged when, influenced by German EXPRESSIONISM in the visual arts and theater, a group of filmmakers made *Das Cabinet des Dr. Caligari* (The Cabinet of Dr. Caligari, 1920), directed by Robert



Figure 7. (Motion Pictures—Silent Era) Maurice Stiller, *Herr Arnes pengar* (Sir Arne's Treasure), 1919. National Film Archive, London/Swedish Film Institute.

Wiene. Its sets, made of painted canvas, depicted buildings in the manner of an expressionist woodcut. The distortions were justified as rendering the subjective vision of a madman. The resulting film was a success at home and abroad. The German industry responded by producing more expressionist films, creating an avant-garde movement within a mainstream film industry.

France. A second distinct stylistic movement arose in France after the war. The major companies as well as the many small independent firms were willing to give young directors a chance to compete with Hollywood. The 1918 releases of *La dixième symphonie* (The Tenth Symphony), by Abel Gance, and *Rose France*, by Marcel L'Herbier, initiated the French impressionist film movement. Gance, L'Herbier, and the other directors of this movement were more theoretically inclined than their German counterparts, and they published their views on film in journals like *L'art cinématographique* and *Cinéa—Ciné pour tous* that supported the new avant-garde style. The editor of *Cinéa*, Louis Delluc, became a filmmaker and was a leader of the movement (see FILM THEORY). He fostered the early career of another impressionist, Jean Epstein, whose films include *Coeur fidèle* (Faithful Heart, 1923) and *Finis terrae* (The End of the World, 1929). Germaine Dulac, already established as a director, moved between conventional projects and impressionist films, the best known of which is *La souriante Madame Beudet* (The Smiling Madame Beudet, 1923; Figure 8).

The impressionists were all concerned with the depiction of mental states through SPECIAL EFFECTS.

Their films use point-of-view framings, out-of-focus shots, multiple exposures, filters, hand-held camera movements, and other devices to suggest events as experienced by the characters, especially in heightened emotional moments such as exhilaration, fear, drunkenness, and dreams. The impressionists also developed a rapid-editing technique for suggesting the rhythms of music or for conveying fleeting sensations. In elevating characterization and style above considerations of unified action, the impressionists created a recognizably French type of cinema. Despite their success with intellectual French audiences, however, few impressionist films fared well in larger



Figure 8. (Motion Pictures—Silent Era) Germaine Dulac, *La souriante Madame Beudet* (The Smiling Madame Beudet), 1923. National Film Archive, London.

markets. The costly failures of Gance's epic *Napoléon* in 1927 and L'Herbier's ambitious *L'argent* (Money) in 1928 signaled the movement's end. The directors found financing more difficult to obtain after sound raised production costs. Dulac had already turned to surrealist and abstract experimental shorts. Gance, L'Herbier, and others accepted more conventional projects, using occasional touches of impressionist style, and Epstein continued his early work on occasional modest films. But the techniques devised by the impressionists for suggesting characters' subjective reactions became staples of filmmaking. See CINEMATOGRAPHY.

Soviet Union. A third major stylistic alternative to Hollywood cinema emerged somewhat later in the Soviet Union. After the 1917 Revolution, many commercial filmmakers emigrated, taking much of the country's cinematic equipment with them. During the hardships of the years 1917–1924 those interested in building up the industry could do so only gradually. Still, many young people hoped to create a specifically socialist approach for the cinema, seeing it as a powerful medium for educating the population about the new social order. The government's control of filmmaking was strict, but because officials saw a need to develop a nonbourgeois cinema, for a brief period considerable experimentation was allowed. The movement called the Soviet montage style began with SERGEI EISENSTEIN's *Stachka* (Strike, 1925; Figure 9). Another central figure was Vsevolod Pudovkin, who made *Mat* (Mother, 1926) and *Konyets Sankt-Peterburga* (The End of St. Petersburg, 1927; Figure 10). The most prominent non-Russian Soviet director was Aleksandr Dovzhenko, whose highly poetic films on Ukrainian themes are among the classics of the period: *Zvenigora* (1928), *Arsenal* (1929), and *Zemlya* (Earth, 1930).

The Russians used the French term *montage* to designate dynamic FILM EDITING. The montage filmmakers created strong conflicts between shots, believing that this would arouse a strong response in the viewer. Rapid editing, strong conflicts of graphic qualities between shots, temporal overlapping or ellipses, and other vigorous cutting techniques characterized their films. Some films dispensed with a single protagonist to concentrate on groups forming a mass hero. Acting emphasized athletic gestures rather than psychological reaction, and casting often involved nonactors thought to look the part, an approach called *typage*. Montage filmmakers used a variety of camera angles to reinforce the dynamism of their cutting. Stories often dealt with the history of the revolutionary movement, as in Eisenstein's use of the 1905 uprising in *Bronenosets Potyomkin* (Battleship Potemkin, 1925). A few montage films were made with sound in the early 1930s, but by then the government had rejected the experimental traits of



Figure 9. (Motion Pictures—Silent Era) Sergei Eisenstein, *Stachka* (Strike), 1925. National Film Archive, London/Sovexport.

the montage style, putting pressure on filmmakers to produce films more comprehensible to the masses.

Japan. Although it lacked the unified group styles seen in Germany, France, and the Soviet Union, the Japanese cinema was notable in various ways, including its prolificacy; during the 1920s it produced more films than any other country. Japanese filmmakers quickly mastered Hollywood storytelling principles and took a vigorous eclectic attitude toward technique. Sword-fight films rendered combat in breathtakingly fast motion and galloping hand-held shots. Teinosuke Kinugasa's *Kurutta ippeiji* (A Page of Madness, 1926) pulled impressionist and expressionist devices into a kaleidoscopic vision of hallucination. Well into the 1930s major directors were making such silent masterworks as Kenji Mizoguchi's *Orizuru osen* (The Downfall of Osen, 1934) and YASUJIRŌ OZU's *Umarete wa mita keredo* (I Was Born, but . . . , 1932). Mizoguchi experimented with complex camera movements and unusually long takes, while Ozu relied on a consistently low camera position and rigorous editing patterns. An unusual feature of Japanese silent film was the *BENSHI*, a narrator who stood beside the screen, explaining, and achieved a unique status.

India. India had begun feature film production in 1914, when DHUNDIRAJ GOVIND PHALKE, the "father of Indian film," scored a spectacular success with *Harischandra* (1914), setting in motion an industry and at the same time creating the mythological film (see MYTHOLOGICAL FILM, ASIAN). Its subject matter was drawn from the ancient Indian epics, the Ramayana and the Mahabharata, known through much



Figure 10. (*Motion Pictures—Silent Era*) Vsevolod Pudovkin, *Konyets Sankt-Peterburga* (The End of St. Petersburg), 1927. National Film Archive, London/Sovexport.

of Asia. The tales seemed incomprehensible to British audiences but won for Indian filmmakers an immediate hold on Indian audiences, and showings through much of South Asia. Phalke, in dealing with the doings of gods and heroes, showed himself to be an early special effects genius. Mythologicals dominated Indian film production for a decade but were soon joined by social films, those dealing with modern subject matter. By the 1920s India was producing more films than Great Britain, but most theaters showed U.S. films.

United States. In Hollywood the studio system was pouring several hundred films a year into world markets. Its logic favored typecasting—from the star down. A Rudolph Valentino triumph in *The Sheik* (1921) quickly led to Valentino in *Blood and Sand* (1922); a Lon Chaney success in *The Hunchback of Notre Dame* (1923) led to Chaney in *The Phantom of the Opera* (1926); Buster Keaton as *The Navigator* (1924) led to Keaton as *The General* (1927); Greta Garbo in *Flesh and the Devil* (1927) led to Garbo's *The Mysterious Lady* (1928). Stars tended to become subgenres, as did producers and directors. There were many versatile talents among them, but the best known tended to be those who became identified with specific styles: Cecil B. DeMille and his erotic religious spectacles like *The Ten Commandments* (1924); Lubitsch of the continental touch, risqué and sumptuous, as in his first U.S. successes, *The Wedding Circle* and *Forbidden Paradise* (both 1924); Erich von Stroheim with his penchant for intense melodrama with bizarre detail, as in *Greed* (1924) and *The Wedding March* (1928).

An international avant-garde. The silent era also saw a constant avant-garde film activity, which began in Europe and often focused on short films. In Germany the movement started with an emphasis on abstract ANIMATION, as in Hans Richter's *Rhythmus 21* and *Rhythmus 23* (1921–1924). In France the impulse was toward dadaism and surrealism, as in René Clair's *Entr'acte* (1924) and LUIS BUÑUEL's *Un chien andalou* (1928). Documentary experiments were the focus of JORIS IVENS in the Netherlands, as in his *De Brug* (The Bridge, 1926) and *Regen* (Rain, 1929; Figure 11); and of Henri Storck in Belgium, as in his *Histoire du soldat inconnu* (History of the Unknown Soldier, 1930). Avant-garde artists tended to be mobile, holding joint screenings in cineclubs and film societies, and their films often merged influences from various places. Epstein's 1928 *La chute de la maison Usher* (The Fall of the House of Usher) exhibited a French impressionist style but combined it with German expressionist-inspired settings. Dreyer worked in France on *La passion de Jeanne d'Arc* (The Passion of Joan of Arc, 1928), but a German designer contributed quasi-expressionist sets, and there were moments of impressionist subjectivity and montage-style editing and camera angles. The advent of sound, with the new expenses it involved, brought a decline in independent experimentation, and many of these directors moved into other modes and activities.

Increasingly, however, the U.S. studios hired successful European directors, contributing to the decline of national stylistic movements. International avant-garde traits blended with the established clas-



Figure 11. (*Motion Pictures—Silent Era*) Joris Ivens, *Regen* (Rain), 1929. National Film Archive, London. Copyright Joris Ivens.

sical style of Hollywood, an influence evident in U.S. films into the 1940s. By the end of the silent era sophisticated explorations of the film medium had taken place and had been widely assimilated, and in spite of the static, “talky” quality of many early sound films, the achievements of the late silent era were only temporarily eclipsed. These films, like many that had gone before, made a permanent impact on the medium.

Bibliography. Richard Abel, *French Cinema: The First Wave, 1915–1929*, Princeton, N.J., 1984; David Bordwell, Kristin Thompson, and Janet Staiger, *The Classical Hollywood Cinema: Film Style and Mode of Production to 1960*, New York, 1985; Kevin Brownlow, *The Parade’s Gone By*, New York, 1968; Jay Leyda, *Kino: A History of the Russian and Soviet Film*, New York and London, 1960, *With a New Postscript and a Filmography Brought up to Date* (rev. ed.), Princeton, N.J., 1983; Rachael Low, *The History of the British Film 1896–1939*, 7 vols. [Vol. 1 with Roger Manvell], London, 1948–1985; George Pratt, *Spellbound in Darkness*, rev. ed., Greenwich, Conn., 1973; Georges Sadoul, *Histoire générale du cinéma*, 6 vols., Paris, 1948–1975; Barry Salt, *Film Style and Technology: His-*

tory and Analysis, London, 1983; Friedrich von Zgliniski [Friedrich Pruss von Zglinicki], *Der Weg des Films*, 2 vols., Berlin, 1956, reprint Hildesheim, FRG, 1979.

KRISTIN THOMPSON

3. SOUND FILM

The global diffusion of sound-recording technology in the period 1927–1932 decisively changed the structure of the film industry and the aesthetic dynamics of filmmaking. In one sense sound simply added a new dimension to an existing, if still evolving, medium. Yet it could also be seen as creating an entirely new medium. The former view dominated filmmaking in the transitional period, but it was the latter that ultimately made the change significant. See SOUND RECORDING.

Transition

The transition to sound was extraordinarily swift. Conversion of the U.S. industry, where the process began, took place in fewer than fifteen months, from late 1927 through 1929. During this time business was booming, but inside the theaters and studio soundstages it was a time of feverish adaptation. There were initially three competing systems: Western Electric’s Vitaphone, a sound-on-disc process; Fox Movietone sound-on-film; and RCA Photophone sound-on-film, which ultimately became the industry standard. None of them was compatible with either of the others. Equipment for all three was so constantly modified and revamped that it was sometimes obsolete before it was uncrated.

Technical crises. It is often said, with some reason, that movies ceased to move when they began to talk. Microphones of the time had a limited range, so that actors had to speak directly into them to register on the track, and were largely immobilized. But the same microphones were omnidirectional within their range and would pick up every sound made near them on the set, including that of running cameras. Cameras, which had generally been hand-cranked in the silent era, were motorized in 1929 to run at a standard speed of twenty-four frames per second. Unvarying speed was essential to avoid distortion on the soundtrack. To prevent camera noise from being picked up by microphones, the cameras and their operators were at first enclosed in soundproof booths, six feet on a side, ironically dubbed iceboxes because they were so hot and stuffy. Thus the camera, too, was immobilized (Figure 1). It could pan about thirty degrees on its tripod but could neither tilt nor track. Several directors, including Rouben Mamoulian in the United States and ALFRED HITCHCOCK in England, experimented with putting their booths on



Figure 1. (*Motion Pictures—Sound Film*) Alfred Hitchcock on the set of *Blackmail*, 1929. National Film Archive, London. Courtesy of Weintraub Entertainment.

wheels, but this was hardly a permanent solution. Meanwhile lighting caused other problems. The carbon arc lamps of the silent era made a humming noise that plagued the soundtrack. Studios were converting to incandescent tungsten lamps, but they were less intense and posed a new set of problems for camera operators.

If acting and camerawork suffered, an even more serious regression overtook FILM EDITING. In both sound-on-disc and sound-on-film systems most early editing became transitional, since in general cuts could only be made (as the camera could only be moved) when no sound was being recorded synchronously on the set. Furthermore, U.S. studio executives felt that an absolute pairing of sound and image was necessary to avoid confusing literal-minded audiences. In the early sound era both practice and ideology dictated that everything heard on the soundtrack should be seen on the screen, and vice versa. Of course there were protests, especially from film editors, directors, and critics, who felt that the emphasis on synchronous sound was a threat to cinema as a creative form. In "Sound and Image," a famous manifesto issued in August 1928, Soviet filmmakers SERGEI EISENSTEIN, V. I. Pudovkin, and Grigori Alexandrov denounced synchronous sound in favor of asynchronous or contrapuntal sound, which would counterpoint the images it accompanied to become another dynamic element in the editing process or, as they called it, montage. Others, like French director René Clair and Austrian director G. W. Pabst,

supported this position, and soon there was a full-blown controversy on both sides of the Atlantic about the proper use of sound. See FILM THEORY.

Technical and theoretical dilemmas gradually gave way to solutions. As cameras were equipped with "blimps"—lightweight, soundproof housings that muffled the motor—camera operators escaped their prisons. They regained mobility with long-armed microphone booms and then with a wide range of cranes and steerable dollies, developed from 1930 on. Meanwhile microphones became more directional, lighting—both arc and incandescent—was improved, and track noise suppression devices came into use.

For the film editor an especially crucial change came with the innovation of postsynchronization, which took place after sound-on-film had become the industry standard. This called for image and sound to be printed on separate strips of film so that they could be manipulated independently. Postsynchronization seems to have been first used by U.S. director King Vidor in the all-black musical *Hallelujah!* (1929). Filmed on location in Memphis, Tennessee, the film contains a sequence of long tracking shots in which the hero is chased through swamplands. Vidor shot the sequence silent with a continuously moving camera and later added a separately recorded soundtrack that contained noises of the pursuit—breaking branches, screeching birds, heavy breathing—modulating them from the natural to the impressionistic. The following year Lewis Milestone

used postsynchronization for the battle sequences in *All Quiet on the Western Front* (1930), shooting them mute on location with a moving camera and dubbing in the SOUND EFFECTS in the studio (Figure 2), a technique used simultaneously in Germany by Pabst in *Westfront 1918* (1930). These and other films of the time demonstrate a gradual shift in emphasis from production recording to rerecording, with increased importance given to the latter.

Still another important editing development was multiple-channel recording. Until 1932 the soundtrack for a sequence generally consisted of dialogue or music, rarely both together unless they had been recorded simultaneously on the set. By 1933 technology had been introduced to mix separately recorded tracks for background music, sound effects, and synchronized dialogue without audible distortion at the dubbing stage, and by the late 1930s it was possible in the RCA system to record music on multiple channels. Postsynchronization and the mixing of multiple recorded soundtracks quickly became standard industry procedure. Although postsynchronization was first developed for sound effects, it was soon applied in many productions to dialogue. Before long it was not uncommon for 90 percent of the dialogue in a film to be added in postproduction.

Human problems. Not all the transitional problems were technical; some were purely human. In the silent era it had been common for directors literally to direct their performers during a take, giving them instructions on how to move, emote, and interact while the cameras were rolling. Sound recording obviously eliminated this practice, depriving directors of a large measure of control. For performers the situation was worse. They were now required not only to have acceptable voices and clear articulation but also to work through long dialogue se-

quences without the direction they had come to expect. In the silent era actors were rarely expected to learn lines or to stick to the script. Many simply could not or would not do it. Others attempted to master the new methods but were defeated by heavy foreign accents (Emil Jannings, Pola Negri) or voices that did not match their screen images (Norma Talmadge, John Gilbert). Many silent STARS were displaced by actors with stage experience. British actors like Ronald Colman, Clive Brook, and Herbert Marshall were particularly valued in HOLLYWOOD for their low-pitched, well-modulated voices that registered with near perfection on the soundtrack.

Many producers assumed that the sound film would provide the perfect medium for photographing stage hits with their original casts, and between 1929 and 1931 much of U.S. cinema was “canned theater” in which Broadway plays were transferred from stage to screen with little or no adaptation. Audiences quickly tired of these static “all-talking” productions, derisively called teacup dramas because they seemed to feature interminable pouring of tea. But they brought into motion pictures many THEATER directors and players who remained on a more or less permanent basis. Similarly, the urgent need for dialogue scripts revolutionized the profession of screenwriting and caused studios to import literary talent from New York and elsewhere—playwrights, critics, editors, novelists—many of whom stayed on to make lasting contributions to the quality and sophistication of U.S. sound films.

Impact on the Medium

In the United States the conversion to sound had two major effects: it gave rise to important new genres that were to remain industry staples, and it consoli-



Figure 2. (*Motion Pictures—Sound Film*) Lewis Milestone, *All Quiet on the Western Front*, 1930. National Film Archive, London. Copyright © by Universal Pictures, a Division of Universal City Studios, Inc. Courtesy of MCA Publishing Rights, a Division of MCA, Inc.



Figure 3. (Motion Pictures—Sound Film) Al Jolson in *The Jazz Singer*, 1927. The Museum of Modern Art/Film Stills Archive.

dated the studio system of production that had been forming since the teens. Probably the most significant new GENRE was the film musical, whose appearance and evolution obviously depended on sound (see MUSICAL, FILM). Photographed versions of Broadway musicals were among the first sound films made, and Warner Brothers' *The Jazz Singer* (1927)—a film long considered the catalyst for the conversion—was one of them (Figure 3). Concurrently, the ANIMATION field, notably in the work of WALT DISNEY, was pioneering a sound film genre that might be called the animated musical in shorts like *Steamboat Willie* (1928; Figure 4) and *The Three Little Pigs* (1933).

At the other extreme the new REALISM permitted by sound gave rise to a cycle of jazz, topical urban gangster films that exploited tough vernacular speech and the audibly destructive power of the recently invented Thompson submachine gun. *Little Caesar* (1930), directed by Mervyn LeRoy, was the prototype, and it soon inspired such subgenres as the prison film, exemplified by *The Big House* (1930), and the newspaper picture, for which *The Front Page* (1931) set the pattern. All these types relied on authentic-sounding dialogue for much of their effect. Another Hollywood genre dependent on seemingly realistic dialogue was the historical BIOGRAPHY or “biopic,” represented by films like *House of Rothschild* (1934) and *The Story of Louis Pasteur* (1936).

In the COMEDY field, slapstick—a staple of the silent cinema and perhaps its most memorable genre—could not survive, owing to its entirely visual nature. But it was replaced by equally vital sound film types: the anarchic dialogue comedies of the Marx Brothers and W. C. Fields and the wisecracking, furiously paced screwball comedies of such directors as Frank

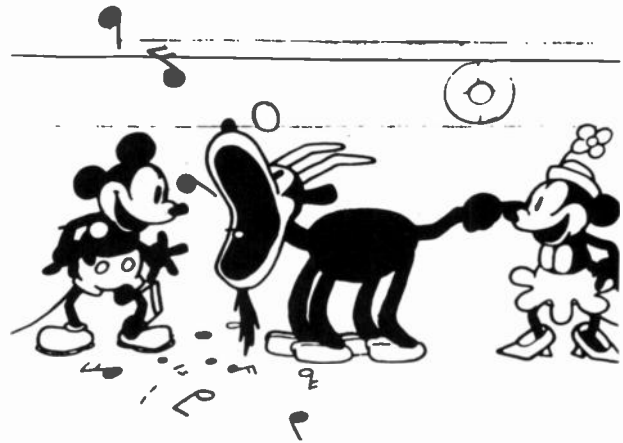


Figure 4. (Motion Pictures—Sound Film) Walt Disney, *Steamboat Willie*, 1928. The Museum of Modern Art/Film Stills Archive.

Capra, Howard Hawks, and Leo McCarey. The HORROR FILM, with its roots in German EXPRESSIONISM, was greatly enhanced by the possibilities of eerie music and sound. In fact, Universal Pictures' three celebrated horror classics—*Dracula* (1931), *Frankenstein* (1931), and *The Mummy* (1932)—were all early sound films.

But the most important shaping force of the U.S. sound film was economic, as the process of conversion caused corporate fortunes to be borrowed, won, and lost. By 1930 a series of mergers and takeovers had concentrated 95 percent of all U.S. production in the hands of an oligopoly of eight studios. Between 1930 and 1945 this system mass-produced some seventy-five hundred feature films in which every

variable was carefully controlled, from scripting and filming through booking and exhibition. See MONOPOLY.

Nevertheless, the period was in many ways a golden age for American cinema, and at least four directors working within it—Josef von Sternberg, John Ford, Hawks, and Hitchcock—emerged as major figures of the sound film. All produced distinguished bodies of work during the studio era that have become part of cinema's classical heritage. It was also the era of *Gone with the Wind* (1939), a triumph of promotion as well as of opulent production. Yet by far the most extraordinary film to emerge from the studio system (albeit subversive of it), notable for its dynamic use of sound and its extreme deep-focus PHOTOGRAPHY, was ORSON WELLES's *Citizen Kane* (1941). This monumental and eccentric cryptobiography of WILLIAM RANDOLPH HEARST became the paradigm for the modern sound film and remains Hollywood's most audaciously experimental film of the era.

Spread of Sound Technology

The triumphant manufacturers of U.S. sound technology, Western Electric and RCA, having created large new markets for their product at home, were eager to do the same abroad, and the U.S. studios were similarly eager to extend their dominance of the international film world into the sound era. This expansion was briefly stalled by two factors: a hard-fought patent war with the German Tobis-Klangfilm group for world dominion of sound equipment, and language problems. The patent struggles were more or less resolved in a 1930 meeting in Paris, when German and U.S. interests agreed on a sweeping territorial division and a pooling of patents. The wiring of theaters then went forward rapidly, and new markets opened everywhere.

But language presented a troublesome barrier to many of these markets. Since dialogue dubbing was very difficult in the first years of sound, the alternative was to shoot films in several language versions using the same sets, shuffling actors as needed. In 1930 Paramount built a vast studio at Joinville in the suburbs of Paris to mass-produce films in many languages. Other Hollywood studios joined the project, and Joinville—soon christened Babel-sur-Seine—became a movie factory operating twenty-four hours a day to make films in as many as fifteen languages, including Rumanian, Lithuanian, Egyptian, and Greek—often in less than two weeks per feature. The quality of the Joinville product was predictably low. By the end of 1931 the technique of dubbing had been sufficiently improved to provide an inexpensive alternative to multilingual production. Paramount converted the Joinville studio into a dubbing center for all Europe and the Middle East. Dubbing—and,

less frequently, subtitling—became the basis for wide international distribution.

England. Conversion had moved rapidly in England. Almost two-thirds of its theaters were wired by the end of 1932. Most were showing Hollywood films, although American accents often baffled British audiences. Meanwhile the British industry's first important creative contribution to the new era was the work of Hitchcock, whose *Blackmail*, released in June 1929, marked the effective beginning of sound production in England. *Blackmail* was already in production as a silent film when word came down from British International Pictures executives to transform it into a "part-talkie" with some RCA Photophone equipment hastily imported from the United States. Characteristically, Hitchcock used the occasion to experiment with the new medium and produced what is surely one of the most innovative films of the early transitional period, notable for its fluid camera style and its expressive use of both naturalistic and nonnaturalistic sound. Other British filmmakers of note during the thirties were the Hungarian émigré brothers Alexander, Zoltán, and Vincent Korda, who founded London Films in 1934 and collaborated on some of Britain's most spectacular pre-World War II films, including *The Private Life of Henry VIII* (1933) and *The Four Feathers* (1939).

France. The French had evolved no marketable technology for sound recording, probably owing to the slow development of their electrical industry relative to that of the United States and of Germany. Thus, during the transition, producers and exhibitors alike were vulnerable to the Americans at Joinville and to the Germans, who had purchased large studios for Tobis-Klangfilm in the Paris suburb of Epinay as early as 1929. In the face of these threats the French industry regrouped itself into two mammoth consortia formed around the former giants of the 1910s, Pathé (see PATHÉ, CHARLES) and Gaumont. Sound created in French audiences an unprecedented demand for French-language films about French subjects, which French filmmakers naturally made better than anyone else. Between 1928 and 1938 French production almost doubled, going from 66 to 122 features annually; box-office receipts increased to the point that the French audience was considered second in size only to that in the United States; and by 1937–1938 French cinema had become the most critically acclaimed in the world, taking prizes and winning export markets in every industrial country, including the United States.

The French filmmakers who did most to achieve this eminence were Clair, Jean Vigo, and JEAN RENNOIR. Clair was a former avant-gardist who experimented with asynchronous soundtracks in musical comedies, including *À nous la liberté* (*Liberty Is Ours*, 1931), a recognized classic of the early sound



Figure 5. (Motion Pictures—Sound Film) René Clair, *À nous la liberté* (Liberty Is Ours), 1931. The Museum of Modern Art/Film Stills Archive.

film (Figure 5). Though Vigo made only two feature films, *Zéro de conduit* (Zero for Conduct, 1933) and *L'Atalante* (1934), their intensely personal nature seems to have inspired the “poetic realist” style of 1934–1940, more popularly associated with the films of Jacques Feyder, Julien Duvivier, and Marcel Carné. But it is in the work of Renoir that French cinema of the thirties finds its most distinguished and passionate artist. Son of the famous impressionist painter,

Renoir experimented with both image depth and sound in a number of significant films during the decade, culminating in his two great masterworks, *La grande illusion* (Grand Illusion, 1937) and *La règle du jeu* (The Rules of the Game, 1939).

Germany. Ownership of the Tobis-Klangfilm patents placed the German film industry in a position of relative strength during the transitional period, and from it emerged several of the world’s most significant early sound films. Von Sternberg made *Der blaue Engel* (The Blue Angel) in 1929 (Figure 6); G. W. Pabst contributed highly original work including his *Kameradschaft* (Comradeship), released in 1931; and Leontine Sagan’s *Mädchen in Uniform* (Girls in Uniform) won international acclaim the same year. But probably the most influential work of the early German sound film was Fritz Lang’s *M* (1930), scripted by Thea von Harbou (Lang’s wife) and based on a famous series of Dusseldorf child-murders. Like Hitchcock, Lang used the soundtrack to create a dimension of aural imagery to counterpoint his visuals. After Adolf Hitler took power in 1933, with JOSEPH GOEBBELS as PROPAGANDA minister, technical experimentation of this sort virtually ceased—except in the DOCUMENTARY field, in which the virtuosity of Leni Riefenstahl, especially in her portrayal of a major Nazi party rally in *Triumph des Willens* (Triumph of the Will, 1935), won her worldwide attention and notoriety.

Italy. Sound came slowly to the Italian cinema because competition from the U.S. and German in-

Figure 6. (Motion Pictures—Sound Film) Josef von Sternberg, *Der blaue Engel* (The Blue Angel), 1929. National Film Archive, London/Atlas International Film.



dustries during the 1920s had already pushed it to the brink of collapse. But the introduction of sound did draw Benito Mussolini's attention to the enormous propaganda value of film, and his regime successfully manipulated the Italian industry through the 1930s by encouraging its expansion and controlling its content. Economic incentives and subsidies caused production to rise, from seven features in 1930 to eighty-seven in 1939. As in Nazi Germany, Fascist CENSORSHIP determined the mix: along with romantic comedies (known as *telephono bianci*, or "white telephone" films, owing to their glamorous studio sets) came an assortment of nationalistic films on heroic themes, such as Alessandro Blasetti's *1860* (1934) and Carmine Gallone's *Scipione l'Africano* (1937).

Soviet Union. Sound was also slow in coming to the Soviet Union. Two Soviet engineers, P. G. Tager and A. F. Shorin, had designed optical sound systems as early as 1926, but neither was workable until 1929. In fact, the first Soviet sound films, such as Yuli Raizman's *Zemlya zhazhdyot* (*The Earth Thirsts*, 1930), were recorded with German equipment. It is often argued that the Soviets' late start enabled them to profit from the mistakes of their Western counterparts. But sound and silent cinema continued to coexist in the USSR for nearly six years, the last silent production being released in 1936. Of all the industrialized nations, only Japan experienced a longer transitional period.

As in Germany and Italy, the arrival of sound reemphasized the value of film as an instrument of mass indoctrination, already an article of faith to the Bolsheviks, in whose interests V. I. Lenin had early nationalized the Soviet cinema and founded the VGIK (State Film School). Joseph Stalin further consolidated state control in 1930 by dissolving Sovkino, the state film trust supervised by the Ministry of Education, and replacing it with Soyuzkino, an organization directly responsible to the Supreme Council of the National Economy and thus to Stalin himself. Simultaneously the party promulgated the doctrine of "socialist realism," a blend of didacticism and propaganda informed by Stalin's own cult of personality. Its imposition by the Kremlin in 1932 as the official style of all Soviet art signaled a rejection of the earlier AVANT-GARDE experiments and ensured a stolid conformity of style and content in Soviet cinema that would last until the death of Stalin in 1953.

The filmmakers most affected, of course, were the great montage artists Lev Kuleshov, DZIGA VERTOV, Eisenstein, Pudovkin, and Aleksandr Dovzhenko. During the transitional period each had made admirable sound experiments that were ultimately suppressed or defamed by the party bureaucracy. It is one of film history's ironies that these five, who had brought international prestige to the Soviet cinema during the twenties, were virtually hounded out of



Figure 7. (*Motion Pictures—Sound Film*) Sergei Eisenstein, *Alexander Nevsky*, 1938. The Museum of Modern Art/Film Stills Archive.

the industry during the thirties and forties. Of them all, only Eisenstein was able to reassert his genius—in *Alexander Nevsky* (1938; Figure 7), whose contrapuntal soundtrack has become a textbook classic, and in the operatic, grandiose *Ivan Grozny* (*Ivan the Terrible*, Parts I and II, 1943–1946). The mainstream of the period featured glorification of national heroes, as in Vladimir Petrov's *Pyotr Pervyi* (*Peter the Great*, Parts I and II, 1937–1938); literary adaptations, including Mark Donskoi's Gorky trilogy *Detstvo Gorkovo* (*The Childhood of Maxim Gorky*, 1938); and pure escapism, as witnessed by the mid-1930s vogue for Hollywood-style musicals such as Grigori Alexandrov's *Vesyolye rebyata* (*Jazz Comedy*, 1934).

Japan. Japanese motion pictures had always "talked" through the mediation of the BENSHI, the commentator who stood to the side of the screen and explained the action. The arrival of synchronously recorded sound served to free Japanese cinema from subservience to a live narrator. Heinosuke Gosho's *Madamu to nyobo* (*The Neighbor's Wife and Mine*, 1931) was the nation's first successful talkie, and it ranked high in technical achievement among early sound films. But, as in the Soviet Union, the conversion to sound was a long process. Silent films were produced in large numbers until 1937. One sweeping consequence of the transition, however, was the vertical monopolization of the Japanese industry by a few major production companies. Paralleling developments in the United States, the Japanese majors of the time (Nikkatsu, founded 1914; Shochiku, founded 1920; and Toho, founded 1932) consolidated their positions by the aggressive absorption of smaller companies and organized their studios for mass pro-

duction. Although there was hardly any export market for Japanese films until after World War II, the coming of sound enabled the Japanese industry to become one of the world's most productive, releasing an average of four hundred features annually to the nation's twenty-five hundred theaters. As Japan became increasingly xenophobic and militaristic in the late thirties, its most distinguished directors, including YASUJIRŌ OZU and Kenji Mizoguchi, turned to works of social criticism known as tendency films. In response to these dissident films the government imposed official censorship on the industry, which it maintained through the war years.

India. In India, which had a thriving silent film industry reaching Indians, Burmese, Ceylonese, and others, sound brought a confusion of tongues. Production, centered mainly in Bombay, Calcutta, and Madras, soon involved many languages—eventually more than two dozen. Even the majority Hindi-speaking market of 140 million people had regional variations. Under these conditions the first talking feature, the Hindi music drama *Alam ara* (*Beauty of the World*, 1931), by Ardeshir M. Irani, seemed a risky undertaking. But the film was a huge popular success (as indeed were nearly all early Indian sound films) and heralded a long-lasting boom. The reason was grounded deep in Indian culture: the sound film drew on a musical folk-drama tradition that went back many centuries and had always tended to be “all-singing, all-dancing” (see MUSIC THEATER—ASIAN TRADITIONS). Indeed, most Indian sound films seemed to exist mainly as an excuse for musical PERFORMANCE. The Indian film industry nevertheless became a powerful entity during the early sound era. From producing twenty-eight films in 1931—twenty-three in Hindi, three in Bengali, and one each in Tamil and Telegu—it was producing 233 in 1935 in ten different languages. A handful of these were social problem films like the Hindi *Achhut kanya* (*Untouchable Girl*, 1936), but the vast majority were “historicals” or held to the traditional mythological film genre (see MYTHOLOGICAL FILM, ASIAN).

Sound Film since World War II

In the devastation of World War II few film industries escaped havoc. Among areas of Europe that remained largely intact was neutral Sweden, where INGMAR BERGMAN began serving a film apprenticeship during the war years. After the war the Swedish film industry achieved international status and a distinct film personality as Bergman won worldwide attention.

Italy. Meanwhile a more influential renaissance was taking place in Italy. Because of its early surrender, it too had remained comparatively untouched, and quickly seized the world's film spotlight. It was with NEOREALISM—a movement exemplified by the

work of Luchino Visconti, Roberto Rossellini, and Vittorio De Sica—that Italian film moved into a new and prominent role. As the first postwar cinema to reject Hollywood NARRATIVE conventions and the studio mode of production, Italian neorealism had enormous influence on film movements that succeeded it, such as British social realism and the French and Czechoslovakian NEW WAVE FILM movements and similar waves in a number of Third World countries. By extension neorealism announced the mode of production—on-location shooting, natural lighting, postsynchronized sound—that was to become the world standard several decades later. The movement also provided the training ground for two filmmakers whose work returned the Italian cinema to international renown in the 1960s: Federico Fellini and Michelangelo Antonioni. Their films offered an example that the Italian cinema's second postwar generation—Pier Paolo Pasolini, Bernardo Bertolucci, and Lina Wertmüller, among others—were quick to follow into the 1970s and beyond.

Latin America. The Italian example, turning its back on studio formula and stressing natural locales, held special meaning for Latin America and later for countries of Asia and Africa. Many of these countries had long histories of colonial oppression, and the evolving film mode seemed to serve their efforts to develop a national consciousness free of imposed foreign values. Latin America began to create distinct cinematic styles during the 1960s. In postrevolutionary Cuba, the government-subsidized Instituto Cubano del Arte y Industria Cinematográficos fostered a sophisticated cinema of ideological praxis (*cine liberación*) in the work of such directors as Tomás Gutiérrez Alea, known especially for his *Memorias del subdesarrollo* (*Memories of Underdevelopment*, 1969), and Humberto Solás and Sara Gómez. In Brazil, the indigenous *cinema novo* (new cinema) movement that included Ruy Guerra, who made *Os fuzis* (*The Guns*, 1963), and Glauber Rocha, maker of *Terra em transe* (*Land in Anguish*, 1967), seemed to ignite similar activities by filmmakers elsewhere: Fernando Solanas and Octavio Getino in Argentina; Jorge Sanjinés in Bolivia; Miguel Littin and others in Chile. Some were suppressed in their native countries during the 1970s but continued work in Europe as filmmakers in exile. Ironically, the Spaniard LUIS BUÑUEL, having found his sardonic work incompatible with censorship in his native land, was meanwhile finding a welcome in Mexico, which became his base of operation and which experienced a film awakening of its own (Figure 8). See LATIN AMERICA, TWENTIETH CENTURY.

United States. The postwar years began as the most lucrative in history for the Hollywood industry. In 1946 two-thirds of the U.S. population went to the movies each week, helping to create a mood of unprecedented confidence. But the tables turned



Figure 8. (*Motion Pictures—Sound Film*) Luis Buñuel, *Los olvidados* (*The Young and the Damned*), 1950, National Film Archive, London.

quickly. Important foreign markets began to be ringed by protectionist quota systems in a number of countries. At home the rise of television (*see* TELEVISION HISTORY) brought a disastrous box-office decline, which continued for a decade; half the audiences seemed to abandon moviegoing. Equally devastating, a 1948 Supreme Court decision in the federal anti-trust suit against the five majors and three minors resulted in the “Paramount decrees,” by which the companies were obliged to divest themselves of their theater chains. Loss of control over exhibition meant the beginning of the end for the studio system. Along with these events came a political witch-hunt, a hysteria over “un-American” activities, under which many leading artists were for years blacklisted. As production schedules were slashed, safe and sanitized subjects dominated. Only a director like Hitchcock, with his oblique approach, could thrive in such a climate; significantly, he produced some of his most impressive work, such as *Rear Window* (1954), *Vertigo* (1958), and *Psycho* (1960), during this period.

Hollywood meanwhile sought to confront television—still mainly black-and-white and small-screen—with cinema’s advantages of size and color. Multiple-camera processes such as Cinerama, introduced in 1952, and three-dimensional (3-D) processes heralded by Arch Oboler’s *Bwana Devil*, debuting the same year, enjoyed a limited vogue; but the process that brought about a wide-screen revolution was Cinemascope—sumptuously introduced in 1953 with *The Robe*—in which an anamorphic lens squeezed a wide-angle image onto standard 35-

mm film stock and another anamorphic lens reversed the distortion in projection to produce a wide-screen image. This process became the industry standard, together with several wide-film systems (such as 70-mm Panavision) used for special spectacular showings. Like sound-recording technology, wide-screen produced an initial regression while filmmakers were learning how to compose and edit their shots to accommodate the horizontality of the new frame. And, as with sound, after several years of trial and error widescreen was understood to have added a new and permanent aesthetic dimension to the cinema. As an extra attraction, all the new wide-screen systems of the fifties featured multiple-track stereophonic sound (four to six tracks), which also became an industry standard. Moreover, by 1952 new color stocks had been perfected by Eastman Kodak that would permit the conversion to 94 percent color production over the next fifteen years (as opposed to 12 percent in 1947). *See* CINEMATOGRAPHY.

Despite these extravagant attempts to rebuild its old audience, the U.S. film industry was no longer the monolithic entity it had been, and its studios were already moving in other directions. In the mid-1950s mass production of television programs began, aiming not only at U.S. but also worldwide markets. Starting in the 1960s, the once-powerful companies allowed themselves to be absorbed progressively by conglomerates, which gave the studios new leverage in a difficult era. As corporate subsidiaries, the studios functioned mainly as distributors of independent



Figure 9. (*Motion Pictures—Sound Film*) Karel Reisz, *Saturday Night and Sunday Morning*, 1960. National Film Archive, London. © 1961 Woodfall Film Productions.

productions, which became the industry's mainstay. And Hollywood sought salvation increasingly in television, CABLE TELEVISION, videocassettes, and other new technologies.

England. In England the immediate postwar years produced a conservative, literary cinema in the work of such directors as Laurence Olivier and David Lean and a series of witty comedies made for Ealing Studios, including *The Lavender Hill Mob* (1951) and *Kind Hearts and Coronets* (1949). But a younger generation of filmmakers, represented by Lindsay Anderson, Karel Reisz, and Tony Richardson, organized the "free cinema" movement in the mid-1950s, whose ideals and practices were grounded in Italian neorealism. These same directors became leaders of the British "new cinema" or "social realist" movement, signaled by Reisz's *Saturday Night and Sunday Morning* (1960; Figure 9). Stylistically influenced by the French new wave, the social realist films were generally shot on location in the industrial Midlands and focused on rebellious working-class protagonists. These films brought such prestige to the British cinema that London briefly became the film center of the Western world, attracting directors from the United States (Stanley Kubrick), France (François Truffaut), Italy (Antonioni), and elsewhere. As England's economy declined during the 1970s, however, so did its cinema, and many of the most successful social realist directors relocated in Hollywood.

Australia. If the U.S. and British industries showed little innovation or promise in the 1970s, the English-

language cinema announced itself to be alive and well in the remarkable rise to international prominence of the Australian film. Early in the decade the federal government established the Australian Film Commission to stimulate the development of an indigenous industry and founded a national film school to populate it with native Australian talent. (It recruited the Pole Jerzy Toeplitz, who had headed a celebrated Polish film school at Lodz, to guide the early organization.) With financing provided by the Australian Film Commission and such semiofficial bodies as the New South Wales Film Corporation, film school graduates like Peter Weir (*Picnic at Hanging Rock*, 1975; Figure 10), George Miller (*Mad Max*, 1978), and Gillian Armstrong (*My Brilliant Career*, 1979) were able to make their first features in Australia on Australian themes. Many of these directors went on to work in other countries, primarily in the United States, and Australian cinema in the 1980s was acknowledged to be among the most influential in the world. See AUSTRALASIA, TWENTIETH CENTURY.

France. Like the British, French cinema after the war seemed to many viewers excessively literary—the heritage, perhaps, of the Nazi occupation when literary subjects were the only relatively safe ones. It was against this academic "tradition of quality" that the filmmakers of the new wave (*la nouvelle vague*) rebelled. It is hardly possible to overestimate the influence of this movement on world cinema. In vindicating the concept of personal AUTHORSHIP its creators demonstrated that filmmakers were capable



Figure 10. (Motion Pictures—Sound Film) Peter Weir, *Picnic at Hanging Rock*, 1975. National Film Archive, London. Copyright: Picnic Productions Pty. Ltd.

of writing “novels” and “essays” in the audiovisual language of film, and by exploding the narrative conventions of the past they added dimensions to that language that could express a whole new range of internal and external states. In doing so the new wave helped to revitalize stylistically moribund cinemas like the U.S., British, and West German and created a succession of “second waves” in already flourishing cinemas like the Italian, Czech, and Japanese.

The Federal Republic of Germany. Defeat in the war and the subsequent partitioning of the country had virtually killed the German film industry. In 1962 a manifesto produced by twenty-six writers and filmmakers at Oberhausen (FRG) proclaimed the death of the old German cinema and called for the establishment of a *junger deutscher Film* (young German cinema) to replace it. This Oberhausen manifesto became the founding document of *das neue Kino* (new German cinema), which was created through the establishment of the Kuratorium Junger Deutscher Film (Young German Film Board, 1965), a Film Subsidies Board (1967), and a private distribution company, the Filmverlag der Autoren (literally, the Authors’ Film-Publishing Group, 1971). These institutions financed the first features of Oberhausen originators Volker Schlöndorff and Alexander Kluge in the mid-1960s, as well as the major work of three younger filmmakers who brought the new German cinema to international prominence—Werner Herzog (Figure 11), Wim Wenders, and the astonishingly prolific Rainer Werner Fassbinder. State subsidies enabled these directors and literally hundreds of others to extend the exploration of audiovisual language

in films that seriously confronted German social and psychological realities—for the first time in decades.

Japan. Japan’s postwar experience was unique. Nearly half of its movie theaters had been destroyed by U.S. bombing, but most of the studios remained intact, and films continued to be produced in large numbers at the war’s end. During the postwar U.S. occupation, many subjects endemic to Japanese cinema were frowned on as promoting feudalism, and filmmakers dealt mainly with contemporary themes. Yet AKIRA KUROSAWA’s *Rashomon* (1950), which brought Japanese cinema to international attention by winning the Golden Lion at Venice in 1951, was set in the medieval past. Kurosawa became the most famous Japanese director in the West owing to a series of distinguished samurai films, including *Shichinin no samurai* (Seven Samurai, 1954; Figure 12), *Kumonosujo* (Throne of Blood, 1957), and *Yojimbo* (The Bodyguard, 1961), which raised a conventional genre form to the state of an art (see MARTIAL ARTS FILM). Between 1951 and 1965 the Japanese cinema experienced a renaissance unprecedented in the history of any national cinema, as vast new export markets opened in the West and Japanese films won prizes in festival after festival. Established figures like Mizoguchi and Ozu produced their greatest work during this period, and relatively new figures like Kurosawa, Kon Ichikawa, Kaneto Shindo, and Masaki Kobayashi all made films that stand among the classics of the international cinema.

In the 1960s and 1970s Japan experienced a new wave in the work of its third generation of postwar filmmakers: Hiroshi Teshigahara, Susumu Hani, and especially Nagisa Oshima. Simultaneously, the Jap-



Figure 11. (Motion Pictures—Sound Film) Werner Herzog, *Auch Zwerge haben klein angefangen* (Even Dwarfs Started Small), 1970. The Museum of Modern Art/Film Stills Archive.



Figure 12. (Motion Pictures—Sound Film) Akira Kurosawa, *Shichinin no samurai* (Seven Samurai), 1954. National Film Archive, London/Toho Co. Ltd., Japan.



Figure 13. (*Motion Pictures—Sound Film*) Satyajit Ray, *Pather panchali*, 1955. The Museum of Modern Art/Film Stills Archive.

anese studio system began a precipitous decline in the face of growing independent production and the enormous popularity of television. By the mid-1970s the majority of industry production was given over to two domestic exploitation genres: the *yakuza-eiga*, or contemporary urban gangster film, and the sadoerotic “eroduction.” In the decade following, serious directors like Kurosawa found it increasingly difficult to get industry funding for their projects, although Japan’s annual film output continued to be one of the highest in the world.

India. For years the postwar Indian cinema was known to the world by the work of a single director, Satyajit Ray, whose Apu trilogy won many international awards and is among the great classics of world cinema (Figure 13). Partly as a result of Ray’s prestige, several events of the 1960s contributed to a small but significant new wave within the world’s largest, most aggressively commercial film industry.

In 1961 the government founded a national film school, the Film Institute of India; in 1962 an easing of censorship permitted the spread for the first time of serious film societies; and in 1964 the National Film Archive, which functioned for aspiring filmmakers as an Indian equivalent of the Cinémathèque Française, was established. The Film Finance Corporation (founded in 1960) made loans available to low-budget experimental projects, resulting in seminal first features by such directors as Mrinal Sen, Basu Chatterji, and M. S. Sathyu. These filmmakers worked primarily in the Bombay-based Hindi-language cinema, as did their more popular colleague, Shyam Benegal. But during the seventies the southwestern states of Kerala and Karnataka began extensive subsidy programs of their own that produced a southern new wave in the work of G. Aravindan, Girish Karnad, and others. Despite these harbingers of change, the Indian industry in the 1980s remained the world’s most prolific producer of low-quality films (700 per year in sixteen languages), virtually all for domestic consumption.

Soviet Union. For the Soviet cinema the immediate postwar years were a time of stagnation. Under the increasingly constricting doctrine of socialist realism, its output fell from nineteen features in 1945 to five in 1952. Stalin’s death in 1953 produced a loosening of ideological criteria, and by the middle of Nikita Khrushchev’s “thaw” the Soviet industry had returned to a full production schedule of 120 films annually. During this period there was also a return to a cinema of individual expression in such award-winning films as Grigori Chukhrai’s *Ballada o soldate* (Ballad of a Soldier, 1959), Mikhail Kalatozov’s *Letyat zhuravli* (The Cranes Are Flying, 1957), and Sergei Bondarchuk’s *Voyna i mir* (War and Peace, 1965–1967). In the mid-1960s a new generation of directors emerged from the VGIK, many of whom were from the non-Russian republics of the Ukraine (Yuri Ilyenko, Larissa Shepitko), Georgia (Georgi Danelia, Georgi Shengelaya), Moldavia (Emil Lotyanu), Lithuania (Vitautas Zhalakevichius), Kirghizia (Bolotbek Shamshiev), and Uzbekistan (Ali Khamraev). Most prominent among the new directors were Sergei Paradzhanov (*Teni zabytykh predkov* [Shadows of Forgotten Ancestors, 1964]) and Andrei Tarkovsky (*Andrei Rublev*, 1966), both of whom were later persecuted as dissidents. The 1970s ushered in the doctrine of “pedagogic realism,” a modified version of its socialist precursor, and two kinds of films dominated the industry: adaptations of literary classics—for example, Nikita Mikhalkov’s *Oblomov* (1980)—and *bytovye*, films of everyday life, such as V. Menshov’s *Moscow Does Not Believe in Tears* (1983).

Eastern Europe. In the eastern European nations in the early years following World War II, film schools



Figure 14. (*Motion Pictures—Sound Film*) Miklós Jancsó, *Csillagosok, katonák* (The Red and the White), 1968. Courtesy of the Amos Vogel Collection/Hungarofilm, Budapest.

were founded and industries nationalized according to the Soviet model. But, as in the USSR itself, Stalin's death produced a thaw, leading to the distinguished work of the "Polish School" in the fifties—Jerzy Kawalerowicz, Andrzej Munk, and, preeminently, Andrzej Wajda. Prominent figures in the Czech new wave of the 1960s (Miloš Forman, Jiří Menzel, Evald Schorm) and in the Yugoslav *novi film* or "new cinema" movement of 1961–1972 (Dušan Makavejev, Aleksandar Petrović) were officially repressed during the seventies. In Hungary an abortive revolution forestalled a postwar revival until the sixties, when Miklós Jancsó, whose films included *Még kér a nép* (Red Psalm, 1972), became one of the world cinema's major figures (Figure 14) and Hungarian cinema flourished nationally in the work of such younger filmmakers as István Szabó, Márta Mészáros, and Pál Gábor. The Czech new wave was crushed in the wake of the Warsaw Pact invasion of August 1968, and its major figures were forced into permanent exile. Many filmmakers of the "third Polish cinema" (Krzysztof Zanussi, Andrzej Zulawski, Grzegorz Krolikiewicz) faced a similar fate when martial law was imposed on the country in 1980. Though eastern European cinema has historically been among the most sophisticated and subtle in the world, since World War II it has become increasingly entangled with politics.

A Film World

In the decades before World War II film production had been the domain of leading industrialized na-

tions, in most cases colonial powers. After the war countless other nations plunged into film production. Filmmaking began to seem a badge of nationhood, a means of national expression, sometimes fostered by subsidies and generating new energies at the international film festivals springing up on all continents. Every festival seemed to offer cause for astonishment in works from unexpected sources—such as those of Ousmane Sembène of Senegal, including *Mandabi* (The Money Order, 1970) and *Xala* (The Curse, 1974)—perceptive, witty, often moving reflections of a world in convulsive change. Segments of the film world no longer seemed to revolve around film industries and huge soundproof studios but around individuals—a Sembène in Senegal, a Ray in India, a Mohamed Lakhdar-Hamina in Algeria, a Lester James Peries in Sri Lanka, an Alexandro Jodorowsky (Chilean) in Mexico. In the medium of film a new kind of international dialogue seemed to be at work in the still-evolving medium of the motion picture. See AFRICA, TWENTIETH CENTURY; ASIA, TWENTIETH CENTURY.

Bibliography. Joseph L. Anderson and Donald Richie, *The Japanese Film: Art and Industry*, exp. ed., Princeton, N.J., 1982; Roy Armes, *French Cinema*, New York, 1985; Tino Balio, ed., *The American Film Industry*, 2d ed., rev., Madison, Wis., 1985; Erik Barnouw and S. Krishnaswamy, *Indian Film*, 2d ed., New York, 1980; Ernest Betts, *The Film Business: A History of British Cinema 1896–1972*, London, 1973; Peter Bondanella, *Italian Cinema: From Neorealism to the Present*, New York, 1983; Evan William

Cameron, ed., *Sound and Cinema: The Coming of Sound to American Film*, Pleasantville, N.Y., 1980; David A. Cook, *A History of Narrative Film*, 2d ed., New York, 1987; Timothy Corrigan, *New German Film: The Displaced Image*, Austin, Tex., 1983; Jay Leyda, *Kino: A History of the Russian and Soviet Film*, New York and London, 1960, *With a New Postscript and a Filmography Brought up to Date* (rev. ed.), Princeton, N.J., 1983; Mira Liehm and Antonín J. Liehm, *The Most Important Art: East European Film after 1945*, Berkeley, Calif., 1977; Alexander Walker, *The Shattered Silents: How the Talkies Came to Stay*, London, 1978.

DAVID A. COOK

MOTIVATION RESEARCH

A form of research aimed at understanding the psychological factors (conscious and unconscious) influencing human behavior. Such research has assumed special importance in ADVERTISING, in which it helps to guide decisions on product development, package design, and advertising appeals. As the field has expanded its techniques it has become known as *personality and motivation research*.

Although psychologists have been active in the advertising industry from the early 1900s on (e.g., John B. Watson and Edward K. Strong), it was not until after World War II that they began to direct their attention to consumer motivation. Best exemplified perhaps by Ernest Dichter, a Viennese who emigrated to the United States, they adapted the diagnostic techniques of the clinical psychologist in their efforts to probe the unconscious of the consumer.

Early developments. One of the techniques developed by this group is the depth interview. The questioning procedure and phrasing are left to the discretion of the interviewer, who is expected to probe into significant subject matter areas as they are revealed in the course of the dialogue between interviewer and respondent. As a result of this depth probing the analyst is expected to obtain a deeper understanding of the respondent's true underlying feelings toward the items or issues investigated.

Another technique is the projective test, consisting of ambiguous visual stimuli that are presented to an individual who is asked to interpret their meaning in his or her own terms. Many kinds of projective tests have been employed, among them the famous Rorschach Test (in which individuals are shown a standard series of ink blots and asked to describe what they see) and the Thematic Apperception Test (TAT), developed by Henry A. Murray (in which individuals

are shown a series of sketches and asked to interpret the depicted circumstances).

A third technique, employed by such early investigators as Arthur Koponen and Franklin B. Evans, is the paper-and-pencil personality inventory. These tests consist of a series of self-rating scales, the responses to which are scored according to some pre-designated key to produce a personality profile.

Many early investigators simply employed these techniques without modification, believing that their routine application would be sufficient to understand why consumers behave as they do. A prime example of an attempt at such routine application was the study conducted by Evans in 1958. He administered the Edwards Personal Preference Schedule to a sample of seventy-one Ford owners and sixty-nine Chevrolet owners and found little difference between the two groups. He concluded that "personality needs, as measured in this study, are of little value in predicting whether an individual owns a Ford or a Chevrolet automobile." In other instances, however, measurement techniques were specially developed to suit the researcher's purpose and produced more positive results. One classic example is the study published in 1950 by Mason Haire in which he presented a sample of one hundred coffee drinkers with two seven-item shopping lists. Half the sample saw the first list, and the other half saw the second. The two lists were identical except for the way the coffee item was described. The first list specified "1 lb. Maxwell House Coffee (Drip Grind)," and the second list specified "Nescafé Instant Coffee." The subjects were asked to read the shopping list and then to write a brief description of the shopper's personality and character. By comparing the two sets of descriptions, Haire was able to contrast the different images projected by the two brands: 48 percent of the people described the Nescafé shopper as lazy, compared with 4 percent describing the Maxwell House shopper the same way.

Two other social scientists whose names are importantly associated with the motivation research movement are Burleigh Gardner, for his series of studies of the qualitative values of various print media, and Herta Herzog, a former advertising research executive, for her studies of broadcast programming and advertising.

A serious attack on the motivation research movement was published in 1957. Written in a nontechnical style and intended for the general public, Vance Packard's *The Hidden Persuaders* described the ways in which the advertising industry was allegedly using the techniques of motivation research to manipulate an unsuspecting public to act against its own best interests. Beyond Packard's claims of manipulation and invasion of PRIVACY, the problem of nonreplica-

Is it true...
blondes have more fun?
Be a blonde and see!

LADY CLAIROL

FOSTER and KLEISER

Figure 1. (Motivation Research) Lady Clairol billboard, 1964. Courtesy of Foster and Kleiser.

bility of research results, more than any other, caused the search for unconscious motivation gradually to wane.

From demographics to psychographics. Disenchantment with the methods of motivation researchers coupled with the rapid strides in computer development during the 1960s to bring about a new research movement called psychographics, to distinguish it from demographics. Emanuel Demby, the researcher who is generally credited with having coined the term, defined psychographics as

a quantitative research procedure which seeks to explain why people behave as they do and why they hold their current attitudes. It seeks to take quantitative research beyond demographics, socioeconomic and user/nonuser analysis, but also employs those variables in the research.

In the same way that the motivation researchers had borrowed the tools of the clinical psychologist and applied them to the solution of marketing problems, the psychographic researcher has borrowed the tools of the psychometrician and used them for the construction of paper-and-pencil personality inventories. The questionnaires employed in psycho-

graphic research most often involve long lists of statements or attributes that the respondent is asked to rate in terms of the extent to which they personally apply. Depending on the purpose of the research, the questions might include personality characteristics like self-confidence or irritability, ATTITUDES toward institutions like the government or organized religion, personal interests such as sports or cooking, or features desired in a new automobile.

Russell Haley believes that if the psychometric approach is to be useful it is important to select the items to be included in the questionnaire on the basis of their relevance to the product category under study. To this end he developed the concept of "benefit segmentation": respondents are classified into relatively homogeneous groups based on their ratings of the importance of a variety of possible benefits. With the knowledge of which attributes are more important to individual market segments, the advertiser can then decide how best to position the brand to have maximum appeal to the market segment to which the marketing efforts are directed. Although the popularity of benefit segmentation has continued into the mid-1980s, some researchers still hold to the

notion that it is not always necessary to tailor the psychographic battery to individual product categories but, rather, that more generalized batteries of questions can serve a useful purpose as well.

Major studies. An early generalized psychographic study was completed in 1973 by the Newspaper Advertising Bureau, which defined sixteen different market segments and examined the product consumption and media usage behavior of each. Another early effort was the Yankelovich Monitor, a syndicated annual study of twenty-five hundred persons that seeks to track changes in life-style based on social trends. The original study, conducted in 1970, measured thirty-one such trends (e.g., Defocus on Money, Return to Nature, and Acceptance of Drugs); trends have been added and deleted over the fourteen-year period during which the survey has been conducted.

A later entry in the syndicated field is the Values and Life-styles (VALS) program of SRI International. Using a questionnaire, the scoring key for which is proprietary, SRI has developed a nine-category typology based on the hierarchy of human needs proposed by Abraham H. Maslow in the 1940s. Since the first VALS study in 1978, SRI has been publishing annual reports to subscribers exploring the implications of the VALS typology for business in the United States. Standardized approaches have proved useful as part of a large syndicated DATA BASE, but they have generally not been as useful when used in connection with proprietary research intended to deal with a particular brand or product category. The reason is that a syndicated data base contains information on hundreds of product categories and thousands of brands. Through the power of the computer one can quickly and inexpensively establish for any given product category the utility of the standardized measures in a particular application (see COMPUTER: IMPACT—IMPACT ON COMMERCE).

Personality and motivation research has enjoyed a period of over thirty years of increasing value to the advertising and communications industries. Over that period of time the pendulum has swung from using clinical psychological techniques, qualitative analyses, and small samples to the use of more quantitative psychometric procedures and large representative samples. The transition has been accompanied by much controversy, but in the process the methods that have emerged have contributed importantly to the development of advertising theory and practice.

Bibliography. Ernest Dichter, *The Strategy of Desire*, Garden City, N.Y., 1960; Robert Ferber and Hugh G. Wales, eds., *Motivation and Market Behavior*, Homewood, Ill., 1958; Harry Henry, *Motivation Research*, New York, 1958; Arnold Mitchell, *The Nine American Lifestyles*, New York, 1983; Vance Packard, *The Hidden Persuaders*,

New York, 1957; Charles Ramond, *The Art of Using Science in Marketing*, New York, 1974; William D. Wells, *Lifestyles and Psychographics*, Chicago, 1974.

VALENTINE APPEL

MURAL

A large picture created directly on a wall or ceiling that is usually painted or rendered in mosaic, sometimes drawn or engraved. A mural is different from other two-dimensional images because it is intended as an integral and usually permanent part of its environment. This, together with the size of the mural, tends to make the wall an enhancement of the VISUAL IMAGE and the image the focus of its surroundings. Throughout history, murals have been a form of public ART intended to be seen by many people at one time. They become thereby a social art, repeatedly addressing people not merely as individuals but also as members of a group or community. Murals usually make explicit and advance the values, traditions, and purposes of a society. Typically they are utilized to assist in some important public function. Since prehistoric times murals have often been employed not only to represent reality but also to change it, either directly as by magic or indirectly by speaking to or about the gods, or by affecting human secular motives.

Prehistoric Rock Art

The earliest discovered example of visual communication, engravings on an ox rib, is well over two hundred thousand years old. In contrast, the oldest known graphic articulation on walls in the Eastern Hemisphere was created during the late Ice Age (ca. 30,000 B.C.E.) in southwestern France, then part of the most populous region of Europe. These wall markings consist of handprints and parallel finger tracings—some straight, others looping and crossing one another—made by many different hands in the clay sides and ceilings of caves at Gargas and Rouffignac. Tracings in one cave may have been inspired by the adjacent markings of bear claws on the walls. Described as “macaronis” and “meanders,” the finger tracings have been viewed as one of the oldest forms of symbol making, suggesting streams, thawing, freshet, and the availability of food. The image of a mammoth traced by a finger has been identified among one set of these lines.

In this region between 26,000 and 20,000 B.C.E. cave walls received more elaborate forms of art. There are negative silhouettes of hands made from pigment brushed or blown through tubes. Images of animals and nude women, probably fertility images,



Figure 1. (Mural) Spotted horses and negative hand imprints, Pech-Merle, ca. 15,000–13,000 B.C.E. Lot, France. From Paolo Graziosi, *Die Kunst der Altsteinzeit*, Florence: Sansoni, 1956, p. 192.

were incised and carved as bas-reliefs and still show traces of paint. Between 18,000 and 11,000 B.C.E. astonishingly lifelike images of mammoths, bison, deer, horses, and fish were painted on cave walls and ceilings, the best known of which were created at Lascaux in France and Altamira in northern Spain about 15,000 B.C.E. The images of animals reflect remarkable powers of observation and memory as well as the ability to invent realistic yet conventionalized symbols. Created by brushing or rubbing rock pigment on the walls, they were done unusually deep within caves, suggesting a RITUAL function. The images have been variously interpreted as instruments of magic used in hunting, in assisting the return of the seasons, or in rites of initiation.

The earliest known murals in the Western Hemisphere were discovered in 1985 at Boqueirao do Sitio da Pedra Furada in northeastern Brazil, in a rock shelter thought to be occupied in 30,000 B.C.E. Carbon dating indicates that the schematic images of men bending over what appear to be tortoises or turtles were painted at least by 15,000 B.C.E. North America abounds in petroglyphs carved in rock and pictographs painted on rock that picture humans, supernatural beings, and animals. Some images date from the fifth century C.E.; others go back much earlier. Those of Baja California, where larger-than-life-size images of men and deer overlay one another in a cave of the Sierra de San Francisco and a twelve-foot whale swims up an overhanging rock above the Arroyo de San Gregorio, are particularly impressive.

Scholars find a close resemblance among the rock paintings of France and Spain and those of Africa,

where a great quantity have been found. The Tassili mountains in the Sahara offer the most abundant sites, with the earliest works dated about 5500 B.C.E. Here and at other sites in the Sahara and Nubian deserts can be found pictures of cattle painted by herders shortly after 5000 B.C.E., horsemen and chariots dating from the fourth millennium B.C.E., and from the first centuries C.E. camels that had been imported from Arabia. Most rock painting from Tanzania to South Africa is the work of the Bushmen, but some is attributed to the Bantu.

Finger-traced and incised meanders are also the earliest human markings on walls to be found in Australia. Those at the Koonalda Cave in the south were done at least by 18,000 B.C.E. The Aborigines had come to Australia by 40,000 B.C.E., and their descendants today believe that in the earliest era of Dream Time, which still parallels everyday life, their ancestors shaped the world and then turned themselves into the rock-shelter images that preserve their power. In the multitude of sites across the Australian continent these images vary from X-ray-like pictures exposing patterned skeletons to ghostlike beings without mouths but with haloed skulls. Some of the paintings may go back more than seven thousand years. The Aborigines continue to invoke the spirits in the images, but the practice of repainting them every year faded in the twentieth century.

The Ancient World

Among the earliest murals of urban civilization yet discovered are those at Çatal Hüyük in Asia Minor.

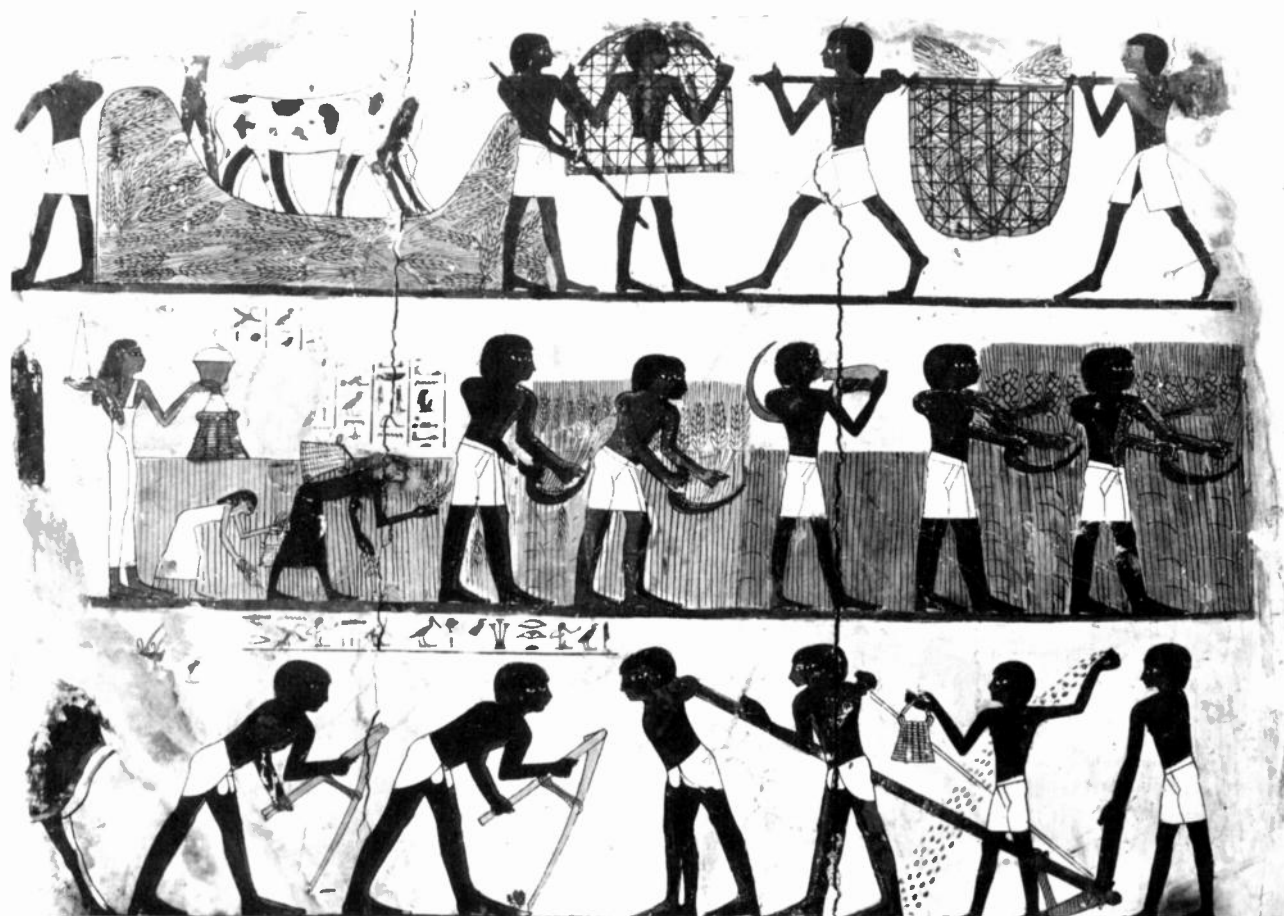


Figure 2. (Mural) Egyptian tomb painting depicting the sowing and harvesting of wheat. Giraudon/Art Resource, New York.

Dating from about 6000 B.C.E., they are inside shrines and show landscapes with houses, an erupting volcano, scenes of deer hunting, and, later, painted figures and high reliefs of cattle, suggesting herding. The distinction between murals and reliefs is blurred because wall painting often had incised lines and surfaces carved at different depths, whereas reliefs, like much SCULPTURE, often were painted. Thus the bas-reliefs of Mesopotamia of the first three millennia B.C.E., recording royal conquests, tribute bearers, and hunts, are close to murals.

The earliest known tomb murals of Egypt were done about 3500 B.C.E. at Hierakonpolis. Such murals depict kings officiating at ceremonies and at court entertainments while slaves provide for their needs. The images surrounding the mummies of the pharaohs were intended to ensure the royal afterlife. Painting was done on dry plaster, which permitted rigid but graceful formality. Figures were conceptually arranged in profile or frontally "on" the wall and in overlapping parallel planes "behind" it. This was the basis for the later Greek, Roman, and RE-

NAISSANCE handling of space, a major source of the formal stability of classic styles.

In commercial contact with Egypt and Mesopotamia, the Minoan cities of Crete and the other Aegean islands of the fifteenth century B.C.E. adopted some of the rigor of Middle Eastern wall painting to their own lively art. Minoan murals such as those at the palace of Minos in Knossos provide the first known examples of true fresco painting, in which wet pigment is applied to wet plaster to dry and crystallize, thereby becoming part of the wall.

As early as the sixth and fifth centuries B.C.E. Etruscan tomb painters, seeking to entertain their dead with scenes of banqueting, music, sports, and lovemaking, adopted the simple but animated drawing style of archaic Greek art (*see* ART, FUNERARY). During the Hellenistic era in the fourth century B.C.E. Greek artists came to Italy to decorate the villas of Roman patricians and the middle class. Residences at Pompeii and at nearby Herculaneum during the early ROMAN EMPIRE of the first centuries B.C.E. and C.E. were embellished with fresco portraits of home-

owners, still lifes of food, architectural fantasies, landscapes, and mythological scenes.

At Teotihuacán, a metropolis and religious center in the Valley of Mexico that reached its height about 350 C.E., wall paintings on pyramids and temples and along the streets depicted priests, gods, and scenes of a paradisaical afterlife telling of a joy that could only be sustained by the sacrifice of human blood to the deities. About 650 C.E. Mayan artists at sites in the Yucatán and Guatemala painted stately scenes of ritual and battle.

The Asian murals best known in the West are in the sanctuaries carved into the cliffs of Ajanta in central India. There the meditation, compassion, and sensuous detachment of Buddha and his followers are offered as examples to the devout. Created between the first century B.C.E. and the seventh century C.E., the murals reflect a refined court tradition of painting. Buddhism, introduced into China during the first century C.E., brought with it mural painting in cave temples and in tombs, an art that reached its greatest sophistication during the T'ang dynasty in the eighth and ninth centuries.

Medieval art. Although the Second Commandment forbade graven images, the power of representation (see REPRESENTATION, PICTORIAL AND PHOTOGRAPHIC) to strengthen belief encouraged its adoption, especially by Christians. The first Christian murals were frescoes of Moses, Jesus, and the Apostles in the catacombs of Rome from the second to the fourth century. When Christianity became the state religion in the fifth century, the rich resources of mosaics and Roman three-dimensional naturalism were employed in religious art at Ravenna. In the sixth century, churches there were embellished with

opulent mosaic murals in the style of Byzantium (Constantinople). Their flat incorporeal figures, rigidly formal, stood out against golden backgrounds symbolizing eternity.

The Romanesque monastic churches of Spain and France of the eleventh and twelfth centuries featured frescoes of flat but vigorous biblical figures inside and murallike reliefs on their facades. The Crusades (see CRUSADES, THE) and revival of trade in Venice made possible in the late twelfth and thirteenth centuries the most extensive mosaic embellishment of the walls and vaults of any European structure, that of the Church of San Marco, with its imagery of the Old and New Testaments against a background of gold. As town life revived in northern Europe in the twelfth to sixteenth centuries, church builders developed a new style, the Gothic, and sought to replace walls with stained glass, which transformed murals into more highly illuminated images. See MIDDLE AGES.

The Renaissance. Prosperous merchants and bankers became the patrons of murals in the urban churches of Italy. It was largely through Italian church murals that the Renaissance was firmly established in the pictorial arts. Masaccio, for example, in his frescoes of episodes from the ministry of St. Peter (1427) and the Crucifixion (1428), created natural, weighty figures modeled by shadow in a three-dimensional space deepened by atmosphere and geometric perspective.

The new systematic perspective provided the stationary viewer a geometrically intelligible scene, but it was a view available only to one person at a time. This perspective reshaped real objects to conform to their appearance from the observer's unique viewpoint (see PERCEPTION—STILL AND MOVING PIC-

Figure 3. (Mural) *Revelers*, wall painting from the Tomb of the Leopards, Tarquinia, ca. 470 B.C.E. Etruscan. Alinari/Art Resource, New York.



TURES). Because of such limitations this kind of perspective is more appropriate to easel painting than to murals, which usually are addressed to an audience of many viewers. This did not present a problem to most Renaissance murals, which consisted of an ensemble of panels, but later, when everything was incorporated into a single scene, muralists often evaded the constraints of the single focus.

The new commercial princes of the age utilized murals to embellish their residences, but religion continued to provide the principal subject of Renaissance murals. In the refectory of the Church of Santa Maria del Grazie in Milan, Leonardo da Vinci utilized the new perspective to concentrate the tense drama of his *Last Supper* (1498). The popes saw to it that the talent of the age ornamented the Vatican. There the murals of Raphael and Michelangelo provided the climax of the Renaissance synthesis of Christianity, Greco-Roman culture, and spatial construction.

The baroque. A new era in mural painting broke through the restraints of Renaissance CLASSICISM,

reflecting the discovery of new lands in both hemispheres, the expansion of empires, and the battle of the Roman Catholic church to convert the heathen and reconvert the heretic. Baroque murals sweep viewers up into their grandiose drama, impressing on them the power of secular and religious authorities to bring order to the universe. Correggio, Andrea dal Pozzo, Titian, Tintoretto, Paolo Veronese, the Carraccis, Peter Paul Rubens, and Giovanni Battista Tiepolo were the chief practitioners of this art of the mural from the late sixteenth through the eighteenth century.

The Modern Mural

The nineteenth century's principal innovation in public art was the commercial graphic advertisement (*see SIGNAGE*), which took the form of billboards or signs (*see POSTER*), ephemeral murals in which images largely replaced words. They became a familiar and accepted part of the visual environment and powerful shapers of consumer consciousness. In contrast, the



Figure 4. (Mural) *The Thousand Buddhas* (detail). Fresco from Cave 2, Ajanta, ca. 600 C.E. SEF/Art Resource, New York.

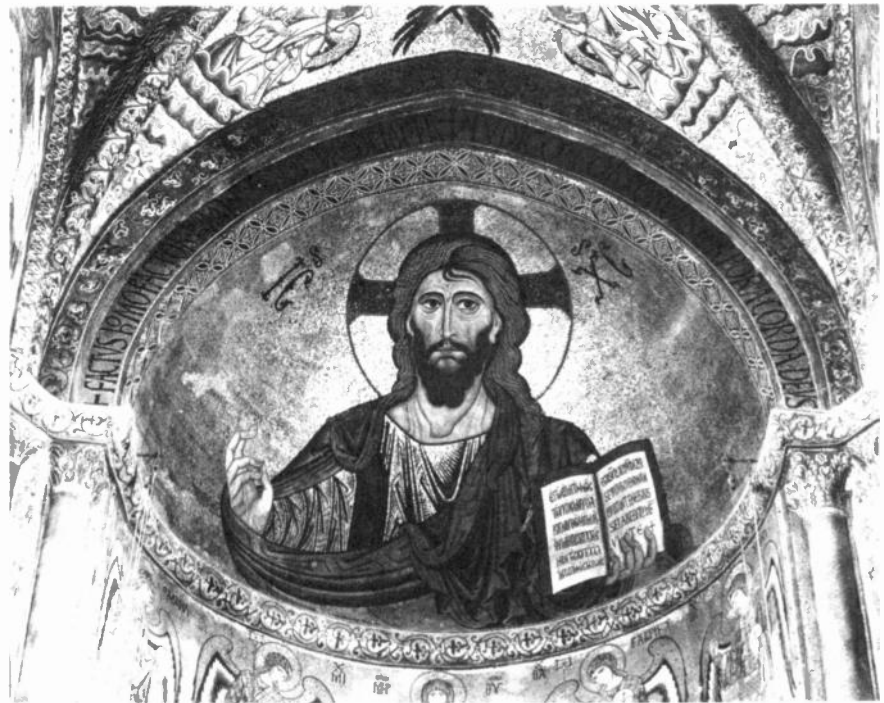


Figure 5. (Mural) *Christ Pantocrator*, apse mosaic, Cefalù Cathedral, Sicily, 1148. Lauros-Giraudon/Art Resource, New York.

mural gained new life in the twentieth century from the social and democratic concerns associated with the rise of the working classes. Socially conscious murals first appeared in Latin America and the United States as movements of working people became strong enough to press governments to provide walls and funding. Leadership was offered by artists who linked their ideas of expression to solidarity with the collective body of urban and rural workers. The muralists' conception of a democratic art called for adopting a REALISM with modern formal innovations designed to reach the broadest sectors of the population and to encourage their capacities for public deliberation, political action, and artistic creativity.

Mexico and Latin America. The main impulse for the new murals came from Mexican artists in 1922 in the aftermath of that country's partially successful war of national liberation. When the fighting ceased, the new government commissioned artists to disseminate ideas of reform and nationalism. The leading Mexican muralists, Diego Rivera, José Clemente Orozco, and David Siqueiros, called in their art for return of the peasants, industrialization under the workers' control, full social services, and an end to U.S. intervention in Mexico's economy and politics. At first the muralists adopted the fresco technique and forms of the Italian Renaissance and Mexico's indigenous peoples to dramatize their message, but increasingly they came to utilize vernacular and experimental means that would appeal to a broad public. Siqueiros, for example, pioneered outdoor murals and sought to depict motion with mul-

tiiple images of the same object, a device learned from the Italian futurists. He also designed figures from different points of view so that to the moving spectator they seemed to move. This "integral art," as he called it, culminated in 1973 with the largest mural ever created, *The March of Humanity*, an enormous auditorium painted inside and out.

The United States. Although in Mexico it was the social and political revolution that painters responded to, U.S. artists reacted to the upheavals of the depression and were concerned with affirming workers' roles in industrial and agricultural production. For example, in the early 1930s Thomas Hart Benton created a montage of workers in mills, construction, transportation, and farming that he titled *America Today*. These subjects were to preoccupy muralists during that decade. Later, however, Benton turned his attention from urban industrial workers to agrarian laborers and became a spokesman for the regionalist and often nostalgic American Scene painters who produced much of the art of the period.

At the same time, the Mexican example helped persuade President Franklin D. Roosevelt to create federal art programs intended to "bring art to the people" through commissions for post offices, schools, and other public buildings and also to provide employment for artists made jobless by the depression. The work of Ben Shahn, who had painted with Rivera, is characteristic of this era. His squat, realistic, frequently portraitlike figures owe something to Rivera but also to the cartoons and comic strips (*see COMICS*) of the period. The New Deal art programs



Figure 6. (*Mural*) Giotto di Bondone, Arena Chapel, Padua, 1305–1306. Alinari/Art Resource, New York.



Figure 7. (Mural) David Siqueiros, *From Porfirio's Dictatorship to the Revolution*, 1958. Detail of the left wall in the second room showing the revolutionaries. Revolution Hall, National History Museum, Chapultepec Castle, Mexico City. From Mario de Micheli, *Siqueiros*, New York: Harry N. Abrams, 1968, plate 138.

advanced the careers of many artists who, because of poverty, race, or lack of patronage, had faced almost insuperable difficulties. This was especially the case with black painters such as Aaron Douglas, Charles Alston, Charles White, Hale Woodruff, and Romare Bearden, who during and after the 1930s produced important murals about black experience.

World War II ended both the depression and the federally funded programs of the New Deal. The socially conscious murals of the 1930s had brought artists under frequent criticism from conservative groups and politicians, criticism that intensified during the late 1940s and 1950s as a result of the cold war and the Communist witch-hunts. Not until the late 1960s did U.S. social murals reappear, and then in a different form.

The term *social realism*, applied to Latin American and U.S. murals of the period 1920–1960, refers not to a particular style but to the general approach that sought the empowerment of working people. Most of the artists who spread social realism throughout Latin America were influenced by Mexican and U.S. muralists. The drifting away from social realism toward murals that were increasingly patriotic, folklorist, or abstract was in part the result of rapid but uneven economic growth following World War II that brought with it a demand for murals by banks,

movie theaters, office buildings, fashionable department stores, and luxury hotels. The departure from social realism was led by Mexican artist Rufino Tamayo, who treated folk themes in sophisticated expressionist ways.

Social realism had a rebirth in Cuba, however, after the revolution in 1959. In the early 1960s Orlando Suárez, who had painted with Siqueiros, coordinated an outpouring of murals in the streets and inside public buildings that memorialized a century of struggle. With the nationalization of all Cuban industry, billboards were replaced by murals that encouraged social responsibility and voluntary labor.

Liberation murals. The most important development in murals of the late twentieth century was the widespread effort of ordinary people to become involved in creating public art. People whose views and grievances had been denied access to the mainstream media—minority groups, workers, peasants, women, students, and dissenting professionals—initiated alternative forms of public communication (see CITIZEN ACCESS; MINORITY MEDIA). Murals were utilized by national liberation movements for decolonization and by the disadvantaged within the advanced industrialized nations. The principal aim of the new murals was to facilitate public dialogue by ordinary people on urgent issues. Because such murals were



Figure 8. (Mural) Ben Shahn, left portion of the *Jersey Homesteads Mural*, 1935–1938, Roosevelt, New Jersey. From the left, the mural shows immigrants, including Albert Einstein with a violin, landing at Ellis Island. In the upper left corner a storm trooper puts up an anti-Semitic poster in the old country. Sacco and Vanzetti lie in their coffins in the new country, having been convicted of murder by a jury swayed by their anarchist views and opposition to World War I. Toward the center are scenes of sweatshops. Scala/ Art Resource, New York.

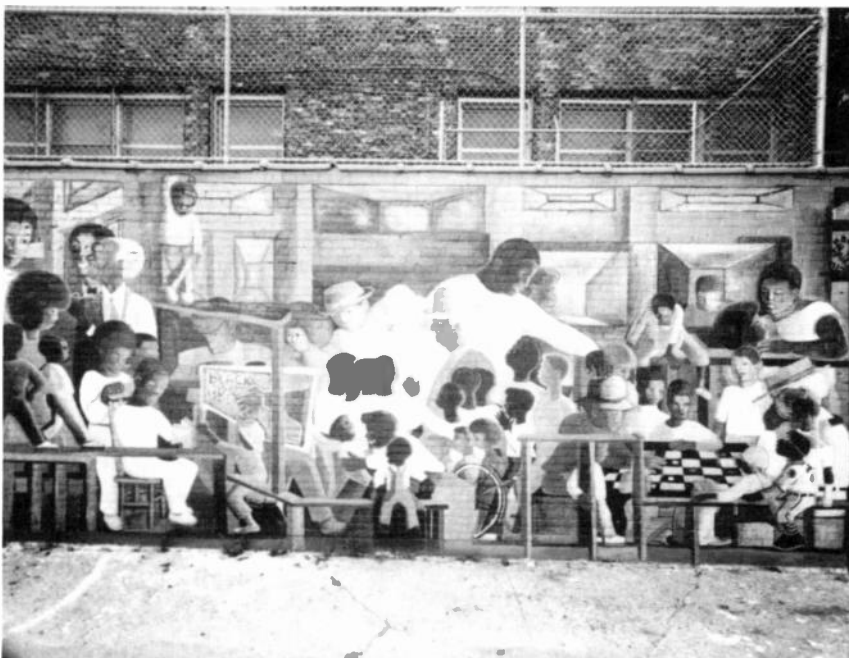
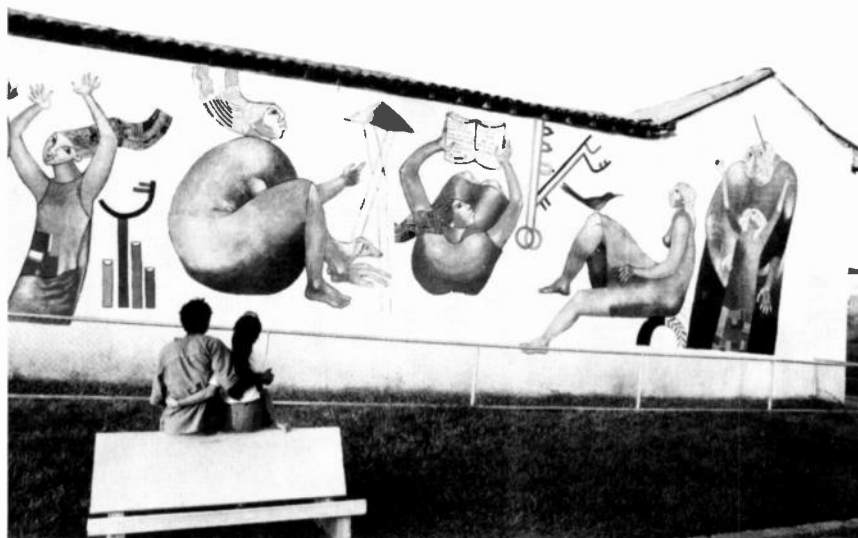


Figure 9. (Mural) William Walker, *Black Love*, 1971, Cabrini Green Public Housing, Chicago. Photograph by Leo Tanenbaum.

Figure 10. (*Mural*) Alejandro Canales, mural, 1980. Luis Alfonso Velásquez School, Managua, Nicaragua.

Detail showing a woman studying during the literacy crusade, which began after the Sandinista Revolution. Using the text, "The masses made the insurrection," she is shown how a word rich in significance, such as *masses*, can be broken into syllables with which to make new words. Photograph by Alan Barnett.



often critical of the establishment, they were frequently done on neighborhood walls contributed by local owners and used materials provided by the community. They were also done in labor union halls, secondary schools, and universities. Sometimes the work was clandestine and unauthorized.

Liberation artists borrowed techniques and styles from the Mexican muralists, from their own ethnic heritages, from popular art, and from contemporary ADVERTISING. These murals revealed the demand of ordinary people to participate in public communication and the capability of the untrained to produce art. Appreciation of their often self-taught creativity was encouraged by the challenge of modern art to stylistic standards.

Since the late 1960s, most notably in the United States, Mexico, Chile, Nicaragua, and western Europe but also elsewhere in the Third World, murals have been a popular instrument of social change and solidarity. In the midst of the electronic age the mural, one of the oldest art forms, has acquired new life as the result of the emergence of artists and activist groups who see it as a means of public expression and as a source of community.

See also ARTIST AND SOCIETY; AVANT-GARDE; DESIGN; ICONOGRAPHY.

Bibliography. Alan W. Barnett, *Community Murals: The People's Art*, Cranbury, N.J., 1983; Eva Cockcroft, John Weber, and James Cockcroft, *Towards a People's Art: The Contemporary Mural Movement*, New York, 1977; Alexander Marshack, *The Roots of Civilization*, London, 1972; Francis V. O'Connor, ed., *Art for the Millions*, Greenwich, Conn., 1973; "Paleo-African Cultures," and "Prehistory," *Encyclopedia of World Art*, Vol. 11, New York, 1960 ed.; Antonio Rodriguez, *A History of Mexican Mural Painting*,

New York, 1969; Orlando S. Suárez, *Inventario del muralismo mexicano*, Mexico, D.F., 1972; Randall White, *Dark Caves, Bright Visions*, New York, 1986.

ALAN W. BARNETT

MUSEUM

The roots of the museum can be traced back to the great collections of treasure, relics, and objects of curiosity that the rich and powerful have amassed throughout history. At the same time the modern museum is a unique institution of middle-class, democratic CULTURE similar in structure to the public LIBRARY, the symphonic concert hall, and the UNIVERSITY. Like the modern university, in which the inventory of master texts and intellectual techniques of the society is available as an image of the culture itself, the museum is an ordered display of the material objects considered exemplary by the civilization. Just as concert halls present year after year the basic repertoire of classical music as an almost ritualized history of the arts of time, so too the museum displays a canonical, conservative sample of the spatial masterworks that define our current version of the past. Museum, university, and concert hall are aspects of a secular public world of culture that is an image of the state and nation while at the same time transcending them.

Origins

The museum in its modern form arose in tandem with the most aggressive and expansive moments of the nation-state. The museums of major cities are themselves expressions of the power of the state to



Figure 1. (*Museum*) Leo von Klenze, Glyptothek, Munich, 1830. Marburg/Art Resource, New York.



Figure 2. (*Museum*) Richard Rogers and Renzo Piano, Georges Pompidou National Center of Art and Culture ("Beaubourg"), Paris, 1977. TF/Art Resource, New York.

reach out and appropriate the culture of the past as its own and as an important symbol of the state's dignity, worth, and endurance. Wherever economic power reached, ART and artifacts flowed back, along with raw materials and other forms of wealth (*see* ARTIFACT). The close relations between the modern state and the museum are particularly visible in

Washington, D.C., a city that has often been called one large museum.

Within Western civilization the museum became a primary feature of civic space during the eighteenth-century Enlightenment, and in particular after the founding of the Louvre in Paris in 1793. The place of the museum can best be understood by contrasting

it, on the one hand, with the earlier private princely collections and, on the other, with the modern factory. In its dedication to uniqueness, to preservation, and to those objects of the past whose useful life was in effect over, the museum came to celebrate just such values, in part because the mass production of objects under the factory system resulted in unlimited identical replications of objects made to be replaced as soon as they became obsolete. Museums became increasingly central in cultures touched most deeply by the modern system of mass production. The British Museum in London and the Metropolitan Museum in New York represent a new kind of institution. No longer do they provide a visible history of the culture itself—that is, a display of objects rich with local significance. Instead they are storage areas for authenticity and uniqueness per se, for irreplaceable objects from any culture or period.

Museums are counterinstitutions to the factory. As objects became more short-lived and geared to an ongoing series of inventions and improvements that produce obsolescence as one side effect, the museum became ever more skilled at preservation, at keeping selected things from deterioration or change. The modern factory system expanded during the same period that both political nationalism and democratization of access have dominated Western culture. What French scholar Germain Bazin has called the “museum age” began with the opening of existing princely and papal collections and the simultaneous ordering of such collections in a novel historical, intellectual way. With the climactic dislocation of art during the French Revolution and the Napoleonic Wars, the great European hoards were scattered, reassembled, and ultimately transferred from private to national ownership.

Structuring the Experience of Art

Museums locate for us one stage in the creation of new forms, both in terms of the assembly of objects and with respect to the role of the collective itself in social life. In the museum age, the new social aggregate—for which all future art would exist—was “the public.” It is for the public that society in the new democratic age retraces in social space the amenities of LEISURE and privilege once held by the few within the private space of moneyed or aristocratic property. The game preserve becomes the public zoo; the collection of books, the public library; the pleasure grounds of large estates, the new public parks, forests, and recreation areas.

Once opened, the treasures became structured by the uses negotiated between the public and the objects now clearly identified as art. With the force of those new professional intermediaries, the critics and the historians, behind them, the museums explicitly

converted the functions of art to educational goals. What had been riches became enrichment—became, that is, EDUCATION and consciousness.

Just as important as the democratization of treasure were two Enlightenment forces: the idea of systematic ordering, which came to be applied to many princely collections, and the use of spatial display as a form of education. Whereas sensory values once controlled the arrangement within the room of a palace so that pictures, ornate frames, mirrors, furniture, and the costumes of visitors completed a visually pleasing harmony, the new educational arrangement involved an instruction in history and cultures, periods and schools of art that in both order and combination was fundamentally pedagogic. Whereas earlier collections tended to include such ill-sorted combinations of objects as antiquities, cut stones, medals, COINS, and natural-history specimens, the newer national collections began with an essential definition of what is now familiar to us as the “work of art.” Curious monsters, supposed unicorn horns, pieces of the true cross, historic battle souvenirs, and impressive gems part company from what can now be constructed as art.

Simultaneous with the opening of the galleries to the public and the clear distinction of works of art from other objects of value came the beginning of

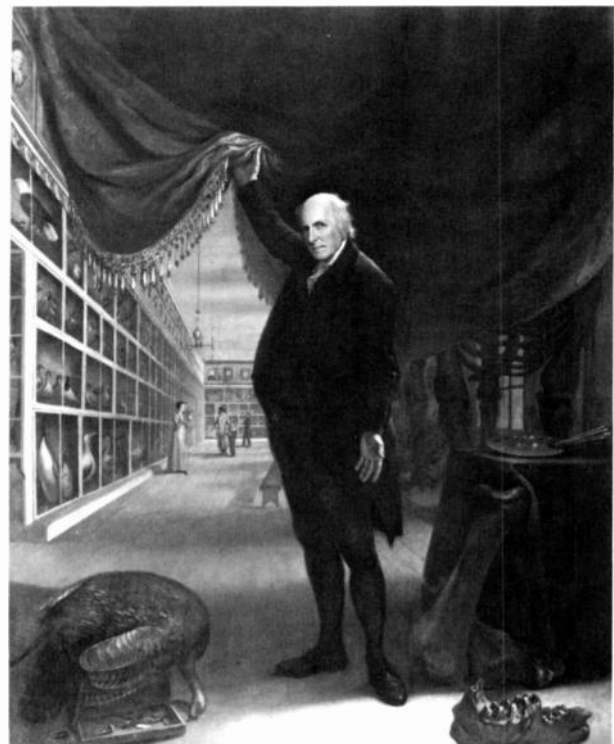


Figure 3. (*Museum*) Charles Willson Peale, *The Artist in His Museum*, 1822. Courtesy of the Pennsylvania Academy of the Fine Arts, Philadelphia.



Figure 4. (*Museum*) Visitors to the Louvre surround the *Nike of Samothrace*. Sculpture ca. 190 B.C.E. Courtesy of the French Government Tourist Office.

historical work on the periods and styles of art that would lead to the ordered array lying at the heart of the museum. It is essential to see that the subject of the museum is not the individual work of art but rather relations between works of art, in terms of what they have in common (styles, periods, schools) and what most sharply clashes in their juxtaposition. When we walk past the works of art in a museum we recapitulate in our actions the motion of the history of art itself. It is the series, sequence, or juxtaposition—and not the work of art—that is the working unit of the museum.

The work of the eighteenth-century German archaeologist Johann Joachim Winckelmann on Greek art introduced modern conceptual history into the study and display of art (see HISTORIOGRAPHY). In the Belvedere Palace in the Vatican, the conceptions that Winckelmann had applied to ancient art were transferred to European paintings. The paintings were chronologically arranged within the three European schools: Germany, the Netherlands, and Italy. Lighter frames were used. The paintings were separated on the walls. No longer were they in floor-to-ceiling stacks; rather, they were displayed in the modern linear, isolated series that we call an exhibition.

The objects that the museum arranges into its intelligible sequences could more accurately be called fragments, parts of preexisting social and material structures that have been broken off to be resettled in the afterlife of the museum. As the French writer André Malraux has described it, the conversion of earlier objects of religious, familial, or patriotic use into works of art involved a certain violence to their

nature. Images and objects from within the culture itself were removed from their settings of social practice and were rehoused in museums. A religious painting in a church and a family portrait on the wall of the house owned by descendants of those pictured are both objects within their original social worlds of practice and use (see PORTRAITURE). It is important to note that using the object appropriately in its natural setting does not necessarily involve looking at it, studying it closely, or having an experience of it. In fact, for many religious objects pious use requires lowering the head or closing the eyes in the presence of the object. Once removed from their social settings these objects were available to be experienced as works of art. To do so, the symbolic features had to be effaced or abstracted. What had been meanings or imperatives—as, for example, the look or bearing in an ancestral portrait is instructive or formative to the inhabitants of a house where for generations the ancestors look down from the walls at ongoing family life—became colors, shapes, styles, or indexes of period, or were referenced to the artist rather than to the subject or a system of belief.

Museums and the Creation of Value

Museums not only relocate objects from their earlier worlds of belief and use into the sequences and juxtapositions that make up art; they also exert the power to declare new wholes. The Elgin Marbles, as they are called under their museum name, are fragments of what was originally the pediment of a Greek temple. The Venus de Milo is a new whole without

its arms. The famous archaic torso of Apollo is, as a work of art in the museum, a whole perhaps more powerful as a torso than it once was as a statue. No one repaints the once brightly decorated Greek statues; as museum art they are white. The presence of fragmentary wholes within the museum is a reminder of the violence with which every object has been seized from what was once its world. The unpainted, armless, headless torso has lost not only those details but its temple, its geography and climate, the light by which it was intended to be seen, and the beliefs and knowledge by which it once was instantly familiar. See SCULPTURE.

With the effacement of earlier works drawn from what the European cultural world considered its own classical and Judeo-Christian heritage, the first stage of the museum's work was complete. In the second stage European and U.S. museums began to include and exhibit objects from alien social and religious communities: African, Mayan, and Asian artifacts were converted into art by their presence in the museum. These traditions were not assimilated but rather were preserved in their differences. The new objects did not require effacement. Their contexts or possible social uses did not need to be forgotten by the average viewer, because they were unknown to begin with. These mute objects passed back along the trails of economic conquest; Asian objects in the second half of the nineteenth century, African objects in the first years of the twentieth.

After the stabilization of the museum as the place for art and after the historical definition of the past that sorts it into periods, developments, and sequences, a new and highly ambitious art object came to be produced, one with the destiny of the museum stamped on it from the start. The third stage of objects, joining the silenced images of our own culture and the mute images of cultures that we know only anthropologically, are the objects that have been

produced in the museum age itself by artists whose primary goal is to see their works someday located within museums. We usually contrast these nonrepresentational objects, which are also nonuse objects, with what we call the realistic, utilitarian, or referential traditions of our own culture. In fact, these new works are the third and not the second sequence that we face, a sequence that intensifies and completes retroactively the silencing of the first group while confirming the proper place of the second, once alien, group. It is the group of abstract or preeffaced works that are, in certain ways, the goal of the museum structure itself.

This object that is at first a candidate for history, an applicant to the museum, is referred to as a part of modern art. The homes of major private collectors, in which such objects rest before finding final homes in public museums, often have been architecturally designed as miniature museums. The collector is an intermediary between the artist who first owns the work because he or she has made it and the public whose property the art will finally become. Like the Mellon or Frick collections, the Simon holdings, as we rightly call them, are destined for civic and educational use.

Unlike the commissions from patrons that provided an artist with a living, the price of modern works involves a complex speculation on the work's future as a past. Formerly, the amount of a commission reflected the value placed on the artist's time, craft, and level of skill, as well as the size of the work and the cost of materials. The modern price is based on some idea of how essential to any future series called art this particular type of object is likely to be. The price of a contemporary painting is a function of a prediction of its future, and for this future value to be determined, criticism must move closer and closer to a historicization of the present, determining on the spot the historical place of new

Figure 5. (*Museum*) Figures from the east pediment of the Parthenon, ca. 438–432 B.C.E. (examples of the "Elgin marbles"). Reproduced by courtesy of the Trustees of The British Museum.



candidates. Without this speculative, prophetic act of criticism, the object has no value as a commodity. The initial price is in effect a wager that in a reasonable time the object will come to be priceless, permanent, and among the few thousand objects protected from change until the end of the civilization itself.

In its climactic years the museum resettled the European religious, political, and social artifactual past into the system of art, accomplishing one phase of what the sociologist MAX WEBER has called *secularization*. What was in other contexts a demystification, a stripping away of the trappings of the sacred, became instead a remystification within one of the only remaining religions of the new middle class: the religion of art. At the same time the museum brought into a single system the diverse cultural traditions of the world, paralleling the growth of a world economy centered in the industrialized nations

of the West. Finally, the museum had created new specifications of the artwork of its own time. No longer would the artist produce either luxury goods for private owners or imagery for local familial, political, or spiritual systems. Instead he or she would now compete to add to what made up the self-image of an abstract and universalized civic past.

Although in its museums each major city has, in effect, a sample of the total history, an anthology of exemplary works, every collection still has its gaps. Malraux predicted that the museum of the future would be a "museum without walls," using the term to describe the art BOOK or compilation in which an intellectual comprehensiveness could be attained despite the physical location of various works in Rome, Paris, or New York. Malraux was incorrect only in his literal image of the book. Instead it is the photographic slide collection that has become the me-



a



b

Figure 6. (*Museum*) Robert Morris, *Labyrinth*, 1974. Created for the exhibition "Robert Morris/Projects." (a) Installation view; (b) the completed work. From *Robert Morris/Projects*, Institute of Contemporary Art, University of Pennsylvania, Philadelphia, 1974. Exhibition catalog.

dium of primary experience both for the study of the history of art and for the basic set of experiences of individual works that provides each viewer's frame of reference.

The slide, like the phonograph record that replaced the live concert or the paperback book that replaced the manuscript or the television PERFORMANCE that replaced the public THEATER, permits the experience of the work of art to occur at home, at a time of choice for the viewer. The domestication of all art, the process by which a relatively valueless copy makes available a book, musical performance, or film in the familial setting of the private home, carried even further the universalization that the museum had begun. At the same time it sacrificed the commitment to the eighteenth- and nineteenth-century ideal that important cultural experiences are a function of the public realm. The museum, then, played a decisive transitional role between a world of privately held treasure and a democratized, but once again private, world of universally available cultural experience.

See also AESTHETICS; ARTIST AND SOCIETY; VISUAL IMAGE.

Bibliography. Germain Bazin, *The Museum Age* (in French), trans. by Jane Cahill, New York, 1967; Niels Van Holst, *Creators, Collectors, and Connoisseurs* (in German), New York, 1967; André Malraux, *Voices of Silence* (*Les voix du silence*), trans. by Stuart Gilbert, Garden City, N.Y., 1953, reprint Princeton, N.J., 1978.

PHILIP FISHER

MUSIC, ELECTRONIC. See ELECTRONIC MUSIC.

MUSIC, FOLK AND TRADITIONAL

Generally speaking, folk music comprises traditional, orally transmitted, and regionally and ethnically based genres of music, often performed in small groups with a major everyday emphasis on face-to-face communication and social interaction (see INTERACTION, FACE-TO-FACE).

Early folklorists understood folk songs to differ both from popular music (tainted by professionalism, the profit motive, and mass media) and from art music (composed and performed for an urban, educated elite) (see MUSIC, POPULAR; MUSIC HISTORY; SONG). Folk songs, they thought, could be found only among an agrarian, illiterate peasantry; literacy, urbanization, and modernization were thought to work against folk tradition. This formulation meant that students of folk song were fated to preside over dying artifacts and that the nature and quality of folk song among descendants of settlers in the New World must be derivative and inferior. But as many

of those European peasant cultures disappeared during the twentieth century, folklorists observed that folk songs and folk processes were alive and well among European and American working classes and well-knit ethnic groups, whether in rural areas or in cities. In fact, for contemporary folklorists, process in folk music has become more important than ARTIFACT, and today a folk song is conceived of as a PERFORMANCE, not just a text with a tune. The MEANING of a folk song arises from its context, from what it communicates in the performance situation. See MUSIC PERFORMANCE.

Oral transmission in folk music means that most folk music is learned in person by imitation and example rather than through formal instruction and written notation. The result of this learning process is that folk songs exist in performance—that is, in several versions and variants rather than in a relatively more fixed, written text such as a Beethoven string quartet. Furthermore, in some folk-song traditions, such as Afro-American gospel music, variation and improvisation in performance are encouraged, making it even more difficult to locate the song as an artifact apart from performance. Catching music by ear rather than by sight from a score, the folk musician has a direct aural relationship to his or her art. Because music passes through the medium of print for the “paper-trained” musician, the relationship is both visual (spatial) and aural. Yet even the classical musician who plays from a score has learned style and expression aurally. See MUSIC COMPOSITION AND IMPROVISATION; ORAL CULTURE; ORAL POETRY.

Performance in face-to-face communication means that folk music reflects the informally shared experience of a folk group closely linked by occupation, neighborhood, social class, ethnic heritage, religious affiliation, dialect, race, age, political outlook, sex, and so on. Folk songs are shared among folk groups as events in the home or community gathering places in which most people take an active role, interacting as listeners, players, dancers, and singers. One of the more common settings for contemporary folk music in North America is an evening or weekend afternoon at a musician's home, where other local musicians and their families gather for music, socializing, and often FOOD. The music played may vary from old songs and ballads and traditional DANCE music to new and old hit tunes from RADIO and records, but in this context it is all folk music.

Like all folk arts, folk music possesses affect; that is, it has the power to reach people's feelings and to move them. Affect is constituted by performance, and performance is culture-specific and operates according to rules and principles understood by performers and audience in the folk group. Performances of folk music are intentional: performers (and folk

groups) attach meaning to performances and intend meaning by performances.

Folk musicians do not perform naively and unreflectively; most can and do discuss and evaluate aspects of performance and repertoire among themselves, seldom relying on a professional class of music critics or a body of written music criticism. Memory plays an important role in folk music, not merely in recalling what was learned orally but also in associating certain music with certain people, events, emotions, symbols, and rituals from the past.

Cultural revitalization movements among various ethnic groups in the last hundred years or so have led to self-conscious efforts to preserve their heritage of folk music and dance, and often these movements adopted some of the methods of the conservatories—written notation, formal lessons, recitals—that characterize art music and tend to work against oral tradition. In Latin America and eastern Europe particularly, folk revivals, festivals, competitions, regional and national folk-song and dance troupes, and other such activities have tended to professionalize folk music and take it out of its local context. Irish music, undergoing a renaissance in Ireland and the United States, is very well organized, with a national music association, schools, clubs, and regional and national music contests. At the same time it must be recognized that within many folk groups, for example in eastern Europe and among Afro-Americans, professionals are the rule and carry some of the community's folk-song traditions.

In the twentieth century many regional and ethnically based folk music repertoires have been transmitted by the media—radio, recordings, television, MOTION PICTURES—and these media artifacts have sometimes acted as models for all musicians to imitate, thereby fixing tunes, texts, and styles and working against versions and variants. Prior to recordings, for example, blues song structure and length varied, but recordings and radio established the norm of the twelve-bar, AAB blues form and put song lengths at about three minutes, the most music that a 78-RPM record could hold.

Beginning in the 1920s U.S. commercial SOUND RECORDING companies featured special series for various ethnic groups: Polish, Irish, Jewish, and Afro-American, among others. At the same time, media transmission has brought local and regional repertoires to other regions, even to other nations, and the resulting musical cross-fertilization has created hybrid styles and genres, many of which are transmitted orally as well as by the media. A few of the many examples of such cross-fertilizations include salsa (a Puerto Rican blend of Latin music, African music, and jazz); Zydeco (a Louisiana Creole blend of Cajun music, Latin rhythms, and rhythm and blues); 1960s British rock (which drew on the tra-

ditions of early rock and roll, English music hall, Anglo-American folk music, and Afro-American blues from Chicago in the 1950s); African *highlife*; and Jamaican reggae. Since the mid-1960s inexpensive portable cassette tape recorders have democratized the media enormously, and now the “folk” make good use of the media, tape-recording performances chiefly to learn rather than to preserve them.

Many world cultures possessing folk music get along without a concept that distinguishes folk from other kinds of music. Indeed a few cultures have no word for music itself. But the idea of folk music has existed in Europe and the New World for at least two hundred years and has served to distinguish the music of ordinary people, “the folk,” from the cultivated music of the courts, cities, and universities. The term is less useful outside the Euro-American context; even within that context some members of folk groups resent the term, thinking it demeans their music, while others embrace the term as a marker of ethnic or regional identity.

See also ETHNOMUSICOLOGY; FOLKLORE; FOLK-
TALE.

Bibliography. David Buchan, *The Ballad and the Folk*, Boston and London, 1972; David Evans, *Big Road Blues*, Berkeley, Calif., 1982; Henry Glassie, *Passing the Time in Ballymenone*, Philadelphia, 1982; Edward D. Ives, *Joe Scott: The Woodsman-Songmaker*, Urbana, Ill., 1978; Peter Kennedy, ed., *Folksongs of Britain and Ireland*, New York, 1975; Zoltán Kodály, *Folk Music of Hungary* (A magyar népzene), 2d ed., rev. and enl. by Lajos Vargyas, trans. by Ronald Tempest and Cynthia Jolly, London, 1971; J. Barre Toelken, *The Dynamics of Folklore*, Boston, 1979.

JEFF TODD TITON

MUSIC, POPULAR

Popular music is commonly understood to comprise different genres of music (e.g., the sentimental ballad, ragtime, blues, jazz, rhythm and blues, various types of rock and roll, punk and new wave, soul, reggae, country, country and western, folk, Broadway and Hollywood musicals) that have or have had a mass appeal; that are communicated and stored through mechanical or electronic means (e.g., sheet music, phonograph discs, compact discs, tape recordings, cassette recordings, film, videotapes, music videos); that are marketed for financial gain; that are conceived originally in a predominantly oral-aural rather than visual (notated) fashion; and whose principal function is to provide secular entertainment for consumption during LEISURE time. A majority, although by no means all, of this music has originated in the United States and since the closing decades of the nineteenth century has had a profound impact on

the cultural lives of a majority of the people living in the Western world. See GENRE; SOUND RECORDING.

This common understanding requires qualification and expansion. Even within the Western world it is not possible to achieve a strict definition of popular music. Many criteria—for example, number of people involved, mass mechanical or electronic dissemination, production for financial gain, oral-aural rather than visual mode of conception, entertainment or leisure function—may indeed cover a sizable proportion of music commonly understood as popular, yet none covers all such music. Some “popular” music (e.g., AVANT-GARDE jazz) does not really have mass appeal; some (e.g., folk music) may be performed predominantly in live situations to which mechanical and electronic means of communication and storage are essentially peripheral; some (e.g., progressive rock) may be created for reasons that are primarily artistic rather than financial; some (e.g., the music of Broadway and Hollywood musicals) may be conceived in an overwhelmingly notated fashion; and some (e.g., protest music) conveys messages of social resistance that make any categorization as entertainment or leisure music questionable. See MUSIC, FOLK AND TRADITIONAL; MUSIC THEATER; MUSICAL, FILM.

Within the Western world, popular music may be thought of more usefully in terms of what it is not rather than what it is. The term *popular music* appears to be used to describe any “music of the people” that falls outside music traditionally performed in the Western concert tradition, and music having strong non-Western, traditional, and folk affiliations (e.g., Australian Aboriginal music, Asian high-culture music, and the traditional musics of Africa). Music of the Western concert tradition tends to constitute the subject matter of the academic discipline of historical musicology, and music from other traditions tends to constitute the subject matter of the academic discipline of ETHNOMUSICOLOGY. It should be stressed, however, that the distinctions between popular, classical, and traditional musics and the associated academic disciplines of popular music studies, historical musicology, and ethnomusicology are to a certain extent arbitrary. Popular music should not be thought of as a homogeneous entity but rather as a label of convenience that refers in a somewhat unsatisfactory manner to a wide variety of musical genres emerging from quite distinct social and historical circumstances.

World-wide impact. In this context it is necessary to emphasize that popular music is a worldwide phenomenon with many roots quite independent of the mass-mediated Anglo-American genres that have made such an impact since the 1890s. In Great Britain, for example, there was significant resistance in the first half of the twentieth century to popular

music that originated in the United States. Performers such as George Formby, Gracie Fields, and Vera Lynn owed much to the tradition of the British music hall, a tradition whose legacy can still be heard in the music of songwriters such as Paul McCartney. In many eastern European countries, musical genres that in the West might be considered traditional (e.g., the folk musics of Bulgaria) or dated (e.g., the *Schlager* of the German Democratic Republic and Hungary) form an integral part of the lives of older generations. Even in North America there are popular music genres such as the polka that both predate mass-mediated forms of Anglo-American popular music and remain to this day important to large segments of the population.

The worldwide impact of mass-mediated forms of Anglo-American popular music has nonetheless been staggering, particularly since the advent of the silicon chip, integrated circuitry, and the compact cassette. Multinational record companies have for many years attempted to establish markets wherever it has been politically and economically feasible. Such markets are more difficult to establish when countries are not members of the International Monetary Fund, when countries restrict the influx of Western cultural commodities for political reasons, and when record and cassette piracy is a common and uncontrolled practice. Yet there is scarcely a corner of the world in which mass-mediated Anglo-American genres of popular music are unknown. The advantage for multinational record companies lies not only in the money to be made through the establishing of new markets; it lies also in access to indigenous genres of music that can form the basis for new musical fashions in the Western world. Thus, although calypso became an internationally famous genre of music made popular on the RADIO during the 1950s and 1960s, it is to this day hardly heard on the radio in Trinidad outside of the carnival season. Radio in Trinidad is dominated by Anglo-American popular music.

The incursions of Western-based music industries seldom leave local musicians and their music unaffected. It is frequently difficult for local musicians to obtain royalties and so establish a secure financial basis from which to develop their own music alongside imported Anglo-American genres. In addition indigenous genres of music as disseminated within local communities frequently change under the impact of Western popular musics and their associated technologies. In Sri Lanka, for example, the impact of Western popular musics led, in the late 1960s, to the addition of the saxophone and electric guitar in the playing of traditional *baila* music. A boom in the Sri Lankan market for this music—itself a consequence of the introduction of the compact cassette—also resulted in the late 1970s in the original Afro-Portuguese language of *baila* music being totally

replaced by Sinhalese and, in the early 1980s, in the music being played to a limited extent on Sri Lankan radio, which before had considered it socially and morally unworthy of airtime. This airtime resulted in the emergence of a new, "clean" subgenre of *baila* music purged of "smutty" and topical political and social references.

Although the often questionable impact of Western music industries should not be underrated, it should also be emphasized that, in a context of increasing urbanization, many local Third World musicians have become more knowledgeable about royalties and COPYRIGHT laws and increasingly resourceful in their ability to maintain local recording companies and circulate recordings of local popular music (as in Sri Lanka). In addition many new genres of popular music have been created by local musicians through a cross-fertilization of indigenous and Anglo-American forms. *Highlife* music of Ghana and *juju* music of Nigeria provide good examples of such cross-fertilizations. In a very different context *Schlager* music in the German Democratic Republic has developed more hybrid forms influenced by Western rock music. And rock music in that country, although clearly influenced by many styles of Western rock, has its own particular sound and approach toward lyrics resulting from a concern to express the political and social experiences that underpin everyday life. Popular music, in other words, is a global phenomenon whose institutional arrangements and modes of production are varied and complex and, in addition, are marked historically by continual change, flux, and synthesis.

Modes of communication. If the institutional arrangements and modes of production of popular music are varied and complex, so too are the ways in which different genres of popular music communicate. Popular musics communicate primarily through SOUND, and questions of value in popular music (from the perspective of audiences) seem to be tied largely to the degree of "authenticity" of the sound, which is frequently focused on the unique characteristics of a particular singer's voice. In this, popular music differs appreciably from classical music, in which the stress in communication lies primarily with an extended harmonic and sometimes contrapuntal discourse to which the inherent qualities of the sound itself usually take second place. To the extent that few forms of popular music are now uninfluenced by mass-disseminated Anglo-American genres, and to the extent that these genres originally came into existence through a cross-fertilization of the musical heritages of black Africa and the European cultures of the United States, a majority of the world's popular musics now display some harmonic and rhythmic principles derived originally from European art music. However, such principles serve as little more than a framework within which other musical prin-

ciples such as the bending of pitches, the anticipating and delaying of beats, misplaced or syncopated metric stress patterns, an emphasis on individuated, "unpure" tone colors or timbres, and an emphasis on improvisation can all contribute to an authentic sound that, although mass-mediated, communicates powerfully, immediately, and on an individual basis to audience members.

Yet sound is not the sole channel of communication for popular music. There are four channels: sound, images, words, and DANCE. In many genres of popular music these channels are inseparable in presentation, yet each can contribute in different and sometimes contradictory ways to the overall impact of the music (or, perhaps more accurately, the music event).

If popular music communicates and is both created and produced in a complex and sometimes paradoxical fashion, then there exists a clear potential for individual popular music genres to be used and consumed by individual audience members in a wide variety of ways. However, above and beyond the question of the different meanings different groups of people may derive from various genres of popular music, there are two crucial issues at stake in attempting to understand the impact popular music may have on audiences and the role it may play in society. First, there is the question of the level of consciousness brought to popular music by audiences. Do audience members creatively negotiate a wide range of individual meanings from popular music, or do they accept the meanings invested in popular music by its producers in a largely passive and homogeneous fashion? Second, there is the tortuous question of the value of popular music, formulated not so much in terms of its authenticity as perceived by audiences but in terms of the positive or negative social effects a particular genre is perceived as having by commentators other than the audience. These questions are linked inasmuch as audience members who bring a high level of consciousness to a particular genre of popular music may define the issue of authenticity to include the question of social desirability. On the other hand, critics may assess social desirability partially in terms of the degree of passive consumption perceived in a particular audience. It is consequently difficult to assess the different possible impacts of popular music independently of an understanding of the considerable range of interpretations brought to popular music by popular-music commentators. This range of interpretations results not only from the complex dialectics of communication through popular music but also from the variety of professional interests and ideological orientations of popular-music commentators.

Debates about meaning and function. The prevalent view of popular music is that it is a mass phe-

nomenon. Those who see themselves as cultural guardians have argued consistently since the turn of the century that much popular music influences negatively a largely passive audience by leading them away from established social, moral, and aesthetic values. This view has been reinforced by musicologists unprepared and unable to understand the technical characteristics responsible for the expressive power of popular music. Although noting the ability of music to affirm the spiritual life of the individual, they have nonetheless understood "good" music to be a phenomenon essentially divorced from social processes and have engaged in formal modes of analysis that stress melody, harmony, and rhythm at the expense of timbre, improvisation, and inflectional devices. These latter characteristics have been interpreted as distortions of purer tonal values, tainted through the mass social processes of the industrial world. As a consequence of this interpretation, many genres of popular music have been viewed by musicologists as inferior.

This view of popular music as a mass phenomenon detrimental to the human spirit has found sympathy in a somewhat different quarter. THEODOR ADORNO, for example, has argued that popular music serves the interests not of those who might challenge the established social order but of those who would wish to preserve it. Popular music here becomes little more than an ideological device whose purpose is to desensitize consumers to the inequalities and ills of life in industrial capitalist societies. Marxist-influenced scholarship in popular music, however, has become rather more sophisticated since the mid-1970s. Few scholars in the critical tradition would deny the role of popular music as a cultural or ideological force supportive of existing class, ethnic, GENDER, and generational relationships, but there have been perceptible differences of opinion about the ability of individuals and groups to use popular music as a form of cultural resistance.

This tension in understanding processes of consumption is reproduced in work carried on outside an explicitly critical tradition and sometimes outside studies that place popular music in the context of massive social processes. One such trend, exemplified by French scholars such as Antoine Hennion, emphasizes the role of producers in defining cultural artifacts and meanings for consumers. A contrasting trend, exemplified by the U.S. ethnomusicologist Steven Feld, focuses on the rich linguistic discourses through which people make sense of and actively construct musical meanings.

Although popular music has long been established as a major force in the cultural lives of many people, an established field of study for its analysis has been slow to develop in comparison with fields of study for the analysis of other forms of mass-mediated communication precisely because of the varied pro-

fessional interests and ideological orientations of popular-music commentators. In consequence there has been little common wisdom regarding either the effects of popular music or the social, ideological, or human implications of its modes of production and communication. To this uncertain but intriguing state of understanding there were signs in the late 1980s that feminist scholarship was starting to make a significant and lasting contribution in the realms of sexuality and gender relations as mediated through different genres of popular music. See FEMINIST THEORIES OF COMMUNICATION.

See also MUSIC COMPOSITION AND IMPROVISATION; MUZAK; SONG; TASTE CULTURES.

Bibliography. Steven Feld, "Communication, Music, and Speech about Music," *1984 Yearbook for Traditional Music* 16 (1984): 1-18; Simon Frith, *Sound Effects: Youth, Leisure, and the Politics of Rock 'n' Roll*, New York, 1981; Lawrence Grossberg, "Another Boring Day in Paradise: Rock and Roll and the Empowerment of Everyday Life," *Popular Music* 4 (1984): 225-258; David Harker, *One for the Money: Politics and Popular Song*, London, 1980; Antoine Hennion, *Les professionnels de disque*, Paris, 1981; Dave Laing, *One Chord Wonders: Power and Meaning in Punk Rock*, Milton Keynes, Eng., 1985; John Shepherd, "Definition as Mystification: A Consideration of Labels as a Hindrance to Understanding Significance in Music," *Popular Music Perspectives* 2 (1985): 84-98; Philip Tagg, *Kojak: 50 Seconds of Television Music: Toward the Analysis of Affect in Popular Music (Kojak—50 sekunders tv-musik)*, Gothenburg, Sweden, 1979; Roger Wallis and Krister Malm, *Big Sounds from Small Peoples: The Music Industry in Small Countries*, London and Penzance, N.Y., 1984.

JOHN SHEPHERD

MUSIC COMPOSITION AND IMPROVISATION

Music composition and improvisation are aspects of the same process: communicating in the music mode of discourse. The differences that do exist between them are ones of degree, not kind. However, their relationship is frequently misunderstood and has been reduced at times to a simplistic dichotomy. The assumptions used to support this dichotomy tend to reflect ignorance of non-Western musical traditions and a condescending attitude toward improvisation as a method of creating and communicating music. For example, the 1944 edition of the *Harvard Dictionary of Music* described improvisation as a "soap bubble phenomenon," an inspirational act that virtually defied rational description. This is a rather serious contention, since the majority of musical traditions in the world, particularly non-Western traditions, are based on improvisation. However, when the assumptions underlying this alleged dichotomy

are examined, the lines between composition and improvisation soon become blurred.

The first assumption to question is that the written version of a piece of music is a composition, while the oral version is an improvisation. It has been said that Wolfgang Amadeus Mozart wrote a music manuscript as rapidly as someone might write a letter. When asked how he did it, he said that the composition was already in his head; he was simply copying it down. Was it any less a composition because it was a visual product on paper?

Furthermore, even when a musical composition has been written down in traditional Western notation, ambiguities in the notation present the performer with some degree of choice in the PERFORMANCE. A precise notation is one that uses monomial symbols: one symbol stands for only one thing. However, traditional Western notation also includes both binomial and polynomial symbols such as the trill, the mordent, and the appoggiatura as well as imprecise signs and indications such as the fermata, *sforzando*, *ritardando*, and *accelerando*. In addition, initial tempo markings and changes in tempo are often designated in terminology that allows considerable latitude in interpretation. Even metronome markings, when given, are not followed too accurately, because a given performer or conductor may question the judgment of the editor or even the composer, who made the designations from reading the score rather than from leading an orchestra. In other words, the written score is subject to variations in many basic elements such as tempo, dynamics, intonation, "interpretation," and so forth.

Because of these ambiguities, the proper realization of a traditional Western score continues to depend on the performers' and conductor's knowledge of the aural tradition surrounding it. Traditional Western notation, therefore, is prescriptive, not descriptive, and is subject to variable interpretations. In a very strict sense there is a degree of improvisation in every performance of musical compositions of the Western world.

Combinations of composition and improvisation. In the non-Western world, of course, the line between composition and improvisation is even more difficult to draw. A composition may be only partially written. For example, the notation of a composition for the Chinese *ch'in*, a six-string plucked zither, does not include the very essential element of rhythm. Part of the aesthetic in realizing a composition in this tradition includes a freedom of rhythmic choice on the part of the performer. It requires the musician to improvise one of the primary elements of music; and yet some of the famous compositions for *ch'in* have been part of the written musical tradition of China for many centuries.

In Java a musical composition written in one or another form of Javanese notation consists of a fixed

melody (a nuclear theme used as the basis for improvisation), a structural part performed by different-sized gongs, and a standard drum pattern on which elaborations are improvised by the drummer. This "short score" may include a few directions for certain instruments regarding the desired octave in a given passage. The rest of the orchestra consists of a number of instruments performing—in individual idiomatic styles—improvisations based on the principal melody. To this are added female soloists and a male chorus, and possibly a narrator with DANCE or PUPPETRY, each engaged in a degree of improvisation. Although basic structures and movements are stereotyped in both the dance drama and the puppet play, artistic realization of them also demands individual improvisation. Until the late nineteenth century, several thousand Javanese musical compositions existed primarily in the oral tradition. Only about a century ago was the short score used as a means of preservation. (Performances today are not from the written score.) Are these major orchestral compositions, some of them lasting more than an hour, any the less compositions because they were written down, albeit in short score, rather recently?

But this blurring of composition and improvisation also occurs in the Western world. Charles Seeger was able to identify more than three hundred variants of the folk song "Barbara Allen." Some will argue that originally there must have been a single version of the piece and that variants of it developed as singers reshaped details according to individual preferences, usually with only an oral knowledge of the piece. Most of the three hundred variants were written down by collectors, not by folk performers, who knew them from hearing other performers. No one knows which, if any, of the extant variants is the original. But, like Mozart, the composer of the tune probably carried it in his or her head—and never bothered (probably was not able) to write it down. Is "Barbara Allen" any the less a composition for all this? It is erroneous to assume that successive performances of a folk song by the same singer show any greater or lesser degree of improvisation than the performances of standard works in the Western music literature performed by the best conductors. *See also* ORAL CULTURE; ORAL POETRY.

Similar examples abound in the Afro-American jazz idiom, in which improvisations based on well-known popular songs themselves often become codified as new compositions. For instance, the popular song "All the Things You Are," by Jerome Kern and Oscar Hammerstein, became a standard part of the repertoire of bebop jazz players in the 1950s, owing in part to the challenge of improvising upon its interesting chord cycle. An improvisation by trumpeter Kenny Dorham was developed into a new melody that could be played with the same chord changes; alto saxophonist Charlie "Bird" Parker is

also credited with another improvisation that became a separate melody for these chords. Both have been recorded many times under the titles, respectively, "Prince Albert" and "Bird of Paradise"; Dorham and Parker are listed as the *composers* of these songs, which have copyrights in their names.

While "Prince Albert" and "Bird of Paradise" began as improvisations on the melody and chords of "All the Things You Are," today they are two distinct melodies to the same chord progression. Performers in the jazz idiom continue to create new improvisations on this same chord pattern, using any one of these three melodies as the opening or closing of the piece and often quoting from the others, thereby illustrating continuity and change, improvisation and composition as a continuing dialectic at the center of their art.

Possible criteria. It might be thought that composition and improvisation can be distinguished by criteria such as the relative simplicity or complexity of the music, the technological sophistication of the instruments used, the degree of formal training required to perform the music, or the professional (as opposed to amateur) status of the musicians involved. However, each criterion fails to provide a consistent and meaningful explanation for distinguishing between them.

For example, simplicity of expression, however it is defined, offers no clues, because some of the most beautiful examples of the *bel canto* line have been simple, whether in the *lieder* of Franz Schubert or in an anonymous folk song like "Greensleeves." Similarly, complexity is found in a wide range of musics, from the latest scores for ELECTRONIC MUSIC to the incredible sounds of the didgeridoo, a hollowed-out wooden tube lip-vibrated by aboriginal musicians in Australia.

Technological sophistication of the sound-producing instruments also offers no index either to the simplicity-complexity continuum or to the riddle of composition versus improvisation. For example, the didgeridoo produces sonic complexities that require sophisticated laboratory equipment to understand. Although the simple bamboo flute played in India lacks the pads, springs, and keys found on the Western flute, the practice of half-holing and forked fingering allows the Indian musician to perform a complicated melodic line that simply could not be duplicated by the Western musician on even the most technologically advanced flute. (Developments of the Western flute inhibit realization of the melodic subtleties essential to the unique character of Indian music.) Incidentally, Indian musicians improvise within the modal-melodic requirements and formulas of a particular *raga*, which includes some fixed compositional elements.

Sometimes the definition of musical composition is founded on the conviction that formal training in

music is absolutely necessary to understand and perform the composition. In Western art music such a claim is reasonably defensible. From a cross-cultural perspective, however, this definition is severely flawed. Examples of informal training, or simply the absorption of musical norms by exposure, abound not only in folk and popular idioms of the Western world but also in musical traditions native to Africa, Asia, Oceania, Latin America, and elsewhere.

A related fallacy is the tendency to associate the act of composition with the professional musician, whether the music is art, pop, rock, country-western, or a hybrid. A professional musician is described in the West as someone who earns all or most of his or her livelihood from music. Of course, if such a definition is accepted, the finest musicians in much of the non-Western world—both composers and performers—would have to be classified as amateur, since their primary livelihoods often have nothing to do with music.

So far it would appear that composition and improvisation are hopelessly entwined. Another criterion, which is a little more helpful, is the concept of fixity versus flexibility in music, although here again the degree of fixity or flexibility is relative. For example, when a composition is printed (ignoring for the moment differences in interpretation from one performance to another), it would appear to be quite fixed. But subsequent editions of older compositions sometimes are known for the idiosyncratic interpretations of their different editors. In fact, some editions of a composition have become quite famous for their editorial differences. Of course, this kind of flexibility from edition to edition can hardly be called improvisation, but it weakens the argument that fixity is the hallmark of composition.

Musical composition on the island of Bali in Indonesia further challenges the fixity versus flexibility criterion. There is no improvisation at the time of a given performance by one of the large Balinese orchestras, in part because the instrumental practice called *kotekan*—extremely rapid interlocking parts—makes improvisation impossible. But traditional Balinese music is a kind of communal music, in which suggestions volunteered by the performers may alter a composition considerably in the course of numerous performances within even a few months. After some trials, the successive musical changes are judged by a consensus of performers in the gamelan orchestra. If the changes are considered an improvement they are incorporated into the original composition. This practice certainly stretches the usual meaning of improvisation, but it also rules out fixity as the *sine qua non* of composition.

True understanding of musical composition and improvisation requires complete rejection of the idea that these two forms of musical discourse represent a polarity. Far from being opposites, they are very

similar in process. A composition is known by some kind of title and has a greater or lesser degree of fixity; perhaps it would not be contradictory in qualifying the statement to call it a flexible fixity. An improvisation has a greater or lesser degree of flexibility; perhaps it would not be contradictory in qualifying the statement to call it a fixed flexibility. These definitions are more than an exercise in the finesse of language. It is essential to grasp that while composition and improvisation are two different forms of musical utterance, they exist at related and mutually intelligible points along a continuum of the music mode of discourse.

See also ETHNOMUSICOLOGY; MUSIC, POPULAR; MUSIC HISTORY; MUSIC PERFORMANCE; MUSICAL INSTRUMENTS.

Bibliography. Derek Bailey, *Improvisation: Its Nature and Practice in Music*, Ashbourne, Eng., 1980; J. S. Brandts Buys-Van Zijp and A. Brandts Buys-Van Zijp, "Javaansche Gënding's bij Land en bij Seelig," *Djawa* 16 (1936): 230–243; idem, "Land's Transscripties van Gënding's," *Djawa* 15 (1935): 174–185; idem, "Omtrent Notaties en Transscripties en over de Constructie van Gamelanstukken," *Djawa* 14 (1934): 127–165; Mantle Hood, *The Ethnomusicologist*, new ed., Kent, Ohio, 1982; Bruno Nettl, "Thoughts on Improvisation: A Comparative Approach," *Musical Quarterly* 60 (1974): 1–19; Charles Seeger, *Studies in Musicology, 1935–1975*, Berkeley, Calif., 1977; Ernst Toch, *The Shaping Forces in Music: An Inquiry into the Nature of Harmony, Melody, Counterpoint, Form*, New York, 1948, reprint 1977.

MANTLE HOOD

MUSIC HISTORY

Music is a general term for many modes of human communication using movements that produce and reproduce sounds. The term designates not only "knowledge of moving well" (St. Augustine) but also the exercise of such knowledge and the results of the exercise, all three of which are interdependent. Musicians are human beings who communicate by "moving well" to produce and reproduce sounds, and each instance of such communication is a PERFORMANCE. See also MUSIC PERFORMANCE; SOUND.

The term *musical instrument* applies here to all tools and mechanisms used in transmitting, retaining, and exercising musical knowledge (see MUSICAL INSTRUMENTS). The instruments and agencies of musical communication include the following:

1. Objects and devices that transform into acoustic energy the nervous energy applied to these devices by musicians. The shoes of a tap dancer and the floor struck by the dancer's feet via the shoes constitute one instrument in this sense.

2. Sets of cues or instructions that musicians create and/or receive before and during performances. These are coded, stored, and named (SONG, tune, composition, etc.) in various ways, some of them partly dependent on use of graphic symbols (notations). See MUSIC THEORIES—NOTATIONS AND LITERACY.
3. Habits and strategies for evaluating cues and instructions. Some of these are commonly termed rules, modes of performance (see MODE), arts, theories, POETICS, and AESTHETICS. Musicians who employ sound-making devices are obliged to remember appropriate sequences of motions, and we may assume that handling the devices normally helps performers to recall typical orderings of cues and responses.
4. The self and others, as both agents and agencies of musical communication. Through clapping the hands, slapping a thigh, striking the vocal chords (see Figure 1), and similar gestures, a musician becomes an instrument of musical communication.
5. Extensions of these four types of agency, available in the twentieth century through electronic and computer technology (see ELECTRONIC MUSIC; SOUND RECORDING).

The study of musical communication is a study of how human beings communicate with spirits as well as with themselves and their instruments. Many musicians serve as mediums through whose motions the voices or sounds of others (spirits, humans of the same or a different time and place, animals, birds, inanimate objects) become present during performances. An instrument is often recognized as the voice, embodiment, or attribute of a spirit. Masks that alter the performer's voice and/or face are important in many modes of musical communication, especially in Africa and Asia (see MASK).

It is common for musical gestures to mark a change from one set of social circumstances and relationships to another. Partly by virtue of such gestures, the boundaries within which musical communication occurs usually differ in one or more respects from those that are essential to other modes of communication. Speakers of different languages, for example, often communicate successfully through music. In principle it is no more necessary to music than to SPEECH that all participants share a single standard for evaluating moves. Each such standard is an instrument in a sense, and many instruments may be employed in a single performance.

The history of musical communication is in large part the history of tools and skills developed and used in transmitting, retaining, and exercising musical knowledge. Human cultural diversity compels us to accept many answers to the questions, What have

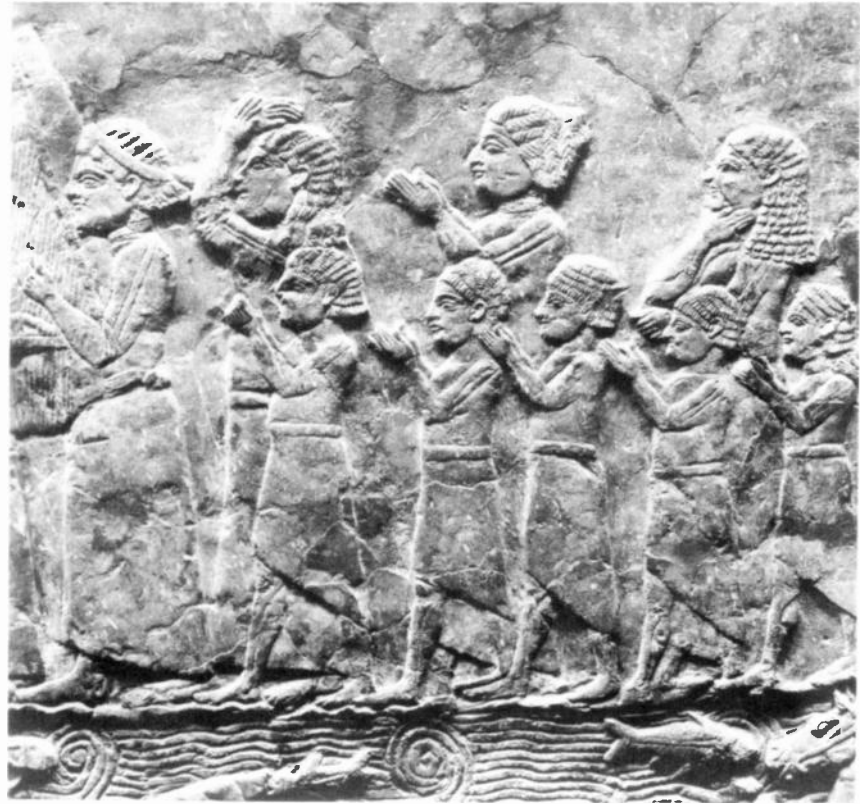


Figure 1. (*Music History*) An Elamite boys' and women's choir. Detail of a relief from the Southwest Palace of Ashurbanipal at Nineveh, showing a court musician beating her throat to produce a vocal tremolo. Reproduced by courtesy of the Trustees of The British Museum.

been the instruments of musical communication? and What purposes have they served? Through comparative studies of the reproduction of musical knowledge in various civilizations and societies, music historians attempt to identify paths that have been followed by different populations in each region. Much of what every musician knows is implicit knowledge, reconstructed only in part during a given performance or sequence of actions. Thus interpretation of the archaeological and historical records of music is inevitably problematic, inasmuch as the evidence tells us little, at best, of what was known to those who produced it.

Early musical artifacts. Specialized flint tools developed in the Upper Paleolithic hunting cultures of Europe were used in shaping bird and animal bones into instruments, including bullroarers, scrapers, whistles, and flutes. The cognitive capacities and the intentions of those who made and used these instruments are an elusive subject of inquiry. We do not know why observations of the phases of the moon were marked on an eagle bone whistle from Le Placard, France, or why images of a masked and a naked dancer facing a bear's paw were engraved on opposite sides of a bone from Ariège. Nor do we understand the purposes served by the numerous rock and cave paintings in Europe and Africa that depict dancers and musicians holding various instruments (see Figure 2).

Possibly the earliest surviving sets of like instruments are Upper Paleolithic bone tubes of varying lengths, found with or without polished scrapers. Panpipes—several tuned tubes stopped at the lower ends and bound together in the form of a raft or bundle—may be a more ancient device for producing a set of distinct sounds than are single pipes with three or more finger holes. By the early first millennium B.C.E. there is evidence in Europe that pairs or sets of instruments (panpipes and horns) may have been “killed” before burial. Whatever their earliest uses, in recent centuries ensembles of like instruments (in Africa, for example, flutes and trumpets) have served to bind together several performers, each of whom may produce only one sound that complements those of the other players.

From the beginnings of farming and permanent settlement until the present, many human societies have been confronted with difficult choices between acceptance and rejection of innovations—among them innovations affecting musical communication. Excavation of the successive levels of early towns furnishes evidence of practices that were adopted, retained, modified, or abandoned at specific points in a town's history. At Çatal Hüyük in Anatolia (ca. 6250–5400 B.C.E.) wall paintings in (household?) shrines on levels V and III depict dances of hunters (see Figure 3), but the two more recent levels have no evidence of shrines devoted to hunters or even of



Figure 2. (*Music History*) Reconstruction after a rock painting of a singer holding a sistrum and musical bow, Tsisab Ravine, Namibia, South Africa. From Henri Breuil, *The Rock Paintings of Southern Africa, III. The Tsisab Ravine and Other Brandberg Sites*, Clairvaux: The Calouste Gulbenkian Foundation, 1959, plate 58.

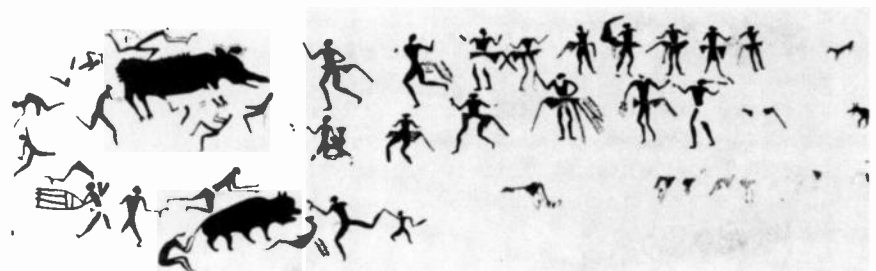
the hunters' obsidian spearheads. The bull, perhaps the most durable symbol of fertility in the ancient Near East, is represented in shrines on all levels at Çatal Hüyük. The sound boxes of the earliest surviving lyres (Mesopotamia, third millennium B.C.E.) seem to have been designed to represent the bull's body, the gut or sinew strings perhaps conceived as a means for a god's voice to be heard. A modern example of a similar idea is the *ngombi* harp of Central Africa, and anthropomorphic or zoomorphic designs are found on many lyres and harps of the ancient Near East and modern Africa (see Figure 4).

Historical records in written form, beginning in the third millennium B.C.E., provide evidence of some of the ways in which musical knowledge was codified and social life stratified in the cities of Egypt, Mesopotamia, and Anatolia. Of particular interest in the records of ancient Egyptian musical culture are the names, titles, and dates of prominent professional musicians and the large number of reliefs and paintings that depict musicians receiving and giving cues with hand signs. Names of specialists in hand clapping and foot stomping were deemed worthy of preservation, but not those of players on such "lesser"

instruments as the double clarinet. Modern historians are able to decipher certain of the hand signs, as the tomb artists apparently wished to represent the production of specific sounds (see Figure 5). Some of the same hand signs are still used in teaching Coptic chant; several other systems for teaching and guiding cantors through hand and head gestures were developed in the ancient Near East, India, Byzantium, and early medieval Europe. Written symbols appear to have been derived from the hand signs in some circumstances, but in others (including Egypt) the value of the gestural code may have made written cues seem unnecessary or undesirable. See SIGN LANGUAGE.

The CUNEIFORM writing developed in Mesopotamia was used as early as the mid-second millennium B.C.E. to record an extensive musical terminology in Sumerian and Akkadian, which names the pitches available on stringed instruments (lyres, harps, long-necked lutes), distinguishes several types of performers, and classifies songs according to musical type. One group of song catalogs from Ugarit, using the Akkadian terminology, contains detailed performance instructions that some historians regard as the

Figure 3. (*Music History*) Wall painting of hunters' dances at Çatal Hüyük, Turkey. From James Mellaart, "Excavations at Çatal Hüyük, 1965. Fourth Preliminary Report," *Anatolian Studies. Journal of the British Institute of Archaeology at Ankara*, vol. 16, plate LXI (a).



oldest notated melodies. The use of WRITING to describe tone systems (with reference to stringed instruments) and to classify melodies became a major interest of scholars in West and South Asia, the Mediterranean, and, much later, northern Europe.

Identifying compositions and incantations by name made it possible to record detailed instructions for priests charged with carrying out particular ceremonies, such as the Akkadian RITUAL in which the hide of a newly killed bull was stretched over the temple kettledrum. Texts sometimes carry warnings against possible misuse. The tablets describing the kettledrum ritual are not to be shown to outsiders, and Ashurbanipal's hymn to the sun god concludes with the wish that a musician who disregards or alters the text will find his string playing rejected.

The literature of the ancient Near Eastern civilizations is rich in metaphors that describe and compare various agencies and purposes of musical communication. According to the instructions given by one Egyptian father to his son, singing, dancing, and incense are a god's food. An Akkadian song likens the throat of one newly recovered from illness to a wind instrument and notes that man as musician remains subject to sudden reversals of fortune: "One moment he sings a happy song/And in an instant he will moan like a mourner." Human societies alleviate the impact of such contingencies by prescribing or prohibiting certain genres (laments, praise songs) or behaviors at specific times of year. From the fund of names, metaphors, prescriptions, and prohibitions shared within a civilization or a society (and transmitted in writing and/or speech) historians and ethnographers can reconstruct and interpret that society's theory, poetics, and aesthetics of music.

Early theories of music. Relatively few of the world's five thousand or so languages, however, have one term for a discipline that systematizes several areas of musical knowledge in relation to other disciplines. Ideas developed in the Greek writings on *mousikē* and the Chinese writings on *yue* are of the greatest importance in music history, having been reinterpreted and adapted in many societies for more than two millennia. Although early work in both disciplines may have been indebted to the achievements of Babylonian mathematicians, the theories of *mousikē* and *yue* differ fundamentally in scope, purpose, and method. See MUSIC THEORIES—OVERVIEW.

Of major concern in Chinese musical thought were tuned sets of like instruments—detachable bamboo panpipes, bronze bells, and sonorous stones. Early correlations among material sources of sound, positioning of instruments in space, direction of winds, seasons, and DANCE movements were elaborated to serve the needs of ritual and ceremony. Because of their ceremonial uses, shields and battle-axes were classed among the instruments of music in the *Yue chi*, a work of the late Chou period that identified

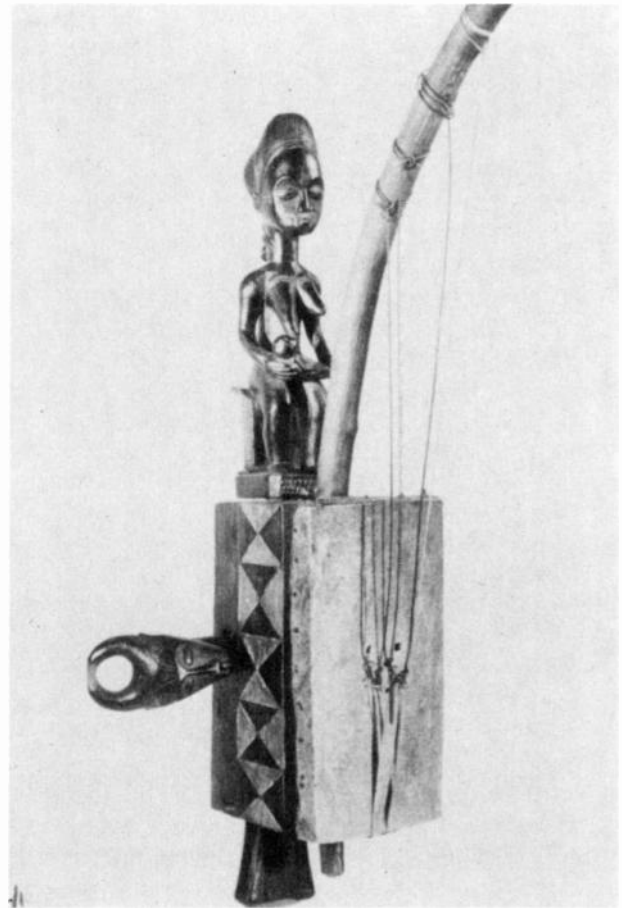


Figure 4. (*Music History*) African harp. Collection Musée de l'Homme, Paris. From Francis Bebey, *African Music: A People's Art*, Westport, Conn.: Lawrence Hill & Company, 1975, p. 118.

the purpose of music as being to harmonize responses from within and stimuli from outside the participants. Experience accumulated over many centuries by tuners of bells and sonorous stones provided a foundation for the subsequent development of theoretical and philosophical reflection, which articulated the need of the empire for accuracy in tuning (see MUSIC THEORIES—TUNING SYSTEMS). The Yue Fu (Ministry of Music), established in the second century B.C.E., employed more than one thousand musicians and dancers and supervised not only tuning standards and ceremonial music (including the melodies associated with Confucian POETRY) but also the several musics recognized as "exotic." The breadth of the ministry's responsibilities is perhaps the best indication of the scope of the Chinese concept of *yue* at the end of the first millennium B.C.E. See EAST ASIA, ANCIENT.

Metaphors that describe the singer as a divinely inspired artisan whose verses resemble well-built wagons occur in the poetry of several Indo-European peoples, as do formulaic expressions for the "imperishable glory" of heroes celebrated in song. In



Figure 5. (*Music History*) The Egyptian harpist Hekenu plays a fifth in response to a sign from the singer Iti. Relief from the tomb of Saqqarah. Egypt, fifth dynasty (2563–2423 B.C.E.). From Hans Hickmann, *Ägypten. Musikgeschichte in Bildern*, vol. 2, *Musik des Altertums*, Leipzig: VEB Deutscher Verlag für Musik, p. 143, plate 116.

addition to the verbal roots **tek's* (“to build”) and **kleu-* (“to hear,” “renowned”), two other reconstructed proto-Indo-European roots are of fundamental importance in the history of musical terminology: **ar-* (“orderly arrangement”) and **med-* (“to measure by a tried-and-true standard”). Knowledge of ordering and measuring—given by the muses or *gāndharvas* to singers, instrumentalists, and dancers—was eventually codified in Greek writings on *mousikē* and Sanskrit treatises on *gāndharva* (later *sangīta*). Both theoretical traditions center on problems of “composing” a coherent whole by properly fitting together the several parts—itches, units of duration, words. Musical communication is conceived mainly in terms of “voices,” including instrumental analogues and extensions of human voices.

The Greek discipline of *mousikē*—and traditions developed with reference to ancient Greek thought in the Arab empires and the Latin West—had several divisions and subdivisions, classified in various ways. According to Aristoxenus (fourth century B.C.E.), a musician must know the sciences of harmonics, rhythmic, metrics, and organics (dealing with instruments). It was the intensive Greek concern with harmonics that most decisively shaped the subse-

quent music history of the Near East and Europe. Conceived as the primary and fundamental branch of musical knowledge, harmonics analyzed and enumerated—in the abstract—the elements of melody and their “harmonious” combinations. Rhythmic and metrics were similarly founded on analysis of parts and enumeration or description of appropriate combinations. The premise that musical knowledge is abstract as well as analytic is apparent in Aristoxenus’s claim that “the essence and order of harmony depend not upon any of the properties of instruments.” Through experience with lyres and other stringed instruments Greek theorists created a general science of harmonics, and the enduring distinction between theoretical and practical music corresponded to that between intellectual and manual labor.

The social and cultural role of music. No less enduring in European musical culture are the controversies, first recorded in the fifth century B.C.E., concerning the ethical power of music and the musical education appropriate to the freeborn. New versions of PLATO’s question How may music become or remain an imitation of the manners of good men? have been debated in the most varied social circum-

stances, often marked (as in Plato's day) by conflicts between older and newer values.

The music history of every civilization involves changing relationships among practitioners of several arts and disciplines. Ritual, ceremony, dance, DRAMA, SPORTS, storytelling, and speech draw upon musical as well as nonmusical resources. The exercise of spiritual and temporal authority carries responsibilities for managing these resources, and the responsibilities themselves no less than the manner and circumstances in which they are met remain subject to change. Efforts to manage musical resources have created the documents and other sources of evidence that historians of music must interpret.

Some musical cultures have developed around the one or two types of instruments controlled by the ruling class and representing its authority. The advanced bronze-casting techniques of the Southeast Asian Đông Sơn culture (ca. 300 B.C.E.) produced large gongs in the shape of kettledrums (see Figure 6). These gongs may have been suspended and struck at the center by the player's right hand, at the rim by his left hand. Although some scholars now regard the kettledrum-shaped gongs as the prototype of numerous (forged rather than cast) gongs used in Southeast Asian ensembles, they have more in common with the suspended gongs of present-day ensembles than with gongs that are laid in a row. Of the thousands of different gamelan ensembles in Java and Bali, those with fewer and larger instruments are presumed to be older than those with a greater variety of smaller instruments in sets. The more elaborate court ensembles have also been simplified in villages.

Management of musical resources may give priority not to instrumental ensembles but to oral transmission and reproduction of a sacred Word. Provisions for recitation or cantillation of canonical texts in Jewish, Hindu, Buddhist, Christian, and Muslim religious life have allowed for various types and degrees of specialization, often thought to be independent of other musical and quasi-musical disciplines (particularly those associated with secular powers). At the center of many varieties of religious experience is the devotee's obligation to hear and repeat the sacred Word, to listen and then respond. Ideally the reciter is no less attentive than were the sages who received the Vedas from the god Brahma or the prophet Muhammad to whom the angel Gabriel revealed the Qur'an. Each of the great world religions has also nourished numerous genres (see GENRE) of nonliturgical or popular devotional music, many of them designed to create or strengthen links among different localities, milieus, classes, and castes. Musical behavior is vital to maintaining the bonds that join "little traditions" to a "great tradition," villages to temples and courts. See RELIGION.

At opposite ends of the Eurasian continent the organization and transmission of musical resources, concepts, and genres was profoundly affected by policies adopted in early medieval empires. What is perhaps the oldest secular repertoire of court music to survive in notation comprises about 130 pieces, preserved as a result of Japanese interest in Chinese court entertainment during the Tang dynasty (618–906). The entertainment of the cosmopolitan Tang court was organized around ten ensembles of musicians and dancers, named after genres (banquet mu-

Figure 6. (*Music History*) Kettledrum from the Đông Sơn culture, Thanh Hóa province, Vietnam. From Paul Collaer, *Südostasien. Musikgeschichte in Bildern*, vol. 1, *Musikethnologie*, Leipzig: VEB Deutscher Verlag für Musik, p. 11, plate 3.



sic, indigenous popular music) and regions (Korea; India and Indochina; the frontier town of Liangchou; the oases of Turfan, Kucha, and Kashgar; and the Persian city-states of Samarkand and Bukhara). Although instruments, performers, and genres had long been exchanged as tribute or captured as spoils of war, the vast scope of Tang court entertainment was unprecedented. Among the more important consequences of the Tang cultivation of court music were the development of long orchestral suites with appropriate choreography and the elaboration of the tablature notations that enabled Japanese court musicians to learn and preserve portions of the Tang repertoire.

In Europe the policies of the Frankish king Pepin (752–768) and his son Charlemagne (768–814) conferred a new importance on plainchant, through efforts to standardize the liturgy and to propagate a “correct” melodic practice. Stabilization of the repertoire was furthered as the Carolingian clergy classified melodies according to a system of eight modes adopted from Byzantine sources and as models for oral performance were made available in notation.

Convergence and differentiation. Such cultural achievements as the cosmopolitan entertainment of the Tang court and the western European repertoire of plainchant result from countless acts of compromise among interested parties, including, of course, musicians as well as the temporal and spiritual authorities to whom they are subject. At the very heart of musical behavior lie capacities for synthesizing and reconciling impulses and ideas from many sources. As Béla Bartók and many other scholars have shown, “well assimilated foreign impulses” are no less evident in distinctive peasant idioms than in the musical legacies of courts and empires. Whatever their social status (generally higher for bards and skilled singers, lower for most instrumentalists and slaves), musicians have commonly acted as mediators between different milieus and behavioral norms—a role that has often entailed an itinerant way of life. In many situations, such as the singing contests held in various parts of medieval Eurasia, musicians have been expected to adapt rapidly to the unforeseen, to improvise responses. Whether diffused by word of mouth, in writing, or through the publicity mechanisms of the twentieth century, stories recounting the travels and exploits of exemplary figures have guided the conduct of a majority of musicians.

Music history over the long term involves the gradual working out of possibilities made available by cultural contact and conflict. As the great fourteenth-century historian Ibn Khaldūn observed, strong dynasties create the largest markets for sophisticated crafts, attracting musicians from less prosperous regions. Thus in the first three centuries of Islam, carriers of Persian, Arab, and other traditions came

into close contact at the Umayyad and early ‘Abbasid courts. Competition between “conservative” and “innovative” singers added to the luster of the ninth-century ‘Abbasid court, but the ideal of synthesizing Persian and Arab practices may not have been realized until the thirteenth century, almost at the end of the long decline in the power of the ‘Abbasid caliphate. Codification of a unified modal system by the thirteenth-century theorist Ṣafī od-Dīn formed a great bridge between ancient and modern musical theory in the Near East. The tendency of Near Eastern court music idioms toward “universality” has been complemented by strongly marked local differences in folk and popular music. Contact with the musical practices of various mystical brotherhoods and sects (many of them shaped by ideals of courtly behavior) enriched the court idioms of Ottoman Turkey and Safavid Persia beginning in the sixteenth century.

A very different history of exchange among regional musical practices is that of the hundreds of THEATER styles that have flourished in small districts or in large areas of China from the thirteenth century to the present. It is a history in which stylistic fusion and integration have been constantly offset by divergence and differentiation and in which court patronage has remained relatively unimportant. Many regional traditions of instrumental ensemble music, cultivated by amateurs, have centered on the elaboration of models drawn from vocal repertoires.

Polyphonic music in Europe. The development of multipart (or polyphonic) music in Europe over the past millennium required the efforts of successive generations of composers to solve technical problems born of various confrontations—including those between the melodic linearity of Mediterranean idioms and a northern emphasis on strong vertical sonorities; between the resources of Latin and the Romance languages, of German, and of many instrumental idioms; and between the regular stress patterns of dance music and melodic energies that resist rhythmic periodization. The eventual emergence of a strong historical consciousness among European musicians was inevitable, given the long-standing interest in “perfecting” the techniques of composition and achieving a greater control of musical resources. At several points in the history of polyphonic composition conceptions of “artificial” or “learned” music were challenged and ultimately enriched by appeals to various ideas of “natural” or “popular” music. In the polyphonic music cultures of late medieval, RENAISSANCE, and modern Europe the composer played the decisive role in directing the behavior of performers, who served as the composer’s “instruments.” Institutions of fundamental importance to the cultivation of polyphonic music were the chapel (salaried performers attached to a court, household, or church)

and the academy (an association devoted to one or more of the arts and sciences).

From the Renaissance on, the art of composition grew closer to the art of RHETORIC. Like a speech or a CONVERSATION, a polyphonic composition had one or more "subjects" or "themes," and the composition was structured as a vehicle of expression. Beginning in the seventeenth century the techniques of polyphonic composition were differentiated by circumstances of performance, as church, chamber, and theater styles, and innovations in each of the latter two styles affected the others. The vitality of the more public forms of performance in the eighteenth and early nineteenth centuries was nourished by vigorous traditions of chamber music and domestic performance, allowing amateurs and connoisseurs to acquire and exercise the knowledge on which appreciation of polyphonic music depends.

Music-historical consciousness. The many instruments, channels, and levels of musical communication permit musicians to meet responsibilities toward their predecessors, their contemporaries, and themselves as individuals. Names of regional styles (in China) and names of composers and genres (in Europe) serve as "handles" that help musicians to grasp certain of their more important obligations in specific sociohistorical contexts. Another technique for binding present to past practitioners is the practice (highly developed in South Asia) of naming the chains of masters and pupils that constitute the "legitimate" lines of transmission. Still another mode of historical consciousness is apparent in the West African oral traditions that link particular instruments, ensembles, genres, and singing styles to political events of the past three or four centuries.

Reconstruction of many music histories has become a major task of twentieth-century musical scholarship. It is open to question whether or not this effort might lead to a unified "general history of music"—a project first attempted by late-eighteenth-century European writers such as Johann Nikolaus Forkel, Charles Burney, and John Hawkins. In contrast to the late-eighteenth-century historians we cannot interpret the history of "world music" as the history of one discipline. Countless arts and disciplines include "knowledge of moving well" to produce and reproduce sounds, and much of this knowledge is necessarily transmitted through person-to-person contact (using handles of many different kinds to activate the musical memory).

Modern music history, extending over the five centuries during which nearly all the world's peoples have been affected by European expansion and capitalist commercialization, is a history of extensive and intensive contacts and conflicts between peoples and between social classes. Challenges to human control of the instruments of musical communication

have occurred at an ever-increasing rate in most parts of the world. The transformation of African musical resources and concepts in the Americas may stand as the most significant development in the music history of the modern world, inasmuch as peoples of African descent in the Western Hemisphere have successfully retained, adapted, and synthesized so many modes of "moving well." The most urgent task for music historians at present is identification and evaluation of the strategies that have allowed many of the world's peoples to find solidarity and satisfaction through musical communication.

See also ETHNOMUSICOLOGY; MUSIC, FOLK AND TRADITIONAL; MUSIC, POPULAR.

Bibliography. Béla Bartók, *Essays*, ed. by Benjamin Suchoff, New York and London, 1976; Heinrich Bessler and Max Schneider, *Musikgeschichte in Bildern*, Leipzig, 1961–; Carl Dahlhaus, ed., *Neues Handbuch der Musikwissenschaft*, Wiesbaden, FRG, 1980–; Johann Nikolaus Forkel, *Allgemeine Geschichte der Musik*, Leipzig, 1788–1801, reprint Graz, Austria, 1967; Thrasybulos Georgiades, *Musik und Sprache*, Berlin, 1954; Erich M. von Hornbostel, *Opera Omnia*, ed. by Klaus P. Wachsmann, Dieter Christensen, and Hans-Peter Reinecke, The Hague, 1975–; Paul Henry Lang, *Music in Western Civilization*, New York, 1941; Bruno Nettl, *The Western Impact on World Music*, New York, 1985; J. H. K. Nketia, *The Music of Africa*, New York, 1974; L. E. R. Picken, ed., *Musica Asiatica*, London, 1977–; Gilbert Rouget, *La musique et la transe* (Music and Trance, trans. by Derek Coltman, Chicago, 1985), Paris, 1980; Curt Sachs, *The Wellsprings of Music*, ed. by Jaap Kunst, The Hague, 1961; Stanley Sadie, ed., *The New Grove Dictionary of Music and Musicians*, London, 1980; André Schaeffner, *Origine des instruments de musique* (1936), 2d ed., Paris and New York, 1980; William Oliver Strunk, comp., *Source Readings in Music History from Classical Antiquity through the Romantic Era*, New York, 1950; Bence Szabolcsi, *A History of Melody* (A melódia története, 2d ed.), trans. by Cynthia Jolly and Sara Karig, London, 1965; Klaus P. Wachsmann, ed., *Essays on Music and History in Africa*, Evanston, Ill., 1971; Max Weber, *Die rationalen und soziologischen Grundlagen der Musik*, Munich, 1921; Walter Wiora, *Die vier Weltalter der Musik* (The Four Ages of Music, trans. by M. D. Herter Norton, New York, 1965), Stuttgart, 1961.

STEPHEN BLUM

MUSIC MACHINES

There is a long history of human fascination with mechanical methods of creating sounds, particularly musical sounds. Records indicate that the Greeks perfected one of the earliest pipe organs, and by 1500 C.E. a number of automatic flute players and other mechanical curiosities were known in Europe.

During the industrial age, however, the manufacture of mechanical, self-playing MUSICAL INSTRUMENTS flourished. Between 1850 and 1925 there existed a very active market for various types of music machines designed for use in the home or in public places such as movie theaters, dance halls, and fairgrounds. Factories in the United States and Europe were able to mass-produce many types at affordable prices.

The earliest self-playing music machines were music boxes built in Switzerland and Germany around 1800; they played melodies by means of a steel comb brushing against pins on a rotating brass cylinder. Another form of music box using a large metal disc was developed in Germany around 1890 and soon swept the market because of its superior sound quality and the interchangeability of its program discs. In the United States the Regina company of Rahway, New Jersey, became the best-known U.S. manufacturer of disc music boxes. At the pinnacle of popularity, between 1892 and World War I, the Regina company offered machines with discs that could reproduce seven octaves and play for three minutes. A popular refinement was an automatic disc changer that could hold twelve discs, an idea later applied to the phonograph juke box.

Another popular music machine was the player piano, which employed a perforated roll of paper and a pneumatic mechanism to play music automatically on a piano (see Figure 1). The roll represented a piece of music, and each perforation represented a note to be played. A variation of the player piano was the reproducing piano, designed to reproduce not only the notes recorded on a paper roll but other characteristics of a performance as well. The actual touch of the performer could be reproduced to simulate the pressure applied to individual keys, the loudness of the notes, and other nuances. Ampico, Duo-Art, and Welte made reproducing pianos in the United States. The popularity of these machines was made possible by the availability of recordings of piano performances by major artists of the day.

Orchestrions were machines designed to imitate the sounds of a live orchestra. Most contained either a piano or a pipe organ as the primary voicing instrument, plus a wide variety of additional instruments such as xylophones, drums, cymbals, triangles, and mandolins. Orchestrions could be designed to play dance-hall numbers or entire symphonies, and during the height of their popularity dozens of companies in Europe and the United States were making orchestrions. While the earliest machines of this sort date back to the eighteenth century, they became most popular toward the end of the nineteenth century, when they could be mass-produced with pneumatic mechanisms and programmed by paper rolls. Prominent manufacturers included Hupfeld, Imhof



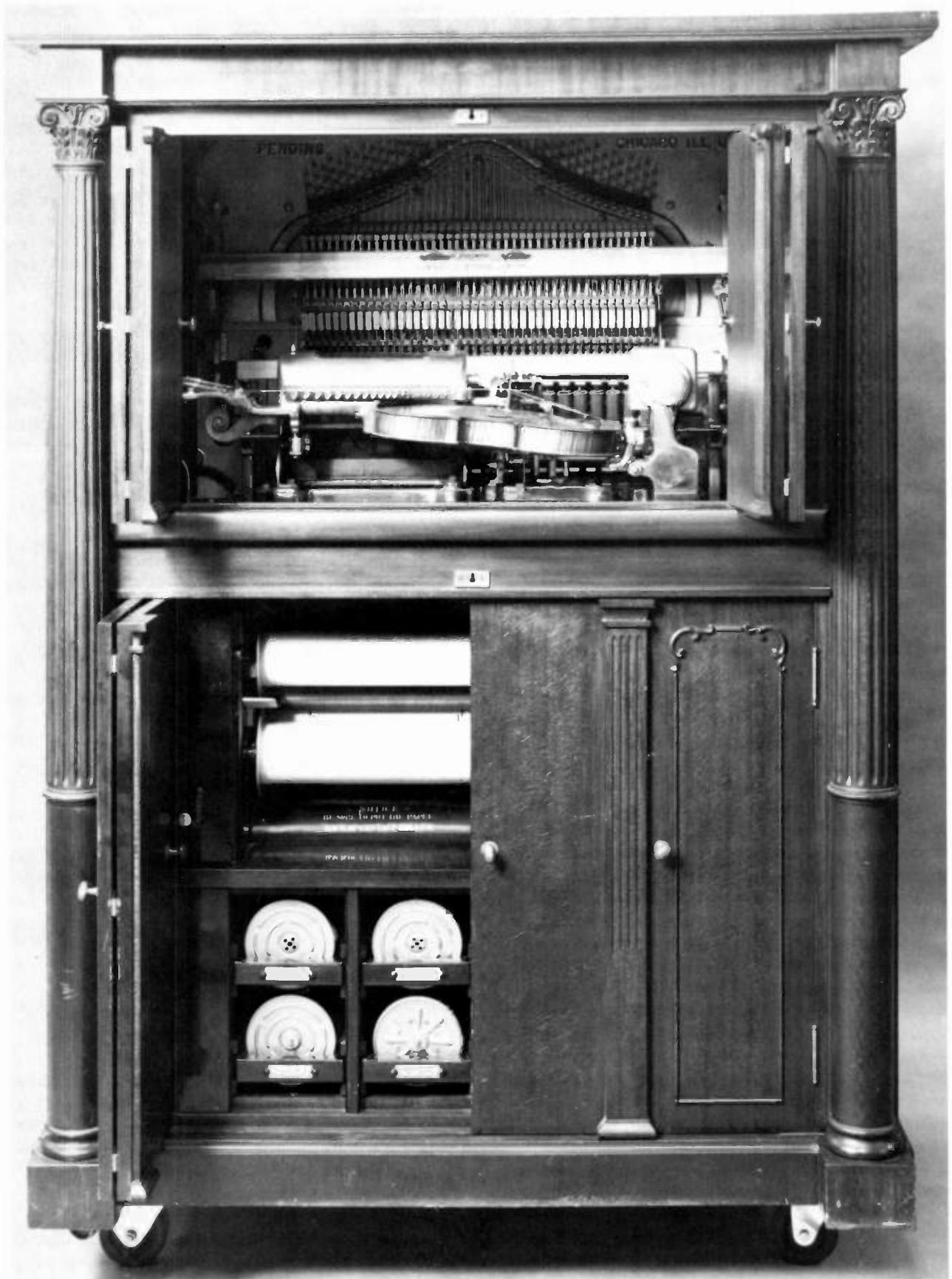
Figure 1. (*Music Machines*) Player piano-harmonium: Gally's autophone or self-playing musical instrument. The Bettmann Archive, Inc.

and Mukle, and Welte. Early motion picture theaters were sometimes equipped with a type of orchestrion called a photoplayer to provide music during a film. These machines could be designed to blend into the decor of a movie house and were placed in a visible location. Three U.S. companies dominated this short-lived market: Seeburg, Wurlitzer, and American Photo Player.

Another pneumatically operated machine applied the idea of the player piano to the violin. Called a violin player, it was programmed with paper rolls and usually employed a rotating horsehair bow to activate the strings (see Figure 2). The machines could have as many as three instruments; some were designed to combine a violin with another instrument such as a piano, cello, or xylophone. Prominent makers included the Mills Novelty Company and Hupfeld.

Although self-playing music machines had won considerable popularity, they were totally eclipsed by their descendants, a host of inventions offering an ever-growing range of experiences. The new inventions included the phonograph and the numerous

Figure 2. (*Music Machines*) The Violano-Virtuoso, made for the Smithsonian Institution in 1914 by Mills Novelty Company, Chicago. Smithsonian Institution, Washington, D.C. Photo no. 77,366. ▷



other products of SOUND RECORDING; broadcasting and its ramifications, including television; and the new specialized technologies that were developed in the field of ELECTRONIC MUSIC.

Bibliography. Q. David Bowers, *Encyclopedia of Automatic Musical Instruments*, New York, 1972; Pierre Schaeffer, *Traité des objets musicaux*, Paris, 1966.

THOMAS B. HOLMES

MUSIC PERCEPTION. See PERCEPTION—MUSIC.

MUSIC PERFORMANCE

The concept of PERFORMANCE practice (*Aufführungspraxis*) developed by musicologists has traditionally been limited to attempting to reconstruct the original SOUND of early European music by focusing on the written piece of music and by studying all sorts of literary, historical, and iconographic sources. The quest for historically authentic accounts of sound reproduction of early music led scholars to neglect or even to deny the role of performance contexts in modifying essential elements of a piece of music. Ethnomusicologists dealing primarily with non-Western or folk musics inherited the shortcomings of such an approach, limiting their study of performance to the idiosyncratic qualities of vocal and instrumental sound production in a given culture and in general applying Western concepts of sound (see ETHNOMUSICOLOGY; MUSIC, FOLK AND TRADITIONAL). Such studies, therefore, favored the musical text itself, whereas performance, like other aspects of context, was considered a secondary line of research, whether musical or extramusical.

Historians of western European music have traditionally considered the study of music performance as one way of interpreting early music (primarily prior to 1800) based on examples of written notation (see MUSIC HISTORY). The interpretations deal with speculation about the use of instruments in the performance of medieval music (see MUSICAL INSTRUMENTS), the intonation and tuning of early instruments, the proper execution of ornaments, thoroughbass, dynamics, and tempo, as well as the size of performing ensembles in music of the sixteenth to the eighteenth century. Although early music notations lack specificity because the oral tradition of performance was taken for granted, notations since about the mid-eighteenth century are generally considered more indicative of performance. However, problems of performance interpretation for nineteenth- and twentieth-century music remain, since notation, however specific, cannot fully explain all details of sound production. In folk, nonliterate, and urban popular cultures music exists more obviously in performance,

because notation as a prescriptive device of performance is absent or less related to the overall acoustic manifestation of the piece (see MUSIC, POPULAR). In the latter case the use of sheet music, lead sheets, chord charts, or "fake books" generally provides less performance prescription than the conventional score of art music (with the exception of aleatory, AVANT-GARDE, and experimental composition in twentieth-century music). However, behind all notational systems rests a dynamic oral tradition of performance subject to change in time and space. See MUSIC THEORIES—NOTATIONS AND LITERACY, TUNING SYSTEMS; ORAL CULTURE.

Most traditional notational systems have developed toward a higher degree of detail and precision in the visual indication of how sounds are to be produced. As expressed by Charles Seeger, the prescriptive method and use of music writing in the western European tradition "does not tell us as much about how music sounds as how to make it sound" and remains a subjective operation, allowing a relative margin of freedom of interpretation, particularly regarding timbre, tempo, phrasing, melodic articulation, and dynamics (see MUSIC COMPOSITION AND IMPROVISATION). To a great extent, notational ambiguities have represented the point of departure of creativity on the part of performers in their idiosyncratic understanding and rendition of a piece of music. In the twentieth century particularly, performer and audience interaction has consisted essentially in the fascination of listeners for the display of virtuosity and the reverence for special interpretive qualities of a given piece of music or style. The obvious fact that the audience plays an important part in the performance occasion has not been readily recognized because, as Roger Abrahams explained, "we come at performance from our highly Western sophisticated artistic conceptions, which have focused for so long on the virtuosic dimension of performance: the means by which the performer himself stuns everybody within the performance environment into silence."

The emphasis on sound-structure phenomena and the search for historical authenticity of sound production have thus limited the desirable broader conceptualization of performance. An all-inclusive approach to the study of performance must consider the various contextual factors affecting performance, the actual musical and extramusical behavior of participants (performers and audience), and the rules or codes of performance defined by the community for a specific context or occasion. As an organizing principle musical performance ends up being viewed as an event and a process fully integrated into the field of musical action as NONVERBAL COMMUNICATION.

Several concepts of the nature of performance articulated by anthropologist Milton Singer, folklorists

Abrahams and Richard Bauman, and ethnomusicologists Norma McLeod and Marcia Herndon have affected recent studies of music in and as performance. Singer defines the actual structure of what he calls "cultural performance" as consisting of "a definitely limited time span, or, at least, a beginning and an end, an organized program of activity, a set of performers, an audience and a place and occasion of performance." In addition Singer sees cultural performances as portions of activity thought by the members of a social group to be encapsulations of their culture "which they could exhibit to visitors and to themselves." Abrahams coined the term *pure performance* to name an "intensified (or stylized) behavioral system," including "an occasion, a time, places, codes, and patterns of expectation." Bauman suggests very pertinently the kind of "interpretive frame performance establishes or represents" and provides useful answers to the question "How is communication that constitutes performance to be interpreted?" For this purpose he discusses the patterning of performance in genres (*see* GENRE), roles, acts, and events and develops, with Abrahams, the concept of the "emergent quality of performance" and that of performance as a "display of communicative competence." Both advocate viewing the nature of performance as culture- and community-specific and the role of the folklorist and the ethnomusicologist in the study of performance as consisting primarily in elucidating ethnographically the extent of the domain of performance in a given community. Bauman sees performance as offering to the participants "a special enhancement of experience, bringing with it a heightened intensity of communicative interaction which binds the audience to the performer in a way that is specific to performance as a mode of communication" and that is part of the essence of performance. McLeod uses the term *musical occasion* in a contextual sense, that is, as a cultural performance of music. From her study of musical occasions on the Pacific island of Tikopia, she concluded that "there is a clear relationship between what we would call content, that is the performance item, and context, the occasion. As the general social texture of an occasion becomes thicker—with more forms of social structural principles present—music becomes more ordered."

At both social and musical levels of analysis, performance surely allows a clear view of the interplay of content and context. *Content* is understood here primarily as specific bodies of music with definable and identifiable styles. Prescribed sets of behavioral rules and dogmas determined by secular or sacred contexts frequently dictate the actual organization and internal contents of a given musical performance. The context itself in such cases calls for a more or less strict observance of performance contents. For

example, in the Afro-Brazilian religious rituals known as *candomblé* in northeast Brazil, the sequence of songs and drum rhythms follows rigorously the specific progression of liturgical gestures related to the presence of certain gods within a specific ceremony, the ultimate RITUAL objectives of that ceremony, and the actual choreographed reenactment of certain myths to which pertinent SONG texts allude. The importance of the ritual sequence is thus paramount in the determination of the structure and contents of the music performance. Likewise the actual musical contents of, for example, a shamanic performance among numerous Native American cultures are determined by the specific purpose and nature of the performance (rites of puberty, therapy and curing, or the cult of the ancestors), the invocation of spirits or gods by natural or artificial means, the vision and eventual presence of such spirits, the interaction of the shaman as the main musical actor/performer with the spirits, and the like. Practices of performance, therefore, result from the relationship of context and content and involve numerous levels of possible analysis that reveal the multidimensionality of music.

The interactions between performers and audiences reflect the various meanings assigned to the performance event and process. The event itself dictates certain general expectations fashioned by tradition on the part of both performers and audiences. But the actual fulfillment of expectations depends on the specific elements present in a given performance occasion, some of which may be unpredictable. The ways nonmusical elements influence the musical outcome of a performance constitute an important part in assigning meanings to the various components of that performance. The various signs and symbols operating in the performer-audience interaction are subjected to collective and individual interpretation. Collective expectations and interpretations represent, to a great extent, the whole complex of conventions associated with a performance situation, such as "respectful" silence during the performance of an art-music composition in the western European great tradition, contrasted with "enthusiastic" applause at the end of the piece, or, conversely, the tradition of *gritos* ("shouts") during the performance of Mexican mariachi and other music genres as indications of approval and enjoyment. Audience expectations are also determined and conventionalized through the actual performance space, a significant part of the context itself, in that the nature of that space frequently determines and symbolizes types of behavior in terms of audience participation. The meanings of these various processes of interaction should be elicited primarily from the various ethnic views and evaluations of any musical situation.

Thus performance must be viewed as the occasion and event that fosters through social interaction and

participation the collective consciousness and affirmation of group identity or ethnicity as well as the significant differences in musical styles and contents of songs that may exist within the stratified structure of the social group. It functions as a driving, crystallizing force in the enacting display of a given social group's AESTHETICS, that is, the value systems that validate the group's ethos. In addition music performance partakes of the system of symbols that is at the basis of cultural expression and appears fully integrated within that expression. In sum the process of performance is a central facet of musical communication. It brings together the historical and ethnographic concern with music as the enactment of prescriptions, plans, scores by specific social actors, and the sociological and psychological concern with modes of social participation that validate, reflect upon, and animate the interpretation of musical texts, styles, and genres.

See also MUSIC THEATER.

Bibliography. Richard Bauman, "Verbal Art as Performance," *American Anthropologist* 77 (1975): 290–311; Gerard Béhague, ed., *Performance Practice*, Westport, Conn., 1984; Marcia Herndon and Roger Brunyate, eds., *Symposium on Form in Performance: Hard-Core Ethnography* (Proceedings, University of Texas at Austin, April 17–19, 1975), Austin, Tex., 1975; Norma McLeod and Marcia Herndon, eds., *The Ethnography of Musical Performance*, Darby, Pa., 1979; Charles Seeger, *Studies in Musicology, 1935–1975*, Berkeley, Calif., 1977; Milton Singer, "The Cultural Pattern of Indian Civilization," *Journal of Asian Studies* (formerly *The Far Eastern Quarterly*, 1941–1956) 15 (1955): 23–36.

GERARD HENRI BÉHAGUE

MUSIC THEATER

This entry consists of two articles:

1. Western Traditions
2. Asian Traditions

1. WESTERN TRADITIONS

Since it is generally agreed that the dithyramb—a choral hymn in honor of Dionysus—was the well-spring of Greek DRAMA, it is clear that music and THEATER went hand in hand from the beginnings of drama in the West as they did elsewhere (see section 2, below). Of course, the hymn had words as well as music, so that dialogue, POETRY, and all other literary aspects that later came to dominate most plays stemmed in essentially equal measure from the same roots. As a rule, with notable exceptions to be discussed, although the story and poetry of a play—

its verbal aspects—soon attained a certain primacy, plays were rarely performed without some musical background or interludes until very recent times. Greek drama and COMEDY included not only choral odes but solo songs as well. Moreover, there was dancing in the plays, performed to appropriate music. Nevertheless, virtually from the start, there has been a feeling that the association of music and drama was not necessarily for the best. Music has been thought to distract from, cheapen, or in other ways vitiate the highest effects of good drama. Thus even the Greeks, who were aware of music's seminal importance to the drama, sometimes seemed to question the need for it in dramatic productions.

Early history. Livy suggested that Roman drama evolved out of SONG, but the Etruscan songs he referred to seem to have led rather to street shows, antecedents of later *commedia dell'arte* and *punchinello* entertainments. The extant canon of Roman TRAGEDY and comedy was modeled largely on Greek works. Roman tragedies retained the choral odes that had been a feature of Greek dramas, but their employment appears perfunctory and traditional. On the other hand, Plautus's comedies were rich in song and DANCE, often remarkably well integrated into the texts. Terence was more reserved, retreating conspicuously in his use of musical embellishments.

The theater of the late ROMAN EMPIRE and the early MIDDLE AGES consisted mainly of occasional bands of wandering entertainers who apparently presented songs, dances, magic acts, and other routines. The first signs of a theatrical renaissance, in which, once again, music played a crucial role, occurred when some musical elaborations were permitted in the Alleluia sequences in the celebration of the mass. By the ninth century musical embellishments had been added to other chants, and, more significantly, words were added to the music. These "worded" elaborations were called tropes. In time the tropes grew so lengthy and imposing that they put a strain on the mass, were cut from the service proper, and were banished from the church.

Two major changes were effected coincidentally, both significantly propelling the development of subsequent theater. First of all, freed from the mass, these short scenes were also freed from the necessity of employing church Latin. Vernacular speech was adopted, immediately making these sketches far more accessible to lay audiences. Moreover, the lines were no longer chanted. Music, the foundation of the new plays, was once again ripped away, so that it was no longer an integral part of the theatrical experience but served solely as an occasional ornament. The practice continued when medieval craft guilds took over the production of the plays (by then developing into extended cycles). Something of a festive holiday air crept into the presentation, with each playlet in

a cycle being paraded from station to station in its city. That festive atmosphere—colorful costumes, brightly decorated pageant wagons, streets bedecked with flags and bunting—was consistent with the introduction of lighthearted songs and dances, and worldly rather than religious subjects became the rule.

The standard theater of Elizabethan and Jacobean times employed music for occasional flourishes as punctuation and momentary coloring. Songs were rarely injected into tragedies, much more frequently into comedies. These songs were generally solos with only the barest instrumental accompaniment. The masque, a form largely confined to court circles, was much more prodigal in its employment of music, using it throughout to underscore spectacle and pantomime passages as well as in choral and recitative passages (see Figure 1). In France the Senecan dramas of Robert Garnier established the fundamental pattern for Parisian theater that would be adhered to by seventeenth-century masters such as Pierre Corneille and Jean Racine. Here again comedy was far more generous in its use of song, and the music was never a truly integral part of the entertainment. In Italy during the same period, however, a conscious attempt was made by the Florentine Camerata “to reproduce as far as possible the combination of words

and music which together made up the Greek theatre.” The result marks the beginning of OPERA.

The spread of opera throughout Europe, and with it the need for a good-sized theatrical orchestra, coincided with the establishment of the proscenium arch and the development of a basic theatrical ARCHITECTURE that remained dominant until very recent times. Increasingly the auditoriums built during this period incorporated an orchestra pit in front of and just below the stage apron. The musicians who occupied the pit provided overtures, entr’actes, and incidental musical moments that were not necessarily related to the works being presented but were designed to amuse and pacify the often unruly audiences of the era. How long this practice persisted could be seen when in 1802 a U.S. magazine asked, “What would be Shakespeare’s astonishment . . . to hear from the orchestra immediately after his inimitable dagger scene, the mysterious solemn strains of Yankee Doodle to please the gallery? Or after the mournful death of his Desdemona, a horn pipe or a country dance?” Orchestras resisted demands for this kind of musical entertainment at their own peril, sometimes being pelted or otherwise physically attacked for their stubbornness.

Ballad operas. Comedies and to a much lesser extent tragedies continued to insert musical numbers,

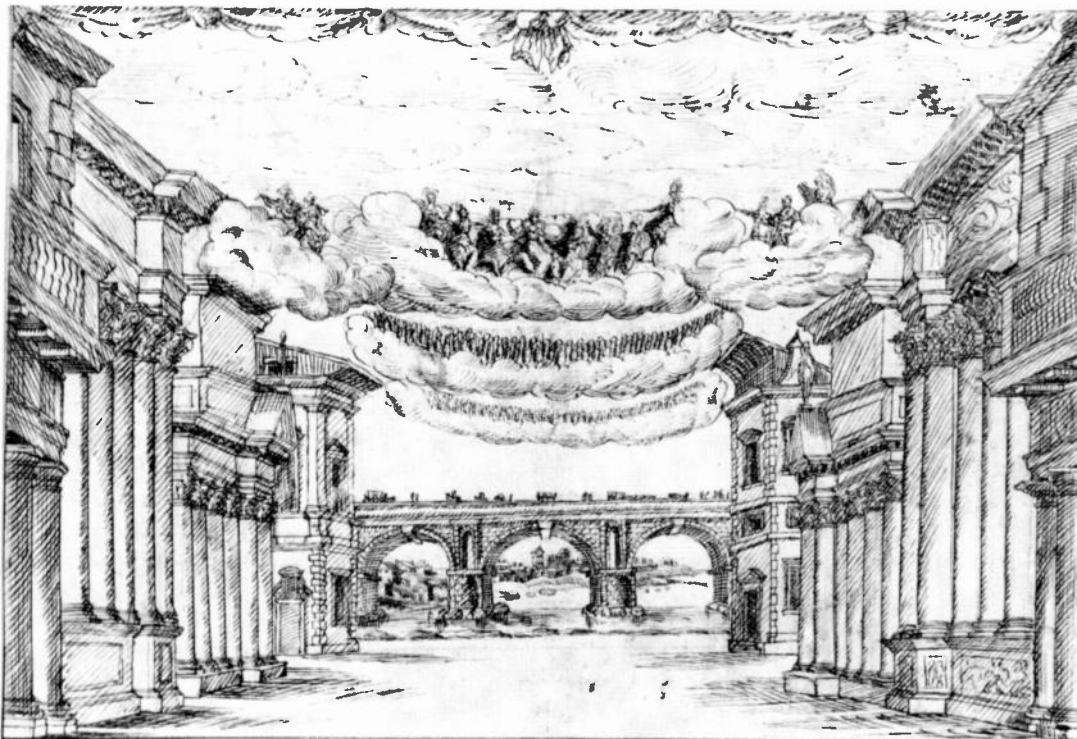


Figure 1. (*Music Theater—Western Traditions*) Inigo Jones, *Design for a Court Masque; Scene V. A Great City: In the Sky the Clouds with Deities*. Devonshire Collection, Chatsworth. Reproduced by permission of the Chatsworth Settlement Trustees, and the Courtauld Institute of Art, London.

and by the eighteenth century early genres of nonoperatic musical plays had begun to appear. In England these works were called *ballad operas*. The classic example, although it is not truly typical, is John Gay's *The Beggar's Opera* (1728). As a rule these ballad operas, especially at first, did not use original musical material but instead provided new and appropriate lyrics to be set to familiar airs. But within a short while composers were enlisted to write original scores for the librettos. From the start most composers attempted to write music reflecting the sentiments expressed in the lyrics. Complaints soon sprang up that the completed songs had little relationship to the mood or the story, whatever relationship the music of the song bore to its lyric. While such clumsy lack of integration mattered little to audiences out for an evening's entertainment, it bothered more discriminating playgoers, commentators, and writers. Thus by 1824 William Dimond in his preface to his *Native Land; or, The Return from Slavery* (for which Henry Rowley Bishop composed the music) observed, "[T]he MUSICAL SITUATIONS ought to spring with spontaneity out of the very necessities of the Scene; never betraying themselves to be labored introductions for the mere purpose of exhibiting vocal talent, but always to appear so many integral portions and indispensable continuations of the Story."

In many places in the early years of the nineteenth century, ballad operas, operas, and some other forms of musical theater were frequently presented not in auditoriums reserved exclusively for lyric theater but rather along with the dramas and comedies that were part of the regular repertoire of stock companies. This was readily achieved because, as mentioned, most theaters by then retained their own orchestras and because players in such ensembles were expected to "double in brass," demonstrating skill not only as actors but also as singers or sometimes even as dancers.

Melodramas. The same epoch witnessed the startlingly rapid rise and flourishing of another theatrical GENRE, one whose very name seemed to suggest the interaction between music and story: *melodrama*. In part melodrama arose as a response to the austerities and often rigid formalities of eighteenth-century CLASSICISM and to a theater that for all its excursions into bombast remained devoted to an artificial order and decorum. But in at least equal measure melodrama reflected heightened class distinctions in an era of industrial and social revolution. In England and in most important Continental theatrical capitals the few established playhouses enjoyed monopolies in exchange for a system of government licensing and control. With the growth of the population, especially in large cities, these theaters were unable to satisfy the growing demand for entertainment and in some instances were loath to offer the more bois-

terous diversions clearly favored by lower-class playgoers. As a result new, at first unlicensed, playhouses sprang up. However, they too soon came under some control: they were prohibited early on from presenting traditional plays and were confined to song and dance. They very quickly framed their musical numbers with stories, but to obey the letter of the law these so-called illegitimate theaters continued to emphasize the musical aspects of their performances.

In England, even as strictures were eased, the lord chamberlain still insisted that these pieces include no fewer than five songs. All such works were swept up loosely into a class known as *burletta*. In France a similar history gave rise to the comparable stage form of *vaudeville*. Although *burletta*, *vaudeville*, and other such genres came to be perceived as essentially light-hearted, another less playful branch developed simultaneously and soon monopolized the term *melodrama*. These plays had themes that purported to be more serious, often centering on blackguards' attempts to violate a maiden's purity. Such plays regularly featured spectacular scenes—a shipwreck, a fall from great heights, a burning building. Blaring musical passages served not merely to heighten the dramatic intensity of these moments but at the same time to cover up the noises made by the numerous stagehands working such effects (see Figure 2). While songs in serious dramas and even in comedies became fewer, a full musical accompaniment remained a part of *melodrama* into the early years of the twentieth century.

Almost inevitably, however, the popularity of ballad operas and other early forms of musical plays, the popularity of songs in legitimate dramas and comedies, and the requirement that songs be a part of any play in other theaters encouraged entertainments in which musical interest predominated. Several major genres emerged as a result: *operetta*, musical comedy, and the *revue*.

Operetta. At the risk of oversimplification this popular genre can be seen to have developed out of the traditions that had spawned such light operas as Charles-Simon Favart's *La chercheuse d'esprit* (1741), Daniel-Esprit Auber's *Fra Diavolo* (1830), and Adolphe Adam's *Le postillon de Longjumeau* (1836). Although the examples are French, similar ones could be culled from Italian, German, English, and other stages. However, it was in France that what can be accepted as the first modern operettas were created.

The earliest important pieces, mostly short works, were by Florimond Ronger, who wrote under the name Hervé. Despite Hervé's popularity in France, it was his contemporary, Jacques Offenbach, who composed full-length works that quickly attained international celebrity and are revived around the world to this day. His operettas are melodic, superbly orchestrated entertainments with richly comic libret-



Figure 2. (*Music Theater—Western Traditions*) The earthquake scene from *The Hope*, Drury Lane, 1911. The Mander and Mitchenson Theatre Collection.

tos. That much of the librettos' humor is based on local themes did not prevent the works from being received with acclaim outside France, for Offenbach's hummable songs gave the operettas instant vogue. Among his masterpieces are *Orphée aux enfers* (1858), *La belle Hélène* (1864), *La vie Parisienne* (1866; Figure 3), and *La grande-duchesse de Gérolstein* (1867). The early Viennese operetta is best represented by Franz von Suppé. His now-forgotten *Fatinitza* (1876) won worldwide acceptance, although he is better remembered today for *Die schöne Galatea* (*Galathée*) (1865) and *Boccaccio* (1879). Probably the most artistically well crafted of all comic operas are those by Gilbert and Sullivan. Their best works included *H.M.S. Pinafore* (1878), *The Pirates of Penzance* (1879; Figure 4), and *The Mikado* (1885). W. S. Gilbert's precise, brittle, often devastating wit has not translated well, but Arthur Sullivan's music has given these comic operas global recognition. His music was more varied than that of most of his predecessors but perhaps less theatrically flamboyant.

By the time Johann Strauss II, von Suppé's contemporary, came to be the preeminent figure among operetta composers, the comic side of operetta was giving way to a more romantic approach. Curiously, while some of Strauss's lesser operettas quickly achieved international popularity, his best works were

recognized only slowly. Thus his masterpiece, the 1874 *Die Fledermaus*, did not achieve widespread recognition for a quarter of a century or more in such supposedly knowing theater centers as Paris, London, and New York.

Other countries had their own operetta traditions, which remained popular where they had originated even if they did not achieve international renown. For example, the Spanish-speaking world embraced the zarzuela, which originated in the seventeenth century and whose golden age occurred in Madrid in the 1880s.

In 1905 the premiere of Franz Lehár's *Die lustige Witwe* (*The Merry Widow*) ushered in a new, softer, and more patently romantic school of operetta. Love stories rather than political satire and outlandish farce became the primary focus of the plots, while musically the newer works usually abandoned or minimized the pyrotechnical showpieces and swirling waltzes of the older school. A mellow, easy waltz became the signature of many of these operettas. *The Merry Widow*, with its popular waltz song, was the biggest success in the history of the popular musical stage and remains the most produced of all popular musicals. Other examples of the school are *Ein Walzertraum* (1907), *Die Dollarprinzessin* (1907), *Der Graf von Luxemburg* (1909), and *Gräfin Mariza* (1924). U.S. examples, all slightly more stolid or



Figure 3. (*Music Theater—Western Traditions*) Jules Chéret, poster for *La vie Parisienne*. From Claude Dufresne, *Histoire de l'opérette*, Paris: Fernand Nathan, 1981, p. 25. Phot. Bibl. Nat., Paris.

earthbound in tone, include *Naughty Marietta* (1910), *Rose-Marie* (1924), and *The Student Prince* (1924).

Musical comedy. The second major genre, *musical comedy*, developed independently in a number of theatrical centers. London's burlettas and burlesques, Paris's vaudevilles, and New York's farce-comedies all evolved into markedly similar types of amusement that eventually interacted. The farce-comedy may serve as an example. The earliest farce-comedies were little more than specialized *variety* (the nineteenth-century term for what in the United States was later called vaudeville). *The Brook* (1879), assembled by Nate Salsbury, took four characters on a picnic, where they indulged in songs, dances, and other variety turns. The music was culled from popular songs of the time, much as music in the first ballad

operas had been. When farce-comedies finally did begin to employ original scores, they did not turn initially to writers of operetta. Instead they turned to "Tin Pan Alley"—style composers. As a rule these songwriters lacked the conventional musical training of operetta composers. They were essentially melodists and did not generally orchestrate their own compositions. The performers of these songs were not primarily singers. In the parlance of the time such performers were often branded "shouters." As a result these relatively slight musical comedy songs were often delivered in a quasi-spoken manner, while operetta numbers were likely to be sung in a full-throated, more operatic style.

In addition, while operetta composers traditionally looked to Europe for musical inspiration, farce-comedy



Figure 4. (*Music Theater—Western Traditions*) Poster for a D'Oyly Carte production of *The Pirates of Penzance*. The Bettmann Archive/BBC Hulton.

or musical comedy composers turned to popular U.S. traditions (see MUSIC, FOLK AND TRADITIONAL; MUSIC, POPULAR). U.S. musical comedy composers increasingly employed harmonies, rhythms, and structures from black music, first ragtime and later jazz. One of the best early examples of this trend was George Gershwin's *Lady, Be Good!* (1924), which established the pattern for jazz musical comedies. The music in these shows was not genuine jazz, part of whose essence is improvisation, but many other elements were there. A decade earlier Jerome Kern's song "They Didn't Believe Me," interpolated into the U.S. production of the English musical *The Girl from Utah*, began the vogue for contemporary 4/4 love ballads, at once breaking the hegemony of the waltz (in 3/4 time) and further

differentiating between operetta and musical comedy.

The revue. A third major genre, the *revue*, flourished from just before the turn of the century until about the time of World War II. However, its music was not distinctive, falling instead in line with traditional musical comedy composition.

In the late 1920s Kern's *Show Boat* (1927) broke from older operetta by employing many of the same native elements identified with musical comedy, such as black idioms and ballads in 4/4 time as principal songs (Figure 5). Nevertheless, *Show Boat* remained a largely isolated instance of this until Richard Rodgers's *Oklahoma!* (1943) launched a prolonged era of fundamentally U.S. operetta. Because by then the term *operetta* had pejorative connotations for many



Figure 5. (*Music Theater—Western Traditions*) “No Shoes” dance number from *Show Boat* at the Ziegfeld Theatre, 1946. The New York Public Library at Lincoln Center, Astor, Lenox and Tilden Foundations. Billy Rose Theatre Collection.

critics and playgoers, these operettas were called musical plays, a term that, in fact, had been employed over the years to describe some of the earliest operettas.

Beset by competition from films and television as well as by crushing economic problems, musical shows have decreased in number, although their decline has not been as precipitous as that of nonmusicals, especially in the United States. The popular music of the 1930s and 1940s, such as swing, had only marginal influence on the theater, unlike ragtime and jazz in preceding decades. From the 1960s on, however, rock music proved popular among young theater composers. The most successful rock musicals were those of Englishman Andrew Lloyd Webber, especially the enormously popular *Cats* (1981).

A noteworthy and stimulating phenomenon in the United States has been the emergence of Stephen Sondheim. His musicals, such as *A Little Night Music* (1973), *Sweeney Todd* (1979), and *Sunday in the Park with George* (1984), combined elements of operetta, musical comedy, and opera in a fresh synthesis, which works more in terms of musically dramatic scenes than of isolated songs and is noted for its use of small motif-phrases and sentences that reappear frequently throughout a show.

See also MUSIC HISTORY; MUSICAL, FILM.

Bibliography. Gerald M. Bordman, *American Musical Theater: A Chronicle*, New York, 1978; Florian Bruyas, *Histoire de l'opérette en France, 1855–1965*, Lyon, France, 1974; Bernard Grün, *Kulturgeschichte der Operette*, Munich, 1961; Raymond Mander and Joe Mitchenson, *Musical Comedy*, London, 1969; idem, *Revue*, London, 1971;

Richard Traubner, *Operetta: A Theatrical History*, Garden City, N.Y., 1983.

GERALD BORDMAN

2. ASIAN TRADITIONS

The cultural history of ancient Asia is the story of collisions and interactions among several religious and artistic traditions (see RELIGION). In particular the MIGRATION of Indian Buddhists from Hindu lands north to Tibet and China and eastward spread Indian manners, customs, and ways of thinking. As a result the dramatic traditions of ancient India had a profound influence on the development of all Asian arts, especially those of THEATER in its broad sense of music, DANCE, and dramatic narration or situation. See EAST ASIA, ANCIENT; SOUTH ASIA, ANCIENT.

Early Indian theater. DRAMA in India traces its origins to before the world began. According to the Vedas (holy books), Brahma, the breath of the world, commanded that the gods in heaven reenact in playful form for everyone's entertainment and edification their victory over the demons of evil. India's first dance as such, however, reveals the creation of the world. In it Lord Śiva stood atop a Himalayan peak, naked and alone with only a tiny hand drum for rhythm. Fire appeared in the palm of his hand, and the river Ganges flowed from his hair. By establishing a world of vibration through his movements, Śiva became Naṭarāja, king of dancers. Strict Hindus worship him in this guise, and dance as well as theater is part of temple worship (see Figure 1).

Sometime between 3 B.C.E. and 5 C.E. a massive



Figure 1. (*Music Theater—Asian Traditions*) Śiva Natarāja, Lord of the Dance. South Indian, eleventh century. The Cleveland Museum of Art, Purchased by Income J. H. Wade Fund.

manuscript appeared codifying the theory and practice of India's theater AESTHETICS. This was the *Nāṭyaśāstra*, a canonical work (sastra) of dance and drama (the word *natya* combines both) transmitted orally by the sage Bharata centuries before its actual transcription onto reed and palm leaves (see ORAL CULTURE; ORAL POETRY). So integral was theater to religion and the well-being of society as a whole that this sastra was named the fifth Veda. It listed an entire lexicon of gestures (see GESTURE), postures, poses, and movements for the dancer-actor, as well as systematic guidelines for staging, suitable themes, and appropriate plots. It clearly asserted the inseparability of dance, drama, and music (see MUSIC, FOLK AND TRADITIONAL) and the fusion within the one art of natya as religious expression. Its tenets continue to be the underlying principle of all Asian classical or traditional theater arts as we see them today.

Central to India's natya and illustrative of the sastra are the great and powerful epic poems Ramayana and Mahabharata. The Ramayana, with its intertwining love story of King Rama and his queen, Sita, and their army of monkeys combating Ravana, the ten-headed ogre of Sri Lanka, describes mythically the Aryanization of India around 5000 B.C.E. The Mahabharata annals of intrigue between competing court dynasties portray events occurring within India's earliest royal houses. Thus through theater commoners were permitted to peer into the mysteries of their temporal as well as their spiritual rulers.

Both epics provided—and still offer—an inexhaustible supply of characters, incidents, and plots for dramatization in SONG and dance. These were the materials, that is, instructive mythology disguised as entertainment, that early travelers and missionaries took with them and introduced to the indigenous populations abroad. By bringing the gods to earth and by presenting moral lessons as adventure tales, along with danced and mimed recountings of Buddha's life, theater served as powerful PROPAGANDA for the propagation of religious belief. On the one hand, theater fed faith, and on the other, by representing kings and queens, it also confirmed a political system of the *dava-raj* or god-king, the unity of church and state.

Among India's own various theater arts, most important is the South Indian dance form Bharata Natya. Bharata here refers not to the sage Bharata but to the original name for India. Of all India's multitudinous forms of theater Bharata Natya approximates most closely the ideals adumbrated in the sastra. By comparing today's living performances with the countless temple sculptures of dancers, one can easily see exactly how and where dance has preserved and at the same time evolved away from the sastra's orthodoxy. Such high-flown sentiments as "hands must be like fishes swimming, the body

must have the suppleness of silk, and the feeling of the dance must be like the ecstasy of the peacock before his mate at sunset" can be verified even now at the best performances by the greatest artists.

Bharata Natya at present has become the sole province of women. A program lasting an hour or so of solo performances by a single dancer alternates between energetic, athletic, and abstract sections and more passive or interpretive *padas*, songs in which words are depicted in literal hand gesture and by FACIAL EXPRESSION. The themes of dance and drama in India are primarily devotional, directed toward the gods. However, since the pantheon of India's gods is depicted in human terms, there is sufficient room for realism, and even eroticism. In many of the accompanying songs the dancer's love for god is likened to that of a woman's love for a husband or other man. The PERFORMANCE can be aimed at one particular spectator in the audience rather than toward an invisible divinity. The spiritual ecstasy of these Hindu extravaganzas, it is said by initiates, is not unlike physical, earthly orgasm.

Kathakali from Malabar on the west coast of southern India is the masculine antithesis of Bharata Natya. Here all-male troupes perform stories from the Ramayana and Mahabharata in feature-obliterating makeups, enormous halolike head-dresses, and costumes that swathe the dancers' bodies in yards of cotton cloth. Side singers chant the dialogue to the beat of deafening drums. Actor-dancers interpret each word in mudras (hand gestures), a kind of mute SIGN LANGUAGE. These pictorial ideographs of flesh and bone formed by the fingers express complete ideas in a kind of miniature dance of the hands.

When India was crushed by the Moguls (Muslims) from Persia and Arabia, whose period of greatest power extended over the twelfth to eighteenth centuries, dance and drama declined. Bharata Natya became the province of devadasi (literally "servants of god" but in practice temple prostitutes). In the north, where Mogul power was centered, Nautch (a perversion of natya) and nautch girls became synonymous with prostitution. Gradually, as Muslim rulers became Hinduized, a new form of dance, Kathak, was encouraged and developed at court. In obedience to Islam, Kathak has little connection with religion as storytelling. It does not represent or depict those elements that Bharata found essential. Muslims found any portrayal of Allah and his messengers to be blasphemous. Kathak revels in abstraction, complicated footwork, dazzling body spins, and intricate musical patterns. Its mathematical precision becomes a kind of ecstatic, celestial astronomy. The dances seem like secular contests between drummer and dancer to determine who can play or stamp faster or which of them can invent surprises and syncopations

that will trick the other virtuoso into missing a beat. Again because of Muslim predilection and inhibition, many Kathak dancers are men, some of whom dress as women in order to neutralize any obvious erotic content.

Modern revival. With the arrival of the British in the nineteenth century, dance and drama suffered further intrusion. To staid Victorians India's theater arts, already decimated by the Muslims, seemed vulgar and degenerate. It was not until 1929, when Anna Pavlova made her famous tour of Asia, that Indians were spurred into a reconsideration of their once sublime heritage. She merely asked everywhere in exasperation, "But where is your dance?" Before long a spate of pioneers, scholars, researchers, and Brahmin ladies of respectability took Indian dance seriously and encouraged its reemergence from the shadows of neglect.

After independence in 1947 dance in India was restored to a position of importance. Presidential awards honored those artists who had survived the vicissitudes and had contributed to art's resumption of its dignity in society as envisaged three thousand years earlier by Bharata. Uday Shankar (1900–1977) was a major force in spreading awareness of Indian dance in the West. In 1923 in Paris he met Pavlova, who wanted to choreograph a ballet on an Indian theme. He proposed the love story of Lord Krishna the cowherd and Radha the milkmaid, probably the most popular deities of modern India. This became *Le dieu bleu*, in which Shankar and Pavlova danced together. Shankar had no formal training as a dancer, but he was a miraculous showman with intuitive genius. His charming approximations of Indian traditional movements along with his hints and suggestions of classicism enchanted the world in the 1930s and finally brought him honor, belatedly, in his homeland.

India's gigantic movie industry keeps well in line with the sastra's dicta. Its films not only tell stories with devotional or supernatural inspiration, but also punctuate them with dances combining all the arts to delight the eye, ear, and heart. Advertisements for movies not only list favorite stars but often cite the number of dances the ticket buyer will see. See MOTION PICTURES; MUSICAL, FILM—BOMBAY GENRE; MYTHOLOGICAL FILM, ASIAN.

It should also be noted that with the coming of electronic media in recent times, India in its larger cities has been quick to try its hand at innovations. AVANT-GARDE theaters step into the future with Western-style adaptations, all the while keeping half an eye cocked on India's rich past. See also AVANT-GARDE FILM.

South and Southeast Asia. India's cultural dominance two thousand years ago spread over Asia, but each country held to its own more primitive theater

tastes. India's immediate neighbor to the south, Sri Lanka, is profoundly Buddhist. Despite this and its Hindu overlay, Sri Lanka has maintained its indigenous folk arts, notably the exorcistic devil dances and fire dances of animistic origin. The island's masked dramas can be traced directly to ancient India, but the dances performed annually on the occasion when Buddha's tooth is exhibited in a celebratory parade at Kandy, the cultural capital of Sri Lanka, are uniquely Sinhalese. In certain respects they resemble kathakali, but the mudras have been attenuated beyond recognition and only vaguely "speak words." Independent of dance, popular theater in Sri Lanka recites the island's history, and some plays even chronicle romantic episodes from its triple colonization, first by the Portuguese, then by the Dutch, and lastly by the British.

In Buddhist Burma the pwe (show) is a national entertainment of the people. It includes tales from the Ramayana, in which Ravana is sometimes presented as a clown, which is why Sita does not yield to his advances. The country also boasts a large number of "spirit dances," based on a pre-Hindu religion, that illustrate the thirty-seven nats (spirits) that inhabit Burma. They appear in an amalgam of music, dance, talk, MIME, and story and coexist with more sophisticated aspects of imported Hinduism and Buddhism. For example, in many areas of Southeast Asia spectators describe a play taken from the Ramayana in which the leading actor plays the role of King Rama as a "Buddha play." (In any event, they explain, Rama is a "future Buddha.") In certain areas Ravana is regarded as a hero because he does not violate Sita during the ten years she is his captive. And in Thailand, Kampuchea, and Laos, the very word for "dance" is *ram*, *rom*, or *lam*, taken directly from Rama, the god-king of legend.

Indonesia, a nation of some three thousand islands, is doubtless the richest country anywhere in variety of dance and drama forms. The ancient Hindu origins of theater were so entrenched by the time the Muslims invaded during the twelfth to fifteenth centuries and forcibly converted by the sword that dance and drama merely continued as they always had. Although thousands of miles from Mecca and the Middle East, Indonesia is the largest, most populous Islamic country in the world. Still, its Hindu and Buddhist operas, shadow plays, dances, and dramas hold its people in thrall in the cities, in the countryside, and above all in the palace courts of the sultans and *susunans* of central Java. Islam's injunctions against representative art were for the most part ignored.

One island, Bali, completely escaped Islam. Bali continues to be the only Hindu region outside the confines of India proper. Its theatrical vibrancy has astonished foreign viewers ever since the Dutch conquered it in 1908 (it was the last colony of Asia) and



Figure 2. (*Music Theater—Asian Traditions*) Balinese dancer and orchestra, Indonesia. U.N. photo 152,396/ Doranne Jacobson.

opened it to the outside world. Sir Rabindranath Tagore, the first Asian to receive the Nobel Prize for literature (1913), sadly noted on his visit to Bali some years later that “Lord Śiva left his dance to Bali, and his ashes to India.” By this he meant that Indian dance had been more carefully preserved in that distant island, the farthest extent of India’s erstwhile expansionism, than in India itself (see Figure 2).

China and Japan. In China even the lion associated with that country at New Year’s time derives from India. There are no lions in China, and their likeness was introduced as the benevolent mascot of Manjusri, the bodhisattva disciple popularly known as the god of wisdom in the Buddhist pantheon. Among the most popular examples of *Jing hsi* or Peking opera, the country’s national popular amusement, are those dealing with the Monkey King, a derivative of Hanuman from the Ramayana, with his army of monkeys fighting on the side of good and rectifying wrongs (see Figure 3).

Japan is where Indian influence might be expected to be weakest by reason of geographic distance and ethnic divergence. Such is not the case. Indian souvenirs from older times exist everywhere. The ICONOGRAPHY of esoteric Buddhism of the Shingon sect in particular retains mudras borrowed from Indian mysticism and dance theater. Also the practice of drawing magic patterns, or *mandaras* (mandala in Sanskrit), as a means to spiritual enlightenment persists in Japan. The paintings include Sanskrit words as part of their visual designs.

Fourteenth-century No dance dramas continue to be performed, making this exalted art not only the oldest professional theater extant but the most an-

cient theater of the world still approximating its original stagings (see Figure 4). This cannot be said for Greek or Shakespearean drama as we see them mounted today. In one No play, during a dance of longevity, the leading character Okina chants Sanskrit runes completely incomprehensible to contemporary audiences. Other No texts occasionally quote Sanskrit mantras or dharanis (magical formulas of mystical meaning) when the plot needs to exorcise ghosts or evil spirits. Such Sanskrit passages as “Namaku Samanda Bararada . . .,” which means “I dedicate myself to the Universal Diamond. Be this raging fury destroyed!” were left untranslated by Chinese Buddhists. It was thought that if sound were altered in favor of meaning it would forfeit their efficacy. These words exist in No transliterated as the deities were presumed to have uttered them originally.

At the time of No’s beginnings plays had already begun to take on contemporary significance apart from religious purpose. Living persons of rank were not supposed to be represented, for fear of offending the high and mighty. Emperors dead or alive could be represented only by children, again to avoid verisimilitude. One category of No plays was called *Genzai mono* (plays of the present), in which events from real life were transported to the stage. By the time Kabuki, Japan’s great classical theater form coeval with Shakespeare, developed in the seventeenth century, together with Bunraku, the realistic puppet theater (see PUPPETRY), drama in general had become independent of religious association. It then was something of a newspaper, a means of keeping the people at large informed of events happening in daily life. When two lovers committed suicide to-



Figure 3. (*Music Theater—Asian Traditions*) The Monkey King in a performance by the National Chinese Opera Theatre. Courtesy of the Information and Communication Division in New York, Coordination Council for North American Affairs.

Figure 4. (*Music Theater—Asian Traditions*) Japanese No dance drama. Courtesy of Japan Air Lines.



gether, as was the custom in feudal Japan when society prevented them from marriage, the event was dramatized (and glamorized) within a matter of weeks. If a thief had his nose cut off for smuggling medicinal carrots from Korea the incident was sufficient for a playwright to weave a drama of five acts. Similarly, love affairs between famous courtesans and handsome commoners fed the dramatists of Kabuki as they themselves fed ever-increasing audiences. Above all, scandals in high places, when nobles vied for accession within ruling houses, when ambitions at court spilled over into treacheries or murder, and when heroic actions such as *hara-kiri* (*seppuku*) were committed by samurai—all such gossip became the stuff of great tragedies onstage. Theater in a way kept the public abreast of the news of the day. Although names and dates were disguised, every theatergoer understood exactly the factual truth within the unreality of the representation.

Most remarkable of all Japanese arts perhaps is *Bugaku*, dating back some fifteen hundred years, the world's oldest music and dance still in pristine form. It was imported from India and China in the seventh century as part of Buddhism's many miscellaneous advantages—tea, pickles, writing, red dyes, straw mats, and the like. It quickly became the elegant preserve of a succession of emperors who used it to entertain dignitaries on ceremonial occasions. It continues to be performed at the Imperial Palace in Tokyo and may be seen by special invitation. *Bugaku*'s antiquity and historical authenticity are verifiable from ancient documents, but cave sculptures and temple bas-reliefs in China and India are all that is left of this art in those countries of its provenance.

With the airplane, TELEPHONE, RADIO, movies, television, and SATELLITE transmissions the world is growing more uniform theatrically. A Broadway success (see section 1, above) is very likely to be seen in translation in Tokyo within a year. Theatrical troupes from Asia constantly tour the United States and Europe and have clearly affected Western theater. Although the West marvels at the treasures of Asia's past, Asian theater is quick to adopt electronic innovations. In India's capital cities traditional religious and artistic forms are supplemented by slice-of-life stagings of contemporary themes. Fortunately governments are now sensitive to the loss of traditional arts. Efforts are being made in most regions to maintain the classics and to preserve the precious national heritages.

See also ACTING; MUSIC PERFORMANCE.

Bibliography. Faubion Bowers, *Theater in the East: A Survey of Asian Dance and Drama*, New York, 1956, reprint 1969; Balwant Gargi, *Folk Theater of India*, Seattle, Wash., and London, 1966; Zeami, *Kadensho*, trans. by Chūichi Sakurai and Lindley Hubbell, Kyoto, 1968.

FAUBION BOWERS

MUSIC THEORIES

This topic is discussed in three sections:

1. Overview
2. Notations and Literacy
3. Tuning Systems

1. OVERVIEW

Music theory normally refers to explicit knowledge of music, expressed in SPEECH, WRITING, notation, gestures, drawings, and occasionally in musical compositions and performances. Theories of music communicate (1) philosophical, scientific, and religious beliefs about the origins, meaning, value, and purpose of music and its relationship to other activities (often called AESTHETICS); (2) evaluations of pieces and performances of music (called criticism); and (3) the structural features of SOUND, musical systems, and individual compositions so that music can be understood, taught, remembered, and reproduced (called music theory proper). In this latter sense, music theory includes the study of acoustics, the structural principles of musical "languages" (e.g., tuning systems, rules for composition and improvisation), analyses of pieces and performances, guidelines for performance practice, instrumental instruction manuals, notation, and classification of MUSICAL INSTRUMENTS and genres.

Music theory as explicit knowledge should be distinguished from musical understanding or musical thought, which is implied and expressed completely and sufficiently—if tacitly—in every musical composition and performance and in the kinesthetic, aural, and intellectual experiences associated with them. Music cultures vary enormously in the amount and kind of musical understanding or thought captured explicitly in music theory and in the ways that theory is expressed. Until the 1970s scholars generally assumed that theories of music existed exclusively in the literate cultures of Europe and its colonies, the Middle East, and East Asia. Subsequent studies in ETHNOMUSICOLOGY, however, have demonstrated the existence of music theory in many nonliterate societies as well and continue to explore the nature of both tacit and explicit musical knowledge, understanding, and thought.

Content of Music Theories

In many cultures theories of music link human musical behavior to divine origins, supernatural purposes, or the laws of nature. In doing so they give to music the highest possible purpose and seriousness. This phenomenon is so widespread that the ethnomusicologist Bruno Nettl claimed that contact with the supernatural was probably music's fundamental purpose on a worldwide basis. In the ancient world from China through India and Babylon to Greece

and in medieval Europe, the realization that music was governed by mathematical principles led to the belief that music was a manifestation of the laws of nature and that its proper performance ensured the “harmony of the spheres” and the stability of the state. Among the Flathead Indians songs are said to be given to men by spirits during vision quests. These songs then have the power to enlist the aid of the spirit when needed by the singer. In Java the gamelan gong orchestras are said to have originated among the gods as a means of sending messages and continue among humans to contain spirits and to affect the well-being of human life and society.

Theories of music also link musical behavior to other human behaviors. Common links include those to the emotions, to character, and to social behavior. Both PLATO and CONFUCIUS believed that music affected a person’s character and decreed that only certain types of music were appropriate to the education of the ruling classes. Somewhat more widespread are beliefs that music affects, expresses, symbolizes, or evokes emotional states. Two of the more elaborate and systematic examples are the Indian theory of *nava rasa* (“nine sentiments”) evoked by music and the seventeenth-century European “doctrine of the affections,” in which it was believed that specific musical gestures epitomized specific emotional states. The emotional content of pieces or sections of music could thus be objectively encoded by the composer and decoded by the listener. In Arabic cultures effective musical performance evokes a state of *tarab* (“enchantment”), while in other societies it may lead to trance states. Theories of music often specify particular kinds of music for the appropriate social group—for example, men versus women, age groups, insiders versus outsiders.

Even when music theories do not specifically link music to human behavior and nonhuman phenomena, they are often linked by analogy and METAPHOR to other domains of thought, making music coherent within those domains or bringing musical behavior within the purview of some overarching, all-encompassing theory or pattern of explanation. In Europe from the sixteenth to the nineteenth century, music was analyzed using metaphors drawn from RHETORIC, an important subject in the curriculum during that period. Terms for musical form such as phrase, theme, exposition, and development are a legacy of this tradition and put the construction and analysis of music on the same footing as the construction and analysis of speech and writing. Rhetorical analysis also supported the belief that music, by analogy, had the same expressive and persuasive powers as speech. In the nineteenth century, reflecting the influence and prestige of the biological sciences, a piece of music came to be viewed as a “living organism” with a structure genetically determined

by the particular melodic “cell” that began it. In the twentieth century MATHEMATICS, physics, INFORMATION THEORY, structural LINGUISTICS, and SEMIOTICS have all provided terms and ways of thinking that have influenced the writing of music theory. In addition, in Arabic theory geometry provides the basic analogies (points, lines) for attacks and durations in rhythmic theory. Among the Oglala Sioux music theory is not a separate domain. They verbalize about music in much the same way they talk about eating and other bodily functions. Among the Kaluli of Papua New Guinea melodic shape is described using water metaphors, linking human and natural sound domains, which are often perceived as existing together in counterpoint. Finally, ordinary speech about music often gains coherence by borrowing metaphors from other senses and experiences: hot, cool, jumps, wails, rocks, moves.

Theories of music often contain statements about the value of particular pieces and performances of music. In Europe music criticism developed during the nineteenth century, when it was considered important to identify works and composers of genius. Among the Navajo performances are evaluated according to their efficacy in effecting cures. In general, evaluations of music are probably the most common and widespread kind of verbalization about music. In many cultures everyone can ask or answer the question, “How did you like the concert?” Such speech about music is fragmentary and is used in particular social and musical circumstances to interpret and regulate musical experience and to integrate it into social experience. These casual speech events are sometimes based on systematic theories when they exist and are known by the speaker, and sometimes are a part of ordinary speech when no separate systematic theory of music exists, as among the Oglala Sioux.

Theories of music often codify or systematize musical knowledge for its own sake or as part of a general philosophical stance that seeks to order all phenomena in the world. The Arab al-Fārābī (878?–950?) and the Frenchman Jean-Jacques Rousseau (1712–1778), for example, included music within their systematic descriptions of all knowledge. Al-Fārābī lists nearly every type of melodic motion, ornament, and rhythmic cycle possible in Arabic music. The twentieth-century Indian theorist Nazir Jairazbhoy specifies the thirty-two possible ragas of North Indian classical music and their interrelationships. The German baroque composer J. S. Bach (1685–1750) demonstrated the viability of the new equal-tempered tuning system by systematically employing all the available keys in a set of pieces called *The Well-tempered Clavier* (see section 3, below).

Theories of music often divide up the cultural and natural sounds of the environment and assign mean-

ings to them. Instrumental classification systems are a good example of this. In China instruments are classified according to the material used in their construction, so that an orchestra can be constructed to represent all the elements on earth. In India, where it is believed that one manifestation of God is vibration itself, instruments are classified according to the vibrating material. The Oglala Sioux, who view the world in terms of bodily actions, classify instruments according to how they are played.

Many cultures lack a unifying term for sounds considered musical in the West. In Bulgaria and in parts of Africa words for singing, drumming, playing instruments, and lamenting exist—but none for music. Instead, these musical behaviors are linked to other behaviors considered nonmusical in the West. For example, in Africa the word *ngoma* includes drumming, singing, clapping, dancing, and festive shouting and whistling. Among the Kaluli human and natural sounds are interwoven by theory into a single aesthetic soundscape in which it is possible to discuss weeping, singing, birdcalls, waterfalls, and other sounds from a unified perspective. In Islamic societies religious chanting, which sounds rather like secular singing, is excluded from music, which is regarded as the devil's attempt to seduce people from their proper devotion to God.

Theories of music sometimes contain analyses of particular pieces. The 'Are'are people of the Solomon Islands have an enormous vocabulary for distinguishing different types of melodic and harmonic intervals, melodic shapes, and the number and relationship between parts in a polyphonic texture. These descriptions are then used in teaching and distinguishing pieces of music. In the West analysis of pieces for its own sake seems to have developed in the nineteenth century in conjunction with the critical process designed to identify "works of genius." As part of a growing historical consciousness, analyses contributed to the construction of histories of musical style.

Theories of music can also contain instructions for practical musicians in the form of rules for composition and improvisation, guidelines for ornamentation and interpretation during performance, exercises and instructions in instrumental technique, and the rudiments of notation for beginners. Much of early European music theory seems to have arisen to teach otherwise untrained choristers how to sing from notation. During the RENAISSANCE and baroque periods of European music history much theory, written by and for composers, was devoted to rules of counterpoint, harmony, and improvisation at the keyboard. Today every instrument in the West has its "methods book" to introduce notation, technical exercises, and pieces of graded difficulty to learners.

Examples of instructional theory also occur in musical cultures that are primarily improvisatory.

Systematic technical exercises exist in India's aural tradition. In Java theory treats rules of improvisation in the context of partially fixed pieces. In the Middle East, North Africa, and India theory has tried to describe the rules for improvisation and the distinguishing features of each melodic mode.

Transmission of Theory

How theories of music are transmitted (who theorizes about music to whom, where, and using what media) varies enormously from culture to culture. In cultures in which music theory is a part of more general theories, music theorists are often religious figures or philosophers who interpret the meaning of music, as well as particular performances of it, to a general public. Theory is then communicated as part of religious instruction or general education in the form of myths, stories, and scholarly discourse. Since the primary purpose of this kind of theory is to link music to other domains of the natural and supernatural world, it is often divorced from details of musical practice and structure. In India the *pandit* or *guru* is a master of both musical and spiritual matters. Confucius, al-Fārābī, Plato, Boethius, Schopenhauer, and Rousseau are all examples of polymaths who wrote on every conceivable matter, including music. In American Indian tribes shamans, or medicine men, have the greatest knowledge of matters, such as music, with great powers in the spirit world.

Other than priests and philosophers, musicians form the main group who theorize about music. In the baroque period of Western music history composers were the main theorists, and as a consequence they wrote about matters of concern to them: compositional principles and proper performance practice. Instrument makers also participated in theory because they needed to know about acoustics in order to construct instruments containing the principles of the musical system. Among the 'Are'are, for example, the main bearer of music theory is the instrument maker.

While musicians and philosopher-priests usually create systematic, broad-ranging theories, knowledge of these theories is then distributed rather irregularly in society. In the West, for example, up until the beginning of the nineteenth century, music theory was taught as part of the seven liberal arts, and all educated people would have known parts of it. Today music theory is taught primarily to young musicians as part of their performance training and not as a part of general education. Among the 'Are'are knowledge of theory varies greatly, with only the instrument maker knowing it completely, some performers knowing a bit of it, and others knowing nothing at all.

Lack of knowledge of formal theory does not prevent ordinary people from speaking of music,

however. Idiosyncratic as well as socially shared classifications of sound, genres, and musical instruments abound, and value judgments, ordinary metaphors, and self-reflection are expressed easily and naturally within a musical community.

Theory is usually transmitted within definable social groups. For example, when theory is tied to LITERACY, as in China, only the educated know theory, and knowledge of theory becomes a symbol of a certain social and intellectual standing. In nineteenth-century America country people who knew enough music theory to sing revival hymns in four-part harmony were known as *fasola* folk after the mnemonic solfège syllables used in their theory.

When and where theory is transmitted also varies with its centrality to the culture. When music is imbued with great power, as among American Indians, teaching of beliefs about music can occur at any time and from the earliest age. An Eskimo boy who is caught humming a powerful song will be admonished on the grounds that the song will lose its power and should properly be sung only by its composer. In other cases learning takes place at special times of life, such as in puberty rituals in parts of Africa or during formal schooling as in the West.

The media used to transmit theory also vary greatly. The most common form is speech. In some cases straightforward descriptive statements are made, as among the 'Are'are. In other cases theory is embedded in myths and legends that must be decoded. Some of the more intractable parts of the myths in Plato have been interpreted as containing detailed accounts of tuning systems. In nonliterate societies some aspects of theory are contained in speechlike mnemonic devices. In Africa, India, and most of the Middle East, for example, the many different types of drum strokes are encoded in spoken syllables that allow the patterns to be remembered and taught. One style of jazz—bebop—takes its name from spoken syllables that convey the rhythmic character of phrases. Many cultures have names for pitches, allowing them to be pointed to verbally.

In literate societies theory is conveyed in written texts and, in Europe and East Asia, in notation as well. Literacy then becomes a necessary precondition for acquiring knowledge of theory, and musical notation becomes one of the most important media for transmitting theory of music. Until the end of the nineteenth century, notation of music was important only in the West and in East Asia. In the twentieth century, contact with the West led to the application, at least in academic circles, of Western and some newly invented notations, as in Java, to many formerly nonliterate traditions. Typically notation contains the fixed aspects of the musical tradition, leaving other aspects to the discretion of performers. During the twentieth century composers in the West tried increasingly to fix every aspect of performance in

notation, leaving virtually no room for performer discretion. In North India, on the other hand, with a highly evolved literary tradition of theory, notation is of virtually no importance because performances are primarily improvised. See section 2, below.

Finally, it might be argued that music itself transmits music theory, that theory is implicit in musical action. Bach, for example, is famous for sets of pieces such as the *Well-tempered Clavier* and *Art of the Fugue* that lay out systematically all the possibilities within a given framework. As a result these pieces, along with his set of chorale harmonizations, are still used to teach students the fundamental principles of tonal harmony and counterpoint.

The Relationship of Theory and Music

Theories can be classified as either prescriptive or descriptive. Prescriptive theory attempts to define how music should be performed. Descriptive theory attempts to categorize and encapsulate in words the practice of music. Prescriptive theory usually defines the behavior of composers and performers. For example, Arabic theory prescribes modulation from mode to mode and with ornamentation, the two most important features of good performance. Theory in the baroque period in Europe dealt with improvised keyboard accompaniments that embodied the harmonic system of the period. In medieval Europe and in nineteenth-century America theory contained the rudiments of music so that otherwise untrained singers could correctly perform the repertoire.

Prescriptive theory also exists on a modest scale in the West in the guise of music appreciation classes, given to high school and university students in order to guide their listening to music. Although musicians usually employ a combination of vast musical experience and knowledge of theory, listeners with less musical knowledge and experience can be taught to appreciate music with some knowledge of theory. The nineteenth-century composers Robert Schumann and Richard Wagner were early examples of music critics who sought to teach an emerging general public about the complicated music that formerly was meant only for a highly educated elite.

Prescriptive theory can also take the form of notation and verbal mnemonic devices that act as memory aids in the preservation of compositions. Notation in the West may have been developed to control the relationship between parts in a polyphonic texture. In China notations prescribe an extraordinarily elaborate playing technique. Notation can also affect performance practice; in both the West and Java, for example, notation seems to have curtailed improvisatory practices to a great extent.

Prescriptive theory often influences the precompositional plans from which composers work. The various "forms of music" are one such set of precom-

positional plans. In the European Renaissance period and in much of the Middle East poetic forms and scansion provide models for musical form and rhythm. During the Renaissance the solmization syllables of music theory were linked to syllables of the text or the title to create melodic motives.

Descriptive theory, in the form of analysis of pieces of music and characterization of musical systems, seems to have little direct effect on the practice of music, but rather to exist within intellectual and religious traditions that demand that the world be accounted for in some way. It often links the past with the present. References to historical practices lend prestige to modern ones, as in India. Modern composers in the West with a historical view can try to justify writing music not for the present but for an imaginary future audience.

In yet other cases musical systems are created to justify or rationalize musical practice, particularly practices that are new or revolutionary. In the twentieth century, composers such as Arnold Schoenberg, Edgard Varèse, Olivier Messiaen, and John Cage all wrote extensively about the new music they were creating. They obviously felt that revolutionary practices needed a theory to justify them, just as the older practice had its theory.

What begins as descriptive theory, however, often has a prescriptive effect when it is taught to music students. They come to understand through theory what music "ought to be like" and begin to compose and perform in accordance with this formerly descriptive theory. A. B. Marx, for example, first articulated the notion of sonata form in 1848 to describe the music of Wolfgang Amadeus Mozart, Joseph Haydn, and Ludwig van Beethoven, but his description influenced the form of compositions for decades. After the creation of a theoretical system of seventy-two possible scales in South India, composers set about composing pieces in all the theoretically possible scales.

While prescriptive theory often has a direct effect on the behavior of musicians, descriptive theory often takes on a life of its own. In this case music theorists are often able to exist in a social and economic role almost independent of musicians. Their knowledge of music theory and ability to verbalize about music, as opposed to musical ability, become their *raison d'être* and source of income, and they become teachers, scholars, and critics.

See also MUSIC, FOLK AND TRADITIONAL; MUSIC COMPOSITION AND IMPROVISATION; MUSIC HISTORY; MUSIC PERFORMANCE; SONG.

Bibliography. Judith C. Becker, *Traditional Music in Modern Java*, Honolulu, Hawaii, 1980; Steven Feld, *Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression*, Philadelphia, 1982; Ernest G. McClain, *The*

Pythagorean Plato, Stony Brook, N.Y., 1978; Hugo Riemann, *Geschichte der Musiktheorie im 9–19 Jahrhundert* (Theory of Harmony: A Study), 2d ed., Berlin, 1920; Hiromi Lorraine Sakata, *Music in the Mind: The Concept of Music and Musician in Afghanistan*, Kent, Ohio, 1983; Arnold Schoenberg, *Style and Idea*, New York, 1950, reprint (ed. by Leo Black) London, 1975; Charles Seeger, *Studies in Musicology, 1935–1975*, Berkeley, Calif., 1977; Ravi Shankar, *My Music, My Life*, New York, 1968; R. H. Van Gulik, *The Lore of the Chinese Lute*, Rutland, Vt., and Tokyo, 1940; Hugo Zemp, "Aspects of 'Are'are Musical Theory," *Ethnomusicology* 23 (1979): 6–48.

TIMOTHY RICE

2. NOTATIONS AND LITERACY

Notation is a transformation of musical sound, a system that sets music in visual forms using symbols, letters, and numbers. (An exception is notation for the blind, such as the Braille system, which is a tactile transformation of Western staff notation.) As such, notation represents one of the two important media for musical expression and communication, the other being oral. A people's concepts about music as well as about the world are illustrated in the types of notation and PERFORMANCE they use and in the balance between the two (see MUSIC PERFORMANCE). Some music exists only in notation, whereas in many societies with rich musical traditions notation has never been employed. Nonnotational societies should not be considered to be in a prenatal stage. Rather, they should be considered as not needing notation, probably because of the abilities that they have and that most notational societies tend to lack, such as the ability to memorize music without having recourse to any written material. See section 1, above.

Between the two extremes of notation and orality, however, there are intermediate systems that aid music learning and memorization. Two significant examples are body movement and oral notation (see BODY MOVEMENT NOTATION). The former includes chironomy (systematic use of hand movements in accordance with music) as well as the movements of modern conductors. The latter designates a variety of vocal activity that imitates music *per se*. Both methods—unlike written notation—are performed in real time, similar to actual music. However, as their performances are not the same as the music itself, they also are considered to be transformations of musical sounds. Once oral notation is written down, it becomes a form of written notation.

The functions of notations are generally considered to be the preservation and transmission of music that otherwise would be lost. It is true that the revival of early Western music was achieved mainly by the interpretation of notations. If there had been no notational systems available and if the composers

and/or their copyists had not notated their works either in manuscript or in print, the barriers of time and space would have made it impossible to study and perform these works. In many cultures oral notation often augments this communicative function of written notation.

Types of notational systems. Apart from hypothetical notations in Babylonia (ca. 800 B.C.E.) and ancient Egypt, the history of notation can be traced back to about 500 B.C.E. in ancient Greece (see MUSIC HISTORY). Since then a wide variety of notational systems have developed. Although there are many methods of CLASSIFICATION, two are of special importance to the study of communications. The first classification is based on the relationship between notation and performance, and the second on the visual materials used in notational systems.

The first classification was proposed by U.S. musicologist Charles Seeger. He divided music writings into two categories: *prescriptive* and *descriptive*. The score of Beethoven's Fifth Symphony is typical of the prescriptive type: it was written and defined by the composer so that people could perform it according to his writing. In contrast, a musicologist's transcription of Eskimo songs is a descriptive notation: it describes the result of the performance rather than its origin. In prescriptive notation the flow of communication is composer → notation → music; in descriptive notation the flow is performer → music → notation. After Seeger's formulation another type of notation, generally called graph notation, was developed. This is neither prescriptive nor descriptive; it neither prescribes its performance in detail nor describes a certain preexisting performance. This notation is presented to performers as a visual stimulus to performance with many interpretive possibilities and could be termed *projective* notation (see Figure 1).

Notations can be classified in terms of visual materials according to the following categories: (1) onomatopoeic, (2) letter/character/number, (3) graphic, (4) terminological, and (5) hybrid. Pitches (absolute or relative), intervals, durations, timbres, dynamics, tempi, motives, chords, and playing techniques are represented either independently or jointly in each of these categories.

Onomatopoeic notations in Japan, for instance, are generally called *shōga*. Figure 2 is an example of the *shōga* for the samisen, a three-stringed plucked instrument. It is clear that the emphasis of this oral, or onomatopoeic, notation indicates the differentiation of timbre and playing techniques rather than pitches, because many different pitches are given the same name as long as they are played on the same string (e.g., several different pitches are called *tun*). Similar methods are found in such disparate places as Korea and Scotland.

Notations based on letters, characters, and/or numbers are widely distributed over time and around the world. Those symbols sometimes correspond to pitch names or to finger positions on instruments. Figure 1 can be rewritten by using different notational systems of this category. China has a long history of using this type, in which not only Chinese characters but also their abridged forms designate names of pitches, strings, holes of wind instruments, and so on. This type is dominant in Asian cultures, including India and Indonesia, and also in European tablatures for instruments in the RENAISSANCE and baroque eras. Tonic sol-fa is a relatively modern version of this system, as letters representing pitch names are used instead of ordinary staff notation.

Graphic notations include all the notations consisting of graphic symbols. The neumes notating Gregorian chant are typical of this type (see Figure 3). They represent not a series of independent pitches but patterns including these pitches. Figure 4 shows a notation for *shōmyō* (Buddhist ritual song) in Japan. Directions of matchsticklike lines as well as curves refer to melodic movements to be sung. Notation of Tibetan Buddhist music has similar traits (see Figure 5).

Terminological notations include those that consist of verbal terms only. For example, if a long melody has a name, it is more convenient to write its name than to notate its music. For instance, Figure 1 denotes two specific melodic patterns of Bunraku that Bunraku musicians customarily refer to by the names *tsunagi* and *kei* instead of writing the notes themselves. These names function sufficiently as a notation, at least for those who have a solid memory of the melodies.

Hybrid notation is represented by modern Western staff notation, which uses the graphic category as well as other types of notation, including verbal (terminological) explanations. Korean mensural notation (*chūnggan-po*) is also a hybrid type combining character and graphic notations (see Figure 6).

Whereas many systems of notations have developed in both Asia and Europe, a remarkable difference exists between the systems of these two cultures. In general, notations in Asia have a tendency to focus on minute expression of individual parts, vocal or instrumental. They emphasize the designation of timbre in oral notation as well as that of microtonal pitches. For instance, a difference of one-ninth of a whole tone can be notated in a Turkish system of staff notation (see Figure 7). At the same time, duration has not been indicated on notation directly but has been transmitted indirectly by the naming of rhythmic and/or poetic patterns. In other words, Asian notations tend to function more as aide-mémoire.

On the other hand, notation in the West has progressed from aide-mémoire to a medium for trans-

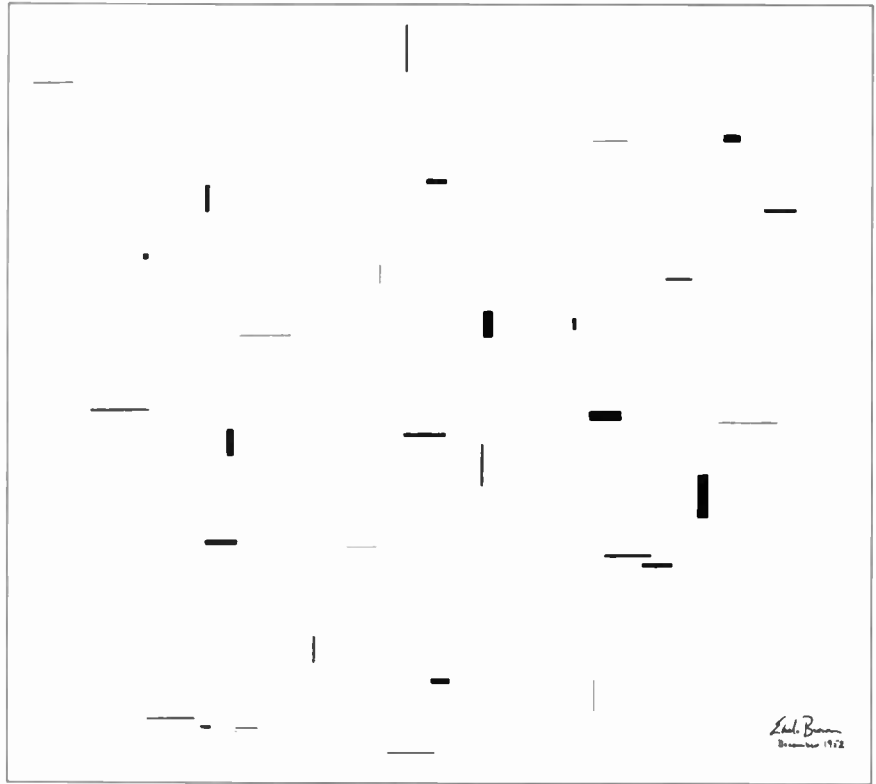
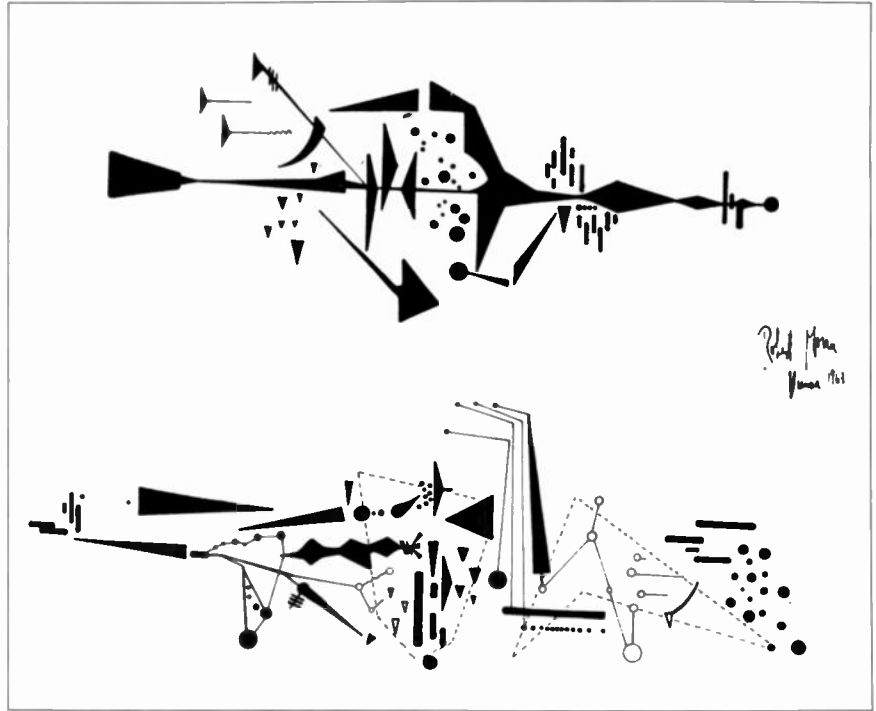


Figure 1. (*Music Theories—Notations and Literacy*) Graph notation: (a) Robert Moran, *Four Visions. Nos. 2 and 3*. Universal Edition A.G., Vienna. (b) Earle Brown, *Folio. December 1952*. Associated Music Publishers Inc., New York. From Erhard Karkoschka, *Notation in New Music*, New York: Praeger Publishers, 1972, pp. 131 and 91.

Figure 2. (*Music Theories—Notations and Literacy*) *Shōga* for *samisen*, *Bunraku*. Transcription by Yoshihiko Tokumaru.

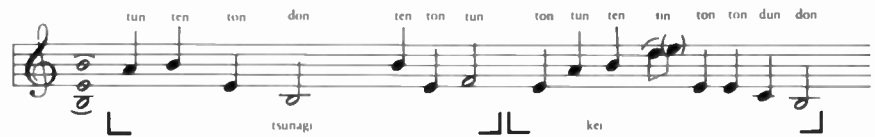
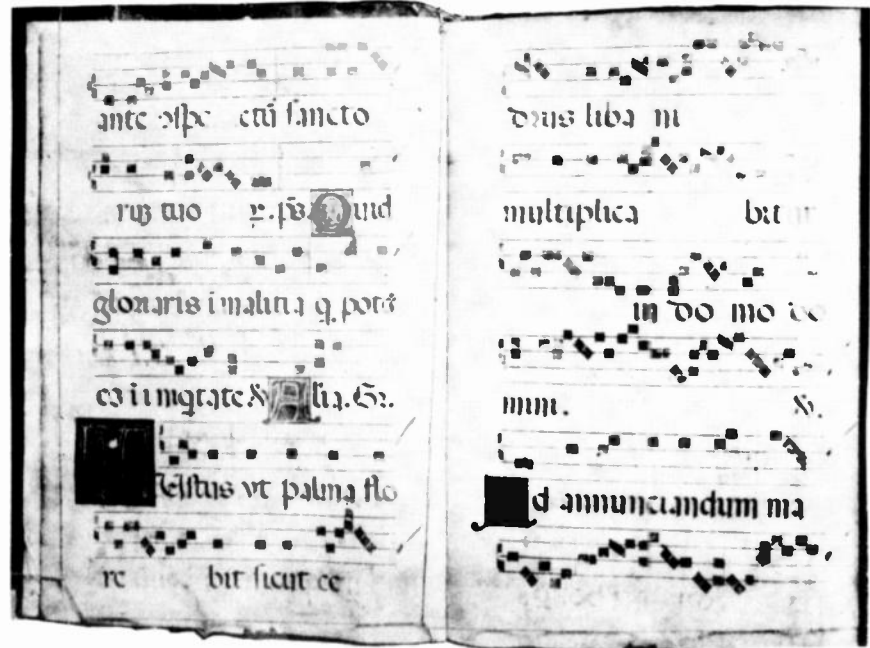


Figure 3. (*Music Theories—Notations and Literacy*) Notation of a Gregorian chant: fifteenth-century gradual from the Abbey of La Cava. From the *Benedictines of Stanbrook, Gregorian Music: An Outline of Music Palaeography*, London: Benziger Brothers, 1997, plate 7.



mitting new information. Accordingly tablatures (notations that indicate fingering and other techniques rather than the pitch to be played), which are closely connected to specific instruments, have been replaced by more neutral systems, less connected to particular instruments. The emphasis of Western notations on indicating durations of notes and rests is also relevant to the formation of the new medium. The change from the medieval system of modal rhythm to Renaissance mensural notation (in which individual note values are clearly defined) and the attempt to establish an absolute unit for measuring time in terms of human pulses (*tactus*) are among the factors that contributed to development of a neutral method. Because of these developments Western music succeeded in formulating musical systems with vertical synchronization (polyphonic music since the late medieval and Renaissance periods, homophonic music since the baroque era). The idea of a musical score with synchronizing lines is a typical product of Western music. Western notations represent in detail the temporal relationships between different parts in a digital manner, with each symbol representing a distinct time-unit value. In contrast, Asian notations generally transmit such relationships orally as additional information rather than describing them overtly.

When they are notated, the symbols tend to indicate in an analog manner, with each symbol capable of encoding gradient temporal values, as seen in Figure 8. As MAX WEBER pointed out, the characteristics of Western notations have a strong connection with the formation of tonal harmony, the use of equal temperament (see section 3, below), and the mass production of MUSICAL INSTRUMENTS.

Notations, printing, and sound recording. Although notation has a long history, notational LITERACY is not nearly as widely diffused as literacy in the written word. Many musicians without knowledge of musical notation still actively work, even in Europe. The lack of use of notation among folk musicians in Europe has led to efforts by many music researchers to document musical traditions by transcribing orally transmitted music. Such researchers in Europe include Oskar Kolberg in Poland; A. N. F. von Zuccalmaglio, Wilhelm Erk, and Franz Magnus Böhme in nineteenth-century Germany; and two Hungarian musicologists, Béla Bartók and Zoltán Kodály, in the early twentieth century (see MUSIC, FOLK AND TRADITIONAL). Similar attempts to collect indigenous musical traditions have been carried out in various countries. All such works are classified as descriptive notations. In order to improve the preci-

唄 Bai

a

b

Figure 4. (*Music Theories—Notations and Literacy*) *Shōmyō* (a) Japan, and (b) equivalent in Western notation. From Kenji Hirano, ed., *Mieku nika hōyō*, p. 31. A booklet attached to the record album, CBS Sony, Tokyo, 1974.



a

b

m̄m - - - beh̄ns̄ s̄ig - beh̄ns̄ - - -
 མཎྜ་ བཞེན་སྲིད་ བཞེན་

s̄ig - - - chos̄ kyi - d̄byīns̄ nas̄
 སྲིད་ ཇོས་ ཀྱི་ དབྱིན་ནས་

beh̄ns̄ - chos̄ d̄byīns̄ rnas̄ - dag - - nah̄ - las̄ - ma - s̄yos̄
 བཞེན་ ཇོས་ དབྱིན་ནས་ དག་ རང་ ལམ་ མི་ གཞན་

kyah̄ - gduḡ yū bdul - phir - khro - bo - skul - ston
 རྩ་ གདུག་ ཡུ་ བདུལ་ ཕུར་ ཁྲོ་ བ་ སུལ་ བྱེད་

pa - lhā chen̄ ma - há - - ká - la - s̄pyan - - b̄dren̄ no
 པ་ ལྷ་ ཇེན་ མ་ ཧ་ ར་ ལ་ སྤྱན་ བློན་ བོ།

Figure 5. (*Music Theories—Notations and Literacy*) (a) Tibetan notation, and (b) equivalent in Western notation. From Tsukamoto Atsuko, "The Music of Tibetan Buddhism in Ladakh: The Musical Structure of Tibetan Chant in the Ritual *bskan-gso* of the *Dge-lugs-pa* Sect," *Yearbook for Traditional Music* 15 (1983): 132, 133.



Figure 6. (*Music Theories—Notations and Literacy*) Korean notation. From Hye-Ku Lee, *Essays on Korean Traditional Music*, Seoul: Seoul Computer Press, 1981, p. 32. Copyright © 1981 by the Royal Asiatic Society, Korea Branch.

fazla	1/9	♯	d
eksik bakiyye	3/9		
bakiyye	4/9	♯	♯
küçük mücennep	5/9	♯	♯
büyük mücennep	8/9	♯	♯
tanini (whole tone)	9/9	♯	bb

Figure 7. (*Music Theories—Notations and Literacy*) Suphi Ezgi's method for representing accidentals (Turkish). Redrawn after Suphi Ezgi, "Nagari ve Ameli," *Türk Musikisi* 1 (1933).

sion and comprehensiveness of this type of notation, various approaches and mechanical devices have been proposed. Seeger constructed a device called a melograph, which was designed to measure and graphically represent pitch, duration, and harmonics in a way that resolved certain problems of subjective measurement in transcription by ear. Recent advances in analog-to-digital conversion using computers have further improved the accuracy of description and measurement. Other questions, such as those concerning the musical consciousness of the people, however, will remain unsolved unless other, more humanistic, methods are used.

Apart from musical documentation by researchers, in the twentieth century bearers of orally transmitted musical styles often publish prescriptive notations of their own music. Their intentions are twofold: first, to stabilize the tradition, and second, to give a formal character to the music by making it comparable to other notated genres (*see* GENRE). In some cases the published notations define the performance in so much detail that they suppress other possible interpretations.

Publication of such notation is strongly influenced by the development of PRINTING technology. Music PUBLISHING has a long history, from the latter half of the fifteenth century in Europe (collections of religious music) and in Asia (collections of Buddhist music, for instance). It has enhanced the diffusion of musical works, especially after the seventeenth century. While specialists have been needed to supply musical writings and printings, the use of the computer in this field has diminished that need. At the same time, the function of printed notes themselves has diminished because of the invention of SOUND RECORDING. Popular songs in the United States have enjoyed wide print dissemination, later supplanted by the phonograph industry (*see* MUSIC, POPULAR).

In general the use of sound recording has changed the relationship between notation and oral/aural traditions. The communicative and preservative functions that notation has historically fulfilled tend to be replaced by a new form of orality (qualified as secondary orality by Walter Ong). The advantages and disadvantages of new media should not be evaluated in general terms without reference to specific contexts. In some cultures in which an oral tradition has been strongly maintained, however, dependence on recording machines has begun to weaken the tenacity of oral/aural learning and creating.

See also ETHNOMUSICOLOGY; MUSIC COMPOSITION AND IMPROVISATION.

Bibliography. Willi Apel, *The Notation of Polyphonic Music 900–1600*, 5th ed., rev., Cambridge, Mass., 1961; Erhard Karkoschka, *Das Schriftbild der neuen Musik* (Notation in New Music: A Critical Guide to Interpretation

and Realization), Celle, FRG, 1966; Walter Kaufmann, *Musical Notations of the Orient*, Bloomington, Ind., 1967; Nippon Hōsō Kyōkai Symphony Orchestra, ed., *Gakufu no sekai* (The World of Notation), 3 vols., Tokyo, 1974; Walter J. Ong, *Orality and Literacy: The Technologizing of the Word*, London and New York, 1982; Charles Seeger, *Studies in Musicology 1935–1975*, Berkeley, Calif., 1977; Yoshihiko Tokumaru and Osamu Yamaguti, eds., *The Oral and the Literate in Music*, Tokyo, 1986.

YOSHIHIKO TOKUMARU

3. TUNING SYSTEMS

Tuning, in the West, usually connotes the setting of a musical instrument to abstract pitch standards in preparation for PERFORMANCE; the set or sets of pitches selected, adjusted, or available on a particular musical instrument; and the interaction of these settings or potentials with *intonation*, the auditory sensation that a musical performance is “in tune,” that its pitches are inflected to a standard of consistency. In this sense tuning is usually a topic related specifically to discussion of MUSICAL INSTRUMENTS and to the interaction of specific adjustments (of tubes, slides, reeds, strings, etc.) with construction materials, environmental conditions, and patterns of physical use.

Of course this is far more complicated in practice, because instruments, ensembles, and musical genres have various norms and stylistic regularities of tuning. For example, some instruments are pretuned by a specialist other than the performer; nonetheless, because instrumentalists tune up alone and with one another just before a performance, they must develop procedures for mixing and matching instruments that are pretuned (like a piano) with those that can continually be retuned (like a violin). All instrumentalists are also aware of and use a variety of tuning and compensating techniques to adjust for subtleties of ensemble blending and also to adjust for the idiosyncrasies of their particular instruments during the course of a performance.

Tuning and intonation are also topics of a large body of oral lore that circulates among professional and amateur musicians. Topics include which make and style of specific instruments are “perfectly in tune” and which have certain pitches “out of tune” or require extensive compensation to achieve consistency in various keys. Tips and advice about how to negotiate the intonation of difficult musical passages often involve ideas about tuning. Many instrumentalists have several instruments of different age and manufacture or modifications for occasional use and choose accordingly for the tuning problems associated with certain pieces. With some instruments, like a harpsichord, instrumentalists choose the pieces for a performance so that the keys of each selection are

related, lest the instrument sound as if it is going slightly in and out of tune from one piece to the next.

Although the Western dictionary sense of tuning usually refers to the procedures by which instruments are calibrated to preexisting standards and norms (usually described elsewhere as music theories), it is perhaps more accurate to say that tuning is the set of activities and ideas that interrelates the character of instruments, the conventions of pitch, and the norms of realization in a given musical tradition or practice. In this sense the Western musical traditions are no different from any other human musical tradition. The combination of acoustic, perceptual, material, and cultural factors has created extraordinary diversity in tuning systems known today, but it is also true that in all known human societies tuning can be counted as a fundamental dimension of musical communication. Were this not so, musical communication would not be characterized worldwide by the high degree of consistency and redundancy of pitch information and melodic type, performance techniques and styles, and instrument production and use. See MUSIC HISTORY.

It is important to realize that a tuning system is an imposition of musical order, culturally and acoustically rationalized, onto a larger perceptual framework that will permit many organizational possibilities. Human ears perceive tones from about sixteen hertz (Hz, cycles per second) to greater than sixteen kilohertz (kHz). In the Western musical sense this is a hearing range equivalent to about ten musical octaves, or a total of 120 chromatic tones in equal tuning. Actually, the Western tradition uses considerably fewer tones than these 120. For example, of the eighty-eight pitches on a piano, the highest is C⁸ at 4,186.0 Hz, and the lowest is A⁰ at 27.5 Hz; the human ear can hear upward at least two octaves (C¹⁰ would be 16.744 kHz) and downward a sixth (C⁰ would be 16.3 Hz). See PERCEPTION—MUSIC.

But the fact that less of the ten-octave potential is utilized is not the only way in which a tuning system imposes an arbitrary order. The octave is a universal feature of human perception, but ways to organize the material—tonal spaces and the number of intervals—within the octave are highly variable. Westerners might think of that ten-octave expanse of human hearing as 120 semitones, but the human ear is capable of making about fourteen hundred discrete frequency discriminations within that expanse. This is not a linear process, however, with the ear being able to perceive some 140 distinctions to each octave; a greatly disproportionate number of those discriminations are in the area from one to four kilohertz (roughly the upper two octaves of a piano), and other factors such as loudness affect perceptual distinctions in the lowest hearing ranges.

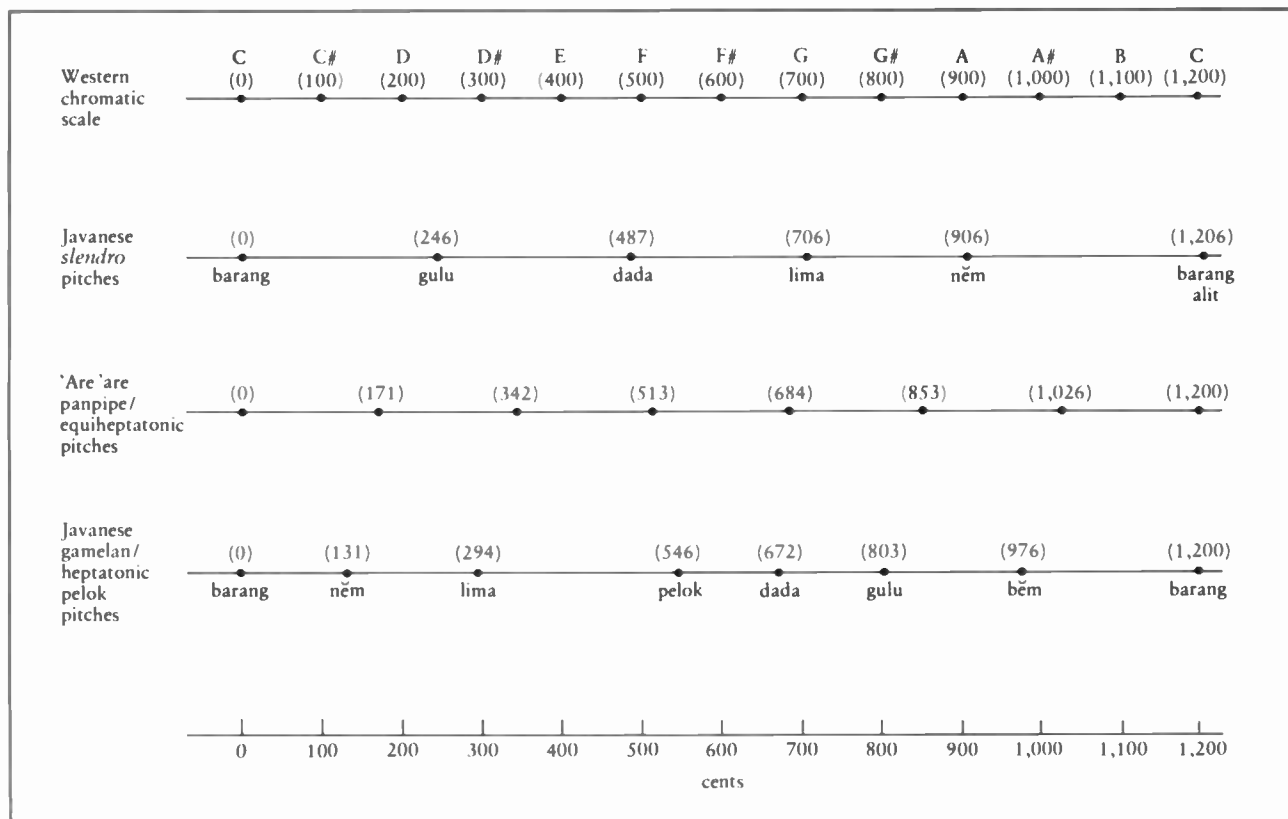
To compare a familiar tuning system with twelve semitones to the octave (as in the Western chromatic scale intervals C-C#-D-D#-E-F-F#-G-G#-A-A#-B-C) with other systems, it is useful to assign each semitone a mathematical value, for which we use the cent, one hundredth of a semitone. If we say that each semitone equals 100 cents, then each octave will equal 1,200 cents. The Western chromatic scale just listed corresponds to 1,200 cents, with a gap of 100 cents for each interval. The eight tones of the diatonic C major scale (C-D-E-F-G-A-B-C) are thus 0-200-400-500-700-900-1,100-1,200 cents, and this would be the numerical cents pattern for all Western major scales. These values are based on the system called equal temperament, the most typical Western system since 1850. Pythagorean tuning, with the same pitch set, was common in the West during the MIDDLE AGES. Based on the interval of a perfect fifth as the building block of tuning, it went out of favor because the thirds were too dissonant for chordal harmony, and a system for “tempering” the fifths developed. In the tempered system the intervals are the same in all keys.

Again taking the familiar Western chromatic or major scales as a reference point, a pentatonic system is a tuning of five divisions to the octave, and there

are many different kinds of pentatonic tunings found throughout the world. That a musical culture favors pentatonic scales does not mean that other intervals cannot be heard; rather, it means that tuning each octave for five tones is the preferred system. To take two of the many possibilities, pentatonic tunings constructed as C-D-E-G-A (anhemitonic, without semitones) or C-D^b-F-G-A^b-C (hemitonic, with semitones) could use cents values close to Western ones and therefore be playable on a Western instrument.

Other pentatonics cannot be accommodated on a Western instrument, which is why we might think they are out of tune when we hear them. For example, a *slendro* tuning on a gamelan from Java might form a pentatonic this way: 0-246-487-706-906-1,206. It was once thought that *slendro* was an equipentatonic tuning, with the tones 240 cents apart, but in actual practice the tunings measured are all slightly different from that hypothetical abstraction, and different gamelan instrument sets are known for different tuning and timbre subtleties. The first pitch (see Table 1), at 246, is midway between chromatic D and D#, producing a tone that is neither a major second nor a minor third away from the starting tone. The next tone, at 487 cents, is just slightly flat of chromatic F, and a Westerner will hear it as a

Table 1. Cents Values in Four Tuning Systems



fourth from the starting tone. Likewise the next tone, at 706, is so close to G at 700 that it would surely be heard as a fifth from the starting tone (differences of up to 8 to 10 cents may be barely heard by nontrained musicians; a trained musician might even be bothered by a difference of 2 or 3 cents). The next tone, at 960, is midway between chromatic A and A#, neither a sixth nor a minor seventh from the starting tone. And the next tone, at 1,206, is extremely close to the octave. In sum the *slendro* sounds to a Westerner like a tuning system made up of a "normal" octave, fourth and fifth, bounded on each side by "out of tune" pitches, one between the major second and minor third, another between the sixth and minor seventh.

Some tuning systems divide the octave into equal equidistant intervals. An equal seven-tone, or equiheptatonic, tuning has been reported for places as geographically distant as Thailand and the Solomon Islands. In the latter area the 'Are'are people are well known for their four ensembles of bamboo panpipes. In a film and several articles Swiss ethnomusicologist Hugo Zemp has shown how the 'Are'are construct panpipes and tune them (see ETHNOMUSICOLOGY). A system of halving and doubling lengths of bamboo produces the intervals of octave, fifth, fourth, neutral third, and equiheptatonic second. The cents figures (see Table 1) for this tuning are 0-171-342-513-684-853-1,026-1,200. Again, comparing with the Western chromatic values, we find that the octaves and intervals of the fourth and fifth seem very close (513 cents and 684 cents, slightly sharp and flat, respectively, of the Western intervals). The two intervals on either side, between these tones and the octaves, are quite distinct. The first tone, at 171 cents, is midway between the Western chromatic diminished second and major second but more flat of the major second. The second tone, at 342 cents, is midway between the Western chromatic minor third and major third, hence the term *neutral third*. On the other side of the fifth the tone at 853 cents is midway between an augmented fifth and a sixth, and the tone at 1,026 cents sharp of a minor seventh.

The pelok, another tuning for the Javanese gamelan, is also heptatonic and provides quite a contrast to the equiheptatonic systems as well as to the previously described Javanese pentatonic *slendro*. As shown in Table 1, typical pelok cents values correspond closely to Western ones at the octave and at the minor third (294) and augmented fifth (803), far less closely at the minor seventh (976) and fifth (672), and not at all on the tones midway between diminished and major second (131) and perfect and augmented fourth (546). But this tells us relatively little; it makes far more sense to look at the cents distances between all the pelok intervals, where the pattern of 131-163-252-126-131-173-224 gives a clearer idea of the logic of the tuning pattern. It is also important

to recognize that these figures may not be exactly the same from octave to octave on a given instrument or the same for each instrument of the gamelan. This does not indicate a lack of concern with tuning, however, but rather an aesthetic preference found in Indonesian music for clashes of timbre and overtones created by slight internal pitch discrepancy.

Equally significant among tuning systems are ones that divide the octave into more than twelve segments, sometimes called microtonal systems. Microtonality can involve both fixed and relative dimensions of pitch. Systems of seventeen and nineteen fixed tones to the octave have been known in the Middle East; the modern Arabic quarter-tone system uses twenty-four fixed equal-tempered intervals, each 50 cents apart. Use of relative microtones involves inflectional conventions rather than specific constant pitches. This is shown by the variety of slides, bends, shakes, and oscillations in instrumental and vocal Afro-American idioms like blues, jazz, soul, and gospel music. The complex tuning system of India mixes several of these dimensions: a basic heptatonic structure; a theoretical division of these pitches into smaller intervals (22 sruti); and a performance tradition in which certain pitches are never altered, others may be flattened varying degrees according to the melodic context in the raga being performed, and yet one other pitch is raised a semitone—all yielding a sense of about twenty relative pitch positions to the octave.

Microtonality has also long been important to AVANT-GARDE composers and instrument inventors around the globe, for the expanded universe of sounds and harmonies that are available. Some important figures here include Harry Partch, a U.S. inventor who developed an ingenious mathematical figure of symmetrical pitches, the Tonality Diamond, and composed with a forty-three-tone octave system; Charles Ives, a U.S. composer who wrote quarter-tone pieces for two pianos, tuned a quarter tone apart; Adriaan Fokker, a Dutch acoustician who developed thirty-one-tone tuning emphasizing the purity of the major third and the minor seventh and built an organ for the performance of thirty-one-tone music; Ivan Vyshnegradsky, a Russian composer whose piece *Arc en ciel* was scored for six pianos, each tuned a twelfth of a tone higher than the last, and who designed a quarter-tone piano in the 1920s; George Secor, whose scalatron instrument allows the tuning of each key to any frequency; and Wajih Abdul Haq, a Syrian inventor whose *kithara da damas* is a 440-stringed double-keyboard piano with back-to-back manuals tuned a quarter tone apart.

See also SOUND.

Bibliography. Donald H. Hall, *Musical Acoustics*, Belmont, Calif., 1980; Mantle Hood, "Sléndro and Pélog Redefined," *Selected Reports in Ethnomusicology* 1 (1966): 28-48; Mark Lindley, "Tuning," *New Grove Dictionary*

of *Music and Musicians*, Vol. 19, New York, 1980 ed.; Tran Van Khe, "Is the Pentatonic Universal?" *World of Music* 19 (1977): 76–85; Hugo Zemp, "'Are'are Classification of Musical Types and Instruments," *Ethnomusicology* 22 (1978): 37–67; idem, "Aspects of 'Are'are Musical Theory," *Ethnomusicology* 23 (1979): 6–48.

STEVEN FELD

MUSICAL, FILM

The musical is a GENRE that has become a part of filmmaking activity around the world, often drawing on regional music and THEATER traditions. This entry includes articles on the two most pervasive influences in the field:

1. Hollywood Genre
2. Bombay Genre

1. HOLLYWOOD GENRE

From their earliest days films have been accompanied by music, but the term *musical* has been reserved for films in which musical numbers play a significant role in conveying the dramatic NARRATIVE. The beginnings of the sound era in HOLLYWOOD in the late 1920s inevitably generated new genres, and among the most immediately successful was the musical, which became one of Hollywood's most distinctive contributions to the medium, with worldwide influence. The resources of the major studios enabled them to define the musical as a large-scale, often spectacular amalgam of SONG, DANCE, and DRAMA.

Origins

Although the film musical grew out of early talkie shorts and features produced at Warner Brothers in 1927–1928—notably *The Jazz Singer* (1927) with Al Jolson—a long tradition of musical theater and popular song predated and influenced the musical film. Among the influences was the Broadway revue, a mixture of (often satirical) sketches with performances of popular song and dance numbers. A variety format had also thrived in the U.S. theatrical forms known as vaudeville and, on an earthier level, burlesque. Loosely structured formats of this sort were used by Hollywood in MGM's *The Hollywood Revue of 1929*, *The Fox Movietone Follies* (1929), *Paramount on Parade* (1930), and Universal's *The King of Jazz* (1930), each displaying its studio's stable of musical talent in Broadway style, with emcees and curtained stages. MGM's *The Broadway Melody* (1929) inaugurated the tradition of the backstage musical. Here songs and dances were motivated by a plot about the preparation of a Broadway production. Another Broadway influence, which had been derived from Europe, was the operetta, in which no such pretext was sought, but song and dance were

accepted as normal elements of dramatic narrative, motivated by situation or emotion. An early film example was *The Desert Song* (1929), a direct adaptation of the Sigmund Romberg–Oscar Hammerstein operetta.

Evolution

It was the backstage musical that first dominated the genre, largely due to a series of Warner Brothers productions directed in whole or part by a master of musical spectacle, Busby Berkeley. Among the Berkeley backstage musicals were *42nd Street* (1933), *Footlight Parade* (1933), *Gold Diggers of 1933*, *Dames* (1934; Figure 1), and *Gold Diggers of 1935*. These musicals were characterized by a radical separation of narrative and number, presenting naturalistic backstage dramas culminating in elaborate, often surrealistic production numbers. *Dames* was typical: the success of a young romance is linked to the success of the show in which the young couple is involved. The plot contrasts the Puritan ethic with the pleasure principle, lovemaking and show making are used as metaphors for each other, and the film ends with the celebration of their mutual success in the form of the extravagant Berkeleyan spectacle.

Contemporaneous with Berkeley's work at Warner Brothers were two other studio styles of the 1930s (categorized by Rick Altman as the "fairy-tale musical"): the Paramount operetta and the dance-centered, integrated musical comedies of Fred Astaire and Ginger Rogers produced at RKO. Operettas like *The Love Parade* (1929) and *The Merry Widow* (1934) showed the European influence of directors such as Ernst Lubitsch and Rouben Mamoulian. Set in mythical kingdoms, these fairy-tale musicals parallel the course of the romance with the need to maintain order in the kingdom. In the operetta tradition the musical numbers furthered the love interest, enabling the songs to be integrated with the stories. The operetta tradition continued through the 1930s at MGM in films starring Jeannette MacDonald and Nelson Eddy.

The integrating process continued with the Astaire-Rogers series of nine films, from *Flying Down to Rio* in 1933 to *Top Hat* in 1935 (Figure 2) to *The Story of Vernon and Irene Castle* in 1939. The RKO series of films continued the backstage tradition in that Astaire and Rogers frequently portrayed professional entertainers (archetypically in *Shall We Dance*) but seemed more in the fantasy spirit of the operetta films, sharing as well their tendency to integrate narrative and number. The Astaire-Rogers films differed from the operettas, however, in their use of contemporary popular music and in the emphasis on dance rather than song as the chief means for conveying plot and character relationships.

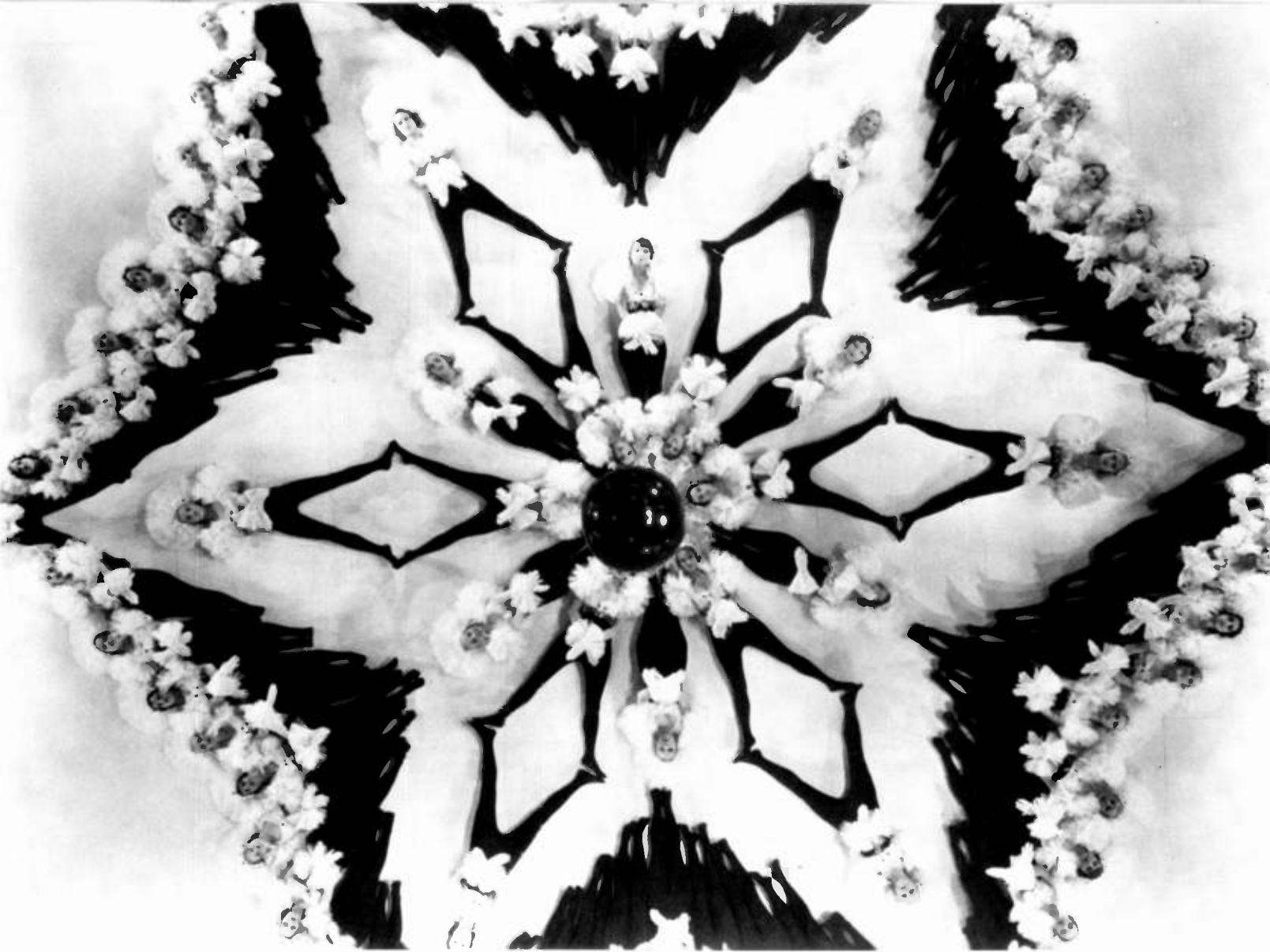


Figure 1. (Musical, Film—Hollywood Genre) Busby Berkeley, *Dames*, 1934. The Museum of Modern Art/Film Stills Archive.



What is often referred to as the golden age of the integrated musical came into being at MGM under the impetus of a group known as the Freed Unit (named for producer Arthur Freed). The Freed Unit functioned as a repertory company within the studio system, working out of a creative nucleus consisting of directors Vincente Minnelli, Gene Kelly and Stanley Donen, and Charles Walters; writers Betty Comden and Adolph Green; and performers Judy Garland, Gene Kelly, and Fred Astaire, among others. From the early 1940s until about 1955 (when MGM stopped mass-producing musicals) they were responsible for some of the best-known musical films, including *Meet Me in St. Louis*, *The Pirate*, *Easter Parade*, *On the*

◁ Figure 2. (Musical, Film—Hollywood Genre) Fred Astaire and Ginger Rogers in *Top Hat*, directed by Mark Sandrich, 1935. The Museum of Modern Art/Film Stills Archive.

Town, An American in Paris, Singin' in the Rain (Figure 3), *The Band Wagon*, and *It's Always Fair Weather*.

The Freed Unit was instrumental in developing a type of musical that has been labeled the folk musical. In this subgenre singing and dancing come not from professional entertainers performing for a paying audience but from ordinary people expressing a love of the land or the joys of everyday life. In these folk settings, usually involving a small town or otherwise rustic environment, performers such as Garland and Kelly could portray characters from whom singing and dancing appeared to rise spontaneously, lending to the MGM musical a folksy quality that belied the professionalism of its musical numbers. The Freed Unit, led by director Minnelli, also pioneered the “dream ballet,” in which characters acted out their fantasies in stylized-dancing dream sequences. The dream sequence was typical of Minnelli’s work, stressing the themes of art versus life and dream versus reality—themes that were so prevalent in the director’s films and in the MGM musical as a genre.

The end of the golden age of Hollywood musicals coincided with the decline of the studio system, beginning in the mid-1950s. Musicals continued to be



Figure 3. (*Musical, Film—Hollywood Genre*) Gene Kelly in *Singin' in the Rain*, directed by Gene Kelly and Stanley Donen, 1951. The Museum of Modern Art/Film Stills Archive. Courtesy of MGM/UA.

made, and some (e.g., *The Sound of Music*, 1965) were enormous financial successes. However, the energy and vitality that had previously driven the genre as a whole, as well as its glorification of entertainment, were increasingly replaced by a cynicism and self-examination that manifested itself in films like *All That Jazz* (1980).

The Hollywood musical has been studied as a film genre, a mass-produced formulaic narrative that gives the audience a ritualistic rather than a unique viewing experience. The value of the experience lies not so much in the artistic merit of a particular film but rather in the shared cultural meanings conveyed by the genre as a whole. The Hollywood musical—with its repeated confrontations between art and life, dream and reality, and entertainment and puritanism—has been described as a genre that mediates between the U.S. belief in the work ethic and its love of the carefree values of entertainment. In valuing entertainment the musical also promotes the virtues of the Hollywood studio system and of itself as a genre. Although we may think of the musical as pure entertainment, the genre also presents us with a ritual examination of the values of freedom, success, and love in the United States as they are realized over and over again in the utopian form of song and dance.

See also MOTION PICTURES.

Bibliography. Rick Altman, *The American Film Musical*, Bloomington, Ind., 1987; idem, ed., *Genre: The Musical*, London and Boston, 1981; Jane Feuer, *The Hollywood Musical*, London, 1982; Clive Hirschhorn, *The Hollywood Musical*, New York, 1981; John Kobal, *Gotta Sing, Gotta Dance: A Pictorial History of Film Musicals*, London and New York, 1971.

JANE FEUER

2. BOMBAY GENRE

When Universal’s *Melody of Love*, the first sound film shown in India, made its appearance there in 1929, it seemed to India’s young film industry a message of doom. HOLLYWOOD films already occupied 90 percent of Indian screen time. Could Indian filmmaking survive this new challenge? The conversion of existing facilities to sound production, requiring costly imported equipment and new kinds of expertise, seemed an overwhelming problem. In spite of this outlook, the Bombay exhibitor Ardeshir Irani managed to put together the musical *Alam ara* (*Beauty of the World*), made in the Hindi LANGUAGE and debuted in 1931—India’s first sound film. Its reception was tumultuous. Police had to be brought in to control the surging crowds. Tickets disappeared into the black market. Twenty-two other Hindi films, all

musicals, were released in 1931; all were similarly received. In Hollywood the musical had become one of several major genres (see GENRE); in India it became for a quarter of a century the *only* genre. Not until 1955 would any Indian producer venture to produce a film without songs or dances. By then, India's film industry had become one of the world's largest and one of the few to dominate its own screens. It turned out films—musicals, that is—in more than a score of Indian languages. See MOTION PICTURES—SOUND FILM.

Several factors help to explain the remarkable transition. In a land where foreign languages had for a thousand years dominated the councils and pleasures of the mighty, it was a startling and emotional experience to find one's own language issuing from the giant screen. To this was added another, equally powerful factor. *Alam ara* had a dozen songs (see SONG). Another early Hindi film is said to have had forty. All early Indian musicals had a profusion of songs, and most had dances (see DANCE). This was no accident: the industry was drawing on a tradition that went back some two thousand years.

In ancient India, in the golden age of Sanskrit THEATER—that of Sūdraka (fourth century C.E.) and Kālidāsa (fifth century C.E.)—DRAMA was always inseparable from music and dance. In the Muslim-dominated era, from about 1000 C.E., drama became an outcast, held in moral obloquy. But while it ceased to be an ornament of princely courts, it survived as folk drama performed by players traveling from village to village throughout India, always involving song and dance (see MUSIC THEATER—ASIAN TRADITIONS). In 1931 the Indian film world tapped this current, a mighty river of music that had flowed through millennia of tradition.

The Indian musical became more a way of drama than a genre: it comprised all genres. A musical could be a tale of love and sorrow, a mythological story (see MYTHOLOGICAL FILM, ASIAN), a historical spectacular, a farce, a mystery, a problem play, a TRAGEDY. In one of the most nostalgically revered of early musicals, *Devdas* (1935), whose songs are still heard on Indian radio, an intercaste romance is thwarted when the heroine obeys her father and accepts the suitable marriage he has arranged. But she never forgets her Devdas, who meanwhile takes to drink and at the end is found dead outside her home. For many young viewers the film unquestionably functioned as a vehicle of social protest. The Indian musical thus often reflects tensions of Indian society, in which many age-old customs are eroding. But, as in other film industries, the Indian musical more often reaches for a blockbuster impact with astounding action. In the film *Avvaiyar* (1951), made in the Tamil language by S. S. Vasan of Madras, a hero is held captive in an enemy fortress. In response to

prayers sung to the elephant god Gaṇeśa, a herd of elephants thunders across the landscape to his rescue and, pushing in unison, brings the fortress walls toppling to the ground.

Regardless of how spectacular the action, the obsessive loyalty belongs to the music. Film songs have become a constant Indian presence, accompanying weddings, funerals, state occasions, religious festivals, parades, parties, and political conventions. Their nature has evolved over decades. Originally drawn from Indian tradition, they have become highly eclectic, utilizing rhythms and instrumentation from all parts of the world. This has been denounced by some musicologists as a corruption of things Indian but has been enthusiastically welcomed by young audiences. It also seems to have helped the films win a growing export market, especially in other parts of South Asia and in East Africa. Many Indian musicals have won success in the Arab world, and some— notably films starring Raj Kapoor, such as *Awara* (The Vagabond, 1951) and *Shri 420* (Mr. 420, 1955)— have been well received in the Soviet Union.

In India the industry inevitably works in many languages. Some films are produced in several languages with a different cast for each. But most Indian musicals have from the start been made in Hindi. At the beginning of the sound era this language was spoken by some 140 million people, offering the most promising market. They were concentrated in a northern area, and the language was not understood in most of India—especially not in the South, which was dominated by languages having no relationship to Hindi. In spite of this, Hindi musicals have won an audience in these other areas, largely because of the music but also because song and dance and the NONVERBAL COMMUNICATION they involve perform so much of the storytelling function. Overt lovemaking has tended to be taboo on the Indian screen, but song and dance, often extremely sensual, provide functional dramatic equivalents of courtship and love. Thus the Hindi musical has transcended linguistic barriers. Like the Hollywood musical, it has also seemed to challenge a tradition of puritanism.

When India became independent in 1947 some leaders felt that Hindi should eventually become the national language, but political pressure toward this goal has aroused fierce opposition, especially in the South. Some observers speculate that if Hindi ever does become the national language it will be not because of government educational efforts but because of the penetration of the Hindi musical.

See also MUSIC, FOLK AND TRADITIONAL; MUSIC, POPULAR.

Bibliography. Erik Barnouw and S. Krishnaswamy, *Indian Film*, 2d ed., New York, Oxford, and New Delhi, 1980; Rani Burra, ed., *Film India: Looking Back, 1896–1960*,

New Delhi, 1981; Chidananda Das Gupta, *Talking about Films*, New Delhi, 1981.

ERIK BARNOUW AND S. KRISHNASWAMY

MUSICAL INSTRUMENTS

Musical instruments may be defined broadly as tools of musical communication, with the added qualification that certain body parts may be used in ways that form a musical instrument (such as blowing into the hollow formed by cupping the hands). The great number and diversity of musical instruments are nothing less than astonishing. That musical instruments have existed for a large part of human history is evidence of our need to rely on some artificial means of producing sound in order to convey the total spectrum of moods and emotions that motivate music making.

Musical instruments are relevant to communications in a number of ways. An instrument is a physical object with a recognizable form and timbre, both of which may acquire specific associations from the CULTURE in which the instrument is found. These may come to mind simply by seeing an instrument or hearing its SOUND. As a cultural ARTIFACT a musical instrument can provide information pertinent to the history of cultural interactions. Furthermore, it can offer concrete means of determining or at least confirming tuning systems in use in a particular music culture and can provide insight into the aesthetic preferences for particular sound qualities in a culture (see MUSIC THEORIES—TUNING SYSTEMS). The physical actions and behavior associated with playing musical instruments are instructive in understanding a system of music and the processes of socialization that maintain a tradition of music. Often particular social groups are associated with specific instruments or even instrument playing in general. Finally, the repertoires associated with musical instruments often acquire an independence that sets them apart from other modes of sound communication such as SPEECH and vocal music (see SONG). Some of these are closely allied to speech systems, even to the point of serving as surrogate speech systems (such as the talking drums of West Africa); others show greater affinity with vocal music sources; and yet another type appears to have little relation at all to a vocal system (such as Western symphonic literature). Studies of the SEMIOTICS of such systems contribute significantly to the general body of knowledge about human communication.

Systems of classification. Because of the great diversity of musical instruments and an underlying concern for determining genetic and cultural links, a prime aim of musicologists has been the development of a system of CLASSIFICATION. Actually the system-

atic classification of musical instruments has a long history. Writers on music in ancient India and China devised separate methods of grouping tools of musical sound. The Chinese system was based on the material of construction and included eight classes: earth, stone, metal, skin, wood, bamboo, gourd, and silk. The Indian system detailed in the *Nāṭyaśāstra*, the famous treatise on dramaturgy attributed to the sage Bharata (ca. 200–500 C.E.), provided the basis for the most widely accepted system of modern times, the Hornbostel-Sachs *Systematik*, named for its originators, Erich M. von Hornbostel and Curt Sachs. This system groups instruments into four main categories: those composed of rigid material sufficiently elastic to undergo periodic vibration (idiophones), those incorporating tightly stretched membranes (membranophones), those in which strings vibrate (chordophones), and those in which a column of air vibrates (aerophones). These categories are further refined with numerous subdivisions based on the physical characteristics of sound production (striking, rubbing, clapping, plucking, bowing, etc.) or the structural shape of the instruments (e.g., kettle-, tubular-, goblet-, or hourglass-shaped drums).

The primary usefulness of the Hornbostel-Sachs *Systematik* is that it provides a detailed and consis-



Figure 1. (*Musical Instruments*) Harpist invoking Horus. Egyptian-style painting, 1315. Louvre, Paris. Giraudon/Art Resource, New York.

tent vocabulary for discussing musical instruments. As a taxonomic system it has been criticized for its internal inconsistencies and its inability to classify all existing instruments satisfactorily. For example, the *cuíca* friction drum of Brazil, played by rubbing a wooden rod attached to the inner side of the membrane of a single-headed, open-ended cylindrical drum, has both idiophonic and membranophonic qualities, whereas the American banjo and the Indian *sārangī* and *sarod* combine chordophonic and membranophonic aspects. Even more interesting is the Indian *khamak*, an instrument associated with the unconventional Baul sect of Bengal. This instrument is similar in concept to the Brazilian friction drum but with the substitution of a tensed, plucked string for the rubbed stick. The *khamak* functions as a rhythm instrument but wonderfully combines percussive and melodic qualities into a synthetic whole. As ethnomusicologists have grown increasingly interested in developing culturally grounded explanations of the music systems they study, the *Systematik* has become less useful and more open to criticism because it contributes little to our knowledge of the cultural significance of a musical instrument (see ETHNOMUSICOLOGY). However, although many other systems of instrument classification have been proposed (e.g., André Schaeffner's two-part division of air and solid bodies as vibrating materials or Kurt Reinhard's system based on the number of sounding bodies and the means of pitch adjustment), none has gained the widespread acceptance of the Hornbostel-Sachs system.

Age of instruments. Musicologists attempting to ascertain the evolution of musical instruments often combine archaeology with geography, hypothesizing that an object's age is proportional to the extent of its DIFFUSION. These methods reveal that the existence of idiophones and aerophones extends at least to the first period of the Upper Paleolithic age (35,000–25,000 B.C.E.), with the use of idiophones probably occurring at a much earlier date, possibly as far back as the Middle Paleolithic (150,000 B.C.E.); chordophones and membranophones did not appear until the Neolithic period. In general we might also observe that musical instruments reflect the degree to which a culture has developed technology and control over its environment. Thus the earliest instruments in human history were rhythmic in function and idiophonic in structure, probably extensions of the use of the human body to produce slapping, clapping, and stamping sounds. Material prototypes of such instruments existed naturally (dried gourds, shells of crustaceans, etc.) and could fulfill a musical function with little or no preparation. That many such instruments continue to exist and command high cultural esteem among nonliterate tribes in many parts of the world lends support to this hypothesis.

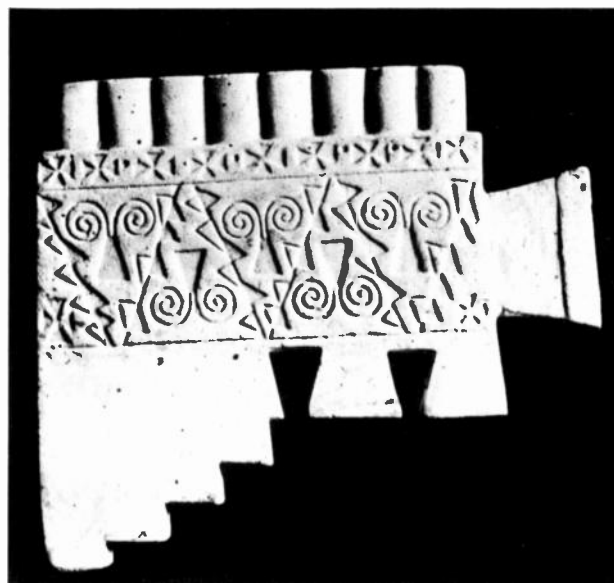


Figure 2. (*Musical Instruments*) Bolivian stone panpipe. Neg. Trans. No. 39583 (Photo by H. Millou). Courtesy Department of Library Services, American Museum of Natural History, New York.



Figure 3. (*Musical Instruments*) Bronze figure of a trumpeter, Benin, Nigeria. Reproduced by courtesy of the Trustees of The British Museum.



Figure 4. (*Musical Instruments*) Hans Memling, organ shutter showing angel musicians. Flemish, fifteenth century. Giraudon/Art Resource, New York.

One such instrument is the slit-drum (sometimes called a gong), an idiophone formed from a section of a tree trunk by hollowing a cavity from a narrow longitudinal cut. Slit-drums are found among tribal peoples of the Pacific islands, South America, Africa, and Asia. Because of such wide distribution, we may assume that this instrument type is extremely old.

Tuning systems. Whether studying the music of a past age or the music in a contemporary society, musical instruments are often examined to gain an understanding of the tuning system(s) to which a given culture adheres. Often music theorists and musicians within a culture refer to particular musical instruments to articulate theories of tuning. In India theorists always have demonstrated the twenty-two sruti system of intonation with reference to string instruments, first on bow harps and later on long-necked lutes. And in ancient China an equivalent of the Western concert pitch was determined by the pitch produced by blowing across a bamboo tube (*lü*) of such a volume that it would contain a specified

number of dried peas. Other pitches of the Chinese tonal system were derived by a process based on the phenomenon of overblown fifths and the acoustical law stating that the ratio 3:2 will produce the interval of a perfect fifth. A tube two-thirds the length of the original tube thus emits a tone equivalent to the overblown fifth of the original. Furthermore, a tone an octave below the overblown fifth of this second tube can be produced on a third tube one-third greater in length than the second. By extending this process of producing fifths and their lower octaves the Chinese theorists constructed a scale based on the circle of fifths. The degree to which actual PERFORMANCE practice adhered to such theoretically prescribed standards is altogether another matter.

Extramusical associations. Associations attached to particular instruments often tell us much about a music culture. For example, the Chinese board zither, *ch'in*, has always been associated with the literati. Thus, among other tools of the trade such as the special pens and brushes required for fine calligraphy,



◁ Figure 5. (*Musical Instruments*) The title page of *Parthenia*, published in London in 1611. This was the first collection of music engraved for keyboard instruments. By permission of the British Library.

the traditional Chinese scholar's study included a *ch'in* hanging on a wall, regardless of the owner's musicality. The folklore of the *ch'in* goes much deeper than this, though. Surrounding the performance practice of this instrument is a complex IDEOLOGY combining aspects of Confucianism and Taoism with Buddhist and yogic practices imported from India; playing the *ch'in* was an act bordering on a religious ritual of purification, not just an art.

Certain associations an instrument communicates to members of a culture may be tied ultimately to the materials from which it is constructed. Thus in Java bronze instruments are highly esteemed because bronze is considered to have religious significance. When the large *gong ageng* of a sophisticated gamelan is constructed, the blacksmith concludes the manufacturing process by distributing the water used in the final rinsing phase as a holy sacrament to members of his community. Material of construction becomes socially significant in Hindu India, a society

Figure 6. (*Musical Instruments*) Jan Molenaer, *Children Making Music*, 1629. Reproduced by courtesy of the Trustees, The National Gallery, London.



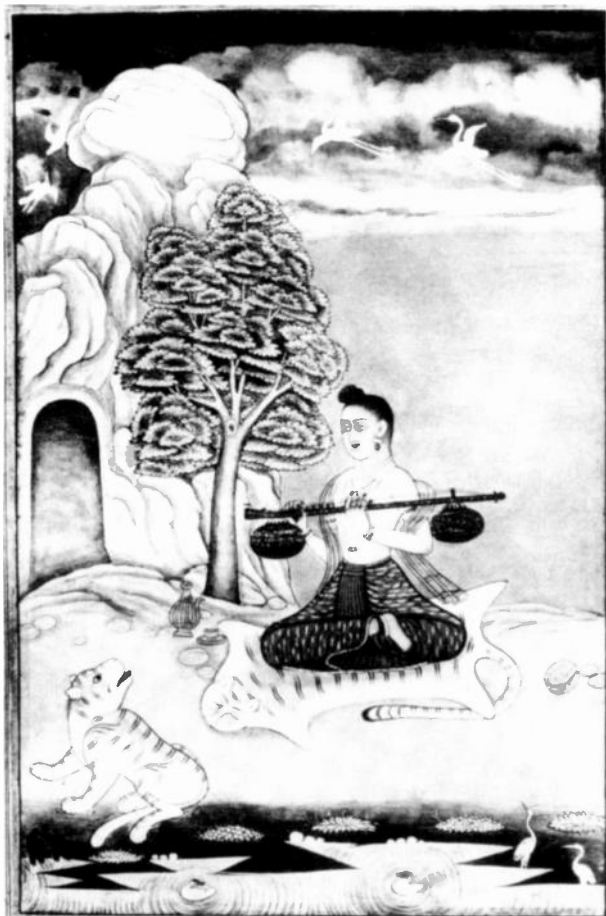


Figure 7. (*Musical Instruments*) Hermitess with a tiger and playing the Indian lute (*vīṇā*). Indian, Golconda/Hyderabad, ca. 1750. Museum für Indische Kunst, Staatliche Museen Preussischer Kulturbesitz, Berlin (West), Sign: MIK I 5002/34. © Bildarchiv Preussischer Kulturbesitz, Berlin (West), 1975.

ordered by notions of purity and pollution, which relegates drummers to a less favorable status ranking because their profession requires that they contact the skins of dead animals. The exigencies of performance practice too appear to have been subsumed into the Hindu order, affecting the nature of the instruments represented in this culture. Thus, because wind instruments require close contact with the mouth, with the possible transfer of saliva (a polluting substance) to the mouthpiece, aerophones in general are less diverse and are not usually played by members of high castes. Paradoxically the sound of the *śahnāī*—a double-reed aerophone of conical bore—is believed to be especially auspicious, and *śahnāī* ensembles consisting of lower-caste or Muslim musicians are commonly enlisted to provide music at Hindu weddings to help ensure nuptial bliss and harmony.

Musical instruments throughout much of their his-

tory have been used to communicate information that borders on the nonmusical. The ivory horn, or oliphant, was a symbol of knighthood in medieval England and is said to have been used to signal a call of distress. The militaristic uses of the bugle are well known to Westerners as are the use of church bells to announce a call to service and the ringing of small hand-held bells to indicate particular points in the Catholic Mass. In Korea the *teuk-gyeong*, an idiophone consisting of a single stone slab suspended from a support, is used to signal the end of ceremonial court music.

More detailed signaling occurs in the drum languages of West Africa and the Congo area. The hourglass-shaped pressure drum, *dun dun*, of the Yoruba tribe of Nigeria and the slit-log drum, *bon-gungu*, of the Lokele tribe of Zaire are two types of drums commonly used to send rhythmically encoded messages. John Carrington has shown how these



Figure 8. (*Musical Instruments*) Masanobu, Nakamuro Kiyozo as Yaoya Oshishi and Onoe Kikugoro I as Kichsaburo Dressed in the Costumes of Wandering Minstrels. Early eighteenth-century Japanese print. Ross-Coomaraswamy Collection. 21.7226. Courtesy, Museum of Fine Arts, Boston.



surrogate languages are tied closely to the tonal aspect of African languages in which the relative pitch of syllables acquires a phonemic function. The contrast of high and low pitches is produced on the *dun dun* by applying pressure to the laces that tie the heads together, creating a change in tension on the heads and a concomitant change in pitch. The contrasting tones are produced on slit-log-type signaling drums by shaving the "lips" of the slit to different thicknesses, resulting in one side's producing a tone higher in pitch than the other.

Possibly because of their capacity to produce sounds beyond the potential of the human vocal apparatus, musical instruments are often called upon to provide a means of communication with the spirit world. For example, Paul Berliner has explained the role of the *mbira dzavadzimu*, an idiophone with multiple manuals of plucked metal keys, in the spirit possession rituals of the Shona tribe of Zimbabwe. The Shona believe that the sound of this particular instrument has the power to penetrate the boundaries of the spirit world and call the ancestral spirits into the midst of the ritual activity.

Varied roles of musical instruments. In the course of their history instruments have evolved from ad-

◁ Figure 9. (*Musical Instruments*) Tibetan musical instrument. Wood overlaid with embossed silver and set with semiprecious stones. Courtesy of the Board of Trustees of the Victoria and Albert, London.

Figure 10. (*Musical Instruments*) Javanese metallophone. Reproduced by courtesy of the Trustees of The British Museum. Raffles Collection.





Figure 11. (*Musical Instruments*) Some of the unconventional musical instruments created by U.S. composer Harry Partch (*center front*). Courtesy of the American Music Theater Festival.

unct functionaries keeping a beat for ritualistic or expressive purposes to complementary sources of melody supporting a vocal line, later to means of playing music conceived vocally, and finally to idioms of instrumentally conceived music. The music culture of India provides examples to elucidate the latter stages of this evolution. Certain instruments in the art music of North India function primarily as vocal support. These include the *sārangī*, a bowed lute with a membrane-covered resonating cavity and numerous sympathetic resonating wires, and the harmonium, a small hand-pumped reed organ bequeathed by the British raj to Indian music culture. Both instruments function during a vocal performance of the raga-based improvisational music to fill in when the singer pauses to rest and to follow the melody line of the vocalist in a type of musical double talk, resulting in a heterophonic texture that is at times breathtaking in complexity and bewildering in execution. That the accompanists can be so adept in a process of music composition that is more akin to speech than to RHETORIC indicates the systematic nature of the music logic of these musicians, a talent obtained only after years of intensive training and practice.

Other Indian instruments are considered media for

the performance of music originally conceived for vocal performance. These include the *sarasvatī vīṇā* (commonly called *bīṇ*) of North India, a fretted stick zither with two large gourd resonators, and the *Taṅjori vīṇā* of South India, a fretted long-necked lute made from jackwood. Of the two, music of the South Indian *vīṇā* is more clearly modeled on vocal sources, as evidenced in the plucking patterns of the right hand. These are directly linked to the textual setting of the melody. Changes of syllable in a texted song are indicated in the instrumental rendition by articulations of the right hand.

Although the stroking patterns on the North Indian sitar may be recited vocally in a system of mnemonics, they usually are not tied to a preexistent vocal text. Because of their freedom from vocal sources these patterns have become conventionalized and form the basis for GENRE differentiation and improvisational forms in North Indian instrumental music. The basic patterns are constructed by linking together series of inward and outward strokes. Particular configurations of strokes in general tempo ranges are key determinants of genre in this system of music. Thus the *Masitkhānī gat* is based on a stroking pattern of sixteen beats played at a moderately slow tempo. The pattern begins on the twelfth beat of a

sixteen-beat rhythm cycle maintained by a pair of drums, the tabla. The melodic and rhythmic cycles coincide on the first beat of the drum pattern. This also serves as a major point of closure for virtuosic flourishes departing from the set patterns played by either the sitarist or the tabla player.

The development of electronic musical instruments that incorporate digital sampling technologies poses interesting questions in the popular-music world of the West (see ELECTRONIC MUSIC; MUSIC, POPULAR). These instruments can sample the sound of any instrument and then reproduce that particular sound quality at any pitch, normally using a keyboard manual as a reference. Problems arise when the sound of a particular artist, cultivated through years of experimentation and hard practice, is sampled by another artist and used in a recording. In the United States the 1976 COPYRIGHT legislation may have to be revised to satisfy the demands of artists regarding the ownership of musical sound. That this issue arises amply demonstrates that musical instruments are just that—instruments. The final sound product produced on a musical instrument is a function of both the instrument's inherent acoustical potential and limitations and the artistry of its player.

See also MUSIC, FOLK AND TRADITIONAL; MUSIC HISTORY; MUSIC MACHINES; MUSIC PERFORMANCE; SOUND EFFECTS.

Bibliography. Paul Berliner, *The Soul of Mbira*, Berkeley, Calif., 1978; John F. Carrington, *Talking Drums of Africa*, London, 1949; B. Chaitanya Deva, *Musical Instruments of India*, Calcutta, 1978; Karl Geiringer, *Instruments in the History of Western Music*, 3d ed., New York, 1978; Mantle Hood, *The Ethnomusicologist*, new ed., Kent, Ohio, 1982; Percival R. Kirby, *The Musical Instruments of the Native Races of South Africa* (1934), 2d ed., Johannesburg, 1965; William P. Malm, *Japanese Music and Musical Instruments*, Rutland, Vt., 1959; Curt Sachs, *The History of Musical Instruments*, New York, 1940; R. H. Van Gulik, *The Lore of the Chinese Lute*, Rutland, Vt., and Tokyo, 1940.

STEPHEN M. SLAWEK

MUZAK

A trade name both for a corporation and for the patented music product and service it originated and sells worldwide. In the 1980s most people use the term to refer generically to a variety of musical contexts and forms, ranging from "easy-listening" RADIO and recordings to any form of taped or wired background music played at low volume in offices, restaurants, shopping areas, and other work or public places. Some people use the term to refer positively to any soft, soothing music; others use it to refer negatively to any "canned" commercial background

music or SOUND EFFECTS. In effect, the term *Muzak* has come to mean both more and less than its owners intended.

The development of the Muzak style is related to changes in its contexts. On opening the New York operation in 1936, the Muzak Corporation sold a product characterized by orchestral strings playing long melodies in a style similar to film scores of the period. After 1940, when Muzak entered the work-place market of factories, banks, and offices, it began to hire arrangers to rearrange tunes in a style it considered more appropriate to its new settings. It was further encouraged in this direction by agreeing to conduct joint studies with the U.S. War Production Board to determine if the addition of music into the work setting could assist the war effort by increasing worker productivity. By 1950 Muzak had developed its notion of "stimulus progression." It no longer considered itself entertainment or background music, but "functional music," designed to be heard but not listened to, yet able to improve productivity. These ideas have persisted at Muzak, although the sound of Muzak has shifted as popular tastes have changed.

These changes in codes initially occurred at a time when the developing industrial economy had certain specific needs. First, the ongoing struggle for production efficiency was addressed by Muzak's idea of stimulus progression, in which each fifteen-minute segment contained five tunes, each one brighter and more stimulating in tempo and sound than the last. Muzak further claimed to assist efficient production by playing even faster and brighter arrangements during the predictable low daily productivity cycles. Second, it had become a common belief among employers that higher productivity occurred when workers were contented. Muzak was able to say that its music was very pleasant and gave workers a sense that the employer cared for them. Third, the growing consumer society wanted shopping to be a positive, pleasant experience. Muzak argued that shopping with music was more pleasing to customers than shopping in silence (see CONSUMER RESEARCH). Muzak was able not only to address these three broad trends in U.S. society but also to claim that its music was scientifically proven to produce desired results. Muzak's success can be attributed not only to being a part of the broad sweep of music throughout the culture made possible by the phonograph, radio, and jukebox, but also to addressing successfully these potent and ongoing ideologies.

What differentiates Muzak from its generic equivalents is an institutional framework of research, recording, and dissemination that provides an alleged scientific rationale for the efficacy of the final product. In addition to the stimulus progression idea, Muzak employs strict conventions for the orchestration and performance of its product in order to

ensure a neutral, unaffecting quality that will not attract a listener's attention. In order for the product to have no entertainment or listening appeal, it should not engage the listener emotionally. The idea is to smooth out the rough edges of noisy environments by providing—in contrast to music—a constant sound that calls forth no emotions, no associations, no reflections, and no evaluations.

Some people interpret Muzak to be an insult, a devious mind-control plot to encourage buying or to anesthetize workers, or an extension of other forms of political and cultural hegemony. The International Music Council of UNESCO passed a resolution seeking a worldwide ban on specific and generic Muzak, calling it an assault on public PRIVACY. Others find it a far less ideologically charged product, even if they do not appreciate its intention or believe the scientific rationale for its effects. There have been many reports of contested control of the sound environment by workers in factory and other settings. Many managers today say that workers are most happy and efficient when they themselves control whether or not there is music in the workplace and when they control the variety and volume of the music. Others still use Muzak or similar services at the workplace but permit workers to use their own personal sound devices. Still others, workers and consumers alike, report that they like Muzak and even find themselves listening actively to it. There seems as little consensus about attitudes toward Muzak as about what it communicates.

See also IDEOLOGY; MOTIVATION RESEARCH; MUSIC, POPULAR; SOUND RECORDING.

JANE HULTING

MYSTERY AND DETECTIVE FICTION

Detective FICTION became an established GENRE in late-nineteenth-century Europe and the United States and has remained popular throughout the industrialized world. The NARRATIVE is typically concerned with the solution of a criminal mystery by a professional or inspired amateur detective. Usually the mysterious event is as opaque to the reader as it is to the characters, leading the reader to identify with the detective as the major source of information in the story. U.S. writer Edgar Allan Poe's short story "The Murders in the Rue Morgue" (1841) is the first to fit this description, and it contains all the major components of the genre: the subordination of narrative elements to detection, the insistence on the role of ratiocination, the infallible detective, the detective's admiring (and slow) friend, the preference for brutal murder as the crime to be solved, the slight shudder that accompanies its discovery.

The early to mid-nineteenth century also saw the beginnings of modern policing methods in Europe

and the United States, and the fictional figure of the detective is perhaps related to hopes of what the police force would be able to achieve. In 1828–1829 François-Eugène Vidocq, a French thief turned detective, published his memoirs, which launched the detective as a cult figure. The vogue for police memoirs lasted throughout the century (see AUTOBIOGRAPHY). This period also saw the beginnings of the emphasis on scientific knowledge that has characterized industrial society. The detective's emphasis on deductive reasoning reflects a fascination with the possibilities of the scientific method and especially of its application to social problems. Fascination with crime can also be found in literature of the time, particularly in the enormously successful, widely translated, and widely influential French novel *Les mystères de Paris* (1842–1843), by Eugène Sue. Sue's avenger hero, who rights the wrongs committed by Paris's criminal underclass against the poor and oppressed, anticipates later and equally popular fictional figures.

Writing about crime was not new; there is ample attention to the subject in preceding centuries, much of it in the form of protojournalism—tract and broadsheet accounts of individual crimes, biographies of famous criminals (see BIOGRAPHY), accounts of trials and executions, and gazettes announcing crimes and rewards for the return of stolen property. Various tendencies can be seen in this literature: insistence on the disruptive and horrific aspects of crime, overt moralizing about the inevitability of retribution, and enjoyment of the exploits of plausible rogues, a theme that entered the novel in the form of the picaresque. During the period of the Industrial Revolution there was increasing separation



Figure 1. (*Mystery and Detective Fiction*) Illustration from Eugène Sue, *Les mystères de Paris*, part 2, Paris: Librairie de Charles Gosselin, 1844, p. 152.



Figure 2. (*Mystery and Detective Fiction*) Cover of *New Nick Carter Weekly*, New York, 1905. The Bettmann Archive, Inc.

between writing condemning crime and writing expressing ambiguous fascination, and a strand emerged that increasingly glamorized the hero—who might be a bandit or outlaw—as a rebel against an unjust social order. Detective stories made use of this established fascination with criminality, but within the perspective of law and order, for they usually adopted the point of view of the detective and thereby excluded that of the criminal.

Poe's invention of the "formula" of the detective story did not lead to its immediate exploitation as a form of commercial storytelling. Despite writers such as Émile Gaboriau in France and Wilkie Collins in Britain (whose 1860 novel, *The Moonstone*, adopted some of Poe's procedures), it was not until after the 1870s that the formula was widely used, largely owing to the extraordinary success of Arthur Conan Doyle's Sherlock Holmes stories. These stories became the model for detective fiction for the next half-century and firmly established it as a primarily British genre. Sherlock Holmes himself was the model for the detective as hero—an inspired, isolated eccentric—and Doyle's plots, based on the detailed assess-

ment of evidence and culminating in a devastating display of deductive power that reveals the guilt of someone it is hoped was never suspected by the reader, were widely imitated. Successful early epigones include Freeman Wills Crofts and G. K. Chesterton in Britain, and Anna Katharine Green and Mary Roberts Rinehart in the United States.

The golden age of the detective story was the period between the two world wars. These years saw the emergence of the most successful Western writers in the genre. In Britain Agatha Christie, Margery Allingham, Ngaio Marsh, and Dorothy Sayers established themselves during this period. In the United States the style was imitated by the pseudonymous S. S. Van Dine and Ellery Queen. In France Georges Simenon began his Inspector Maigret series in 1933. At this time detective stories started to acquire the gamelike quality now associated with them. Rules of the genre were formulated, and novelists were encouraged to play fair by giving the reader a reasonable chance to work out the solution to the mystery independently of the deductions of the detective.



Figure 3. (*Mystery and Detective Fiction*) Alexander Rodchenko, cover design for a detective story, 1924. From S. Bojko, *New Graphic Design in Revolutionary Russia*, New York: Praeger Publishers, 1972.



Figure 4. (*Mystery and Detective Fiction*) Basil Rathbone as Sherlock Holmes. The Bettmann Archive, Inc.

These stories usually restricted their settings to the English provincial middle and upper classes, partly, no doubt, because that was presumed to be the world of their readers and partly because these environments plausibly provide the closed setting (the country house, for example) and the restricted cast of characters that the puzzlelike structure of these novels demands.

British domination of the genre was eclipsed in the 1930s by the U.S. "hard-boiled school," whose best representatives included Raymond Chandler and Dashiell Hammett, though its most commercially successful author was to be Mickey Spillane two decades later. The distinctive features of this style center on the nature of the hero, who is now as much a man of action as of ratiocination and who fights as much as reasons his way to a conclusion. Although the basic structure of the narrative still consists of the successful solution of a mystery, the presence of a man of action at the center of the story ensures that less of the narrative is concerned with the detailed evaluation of evidence than is the case in the traditional English detective story. Whereas the traditional detective relates to others primarily through the logical evaluation of evidence, the man of action also decides on moral and intuitive grounds whether he trusts others or not, which considerably widens the emotional scope of the stories. Heroes with these characteristics may be found in other stories about crime that have no mystery in them, which has led some critics to postulate the existence of a separate genre whose defining characteristic is the nature of the tough-guy hero. Those who see the two traditions as continuous point to a common function and regard both as "thrillers"—texts whose pleasure derives from mystery, suspense, and enjoyment of the skills of the main character.

The origin of the hard-boiled detective lies in the pulp MAGAZINE of the early 1920s. Named after the cheap paper on which they were printed, these periodicals published short stories and sometimes serialized novels (see SERIAL) in the general area of

mystery, action, detection, and sensation. *Black Mask*, edited by Captain Joseph Shaw, evolved a style based on minimal PROSE and maximum action and published the major authors of the hard-boiled school, most notably Hammett and Carroll John Daly.

Explanations of the origin of this style vary, but factors cited include the literary influence of U.S. novelist Ernest Hemingway, in terms of both his minimal prose and the tough-guy ethos he espoused; the popularity of police memoirs and the memoirs of tramps and hobos, who also cultivated the image of the tough loner; changes in the social structure of the United States, particularly rising criminality in the rapidly expanding conurbations; the increasing working-class readership for inexpensive printed material (see LITERACY; PUBLISHING); and glamorous film portrayals of the gangster, especially the cycle of films launched by *Little Caesar* (1931). The theme also became a staple of comic strips such as "Dick Tracy" and, later, of popular comic books featuring superheroes like Batman and the Green Hornet (see COMICS).

The centrality of dialogue to the discussion of evidence virtually excluded detective stories from silent cinema. The introduction of sound in 1928–1929 (see MOTION PICTURES—SOUND FILM) largely coincided with the birth of the hard-boiled school, and such novels translated more easily to the screen than those in the British style, although Sherlock Holmes was incarnated on film in a successful series by British actor Basil Rathbone. Successful detective-novel heroes such as Hammett's Sam Spade and Chandler's Philip Marlowe provided star vehicles for actors like Humphrey Bogart. HOLLYWOOD's domination of world cinema combined with the international success of the hard-boiled school to largely Americanize detective stories after 1945. The rise of television in the 1950s transferred these stories from the large screen to the small and reinforced the tendency to create series heroes, or recurrent central characters, by programming stories in weekly series (see TELEVISION HISTORY). Screen versions of detec-

tive stories have increasingly favored action over deduction as the usual *modus operandi* of the hero and have increasingly revealed the identity of the villain to the viewer. Thus the solution of a criminal mystery as the central narrative device of these stories has tended to give way to the resolution of a conflict between law and crime, usually in favor of the law. Popular U.S. television series such as "Starsky and Hutch" and "Kojak" (mid-1970s), "Miami Vice" and "Cagney and Lacey" (early to mid-1980s), and the British program "The Sweeney" (early to mid-1970s) have increasingly focused on the personal characteristics and relationships of the central characters and have systematically reduced the importance of the traditional form of plot. See FICTION, PORTRAYAL OF CHARACTER IN.

Detective fiction's great commercial success and formulaic stability have led literary critics to dismiss the genre as popular literature and to regard its only functions as escapism and relaxation (see LITERARY CRITICISM; LITERATURE, POPULAR). Such judgments are based on criteria of literary value deriving from the romantic conception of the place of the arts in the social structure (see ART; ROMANTICISM). Some modernist critics, on the other hand, value detective stories for their rejection of the psychological analysis of character.

Sociological descriptions of the genre's communicative function focus on the links between the conceptions of character and action to be found in these stories and other features of the IDEOLOGY of industrial society. For example, it has been postulated that the tendency for many fictional detectives to be male and to espouse values of assertiveness and competitiveness reflects the cultural importance placed upon such qualities. The reader's vicarious enjoyment of assertive action may also be seen as implying a social definition of the ideal of (male) individuality. On a different level, the validation of law and order

in the stories has led U.S. critic Howard Haycraft to see a connection between the genre and political structure. He points to the popularity of detective fiction in democratic societies and to the banning of such stories in Nazi Germany and in the Soviet Union under Joseph Stalin. Alternative views suggest that these bans were caused by a fear of sensationalism and point to the ready availability of such fiction in the post-Stalinist Soviet Union. Other explanations of the success of detective stories refer to their representation of crime. The exclusion of the point of view of the criminal identifies that person as excluded from the social order and thus depicts crime as a form of social pathology, implicitly exonerating the social order from any responsibility for criminal acts. These various theories continue to fuel debate about the significance and function of a genre in which social transgression and individual retribution play central roles.

See also SPY FICTION; VIOLENCE.

Bibliography. John G. Cawelti, *Adventure, Mystery, and Romance*, Chicago, 1976; Michael F. Gilbert, ed., *Crime in Good Company*, London, 1959; Howard Haycraft, *Murder for Pleasure*, New York, 1968; H. R. F. Keating, ed., *Whodunit? A Guide to Crime, Suspense, and Spy Fiction*, New York and London, 1982; Jerry Palmer, *Thrillers: Genesis and Structure of a Popular Genre*, London and New York, 1978; Julian Symons, *Bloody Murder*, London, 1972; Colin Watson, *Snobbery with Violence*, London, 1971.

JERRY PALMER

MYTH. See FOLKTALE; ORAL HISTORY.

MYTHOLOGICAL FILM, ASIAN

The profuse traditional lore of South Asia associated with the Hindus, Buddhists, Jains, Sikhs, and other

Figure 1. (*Mythological Film, Asian*) Shantaram, *Ayodhya Raja* (The King of Ayodhya), 1932, with Durga Khote. Stare Historical Society of Wisconsin, Erik Barnouw Collection.



religious groups has come down to us via numerous epic-sized ancient narratives (*see* NARRATIVE), of which the most widely influential have been the Indian Mahabharata and Ramayana (*see* SOUTH ASIA, ANCIENT). Their content is reflected in the DANCE, SCULPTURE, painting, literature, songs (*see* SONG), and theatrical arts of an area extending from India to Indonesia and has also penetrated into East Asia, always with local and regional variations (*see* DRAMA). Inevitably this content dominated the thoughts of those who in 1913 embarked on production of the first Indian feature film, *Raja Harishchandra* (*see* PHALKE, DHUNDIRAJ GOVIND), and in so doing inaugurated the mythological film GENRE. The spectacular success of the film made the mythological the dominant genre of the first decade of Indian feature production, and it has remained a continuing factor. *See* MOTION PICTURES.

The genre earmarked for Indian filmmakers a subject area of their own on which the Western film world was unlikely to intrude and also gave them control of a segment of the film market in the Indian subcontinent and adjoining regions. Because the films could be equipped with subtitles in diverse languages, these silent films were able to penetrate many South Asian language areas. Within India the filmmakers became catalysts in the freedom movement, at first by merely evoking national awareness and pride, later by subtly introducing nationalist sentiments and Gandhian ideals into the mythologicals (*see* GANDHI, MOHANDAS). To British colonial officials the content of the films seemed generally bizarre and their popularity baffling.

Raja Harishchandra, based on a tale from the Mahabharata about a king who sacrificed all, including his loved ones, in dedication to the truth, is said to have been a story beloved by Gandhi as a child. The Mahabharata, reputedly the longest poem in existence (ninety thousand Sanskrit stanzas, most in thirty-two-syllable form), has a central theme with hundreds of substories branching out from it. The

climax depicts a clan war such as historians believe may have taken place about 1000 B.C.E. The Bhagavad Gita, which has become the central SCRIPTURE of Hinduism, is placed dramatically within this battle sequence. The Mahabharata is peopled by polygamous gods and goddesses, heroes and heroines. The god-hero Krishna, the dominant figure of this epic, had two wives, a special consort, and sixty thousand gopikas, or girlfriends. In sharp contrast Rama, the hero of the somewhat later Ramayana—a far more unified epic with a beginning, middle, and end—was passionately devoted to his only wife and preached and practiced monogamy. A major Ramayana sequence concerns the rescue of the wife, Sita, from imprisonment on the island of Lanka (Sri Lanka) after she had been kidnapped by a many-headed demon. The rescue, depicted in many spectacular mythological films, is achieved when Rama, with the aid of an army of monkeys, builds a causeway from India to the island. Both Rama and Krishna were incarnations (avatars) of the same god, Vishnu, one of the three gods of the Hindu trinity. As in other religious lore, the dividing line between the saintly and the savage, the absurd and the sublime, the beautifully wise and the dangerously silly is often thin.

The mythological genre, having given Indian films a potent start, gradually lost its central role to films of more modern content. The mythological has persisted in the form of increasingly gaudy SPECIAL EFFECTS extravaganzas. The early devotional innocence appears lost as filmmakers expand the original matter with their own mythological innovations, intent on ever more astounding crises and miracles.

See also MUSIC THEATER—ASIAN TRADITIONS; MUSICAL, FILM—BOMBAY GENRE.

Bibliography. Erik Barnouw and S. Krishnaswamy, *Indian Film*, 2d ed., New York, Oxford, and New Delhi, 1980.

S. KRISHNASWAMY

N

(en), the fourteenth letter of the modern and thirteenth of the ancient Roman alphabet, represents historically the Greek *nū* and the Semitic *nun*. The earlier Greek forms were **Ν** and **Ⲣ**, corresponding to the Phœnician **𐤍**. The sound usually denoted by the letter is a voiced nasal consonant with front closure. . . .

NAKAHAMA MANJIRO (1828–1898)

Japanese fisherman and later diplomat who was influential in the opening of Japan to the West. In 1841 five Japanese fishermen in a small boat, including thirteen-year-old Nakahama Manjiro, were driven by a storm into the western Pacific and shipwrecked on an uncharted island. After a six-month ordeal they were rescued by a passing whaler out of Fairhaven, Massachusetts, and dropped off in Hawaii, except for young Manjiro. The captain of the whaler, William H. Whitfield, took him home to Fairhaven, where Manjiro became the first Japanese to reside and be educated in the United States. Under the name John Mung he avidly studied English, mathematics, navigation, and surveying. Not everyone in town welcomed him; the Congregational church attended by the Whitfields refused to allow the youth to be enrolled in its Sunday school because he was not white, which led Whitfield to transfer to the Unitarian church.

Manjiro occasionally shipped out on whalers and even took part in the California gold rush. In 1850 he made the perilous decision to return to his native land. He was joined in Hawaii by two of his fellow castaways, and they were dropped in a small boat near Japan. Under laws of the Tokugawa era (*see* TOKUGAWA ERA: SECLUSION POLICY), repatriates were subject to severe punishment (including decapitation) for having been contaminated by foreign contact. Yet officials were under increasing pressure to open Japan to the outside world and found in occasional returnees an indispensable source of intelligence. Manjiro was subjected to a series of judicial proceedings and interrogations, during which he was pressed for information about his life abroad, and

his words were set down minutely. Manjiro's comments on daily life in the United States were well circulated among officials, his account of the Mexican War and his assertion that the United States had no malevolent designs on Asia making a deep impression—though some considered them treasonous. When the foreboding ships of Commodore Matthew Calbraith Perry, belching black smoke, appeared in Japanese waters in 1853–1854 to “open” Japan, Manjiro was summoned from his home on the island of Shikoku, where he had been banished, and brought before the Tokugawa rulers in Edo. Again he was questioned—by various government officials—about his knowledge of the foreigners. Although he was excluded from the negotiations with Perry (he was kept miles away from the discussions and under close guard), Manjiro provided valuable information to the shogunate; he also translated U.S. documents during the talks. After a treaty with the United States was concluded in 1854, Manjiro remained an important source of explanations and information about the West. He seemed to know all about the exhibits—including the telegraph and a miniature railway—that Perry had brought to demonstrate Western wonders.

Manjiro's influence continued in later years. He became a prominent figure, serving on foreign diplomatic missions, producing a manual on English conversation that became standard, teaching ocean navigation, and aiding in the planning of a Japanese oceangoing fleet along U.S. lines. Thus, with the passing of the Tokugawa era he contributed to the changes that came over Japan, bringing it into closer communication with the rest of the world. His unusual career has been the subject of several biographies and Stephen Sondheim's musical drama *Pacific Overtures* (1976).

See also ASIA, TWENTIETH CENTURY.

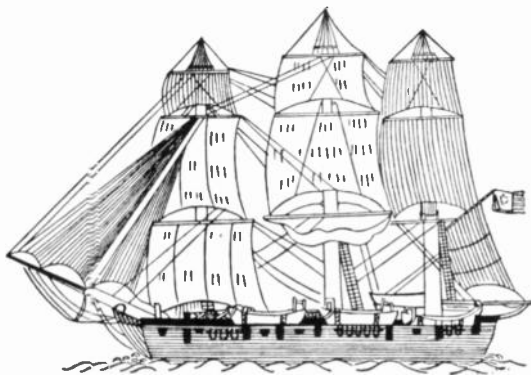


Figure 1. (*Nakahama Manjiro*) Drawing of a U.S. whaling ship by Manjiro. From Hisakazu Kaneko, *Manjiro, the Man Who Discovered America*, Boston: Houghton Mifflin, 1956, frontispiece.

Bibliography. Henry F. Graff, ed., *Bluejackets with Perry in Japan*, New York, 1952; Hisakazu Kaneko, *Manjiro, the Man Who Discovered America*, Boston, 1956; Samuel Eliot Morison, “Old Bruin”: *Commodore Matthew C. Perry, 1794–1858*, Boston, 1967; Toichiro Nakahama, *Nakahama Manjiro-den*, Tokyo, 1936; Arthur Walworth, *Black Ships off Japan*, New York, 1946, reprint Hamden, Conn., 1966; Emily V. Warinner, *Voyager to Destiny: The Amazing Adventures of Manjiro, the Man Who Changed Worlds Twice*, Indianapolis, Ind., and New York, 1956.

HENRY F. GRAFF

NARRATIVE

The recounting of one or more real or fictional events by someone (a narrator) to someone else (a narratee). According to this most general of characterizations, even such texts as “The woman closed the window,”

"The canary died," or "The bottle fell on the floor" constitute narratives. They give an account of one event, one change in a state of affairs. On the other hand, a poem like "Roses are red / Violets are blue / Sugar is sweet / And so are you," a syllogism like "All men are mortal; Socrates is a man; Socrates is mortal," or a statement like "Tigers are large carnivorous mammals of the cat family" do not constitute narratives—they do not recount an event. A dramatic PERFORMANCE does not constitute a narrative either, even though it may represent many fascinating state changes. Rather than being recounted, these changes occur directly onstage.

Narratives are found in various media: oral and written LANGUAGE, in PROSE or verse (*see* POETRY), of course; but also SIGN LANGUAGE, still or moving pictures (as in narrative paintings, stained-glass windows, or films), gestures, music, or a combination of vehicles (as in comic strips). Indeed, any and all vehicles allowing for the reporting of events (as opposed to their realization or enactment) can be used in narrating. The forms narrative can take are even more varied: in the verbal domain alone are the novel and the short story, history, BIOGRAPHY and AUTO-BIOGRAPHY, epics, myths, folktales, legends and ballads, news reports, spontaneous accounts in everyday CONVERSATION, and many other possibilities. As for its distribution, it is probable that the origins of narrative coincide with the origins of human signifying practices. Moreover, it is certain that narratives appear in every human society discussed by history and anthropology and that the average human being knows how to produce and process them at a very early age. This universality no doubt accounts in part for the considerable interest narrative has evoked among literary analysts, folklorists, and anthropologists as well as linguists, philosophers, psychologists, historians, semioticians, computer scientists, and students of the arts, media, and communication. It also partly accounts for the remarkable growth since the 1960s of narratology—the systematic study of the nature, form, and functioning of narrative and of the singularly human competence they imply.

Elements of the narrative. Narrative can be viewed as a structure or product (the text—in the broad sense of signifying matter—that comprises the recounting of one or more events) and as a communicative act (the practice involving the production and reception of the text). As product, narrative is said to have two parts. One part is the story, the events recounted and the existents participating in them or constituting the setting in which they occur. The other part is the discourse, the way in which the story, its narrator, its narratee, and its very narration are represented.

By definition, a story consists of n events (where $n > 1$). More specifically, it consists of at least one

transformation of a state of affairs obtaining at time t_0 into another state of affairs obtaining at time t_n (where $n \neq 0$). A story thus always involves temporal sequence, and this constitutes its most distinctive feature. Clearly, given a story made up of a number of situations and events, some of these may be simultaneous rather than successive: "The woman closed the window, and at the same time the man opened the door. Then they both sat down and settled their differences." Clearly, too, time relations are not the only ones possible between situations and events. Events may be causally related, for instance, with the causal link being explicit ("John lost weight, and as a result he went to see a doctor") or implicit and inferable on logical, necessary grounds ("All travelers waste fortunes; Susan was an inveterate traveler, and she squandered a lot of money") or on pragmatic, probable grounds: should an event e_2 temporally follow an event e_1 and be plausibly relatable to it, e_2 is taken to be caused by e_1 unless the narrative specifies otherwise ("Peter ate a rotten apple and got sick"). So important is this relation of probable causality that, according to the French structuralist critic ROLAND BARTHES, the confusion between consecutiveness and consequence represents one of the most powerful motors of narrativity. Narrative can be seen as the systematic exploitation of the *post hoc ergo propter hoc* fallacy, whereby what comes after x is interpreted as what is caused by x .

Though temporal succession (accompanied or not by causality) is a necessary condition of story and therefore of narrative, it is not quite a sufficient condition. The situations and events recounted must also make up a whole with a continuant subject, a sequence the first and last major terms of which are partial repetitions of each other, an autonomous structure having (in Aristotelian terminology) a beginning, a middle, and an end. Such a structure can itself result from the simple linking of two (or more) other story structures, from the embedding of one structure into another, from the alternation of units from one structure with units from another one, or from an ordered mixture of these modes of combination. Furthermore, and following the insight of the Russian formalists, some of the situations and events making up the story are essential to it and cannot be eliminated without destroying its causal-chronological coherence, while others are not and can. This sheds some light on the capacity of most stories to be summarized. It also sheds light on their capacity for (indefinite) expansion: any number of situations and events not fundamental or threatening to their coherence can be incorporated into them.

If ARISTOTLE's general account of story structure has proved exceedingly influential, the most seminal characterization of that structure in modern narratology is that of the Russian scholar Vladimir Propp.

He developed the notion of function or category of events considered from the point of view of their fundamental meaning in the story in which they appear, he characterized thirty-one functions that constitute the basic story elements of any (Russian) fairy tale, and he argued that tales always contain the function Lack or Villainy and proceed from it to another function that can be used as a denouement (e.g., Liquidation of the Lack or Villainy, Rescue, or Wedding).

Just as events can be grouped into fundamental classes, participants in them can be categorized in terms of the fundamental roles they may assume. Six roles or actants have been isolated by the French linguist and semiotician Algirdas Julien Greimas in his classic actantial model: any story involves a Subject looking for a certain Object; canonical stories further involve a Sender (of the Subject on its quest for the Object) and a Receiver (a beneficiary of the quest) as well as a Helper and an Opponent of the Subject. The same participant or actor can play more than one role, and, conversely, the same role can be played by more than one actor.

Further exploration into the nature of functions and actants would yield the following informal account of canonical story structure: after a contract between Sender and Subject whereby the Subject undertakes to attain an Object (to liquidate a Lack, for example, or to eliminate a Villainy), the Subject goes on its quest and, as a result of a series of tests, fulfills or fails to fulfill the contract and is (justly) rewarded or (unjustly) punished.

The "same" story can be recounted differently in different narratives adopting different modalities of discourse. Conversely, different stories can be conveyed in terms of the same discourse modalities. Thus, following the Russian formalist distinction between *fabula* and *sjuzet* (analogous to that between story and plot), the situations and events can be presented in the order of their (supposed) occurrence or in a different order. Compare, for example, "John ate, then he went to sleep" and "John went to sleep after he ate." In addition, they can be presented in more or less detail and can be accompanied by more or less narratorial commentary. Furthermore, if they occur several times they can be recounted only once (iterative narrative), and if they occur once they can be recounted several times (repetitive narrative), only one time (singulative narrative), or not at all (in elliptical narrative they are inferable rather than stated explicitly). Finally, they can be conveyed according to different points of view: that of a narrator who is not in the world of the story and who is not subject to any perceptual or conceptual restrictions, for instance, or that of one or more participants in the story. To adopt the widely used terminology of the French narratologist Gérard Genette, the point of

view may then be fixed (the perspective of one and only one character is used), variable (the perspective of several characters is used in turn to present different sequences of events), or multiple (different perspectives are used in turn to present the same sequence of events). The angle of vision employed can thus vary; so can the physical, intellectual, and/or emotional distance between the point-of-view holder and the story participants. The nature of the information explicitly provided can vary as well; it may, for example, pertain only to the participants' appearance, their external behavior, and the setting against which they come to the fore, or it may include their thoughts and feelings.

The role of the narrator. The narrator's role in the narrative text depends on the discursive modalities exploited. For instance, the narrator may be more or less intrusive (given to commenting on the narrating act itself or on the situations and events recounted, their meaning, and their importance), may have played no role in the story (third-person or heterodiegetic narrative), or may have been a (major) participant in it (first-person or homodiegetic narrative). Similarly, the narratee can be depicted in more or less detail, and so can the spatiotemporal context of the act of narration or narrating instance. Of course, a given narrative text may have several narrators, each addressing the same or different narratees, and the various narrating instances may be combined through simple concatenation (A recounts a sequence of events, then B recounts one), embedding (A recounts a sequence in which B recounts one), or alternation (A and B take turns recounting a series of sequences).

The very representation of a narrator telling a story to a narratee underlines the fact that narrative is not only an object or structure but also an act that, like other acts, occurs in a certain context because of any number of reasons and with any number of functions to fulfill (entertaining, informing, persuading, diverting attention, etc.). More specifically, narrative is a situation-bound transaction between two parties, an exchange resulting from the desire of at least one of these parties; further, the "same" story can have a different value in different circumstances (A wants to know what happened at time *t*, whereas B does not; A takes an account to mean one thing, and B takes it to mean another thing). This illuminates the tendency of many narrative texts to emphasize the contract between narrator and narratee, the contract on which the very existence of the narrative depends: I will tell you a story if you promise to be good; I will listen to you if you make it worthwhile; or, to use more literary examples, a tale for a day of survival as in *Arabian Nights*, a story for a night of love as in Honoré de Balzac's *Sarrasine*, a diary for redemption as in François Mauriac's *Vipers' Tangle*. This also explains why unsolicited narratives in par-

ticular must awaken and maintain desire in the receiver by relying on the dynamics of suspense and surprise; why—as the U.S. linguist William Labov underscored—narrators try to make clear that their narrative has a point, that it is worth telling, that it represents, illustrates, or accounts for something unusual and interesting; and why the very form of a narrative is affected by the context in which it occurs and the purpose it presumably serves. The sender of the message provides a certain kind of information, arranges it in a certain order, exploits one point of view as opposed to another, and evaluates certain details as particularly remarkable, important, or crucial, so that the receiver can better process the information in terms of certain imperatives and ends.

Significant functions of narrative. If narrative can have any number of functions, there are some that it excels at or is unique in fulfilling. Narrative always reports one or more changes of state, but, as etymology indicates (the term *narrative* is related to the Latin *gnārus*—"knowing," "expert," "acquainted with"—which itself derives from the Indo-European root *gnā*, "to know"), narrative is also a particular mode of knowledge. It does not merely reflect what happens; it discovers and invents what can happen. It does not simply record events; it constitutes and interprets them as meaningful parts of meaningful wholes, whether the latter are situations, practices, persons, or societies. As such, narrative can provide an explanation of individual fate as well as group destiny, the unity of a self as well as the nature of a collectivity. By showing that disparate situations and events can compose one signifying structure (or vice versa) and, more specifically, by giving its own form of order and coherence to a possible reality, narrative supplies models for its transformation or redescription and mediates between the law of what is and the human desire for what may be. Above all, perhaps, by instituting different moments in time and establishing links between them, by finding significant patterns in temporal sequences, by pointing to an end already partly contained in the beginning and to a beginning already partly containing the end, by exposing the meaning of time and imposing meaning on it, narrative reads time and teaches how to read it. In short, it is the structure and practice that illuminate temporality and human beings as temporal beings.

See also FOLKTALE; MUSIC, FOLK AND TRADITIONAL.

Bibliography. Roland Barthes, *S/Z*, trans. by Richard Miller, New York, 1974; Wayne C. Booth, *The Rhetoric of Fiction*, 2d ed., Chicago, 1983; Seymour Chatman, *Story and Discourse: Narrative Structure in Fiction and Film*, Ithaca, N.Y., 1978; Gérard Genette, *Narrative Discourse: An Essay in Method*, trans. by Jane E. Lewin, Ithaca, N.Y., 1980; William Labov, *Language in the Inner City*, Phila-

delphia, 1972; Ladislav Matejka and Krystyna Pomorska, eds., *Readings in Russian Poetics*, Cambridge, Mass., 1971; W. J. T. Mitchell, ed., *On Narrative*, Chicago, 1981; Gerald Prince, *Narratology: The Form and Functioning of Narrative*, Berlin, New York, and Amsterdam, 1982; Vladimir Propp, *Morphology of the Folktale*, 2d ed., rev., trans. by Laurence Scott, Austin, Tex., 1968; Robert Scholes and Robert Kellogg, *The Nature of Narrative*, New York, 1966.

GERALD PRINCE

NEGOTIATION. See BARGAINING; INTERNATIONAL ORGANIZATIONS.

NEOREALISM

A period in Italian film history (roughly the decade from the end of World War II to the mid-1950s) distinguished by its emphasis on social issues (the war, the Resistance, poverty, unemployment); its rejection of both traditional dramatic and cinematic conventions, especially those of the HOLLYWOOD studio system; its use of on-location shooting and nonprofessional actors; and its DOCUMENTARY photographic style. In addition, the seminal essays of French film theoretician André Bazin popularized the view that Italian neorealism continued the long-take, deep-focus techniques of ORSON WELLES and JEAN RENOIR, rejecting the ideological montage of SERGEI EISENSTEIN and respecting the ontological wholeness of the reality being filmed. See FILM EDITING; FILM THEORY.

Film historians have unfortunately tended to speak of neorealism as if it were an authentic movement with universally agreed-upon stylistic or thematic principles. But the best neorealist films never completely denied cinematic conventions, nor did they entirely reject Hollywood codes. The basis for the fundamental change in cinematic history marked by the advent of Italian neorealism was less an agreement on a single, unified cinematic style than a common aspiration to view Italian life without preconceptions and to employ a more honest, ethical, but poetic cinematic language in the process.

The first major film in this tradition was Roberto Rossellini's *Roma, città aperta* (Rome, Open City, 1945). This work so completely reflected the moral and psychological atmosphere of the immediate post-war period that its international critical success alerted the world to the rebirth of Italian cinema from the rubble of the war. With a daring combination of styles and moods, Rossellini captured the tension and tragedy of Italian life under the German occupation and the partisan struggle out of which was born the new Italian republic (Figure 1). Although initially praised for its REALISM, *Roma, città aperta* is closer to traditional film melodrama than to a pure documentary cinema.



Figure 1. (Neorealism) Roberto Rossellini, *Roma, città aperta* (Rome, Open City), 1945. National Film Archive, London.

Rossellini's *Paisà* (Paisan, 1946) reflected to a far greater extent the conventions of NEWSREEL documentary. Tracing in six separate episodes the Allied invasion of Italy and its slow process up the boot of the peninsula, this film is characterized by a brilliant use of nonprofessional actors and an original merger of fact and fiction. Vittorio De Sica's 1948 film *Ladri di biciclette* (The Bicycle Thief) also employs non-professional actors, on-location shooting, and the social themes typical of many neorealist films, although the film cannot, in view of its mythic structure, be convincingly described as having a realistic style (Figure 2). That same year saw the release of

Luchino Visconti's *La terra trema* (The Earth Trembles). A more traditionally neorealist work, it employed no studio sets or sound stages; the cast was selected from a Sicilian fishing village and speaks the local dialect (necessitating Italian subtitles even for Italian audiences). The film's message is Marxist in tone, a call to resist human oppression and exploitation.

These four masterpieces captured the spirit of Italian culture in the immediate postwar period and made original contributions to film language. Italian directors had conclusively demonstrated that great art could be produced with a poverty of cinematic



Figure 2. (Neorealism) Vittorio De Sica, *Ladri di biciclette* (The Bicycle Thief), 1948. Courtesy of the Amos Vogel Collection/Corinth Films, Inc.



Figure 3. (*Neorealism*) Federico Fellini, *Satyricon*, 1969. Courtesy of the Amos Vogel Collection/United Artists.

means. This lesson was important to the French new wave, which idolized Rossellini (see NEW WAVE FILM), to a number of Third World directors (especially Satyajit Ray), and to the next generation of Italian filmmakers (Pier Paolo Pasolini, Bernardo Bertolucci, Gillo Pontecorvo, the Taviani brothers, and many others). Yet, with the exception of *Roma, città aperta*, Italian neorealist films were relatively unpopular within Italy and achieved critical success primarily among Italian leftists and foreign critics. One of the paradoxes of the neorealist era in Italian cinema is that the very masses of ordinary people such films set out to portray were relatively uninterested in their self-image on the screen. Of the approximately eight hundred films produced in Italy between 1945 and 1953, only about 10 percent can be called neorealist, and most were box-office failures.

However, a number of neorealist works achieved greater success by means of an artistic compromise, occupying a position somewhere between strict documentary realism and Hollywood cinematic codes. In *Vivere in pace* (To Live in Peace, 1946), director Luigi Zampa turned the tragic thematic material of Rossellini's war films into a comic farce. Alberto Lattuada employed the traditional narrative structure of the U.S. gangster film to study the effects of the U.S. occupation of postwar Livorno in *Senza pietà* (Without Pity, 1948). In *Il cammino della speranza* (The Path of Hope, 1950) Pietro Germi borrowed John Ford's style of epic photography to film a plot set in Sicily but indebted to Ford's westerns (see WESTERN, THE). Giuseppe de Santis combined Marxist ideology with Hollywood cheesecake and eroticism in *Riso amaro* (Bitter Rice), a surprising 1948 box-office smash.

Critics of Italian neorealism have often viewed its departures from the canons of cinematic realism as part of a "betrayal" of neorealism. Yet it is misleading to see the progressive rapprochement of Italian cinema to Hollywood genres or cinematic styles as a betrayal of a movement, since no such programmatic set of theoretical principles ever united neorealist directors. In spite of the fact that Italian leftists preferred a revolutionary cinematic stance, the Italian public clearly preferred ENTERTAINMENT, and Italian directors themselves felt the critical preference for social realism was a constraint on their desire to explore different cinematic styles and psychological rather than social problems. The resulting ideological debate over the direction Italian cinema should take—a choice between artistic freedom on the one hand or programmatic Marxist ideology on the other—centered on critical reaction to *La strada* (1954), by Federico Fellini. Praised by Catholics for its religious message and damned by Communists for its spirituality, Fellini's film, as well as a number of lesser-known works by Rossellini and Michelangelo

Antonioni, introduced an entirely new kind of poetic film into the Italian cinema, one that transcended the predominantly social themes typical of Italian neorealism and moved toward a cinema of psychological introspection and personal imagery (Figure 3).

See also AVANT-GARDE FILM; MOTION PICTURES—SOUND FILM.

Bibliography. Peter Bondanella, *Italian Cinema: From Neorealism to the Present*, New York, 1983; Gian Piero Brunetta, *Storia del cinema italiano 1895–1945*, Rome, 1979; Franca Faldini and Goffredo Fofi, eds., *L'avventurosa storia del cinema italiano raccontata dai suoi protagonisti, 1939–1959*, Milan, 1979; Mira Liehm, *Passion and Defiance: Film in Italy from 1942 to the Present*, Berkeley, Calif., 1984; Lino Micciché, ed., *Il neorealismo cinematografico italiano*, Venice, 1975.

PETER BONDANELLA

NETWORK ANALYSIS

A method of research for identifying the communication structure in a system, in which relational data about communication flows are analyzed using some type of interpersonal relationships as the units of analysis. A *communication network* consists of interconnected individuals who are linked by patterned communication flows. The usual procedures of communication network analysis consist of (1) identifying cliques within the system, (2) identifying specialized communication roles (liaisons, bridges, and isolates) in the communication structure, and (3) measuring various indexes of communication structure (e.g., connectedness) for individuals, personal networks, cliques, or systems. This research approach entails a search for the regularized patterns of relationships that often lie beneath the surface.

Structure—the patterned arrangement of the parts of a system—provides stability and regularity to human behavior in a system. Social scientists are interested in various types of structure—social structure, organizational structure, and political structure, for example. Researchers using this framework investigate the *communication structure* of a system, defined as the differentiated elements that can be recognized in the patterned communication flows in a system. Considerable research evidence shows that the behavior of an individual is partly a function of the communication networks in which the individual is a member. Thus the communication structure of a system is one predictor of the behavior of the members of that system—voting in an ELECTION, purchasing a consumer product, adopting a new idea, and becoming integrated into a new social setting, for example.

Historically the German sociologist GEORG SIMMEL

provided the original theoretical stimulus for network analysis, but U.S. psychotherapist Jacob Moreno's *sociometry* was the main methodological contribution. Sociometry is a means of obtaining and analyzing quantitative data about communication patterns among the individuals in a system by asking each respondent to whom he or she is linked (*see* GROUP COMMUNICATION). Sociometry was a popular analytical tool during the 1940s and 1950s, but the rise of computers in social research led to the abandonment of Moreno's approach. However, the development of computer techniques for large-scale network analysis resulted in a resurgence of interest in networks in the 1970s and 1980s. Network analysis is a theoretical framework for understanding behavior, more than just a set of research techniques.

Features

A *link* is a communication relationship (an exchange of information) between two units (usually individuals) in a system. It is the basic datum in any type of network analysis. Such links are often measured by sociometric questions that ask a respondent to indicate the other individuals with whom communication links exist. Other alternatives are (1) observation, in which the researcher identifies and records the communication behavior in a system, and (2) unobtrusive methods, in which the method of measurement removes the observer from the events being studied (an example is the computer-recorded data obtained about who interacts with whom via an electronic messaging system). A combination of two or more measurements in a multimethod design is usually superior to the use of any single method.

Five main types of units of analysis can be utilized in network analysis: individuals, dyads, personal networks, cliques, and systems (networks). Individuals can be the units of analysis when network variables like opinion leadership are measured at the individual level (*see* OPINION LEADER). A dyad is composed of two individuals connected by a communication link. The personal network consists of individuals who are linked by patterned communication flows to a focal individual. In a *radial* personal network an individual interacts with a set of dyadic partners who do not interact with each other. In an *interlocking* personal network an individual interacts with a set of dyadic partners who interact with each other. *Individual integration* is the degree to which the members of an individual's personal communication network are linked to one another. A *clique* is a subsystem whose elements interact with one another relatively more frequently than with other members of the communication system. A network consists of all the individual and aggregate units in a system.

One particular method of network analysis, Wil-

liam D. Richards's *Negopy* computer program, has been widely utilized by communication scholars, but several alternatives such as factor analysis and other clustering techniques are also appropriate. All network analysis techniques rely fundamentally on their measure of *proximity*, the relative nearness of a pair of individuals to each other in a communication sense. Network data are almost always handled in the form of a who-to-whom matrix rather than as a sociogram. Matrix-ordered data fit naturally with computer data analysis methods.

Perspective

Viewing human communication in a network perspective leads to a redefinition of *communication* as a process in which participants create and share information with one another in order to reach a mutual understanding (rather than viewing communication as a one-way, linear flow intended to influence the receiver). *Information*—defined here as a difference in matter-energy that affects uncertainty in a situation in which a choice exists among a set of alternatives—varies according to the meanings that individuals give to the messages that are exchanged. The network conception of communication can be represented by a series of converging circles of information exchange between two or more participants who approach but never arrive at exactly the same point of understanding. *Convergence* may be defined as the tendency for two or more individuals to move toward a common interest or focus. The increasing attention that communication scholars are giving to the new interactive communication technologies (*see* INTERACTIVE MEDIA) is leading to greater interest in network analysis and to the convergence model of communication.

See also DIFFUSION; MODELS OF COMMUNICATION.

Bibliography. Everett M. Rogers and D. Lawrence Kincaid, *Communication Networks: Toward a New Paradigm for Research*, New York, 1981; Barry Wellman, "Network Analysis: Some Basic Principles," in *Sociological Theory* 1983, ed. by Randall Collins, San Francisco, 1983.

EVERETT M. ROGERS

NEW INTERNATIONAL INFORMATION ORDER

Resolutions, meetings, and manifestos calling for a "new order" in international information structures and policies became a feature of the world scene in the early 1970s and often generated intense dispute. The original impulse came from the nonaligned nations, many of which had gained independence in the postwar years. To many the euphoria of inde-

pendence was turning to a sense of disillusionment. In spite of international assistance programs, the economic situation in many developing countries had not improved, and in some it had actually deteriorated. For certain countries foreign trade earnings could not cover interest due on foreign loans. These same years witnessed the rapid development of new communications media, and the era was constantly characterized as the Information Age—one in which information would be a key to power and affluence. To the developing countries it was increasingly clear that the “flow of information” (a term that seemed to subsume ideas and attitudes and followed a one-way direction from rich to poor countries) was dominated by multinational entities based in the most powerful nations. The resulting disparities tended to set the framework for discussion even within developing countries. Clearly political independence was not matched by independence in the economic and sociocultural spheres. A number of nonaligned countries saw themselves as victims of “cultural colonialism.” The imbalances it involved, and what might be done about them, became the focus of debate for the nonaligned countries.

Evolution of the Debate

The nonaligned nations movement took form in 1955 at a meeting in Bandung, Indonesia, that brought

together world leaders from Asia and Africa. Subsequent meetings—in some cases, summit meetings of nonaligned leaders—were held in Bangkok, Algiers, Tunis, Havana, and elsewhere. During the 1970s the membership grew to more than ninety countries plus several regional groups (see Table 1) and represented a majority in various United Nations bodies, with strong influence over their agendas. These UN agencies embraced a “development ideology,” meaning that high priority would be given to the development needs of the Third World (see DEVELOPMENT COMMUNICATION).

A nonaligned summit held in Algiers in 1973 adopted a resolution calling for a “new international economic order,” which was endorsed the following year by the UN General Assembly. This served as precedent and model for a similar resolution focusing on information, which was articulated at a 1976 nonaligned news symposium in Tunis. A leading figure at this meeting was Mustapha Masmoudi, Tunisian secretary of state for information, who demanded a “reorganization of existing communication channels that are a legacy of the colonial past.” This “decolonization” of information, he said, must lead to a “new order in information matters.” In subsequent meetings this phrase evolved into a *new international information order* and, at a later stage, into a *new world information and communication order*.

Table 1. Members of the Nonaligned Nations Movement (1979)

Afghanistan	Ethiopia	Mali	Senegal
Algeria	Gabon	Malta	Seychelles
Angola	Gambia	Mauritania	Sierra Leone
Argentina	Ghana	Mauritius	Singapore
Bahrain	Grenada	Morocco	Somalia
Bangladesh	Guinea	Mozambique	South Yemen
Benin	Guinea-Bissau	Nepal	Sri Lanka
Bhutan	Guyana	Nicaragua	Sudan
Bolivia	India	Niger	Surinam
Botswana	Indonesia	Nigeria	Southwest Africa People's Organization (SWAPO)
Burma (withdrew September 1979)	Iran	North Korea	Swaziland
Burundi	Iraq	North Yemen	Syria
Cambodia	Ivory Coast	Oman	Tanzania
Cameroon	Jamaica	Pakistan	Togo
Cape Verde	Jordan	Palestine Liberation Organization (PLO)	Trinidad and Tobago
Central African Empire	Kenya	Panama	Tunisia
Chad	Kuwait	Patriotic Front (Zimbabwe Rhodesia)	Uganda
Comoros	Laos	Peru	United Arab Emirates
Congo	Lebanon	Qatar	Upper Volta
Cuba	Liberia	Rwanda	Vietnam
Cyprus	Libya	Sao Tome and Principe	Yugoslavia
Djibouti	Malagasy Republic	Saudi Arabia	Zaire
Egypt	Malawi		Zambia
Equatorial Guinea	Malaysia		
	Maldives		

Source: 1979 News Dictionary, Facts on File (1980).

That same year UNESCO's General Conference in Nairobi also discussed information issues, in a context that produced sharp confrontation between the interests of developed and developing countries. The focus was on the free-flow-of-information doctrine. UNESCO's mandate in the area of communications is explicit in its constitution, adopted in 1946, which enjoined the agency to "collaborate in the work of advancing the mutual knowledge and understanding of peoples, through all means of mass communication and to that end recommend the free-flow of ideas by word and image." The free-flow doctrine was developed by the United States and other Western nations after World War II. As viewed by supporters, the unhampered flow of information would be a means of promoting peace and understanding and spreading technical advances. The doctrine had ties with other Western libertarian principles such as freedom of the press. However, critics of the doctrine came to view it as part of a global strategy for domination of communication markets and for ideological control by the industrialized nations. They saw it as serving the interests of the most powerful countries and transnational corporations and helping them secure economic and cultural domination of less powerful nations. A rewording of the doctrine was urged by nonaligned spokespersons calling for a free and balanced flow of information. The suggestion stirred deep suspicion in developed countries. If it meant that Third World nations would ordain a proper balance, and control or limit the flow, this would be—according to Western spokespersons—the

very antithesis of a free flow. "Free and balanced flow" and "free flow" seemed at this meeting to be irreconcilable concepts.

An important outcome of this 1976 UNESCO meeting was the appointment by Amadou-Mahtar M'Bow, Director-General of UNESCO, of a sixteen-person commission—broadly representative of the world's economic and geographic spectrum and headed by Sean MacBride of Ireland—to study "the totality of communication problems in modern societies." Its members held different opinions about what sort of new order was needed, but all were in agreement that the existing information order was far from satisfactory. They began their work late in 1977 and, after two years of fact-gathering, committee hearings, and debate, submitted their final report—known as the MacBride Report—to the 1980 UNESCO General Conference in Belgrade. Published in English as *Many Voices, One World*, it has been translated into many languages. Along with a resolution adopted at the same conference confirming UNESCO's support for a *new world information and communication order* (see Table 2), the report became the focus of debate during the following years—a rallying point as well as a target for attack.

Themes

The debate had at first centered on the news-flow question. The major Western international news services—AP and UPI of the United States, the French Agence France-Presse, and Reuters of the United

Table 2. Resolution 4/19 Adopted by the Twenty-first Session of the UNESCO General Conference, Belgrade, 1980

<p>The General Conference considers that</p> <p>a) this new world information and communication order could be based, among other considerations, on:</p> <ul style="list-style-type: none"> i) elimination of the imbalances and inequalities which characterize the present situation; ii) elimination of the negative effects of certain monopolies, public or private, and excessive concentrations; iii) removal of the internal and external obstacles to a free flow and wider and better balanced dissemination of information and ideas; iv) plurality of sources and channels of information; v) freedom of the press and of information; vi) the freedom of journalists and all professionals in the communication media, a freedom inseparable from responsibility; vii) the capacity of developing countries to achieve improvement of their own situations, notably by providing their own equipment, by training their personnel, by improving their infrastructures and making their information and communication media suitable to their needs and aspirations; viii) the sincere will of developed countries to help them attain these objectives; ix) respect for each people's cultural identity and for the right of each nation to inform the world about its interests, its aspirations and its social and cultural values; x) respect for the right of all peoples to participate in international exchanges of information on the basis of equality, justice and mutual benefit; xi) respect for right of the public, of ethnic and social groups and of individuals to have access to information sources and to participate actively in the communication process; <p>b) this new world information and communication order should be based on the fundamental principles of international law, as laid down in the Charter of the United Nations;</p> <p>c) diverse solutions to information and communication problems are required because social, political, cultural and economic problems differ from one country to another and, within a given country, from one group to another.</p>

Kingdom—were consistently described as having MONOPOLY control over the flow of news to and from developing countries, and exercising it from a limited perspective reflecting the economic and cultural interests of the industrialized nations. Expressions such as “coups and earthquakes” were frequently used to describe reporting of Third World events. In 1976 Indira Gandhi, the prime minister of India, expressed the prevailing view: “We want to hear Africans on events in Africa. You should similarly be able to get an Indian explanation of events in India. It is astonishing that we know so little about leading poets, novelists, historians, and editors of various Asian, African, and Latin American countries while we are familiar with minor authors and columnists of Europe and America.” The need for policies and structures to develop communications between developing nations (sometimes referred to as “South-South dialogue”) was constantly stressed. *See also* NEWS AGENCIES.

The flow of television programming, including ENTERTAINMENT programming, was soon incorporated into the debate, in large measure owing to a study conducted by two Finnish researchers, Kaarle Nordenstreng and Tapio Varis, and published by UNESCO in 1974. The study demonstrated that a few Western nations controlled the international flow of television programs, with the United States, the United Kingdom, France, and the Federal Republic of Germany accounting for the largest shares. The implications of this domination, in both financial and ideological terms, received increasing attention. *See also* TELEVISION HISTORY—WORLD MARKET STRUGGLES.

The integration of television with new technologies such as the communications SATELLITE—including direct broadcast satellites—and telecommunications networks that were channels for an increasing volume of transborder data flow difficult or impossible to control, extended the range of topics covered in the debate. Here the questions also included imbalances in the assignment of spectrum frequencies and of orbital slots for future satellites. *See also* COMPUTER: IMPACT—IMPACT ON THE WORLD ECONOMY.

The international flow of ADVERTISING, under similar multinational controls, was another issue that entered the debate. It was described by many as furthering not only products and services but also a way of life, generally centered on the acquisition of consumer goods. Some saw this as diverting attention from necessities to luxuries, and others saw it as a serious threat to indigenous culture. *See also* COMMERCIALS; SPONSOR.

In 1978 a new element was added to the debates with the passage of a UNESCO Declaration on the Mass Media. It was the result of six years of negotiation to achieve a consensus text, which finally carried the title *The Declaration of Fundamental*

Principles concerning the Contribution of the Mass Media to Strengthening Peace and International Understanding, to the Promotion of Human Rights and to Countering Racialism, Apartheid and Incitement to War. Regarded by the nonaligned nations as furthering the *new order* movement, it was the first international instrument referring directly to moral, social, and professional responsibilities of mass media in the context of “the universally recognized principles of freedom of expression, information, and opinion.” Hovering over the debate once again was the issue of the role of government. The final version of the resolution did not include—because of Western demands—proposals to make national governments responsible for the actions of communications companies working within their jurisdictions.

Collision Course

In the early 1980s the nature of the debate underwent decisive changes. Nonaligned nations were no longer as unified as they had been; amid a widespread economic recession some leaned toward a more militant, others toward a more conciliatory, stance. Differences in political systems came more sharply into focus. In the developed nations a trend toward *deregulation* of information media and privatization of public-sector enterprises was gaining momentum (*see* GOVERNMENT REGULATION). The industrialized nations were increasingly attentive to information markets, including those in the Third World. Because the continued growth of the private sector seemed vital to this strategy, “government-controlled media” were viewed as particularly ominous.

The importance of this issue was evident at a 1981 UNESCO-sponsored meeting on the protection of journalists. For two decades attempts had been made by international organizations of journalists and publishers—such as the International Federation of Journalists, the International Federation of Newspaper Editors, and the International Press Institute—to draft and have adopted an international convention for the protection of journalists. At the UNESCO meeting the concerns of the journalists’ organizations were quickly obscured by the recurring issue of the role of governments, this time revolving around licensing. Most governments were prepared to recognize the importance of safeguarding journalists, even though few seemed to cherish the activities of “investigative reporters.” The status of journalists and the special protections proposed for them would presumably be based on professional credentials—but issued by whom? In raising this issue, Third World leaders were accused of wishing to license journalists, an idea that was anathema to Western nations.

Nonetheless, attempts were made during the early

1980s to steer the *new order* debates away from such divisive issues. This was especially evident in the creation of a new organization based on an earlier initiative of the United States: the International Program for the Development of Communication (IPDC). The IPDC was designed to be a key instrument for organizing international technical cooperation, helping in the creation and implementation of operational projects, and mobilizing the resources needed for those purposes. Although officially launched in 1980, its first meeting was not held until June 1981. It soon became apparent, however, that contributions from donor countries were much more limited than had been expected. The IPDC was faced with the same dilemma confronting a number of international development agencies: a necessary curtailment of expectations and plans.

The 1982 and 1983 UNESCO General Conferences, held in Paris, did not witness the heated polemics of similar meetings held in 1978 and 1980. At the 1983 conference the call for a new information and communication order was formally designated as "an evolving and continuous process"—a concession to Western interests intent on ensuring that the new order should not be viewed as requiring a sudden and radical transformation of existing communication structures.

A 1983 United Nations–UNESCO Round Table on a New World Information and Communication Order held in Igls, Austria, was another promising sign of dialogue. As the first official United Nations–UNESCO meeting on the issue, the Austrian round table was noteworthy for the absence of political rhetoric and the determination of participants to establish specific mechanisms for assisting the developing countries. Communications technology, rather than news flow alone, was now the primary concern of developing countries.

The year 1983 was to end with two paradoxical but not unrelated events. In early December the nonaligned nations movement held in New Delhi its first Media Conference. It opened with a call to intensify efforts to promote the proposed new order. Weeks later, as December came to a close, Secretary of State George P. Schultz of the United States sent a letter to the director-general of UNESCO informing him that, after the required one-year notification period, in December of 1984 the United States would withdraw from UNESCO. An indirect reference to the *new order* campaign was evident in a passage referring to the necessity of maintaining "such goals as individual human rights and the free flow of information." The U.S. decision to withdraw from UNESCO surprised observers who had taken note of the apparent absence of conflict in 1982 and 1983. However, it was clear that throughout the early 1980s there was significant bipartisan congressional

opposition to UNESCO, not only because of its efforts to promote a new information order but also because of disputes relating to Israel, UNESCO's examination of the issues of peace and disarmament, and a new generation of "people's rights," as well as various financial and organizational reasons. This opposition was widely backed by the U.S. press and other groups.

Challenges

Two decades of debates and resolutions had done little to solve underlying problems of the international flow of information, although they had made the world community more aware of the issues involved. Those issues would be a continuing presence, posing a diversity of challenges many of which had been spelled out in the MacBride Commission's report. A notable aspect of the report was that it went beyond immediate needs and brought to the fore the overall significance of communications in modern society and the implications of media policies for the world's future.

Meanings of technology. The commission noted that technological needs had been a central concern at many meetings but urged that they not be allowed to overshadow the social, political, and economic implications. The importance of the new communications technologies was seen to lie to a large extent in the fundamental transformations they impose on society. Governments and private companies alike have long been inclined to think of technology as a means available to serve their particular needs without consideration of the impact on humanity at large. Use of technical developments cannot and should not be slowed, in the view of the commission, but their implications should be constantly assessed. Technology "is seldom neutral; its use is even less so"—for use is influenced by political, financial, and other considerations. Therefore decisions about communications policies and priorities should not be made solely by technocrats but should involve wide public participation and discussion. "We must beware of the temptation to regard technology as an all-purpose tool capable of superseding social action." The commission noticed a widespread feeling that "technological progress is running ahead of man's capacity to interpret its implications and direct it into the most desirable channels," and cited the fear expressed by Albert Schweitzer that humankind has "lost the capacity to foresee and forestall the consequences" of its actions.

Ways of freedom. The commission noted the perilous status of freedom of expression around the world. The fact "that there is said to be freedom of expression in a country does not guarantee its existence in practice." The commission further noted

that "even where freedom is not openly attacked by authority, it may be limited by self-censorship on the part of communicators themselves. Journalists may fail to publish facts which have come into their possession for several reasons: sheer timidity, an excessive respect for the power structure or in some instances lest they give offence to officialdom and thus risk losing access to their sources of information." Self-censorship, like censorship itself, was seen by the commission as a constantly distorting factor in the flow of communication.

The commission emphasized its view that the exercise of freedom in the communications field involves responsibilities. "We need to ask, moreover, on what grounds a claim for freedom is being made. The freedom of a citizen or social group to have access to communication, both as recipients and contributors, cannot be compared to the freedom of an investor to derive profits from the media. One protects a fundamental human right, the other permits the commercialization of a social need."

The report observed that because of the overwhelming importance of communication today, the state imposes some degree of regulation in virtually all societies. It can intervene in many diverse ways—through the allocation of broadcast licenses and newsprint and through visa policies, import restrictions, and many other procedures. "Some governments find it natural to assume total control over the content of information, justifying themselves by the ideology in which they believe. Even on purely pragmatic standards, it is doubtful if this system can be called realistic."

Democratization of communication. Surveying the "spectrum of communication in modern society," the commission found that it almost defies description because of its immense variety. Barriers could readily be seen: monopolistic controls, technical disparities, restrictive media practices, exclusion of disadvantaged groups, blacklists, censorship. Nevertheless, a tendency toward democratization seemed to be taking place—for example, in the growing role of public opinion. Governments throughout the world were becoming increasingly aware that they must take into account not only national opinion but "world public opinion," because today's media are capable of diffusing "information on international questions to every part of the world." Occasionally opinion crystallizes on some issue with enough force to compel action. This happened, as the commission saw it, on the issues of colonialism, apartheid, and nuclear proliferation. But a meaningful process of opinion formation will in the long run require richer media fare, development of widespread "critical awareness," assertion of the "right to reply," the establishment of "alternative channels of communication," and public participation in decision mak-

ing on media policies. The goal, the commission felt, should be that everyone would be both "producer and consumer of communication."

"Communication can be an instrument of power, a revolutionary weapon, a commercial product, or a means of education; it can serve the ends of either liberation or of oppression, of either the growth of the individual personality or the drilling of human beings into uniformity." Each society and each communication system necessarily makes its choices.

World on edge. The commission looked at the communication challenges in the context of an uneasy world. "The whole human race is threatened by the arms race and by the persistence of unacceptable global inequalities, both of which generate tensions and which jeopardize its future and even its survival." The commission saw the sense of danger "heightened by intolerance, national chauvinism, and a failure to understand varying points of view" as well as by "the fragility of the ecosystem." The report observed: "Today the human race has no choice but to adapt itself to the natural conditions and resources of the planet"—a challenge requiring "enormous transformations in our attitudes and behavior patterns."

The commission saw the media as capable of a steadying role in these transitions, helping men and women "to understand and solve the inescapable problems of our age." This called for something beyond "crisis journalism." The report spoke frequently of responsibility. It seemed to the commission that the information order envisioned for the future would also require, as an essential dimension, a new moral and ethical order.

Bibliography. Cees Hamelink, *Finance and Information*, Norwood, N.J., 1983; International Commission for the Study of Communication Problems (UNESCO), *Many Voices, One World: Communication and Society, Today and Tomorrow*, Paris and New York, 1980; Dinker Rao Mankekar, *Whose Freedom? Whose Order?* New Delhi, 1981; Mustapha Masmoudi, "The New World Information Order," in *World Communications: A Handbook*, ed. by George Gerbner and Marsha Siefert, New York, 1984; Hamid Mowlana, *Global Information and World Communication: New Frontiers in International Relations*, White Plains, N.Y., 1986; Kaarle Nordenstreng, *The Mass Media Declaration of UNESCO*, Norwood, N.J., 1984; Kaarle Nordenstreng and Tapio Varis, *TV Traffic—A One-Way Street?* Paris, 1974; Fernando Reyes Matta, *La información en el nuevo orden internacional*, Mexico, D.F., 1977; Rosemary Righter, *Whose News? Politics, the Press, and the Third World*, London and New York, 1978; Colleen Roach, "Select Annotated Bibliography on a New World Information and Communication Order (NWICO)," in *Communication for All: New World Information and Communication Order*, ed. by Philip Lee, Maryknoll, N.Y.,

1986; Herbert I. Schiller, *Communication and Cultural Domination*, White Plains, N.Y., 1976; Robert L. Stevenson and Donald Lewis Shaw, eds., *Foreign News and the New World Information Order*, Ames, Iowa, 1984.

SEAN MACBRIDE AND COLLEEN ROACH

NEW WAVE FILM

"New wave" (*nouvelle vague*) is a label invented by the French press to designate a pronounced shift in styles, subjects, and modes of film production in France that first became evident in the 1958–1959 film season, although the changes had been in the making for some time. Pre-1958 French cinema was known to its admirers for its "tradition of quality," although its young critics called it the *cinéma de papa*—the old fogies' cinema. Quality cinema was dominated by a group of established artists and technicians and offered young aspiring directors virtually no entry into the profession. It was a cinema of big budgets and international coproductions, explicitly modeled on the HOLLYWOOD A picture that was its most formidable competition. Its critics charged that it favored craftsmanship over personal expression and that it unthinkingly refought old political battles (e.g., against the Catholic church, against the bourgeoisie) irrelevant to postwar Europe.

The quality tradition seems to have suited the tastes of most of the French public until the mid-1950s. But its appeal did not extend to many younger moviegoers, who inevitably made up an increasingly large portion of its market. By middecade box-office returns for big-budget domestic pictures had begun

to drop, whereas a small number of independent low-budget pictures had been produced that fared reasonably well. Suggestive of the later new wave, in subject and style, was Roger Leenhardt's *Les dernières vacances* (The Last Vacation, 1947). More idiosyncratic but also influential were works by Agnès Varda, Alexandre Astruc, and Roger Vadim.

Inspired by the successes of these and other, similar works, several aspiring young directors completed features for release in 1958–1959, many with money from family and friends rather than from traditional industry sources. Released in quick succession, their films seemed a veritable flood of critical and box-office hits, beginning with Louis Malle's *L'ascenseur à l'échafaud* (Frantic) and including *Le beau Serge* and *Les cousins* (both by Claude Chabrol), *Hiroshima mon amour* (Alain Resnais, script by Marguerite Duras), and *Les quatre cents coups* (The Four Hundred Blows, François Truffaut). The success of these works emboldened industry insiders to finance these and other new directors, and by the 1959–1960 film season the wave of first films became a deluge.

The new wave was actually composed of several relatively distinct components. Most important was probably the *Cahiers du cinéma* group of young film critics: Truffaut, Chabrol, Jean-Luc Godard, Eric Rohmer, Jacques Rivette, and a few others. But emerging at the same time was another group frequently called the Left Bank school, including Varda, Resnais, Georges Franju, and later Alain Robbe-Grillet. These people came to feature filmmaking not from criticism but from DOCUMENTARY cinema and



Figure 1. (*New Wave Film*) Alain Resnais, *L'année dernière à Marienbad* (Last Year at Marienbad), 1961. National Film Archive, London/Argos Films.



Figure 2. (New Wave Film) Jean-Luc Godard, *Pierrot le fou*, 1965. The Museum of Modern Art/Film Stills Archive.

from experimental prose FICTION. A third group, less important in retrospect but more feted at the time, had worked its way up through the dominant industry hierarchy; it included Malle, Michel Deville, and others. What these groups had in common was a rejection of the forms and subjects of the tradition of quality. Whereas the tradition made big-budget, mass-audience films from high- or middlebrow literary sources, films with big STARS, elaborate sets, and carefully crafted and witty dialogue, the new wave produced low-budget, personal films with little-known actors that were shot on location, as in Italy's NEOREALISM movement. Scripts were often improvised and frequently used remarkably vulgar, unlitrary language. Along with their striking emphasis on real spaces (mostly in Paris), the new works often examined the tone and texture of everyday life—rituals of lighting cigarettes, saying hello and goodbye, telling jokes, going to the movies. A favorite subject was young people and their unhappy relations with established society. Stylistically the films abandoned the smooth textures of quality cinema in favor of jagged editing, hand-held cameras, direct address to the spectator, and sudden shifts of tone or cinematic means. The new wave filmmakers were devoted film buffs, schooled by long hours of screenings and talk at the Cinémathèque Française under its guiding spirit, Henri Langlois. They laced their works with references to films old and new, including Hollywood B pictures. Godard's *À bout de souffle* (Breathless) was perhaps the most radical work of the 1959–1960 season, but it carried admiring echoes of Humphrey Bogart.

For all its apparent momentum and diversity, the movement had dissipated in all but name by the mid-1960s. It is convenient to continue to speak of the new wave period after 1965 or 1966, but the old norms had reasserted themselves. Budgets crept back up; elaborate costumes and studio shooting came back in vogue; scripts were written, rewritten, polished. The producers were back in charge. Only a few rebels, such as Godard, resisted the pressure to conform. Many new wave innovations survived, such as the hand-held camera and dialogue featuring vulgar language, but in codified, standardized form. Nonetheless, the movement did not so much die out as leave the country of its birth. The French example inspired other waves in Europe and in the Third World; it even had some brief influence on the U.S. film industry. But the later waves seem to have survived best in relatively small, marginal markets; the Federal Republic of Germany's *junger deutscher Film* and Brazil's *cinema novo* are two examples. Elsewhere the movement's influence survives mainly in critical opinion and in FILM THEORY. Films continue to be judged and conceptualized in the terms developed by the pre-1959 proto-new wave critics (the *Cahiers du cinéma* group) and by later critics and theorists for whom the *nouvelle vague* was the very essence of what cinema ought to be able to do.

See also AVANT-GARDE FILM; MOTION PICTURES—SOUND FILM.

Bibliography. Claire Clouzot, *Le cinéma français depuis la nouvelle vague*, Paris, 1972; Francis Courtade, *Les malédictions du cinéma français*, Paris, 1978; Jean-Luc Douin,

ed., *La nouvelle vague 25 ans après*, Paris, 1983; Peter Graham, ed., *The New Wave*, Garden City, N.Y., 1968; James Monaco, *The New Wave*, New York, 1976; René Prédal, *Le cinéma français contemporain*, Paris, 1984; William F. Van Wert, *The Theory and Practice of the Ciné-Roman*, New York, 1978.

ALAN WILLIAMS

NEWS, TELEVISION. See TELEVISION NEWS.

NEWS AGENCIES

In the process of providing the news and information that newspaper readers, radio listeners, and television watchers all around the world expect on a daily basis, the news agency plays a major and often determining role. It is the first link in a chain of news production that transforms unannounced happenings into reported events. News agencies are the primary selectors of which events to cover and thus play a crucial role in creating the pictures of the world that subsequently become current knowledge.

Nineteenth-century origins. The rise during the nineteenth century of an international network of communications, in which the production of news came to be dominated by a handful of international news agencies located in a few major industrialized countries, was inextricably related to the internationalization of European economic interests. As an adjunct of colonialism, the international network of communications radiated outward, supporting the conduct of financial, commercial, and trade relations and offering services to settlers of the colonial territories. See COLONIZATION.

In 1835 French businessman Charles Havas set up the world's first news agency, Havas of Paris, to collect information from the major European financial and commercial centers for distribution to a network of subscribers throughout France. By the mid-1840s the spread of telegraph facilities enabled Havas to include other European subscribers within his network (see TELEGRAPHY). Impressed by the success of the venture, two of Havas's employees, Bernhard Wolff and Paul Julius Reuter, left the agency, determined to capture a portion of the growing market for themselves. Wolff set up a similar agency in Germany. Reuter, after trying to do the same in France and Germany, established his agency in England.

The entrepreneurial efforts of the founders of these three European agencies succeeded primarily because they met the business world's increasing demands for financial and commercial information. In fact, the first major service established by Havas was the daily supply of European exchange rates to the French Bourse, and all three news agency pioneers found it profitable to supply bankers and merchants with financial information.

As the various provincial presses grew, demand increased for news that was both informative and entertaining. However, the networks through which such news was collected remained the same as those through which commercial information had been and continued to be gathered. News agency correspondents thus had to supply a news service articulated for two different audiences: the commercial audience, with its demands for information essential to the expansion of commerce and trade; and the public audience, avid for various other types of news. The broader demands being placed on the news agencies reflected not merely an expansion in general interest but also the expansion of the political and economic stakes involved.

However, as the different agencies continued to broaden their networks of correspondents and subscribers, the growing rivalry among European powers was paralleled increasingly by the competition among the European news agencies. Furthermore, the accommodation arrived at by the news agencies foreshadowed and paralleled the kinds of accommodation being developed by the major powers in the division of the world into "spheres of influence." The agencies mapped out areas that would belong exclusively to one or another. Within this framework they agreed to assist each other and share information. Thus, in 1856, in the first of a series of agreements among Reuter, Havas, and Wolff, the three agencies agreed on the mutual exchange of stock-market quotations and market prices. Through a supplementary agreement in 1859 they agreed to the reciprocal exchange of political news. And in 1869 the first of a series of "agency treaties" designated clear spheres of influence that would be allocated to each agency. In this treaty Wolff's agency obtained the right to markets in Austria, Scandinavia, and Russia; Havas's agency operated in the French Empire, Italy, Spain, and Portugal; and Reuter's agency was assigned the British Empire and the Far East.

Expanding markets. By the early years of the twentieth century the competition among the agencies to consolidate and expand their operations made them look increasingly to the Americas, and particularly to the United States. Here a battle was in progress between two domestic U.S. agencies: the Associated Press (AP), established in 1848 and owned by a newspaper consortium; and the privately owned United Press (UP), established in 1907. With London entrenched as the center of world communications—and the center of world commerce and trade—a contract for Reuter's services became a trump card in the AP-UP struggle. An exclusive Reuter contract was finally awarded to Associated Press, allying it with the cartel.

In Europe itself suspicion among the agencies continued, exacerbated by the growing subordination of the Wolff agency to the demands of the German

government, which had started providing the agency with large-scale financial backing. The growing conflicts reflected tension at the international level, the climax of which was the outbreak of war in 1914.

The most important event in the development of international news and communications, however, was the post-World War I entry of the two domestic U.S. agencies into the international communications network. Until this time the scope of the U.S. agencies had reflected the isolationist worldview prevalent in the United States. With the end of the war, growing U.S. interests in the Far East and increased interagency competition within the United States encouraged U.S. agencies to expand into the international communications system.

At the same time, the exclusive contract that Associated Press had negotiated with Reuter was being weakened by continued assertions from the U.S. agency that Reuter, Havas, and Wolff were nothing more than government agencies. Both AP and UP had begun moving toward independent action, competing for clients in South America. These moves challenged cartel agreements, causing considerable tension within the cartel and eventually leading to AP withdrawal from it. Along with other developments, this altered the international news system. A second factor, particularly in South America, had been the wartime blockades on news from Europe, which had made it possible for the two U.S. agencies to move in and capitalize on the absence of European competition. At the same time, the growth of U.S. interests in East Asia led to increased U.S. news agency activity in that region. Both U.S. agencies were aware of the advantages to be gained from expansion into East Asia but found their paths blocked by the cartel. By 1926 pressure from the U.S. agencies had forced Reuter to amend the cartel arrangements so that Associated Press could make a direct agreement with the Reuter-allied Japanese news agency, Kokusai. By 1933 Reuter had no alternative but to give formal notification of the dissolution of the existing four-party treaty among the three European agencies and Associated Press. The termination of the cartel became effective in 1934, with Reuter and AP signing an agreement giving both agencies the freedom to collect and issue news anywhere in the world.

Although the concept of spheres of influence was no longer official policy, its legacy continued to affect news agency markets. The agencies tended to focus their efforts in markets that had already been secured and developed.

World War II and after. World War II further strained the news agencies, whose wartime function was increasingly the dissemination of ethnocentric news and information. Havas disappeared during the Vichy government and resurfaced in 1943 as Agence France Presse, the fusion of two Free French agencies. It employed the former Havas staff network. Reuter

was given British government support to transmit purely British news, emerging from the war as a cooperative owned by its newspaper subscribers in Britain. Both Associated Press and United Press International (UPI) found themselves better able to operate during the war without the restrictions that the cartel had forced on them during World War I.

The most important factors in the overall evolution of news agencies at the international level have been their outward expansion from Europe (and later the United States) and the establishment of worldwide markets for the services they provided. In fact, in the 1980s the structure of the international news media network was still based on the old cartel patterns—news agencies followed the economic interests of their original bases into overseas territories. In other words, the news flow patterns continued to reflect a world structure dominated by the Western capitalist economies. Although, in contrast to other forms of news media, news agencies have tended to be relatively invisible, their anonymity was challenged as pressure built up (particularly from the countries of the Third World) against what was seen as a MONOPOLY of a few world-level news agencies controlling international flows of news and information. As a result, in the 1970s and 1980s Third World countries found that their relatively recently won political independence was not often accompanied by similar independence in the field of communications. News agencies became the focus of criticism about the origins and dissemination of international and national news, and Third World countries began to explore ways of achieving sovereignty and autonomy in the production of news and information. See NEW INTERNATIONAL INFORMATION ORDER.

See also GOVERNMENT REGULATION; NEWSPAPER: HISTORY; TELEVISION NEWS.

Bibliography. Oliver Boyd-Barrett, *The International News Agencies*, London, 1980; Kaarle Nordenstreng and Herbert I. Schiller, eds., *National Sovereignty and International Communication*, Norwood, N.J., 1979; Jim Richstad and Michael H. Anderson, eds., *Crisis in International News: Policies and Prospects*, New York, 1981; Jeremy Tunstall, *The Media Are American*, London, 1977.

PHIL HARRIS

NEWSLETTER

Specialized periodical publication, usually concerned with only one topic. The origins of newsletters are obscured by a lack of documentary evidence. Few of the early ones have survived, because they were handwritten and often clandestine. It is thought that they originated in Germany during the sixteenth century to report international activities for bankers and traders.

As precursors of newspapers, newsletters were the most important news medium in Europe after the MIDDLE AGES. In England newsletters multiplied during the seventeenth century, in part because of the crown's strict control of PRINTING. Domestic CENSORSHIP of news only prompted the production of more newsletters, which required no printing presses, offices, or distribution networks, because their circulation was facilitated by "coffee-house society" and other informal channels (see NEWSPAPER: HISTORY).

Distinctions between early newsletters and newspapers are frequently blurred; for example, the first newspaper in the British North American colonies was called the *Boston News-Letter* (1704). Unlike newsletters, newspapers were intended for a larger, wider audience and accepted advertising (see ADVERTISING—HISTORY OF ADVERTISING). Developments in printing technology enabled the newspaper and the MAGAZINE to become the dominant print media for several centuries. Not until the twentieth century did newsletters flourish again. They filled a need for more specialized and timely information for specific groups. The concurrent development of sophisticated DIRECT RESPONSE MARKETING techniques to sell subscriptions and of low-cost word processors and personal computers for composition contributed to their growth. Many newsletters became available in the form of on-line services (see COMPUTER: IMPACT).

The first modern newsletter in the United States was the *Whaley-Eaton Letter* (1918), intended for diplomats, financiers, corporate lawyers, and other professionals. It was later acquired by the *Kiplinger Washington Letter* (1923), which by the 1980s had five hundred thousand subscribers at forty-eight dollars per year and was the oldest continuously published newsletter in the United States.

Types. Modern newsletters have generally been typewritten, offset publications of one to sixteen pages, printed on letter-size (8½ by 11 inches, or 216 by 279 mm) paper. Subjects covered range from accounting to zoology, and they are either acquired by subscription or received free of charge. Commercial, for-profit newsletters addressed to the business market generally have high subscription prices and small circulations (usually less than two thousand). The most expensive on record in the United States is *Access*, a daily intelligencer delivered by hand for eighteen thousand dollars per year. Consumer newsletters in areas like travel, health, and investment, however, have much lower subscription prices and may have circulations in the tens or hundreds of thousands. Some offer supplementary services, such as directories, proprietary reports, loose-leaf services, and seminars, for additional revenue. If the information reported is time-sensitive or in high-risk areas, electronic transmission increases its usefulness (see DATA BASE).

Not-for-profit newsletters are perhaps more numerous than commercial ones and serve to inform and unite association members, company employees, special-interest groups, school alumni, donors, family members, and so on. In Canada and the United States alone there are more than a hundred thousand of these newsletters, of which approximately six thousand are subscription letters. In other parts of the world newsletters are less popular, though many U.S. newsletters are sold in foreign countries, and vice versa. A trade publication to serve the U.S. newsletter industry, *Newsletter on Newsletters*, was founded in 1964.

See also PUBLISHING—PUBLISHING INDUSTRY.

PATRICIA HAGOOD

NEWSMAGAZINE

Periodical (usually weekly) publication devoted to news summaries and analysis in a MAGAZINE format. The first attempts to combine a newspaper and a magazine date from the early eighteenth century in England, where Daniel Defoe wrote and published *The Review* from 1704 to 1713 and Richard Steele brought forth an imitation, *The Tatler*, in 1709 (see NEWSPAPER: HISTORY).

Throughout the eighteenth and nineteenth centuries the predecessors of the contemporary newsmagazine were more often "magazines with news," as they served broader information and entertainment purposes (see PUBLISHING). The emphasis on news was first tried in 1923, when Briton Hadden and HENRY LUCE published *Time*. In an eighteen-page prospectus they noted: "People are uninformed because no publication has adapted itself to the time which busy men are able to spend simply keeping informed." Their publication, they pledged, would (1) organize the news, (2) interpret it, and (3) focus on individuals as newsmakers rather than on governments or other institutions. The idea was for writers and editors to take a closer, more penetrating look at stories and reflect on the flow of events to produce reports both *timeless* (i.e., not easily dated) and *timely* (i.e., keeping up with current events). The newsmagazine's primary purpose was not to shape PUBLIC OPINION but to present the news in a more lasting and literate manner than daily newspapers.

Although *Time* did not turn a profit until 1928, the idea of an entertaining journey through current affairs caught on. A peculiar literary style evolved (see STYLE, LITERARY), characterized by heavy use of adjectives (e.g., "shaggy-maned, beetle-browed John L. Lewis"), coined words (like "cinemaddict"), and inverted sentences (satirist Wolcott Gibbs wrote in *The New Yorker* magazine that "backward ran sentences until reeled the mind"). Readers received the product of writer-researcher teams and editors who compiled reports from *Time* correspondents and bu-

reus, other newspapers and periodicals, stories by NEWS AGENCIES, and books.

In 1933 two newsmagazines were launched to compete with *Time*. Thomas J. C. Martyn, *Time*'s first foreign-news editor, started *News-Week* (it soon became *Newsweek*), and political reporter David Lawrence inaugurated *U.S. News* (merged in 1948 with a companion publication to become *U.S. News and World Report*). To distinguish itself from *Time*, *Newsweek* maintained a calm and moderate tone, and its editors also attempted to split news coverage from opinion by reserving space for signed columns. In the 1960s *Newsweek* also led *Time* into an era of bylined coverage and the development of extended, in-depth cover reports and special issues on such problems as "The Negro in America—What Must Be Done" (1967). In turn, *Newsweek* followed *Time* in expanding readership overseas through three English-language editions with altered content. In 1986 *Newsweek* introduced an edition in Japanese in an effort to increase its reach and tap an important market.

Media competition and growth. After World War II, when television began to make inroads on the printed news media (see TELEVISION HISTORY), several magazine publishers sought to retaliate with digestlike, pocket-size newsmagazines. In the United States, Cowles Publications issued *Quick* in 1949, a miniature that was copied widely but most notably by *Jet*. By the late 1950s all other competitors had disappeared, but *Jet* continued to serve black readers (see MINORITY MEDIA).

A trend toward increased specialization of coverage started in the 1970s. The highly successful *Business Week* is aimed at the financial and business community in the United States. The old and respected British periodical *The Economist* was redesigned in the 1970s into a news-oriented publication for an economically upscale Anglo-American audience. Newsmagazines with a similar focus and target audience have appeared in many countries, among them Israel (*Israel Economist*) and Sweden (*Veckans affärer*). Specialized newsmagazines covering a wide range of topics (e.g., SPORTS, health, special interests, and advocacies) have become increasingly common.

Around the world. The concept of newsmagazines has spread to all continents. *East* started in 1933 in Shanghai, and *News Review* began to appear in Great Britain in 1937. Mexico gained *Tiempo* in 1942, France *L'express* in 1957, and Italy *Panorama* and Argentina *Primera plana* in 1962. In Africa *Jeune Afrique* is published in French and *AfricAsia* in English. Australia has the *Bulletin*, and Asia *India Today* and *Asahi* (the latter in Japan). *Veja* is published in Brazil, *Profil* in Austria, and *Cambio 16* in Spain.

European newsmagazines tended to develop as suppliers of more sensational material along with the customary coverage. For instance, the Federal Re-

public of Germany's popular and influential *Der Spiegel*, established in 1946, spices its coverage of news with commentary, informed Gossip, and "exclusives" such as interviews with notorious criminals. In line with other European newsmagazines, its tone tends to be more abrasive than that of U.S. publications, and government and other institutions are likely to get negative, even cynical coverage.

Outlook for the future. Although newsmagazines remain primarily reliant on text, GRAPHICS and other design elements have been increasingly used to help the reader "make sense of the world" (as an advertisement for *Newsweek* claimed in 1985). Newsmagazines no longer merely merge newspaper and magazine in format. They serve national and international markets with selective, often subjective, compacted, digested, literary, and entertaining packages of current history, politics, government, the economy, sports, arts, sciences, and so on. The newsmagazines serve their readers by sifting and sorting the news, conveniently compartmentalizing it and spicing it with imagery-laden language to keep the readers interested. In the age of television the newsmagazine has found its place as journalism more substantial than that of television and radio, broader—and yet occasionally more specialized—than newspapers, and quicker than the history book (see also TELEVISION NEWS).

Bibliography. Robert T. Elson, *Time, Inc.: The Intimate History of a Publishing Enterprise*, ed. by Duncan Norton-Taylor, 2 vols., New York, 1968, 1969; Theodore Peterson, *Magazines in the Twentieth Century*, 2d ed., Urbana, Ill., 1964; William H. Taft, *American Magazines for the 1980s*, New York, 1982.

PETER P. JACOBI

NEWSPAPER: HISTORY

The newspaper can initially be defined as a written (not necessarily printed) means of conveying current information. In this sense the first organized attempt to provide such a service occurred in ancient Rome, where newsletters conveyed what was going on in the capital to the farther reaches of the ROMAN EMPIRE. In Julius Caesar's time there were also the *acta diurna*, daily announcements of government and other activities that were posted in the capital's public places.

The earliest printed news bulletins probably appeared in China, with a court gazette issued during the T'ang dynasty (618–906 C.E.) and read primarily by government officials, although scholars were later added to its readership. A later significant development often cited by historians was the issuing of newsletters by the Fugger family of Germany, a powerful clan of merchants and bankers in the fifteenth and sixteenth centuries. Their agents operated in

nearly every part of the known world and sent in reports of business and other affairs from their posts. The reports were combined and circulated by means of the newsletters to all the units in the Fugger organization.

Newsletter to newspaper. But the newspaper as we know it is a relatively modern invention. The Fugger idea, in various forms, spread through Europe and England, resulting in the publication in September 1621 in London of *Corante, or, Weekly News from Italy, Germany, Hungarie, Spaine and France*, generally credited with being the first English newspaper. Other beginnings of the modern newspaper took place in European countries at about the same time, and Mexico recorded the Western Hemisphere's first printed news in 1541.

In Britain's American colonies a transplanted English bookseller named Benjamin Harris published his *Publick Occurrences, Both Forreign and Domes-tick* in 1690. Unfortunately Harris was a free spirit who was frequently in trouble with the law in both London and the colonies. He offended the authorities with two items in his gazette (besides printing it without a license), and the first issue of his newspaper was also the last. It had taken seventy years of colonizing to produce Harris's paper, and fourteen years more went by before the Boston postmaster, John Campbell, issued his *Boston News-Letter*, the second newspaper to appear in the colonies.

Although newspapers had common origins—that is, they were initially more newsletters and bulletins—they quickly developed along different lines in various parts of the world. The newspapers of England and the United States had much in common at first, but they acquired more differences as time went on. The French meanwhile devised their own style, and newspapers in other parts of Europe assimilated characteristics of all three. As the British and French colonial empires spread around the world they took their newspaper styles with them and implanted them firmly on the journalism of the countries they occupied. Even after the colonial empires ended, new styles were slow to appear, and today the newspapers of Africa, India, South and Central America, and parts of Asia reflect broadly the general techniques of France and England, with substantially less influence from the United States.

These varying styles have their roots in both the geographical and cultural characters of the nations involved. Because the United Kingdom is a relatively small, homogeneous nation its main newspapers, based in London, are national papers, supplemented by a provincial press that is local in character. In contrast the United States did not have papers meant to cover the whole country until the late twentieth century, when electronic transmission systems made it possible to publish the *Wall Street Journal*, the *Christian*



FRONTISPICE OF A DUTCH NEWSPAPER, 1653.

Figure 1. (*Newspaper: History*) Frontispiece of a Dutch newspaper, 1653. The Bettmann Archive, Inc.

Science Monitor, Gannett's *USA Today*, and to a lesser extent the *New York Times* simultaneously across the country. Similarly the Soviet Union covers its vast territory by using facsimile transmission to print its two major Moscow papers, *Pravda* and *Izvestia*, simultaneously from Leningrad to Vladivostok. Japan too uses the same system to print simultaneously in Tokyo and the northern islands.

Major lines of development. The two major developments in the history of the world press have been the struggle for control between government and the press in every country, from the beginning to the present, and the growth of mass circulations resulting from technological advances (see GOVERNMENT-MEDIA RELATIONS; GOVERNMENT REGULATION). At the beginning the idea of a free press did not exist. Governments everywhere saw the newspaper as an instrument to be used in their own interests, an idea that persists in much of the world today. Sometimes newspapers were licensed—that is, certain owners of PRINTING presses were permitted to print papers, books, or magazines—as occurred in the American colonies. In other places the press was simply controlled by the state.

Freedom from government control began to emerge in the Massachusetts Bay Colony in America about

1725, when two young Boston printers, Benjamin Edes and John Gill, having taken over the *Boston Gazette*, defied the authorities and led the slowly growing revolt against the crown, battling the authorities in the process. In New York JOHN PETER ZENGER is popularly celebrated as the father of a free press because as proprietor of the *New-York Weekly Journal* he was tried on a LIBEL charge and acquitted. However, this decision represented only the jury's defiance of local authority and was contrary to English common law, under which the case was tried. Truth as a libel defense, the basis on which Zenger's lawyer, Andrew Hamilton, pleaded the case, was not established in law in New York State until 1804, after which it was incorporated into the statutes of other states.

By the time the American Revolution had ended, the press in the new nation was not only free but had become a quarrelsome, vituperative ideological instrument in the hands of contending political parties. It was not until 1835, when JAMES GORDON BENNETT founded the *New York Herald*, that newspapers began to report news (or at least some of it) with a measure of impartiality. The modern U.S. newspaper was born with the *Herald*, which was organized in much the same way as papers are today. Bennett faced competition from other nineteenth-century giants: HORACE GREELEY and his *New York Tribune* (1841); BENJAMIN H. DAY's *New York Sun* (1833), the first successful penny paper; and Henry J. Raymond's *New York Times* (1851).

In New York, Boston, and Philadelphia, and later in the remainder of the nation, newspapers were operated by powerful editors and publishers who practiced a kind of personal journalism, political but independent, and supported primarily by circulation. The arrival in New York in 1883 of the Hungarian-born immigrant JOSEPH PULITZER and in 1896 of WILLIAM RANDOLPH HEARST, who had already made a success with his San Francisco *Examiner*, revolutionized journalism in New York and elsewhere. Pulitzer's *World* and Hearst's *Journal* set the pattern with a formula of sensational news stories; editorial crusades against "the interests," both business and political; Sunday papers designed for entertainment; and the introduction of the comic cartoon, followed by the modern comic strip (see COMICS).

The circulation wars between these papers foreshadowed the great change in newspaper PUBLISHING in the United States that began about the turn of the twentieth century, when ADVERTISING began to replace circulation as a newspaper's chief source of revenue. In order to attract advertisers, however, it was necessary to offer as much circulation as possible, so the competition for both readers and advertising dollars continued in tandem. Thus was born the concept of delivering audiences to advertisers, a

practice that later became common to all the media.

In the late-twentieth-century United States, the newspaper became a big-business institution. The individual giants in the nineteenth-century sense disappeared and were replaced by entrepreneurs, only a scant few known to the public, who owned large groups of newspapers, the end result of consolidations and the deaths of numerous big-city dailies. The International Thomson Organization, a worldwide media conglomerate based in Toronto, was the largest owner of newspapers in the United States by 1987, but none of them was a major daily.

Journalism in Great Britain took a different turn, although there were a few similarities. Newspapers in the eighteenth century were almost exclusively political, but this kind of paper also produced such notable essayists as Sir Richard Steele and Joseph Addison, whose *Spectator*, begun in 1711, was a model of the type, as were, of course, SAMUEL JOHNSON's *Rambler* (1750) and the *Idler* (1758). In the early nineteenth century newspapers in England became much more scandalous, as they did later in the United States, and even blasphemous, which did not happen in the United States. In both countries journalism was more political than otherwise.

Modern journalism in Britain began in the nineteenth century with the rise of the London *Times*, which had been launched in 1785 by John Walter as the *Daily Universal Register* but changed its name at the beginning of 1788. By 1829 it had become so powerful and authoritative by virtue of such editors as Thomas Barnes and Edward Sterling that the rival *Morning Chronicle* coined the descriptive phrase, "The Thunderer," by which it is still sometimes called.

Other notable newspaper beginnings were the *Manchester Guardian* (1821), a provincial newspaper that dropped the "Manchester" from its title in 1860 and two years later began to publish as a national newspaper; the *Daily Mail*, begun in 1896 by Alfred and Harold Harmsworth; the *Daily Express*, founded in 1900 by C. Arthur Pearson; and the *Daily Mirror*, which was begun by Alfred Harmsworth as a women's paper in 1903 but which soon became the first illustrated tabloid.

The Harmsworths, in company with Kennedy Jones, also acquired an evening paper in London, the *Evening News* (1881), and their rival, Lord Beaverbrook (see BEAVERBROOK, 1ST BARON), came into the same field in 1923 with the *Evening Standard*, launched in the 1870s. Great Britain also has a newspaper published only on Sunday, until recently unique in the business, the *Observer*, founded in 1791. Its principal rival has been the *Sunday Times*, begun in 1822. These, with the *Sunday Telegraph*, became known as "quality" papers.

The London press has been transformed in many

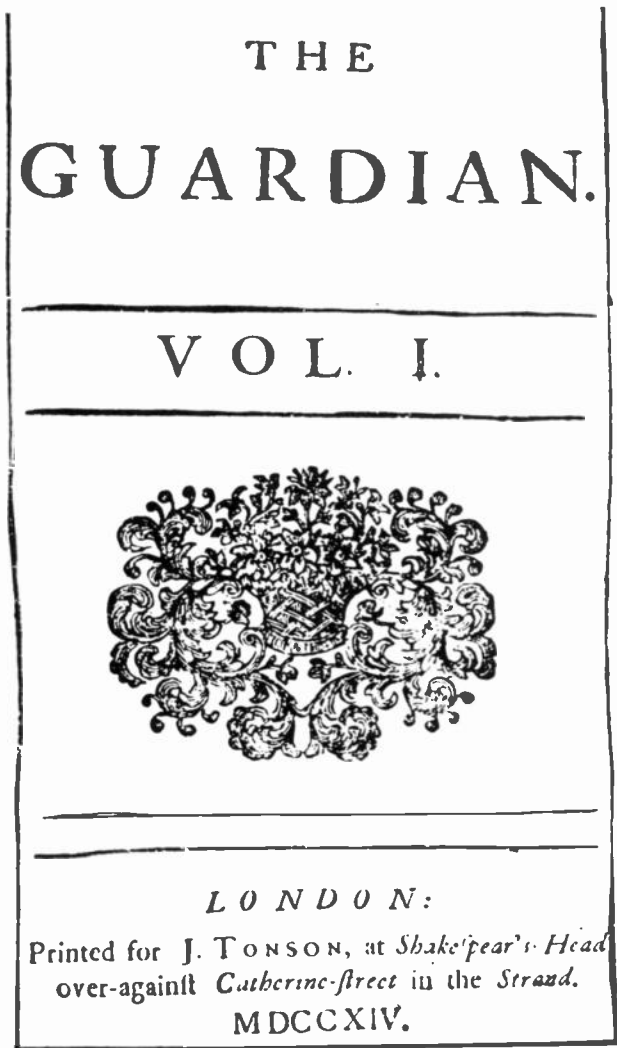


Figure 2. (*Newspaper: History*) Title page of *The Guardian*, published in London, 1714. The Bettmann Archive, Inc.

respects by new owners and new technologies, resulting in the creation of such new, nearly fully automated papers as *Today* and the *Independent*. The *Times*, whose prestige has faded, became part of the empire controlled by the Australian media magnate Rupert Murdoch, who owned newspapers in Australia, the United States, and elsewhere. In London his tabloid daily, the *Sun*, and his Sunday paper, *The People*, practiced the kind of sensational journalism common in the United States during the 1920s but almost nonexistent today except for Murdoch's tabloid, the *Post*, in New York.

There are obvious physical differences between the U.S. press and the British press. In the United States TYPOGRAPHY is more or less standard and in general conservative, whereas in Britain headline styles and the writing itself are much more personal and idiosyncratic. The use by reporters of the personal pronoun *I* in some stories, virtually unknown in the

United States, represents this marked difference. The British press as a whole appears more personal than its U.S. counterparts.

Although those who read the scandalous London tabloids may believe that freedom of the press is greater there than it is in the United States (British papers, for example, sometimes use obscene words never seen in the U.S. press), the opposite is true. British newspapers are more tightly controlled than those in the United States because the libel laws are much more harsh and because there is no First Amendment and Supreme Court to enforce it, however ambiguously. Great Britain also has the Official Secrets Act, which gives the government legal means to preserve its traditional secrecy about its operations. The Watergate exposures of the Nixon administration in the United States, for instance, would not have been possible in England.

In the landmass of the USSR, by contrast with both England and the United States, there has never been anything but strict control of the press by government since the first newspaper appeared in 1703. Both the czars and the Communist government instituted after the Revolution have prevented the press from growing and developing as it has in other major nations. As V. I. Lenin enunciated it in 1919, the press is considered the instrument of the people, and since the government theoretically *is* the people, the press is part of the government. Newspapers are not dependent on either advertising or circulation revenue but are subsidized by the state.

In other European countries press developments have generally resembled those in Great Britain and the United States, with periodic shifts and variations. Germany, where JOHANNES GUTENBERG first introduced movable type, has known newspapers since 1609. One of its greatest, the *Allgemeine Zeitung*, was begun in 1798. After the German Republic was established in 1919 the press grew so rapidly that by 1932 there were forty-seven hundred newspapers in Germany, nearly three-fourths of them dailies. Adolf Hitler's rise to chancellor in 1933 interrupted both freedom and growth for a time, as press freedom was revoked and newspapers became propaganda organs for the state. After World War II the Federal Republic of Germany had such notable papers as *Die Welt* of Hamburg, and the more popular press boasts the large-circulation *Bild Zeitung*, also of Hamburg, as well as the *Frankfurter Allgemeine* and the *Berliner Morgenpost*.

The French press has been more literary than news oriented from the beginning. Editorial practices common elsewhere are less observed, and writers for newspapers are often professors, political scientists, philosophers, or other intellectuals rather than reporters. The general pattern of the essay rather than the traditional news story is followed, although not exclusively. French journalism also has deep roots,

going back to 1631, but modern newspapers began in the nineteenth century and divided themselves into political, popular, and literary journals. *Le monde*, a product of the post-World War II reorganization of the press, remains the prestige daily. During the Nazi occupation the twenty-five Paris dailies were reduced to six, and after liberation only the four that had refused to collaborate were permitted to resume. *Le figaro* has long been the leading voice of the middle and upper classes; *France-soir* is the popular afternoon paper.

Middle Eastern journals are largely political and controlled, and Africa has a press as varied as the continent itself. Francophone countries there tend to have newspapers modeled somewhat after the Parisian papers, and those with a legacy of British colonial rule are more like the English press, as are South Africa's journals. All of the African press is primarily political and controlled in one degree or another. Most Indian newspapers of consequence are printed in English, the common language of the subcontinent. The *Times of India*, published in Bombay and New Delhi, has long been regarded as the country's principal paper, although the *Indian Express*, published simultaneously in five cities, has the largest circulation.

Mexico has a large and active press that has always played a political role, as have the newspapers of

Central and South America. *La prensa* of Buenos Aires has long been regarded as one of the world's great papers. Japan has by far the most active press in Asia, concentrated mostly in Tokyo and Osaka. Its three leading journals, *Asahi shimbun*, *Mainichi shimbun*, and *Yomiuri shimbun*, are among the world's leaders. In the late 1980s China was beginning to develop a free and more modern press after years of repression. See also NEWSPAPER: TRENDS.

The role of newspapers. As a medium of communication newspapers have been most notable as purveyors of information, whereas books and magazines have been the dominant medium for ideas (see BOOK; MAGAZINE). Readers around the world, however, are dependent on newspapers for information about events affecting their daily lives. In earlier times, when the newspaper was the only medium for conveying information, it was an obvious source of power for state and church, and the press was controlled by one or the other or both.

In the United States particularly no factor was more important than the printing press in defining the country as the printers moved westward, carrying their equipment with them. But it was the advent of the steam-powered cylinder press early in the nineteenth century that profoundly influenced life and society, in the United States and in every country in which it was introduced. Combined with the use of

Figure 3. (*Newspaper: History*) *The New-England Courant*, February 11, 1723. The Bettmann Archive, Inc.


T H E [N^o 80

New-England Courant.

From M O N D A Y February 4. to M O N D A Y February 11. 1 7 2 3.

The late Publisher of this Paper, finding so many Inconveniencies would arise by his carrying the Manuscripts and publick News to be supervis'd by the Secretary, as to render his carrying it unprofitable, has intirely dropt the Undertaking. The present Publisher having receiv'd the following Piece, desires the Readers to accept of it as a Preface to what they may hereafter meet with in this Paper.

*Non ego mordaci districte Curasque querebant,
Nulla venenato Litera onsha Joco est.*



LONG has the Press groaned in bringing forth an hateful, but numerous Brood of Party Pamphlets, malicious Scribbles, and Bit-tinged Ribaldry. The Rancour and bitterness it has unhappily infused into Mens minds, and to what a Degree it has fowled and leaven'd the Tempers of

Persons formerly esteemed some of the most sweet and affable, is too well known here, to need any further Proof or Representation of the Matter.

Strike Line down to his Chin, in such sort, that Mr. Painter protests it is a double Face, and he'll have Four Pounds for the Postraiture. However, tho' this double Face has spoilt us of a pretty Picture, yet we all rejoiced to see old Jennis in our Company.

There is no Man in Boston better qualified than old Jennis for a Couranteer, or if you please, an Observer, being a Man of such remarkable Opticks, as to look two ways at once.

As for his Morals, he is a chearly Christian, as the Country Phrase expresses it. A Man of good Temper, courteous Deportment, sound Judgment; a mortal Hater of Neonsense, Foppery, Formality, and endless Ceremony.

As for his Club, they aim at no greater Happiness or Honour, than the Publick be made to know, that it is the utmost of their Ambition to attend upon and do all imaginable good Offices to good Old Jennis, the Couranteer, who is and always will be the Readers humble Servant.

P. S. Gentle Readers, we design never to let a Paper pass without a Latin Motto if we can possibly pick one up, which carries a Charm in it to the Vulgar, and the learned admire the pleasure of Construing. We should have oblig'd the World with a Greek trap or two, but the Printer has no Types, and therefore we intreat the candid Reader not to impute the defect to our Ignorance, for our Doctor can say all the Greek Letters by heart.



Figure 4. (*Newspaper: History*) Honoré Daumier, *Louis Philippe Threatening the Free Press*, ca. 1836. The Bettmann Archive, Inc.

stereotyped plates and cheaper methods of making paper, it opened wide the door to the mass market, and the subsequent flow of information was so profuse and difficult to control that the sources of power became multiple. The mass market for information and ideas thus created has been increasing ever since.

Experiments to develop the cylinder press began in England as early as 1790. The idea of such a press grew until the English-born inventor Robert Hoe and his associates took prototypes of the French Napier cylinder presses in 1825 and improved on them until they had produced the press that dispensed with the old flatbed entirely, carrying the type forms on the cylinders while other cylinders made the impression. The first true cylinder press, developed by Hoe's son Richard, did not appear in a newspaper office until 1847, when the Philadelphia *Public Ledger* installed a four-cylinder machine into which four boys fed the paper. It printed eight thousand sheets an hour on one side, and it revolutionized the newspaper business.

With this advance, coupled with the growth of public education, a market for information and entertainment was created for all the media. Later technological developments only served to make the basic process easier. In the late twentieth century the use of computers and photo-offset printing combined to produce a chain of automation from the reporter to the delivery room. Electronics, as noted, made possible the simultaneous printing of newspapers across such vast areas as the USSR and the United

States as well as in small, homogeneous countries like Japan. There has been some human cost; not all technologically displaced workers can be retrained, and the typographical unions everywhere have fought a long and losing rear-guard action against these changes.

In the United States the second most important change has been the replacement of circulation as the chief source of income. In no other country has advertising become such a dominant factor as in the United States. Advertising has come to be not only commercial but ideological, encompassing corporate institutional advertising and presenting company viewpoints, in addition to pleas for support and statements of purpose from all kinds of organizations. CLASSIFIED ADVERTISING TOO offers a vast marketplace for individuals and business interests alike.

In its evolution from political medium to news medium to a news and entertainment format, the newspaper has come closer to the magazine in the late twentieth century, as the periodicals themselves have become more and more informational. Feature materials in both are often interchangeable. As the spectrum of information has broadened, major newspapers offer not only international, national, and local news but also information covering MOTION PICTURES, television, RADIO, books, music, ART, SPORTS, finance, science, home maintenance, and even personal problems. Smaller newspapers tend to concentrate on local news and to act as community bulletin boards.

Wars and revolutions have had major and continuing effects on newspapers. Since the Civil War in the United States, and even earlier in Europe, people relied on newspapers for coverage of hostilities, and in earlier days for the printing of casualty lists. It is significant that when revolutionary changes of government occur, with only a few exceptions the first act of a new government is to control the press and make it subservient to the new regime. If the controls are relaxed later, they are tightened again immediately if the chief source of political power is threatened. In countries in which the press is free, or relatively so, newspapers become major battlegrounds for conflicting political ideas. In both Great Britain and the United States, for example, large questions of foreign and domestic policy, particularly war and events leading to possible war, are debated in the newspapers, and presumably the press influences public support for government policies, or the reverse. Uniquely in the United States newspapers can be a major factor in exposing political corruption to the extent of bringing down public officials, including presidents, in a way not considered possible in countries with other forms of government.

Challenges to newspapers. Newspapers everywhere are in a constant struggle to maintain their

READ *The*
New York
Times.

Sunday, Nov. 17.

A MATRIMONIAL SLAVE MART
How Titles and Heiresses Are Sold in Great Britain.

PAIR ADIRONDACK DIANAS
Women Who Are Skilled in Shooting Deer, Etc.

HOW NEW-YORK LOOKS TO VISITORS
Opinions of Prominent Public Men. What is Most Admired.

WHAT LEADING GERMANS THINK
On a Timely and Important Topic.

OLD DAYS AT BLENHEIM
All About the Great Earldom and Their Estates.

A STUDY IN RATTLESNAKES
And the Snake World in General.

Many Other Features Equally Good.

Figure 5. (*Newspaper: History*)
New York Times advertising poster,
ca. 1905. The Bettmann Archive, Inc.

integrity and independence, if they have it to begin with, and their economic viability as well, in the face of increasing competition from other media. They and the other print media have been declared seriously wounded or possibly dead with the advent of every medium or other device that might compete for people's time and attention. This was the case with the bicycle, the automobile, the motion picture, radio, and finally television. Of them all only television has had a serious impact on the newspaper business.

Several factors are involved in this competition. A

major one is the persistence of illiteracy, in spite of efforts to combat it, and with this the growing number of people who can read but do not because of the increasing demands of contemporary life. A majority of people in the United States get their news from television rather than newspapers because it is more convenient and far less demanding of either time or attention. This is less true in other countries, in which the amount of TELEVISION NEWS is considerably less and often is controlled by the state, so that viewers turn to the medium more for entertainment than for news.

Television has also proved to be a more potent shaper of opinions and ATTITUDES than newspapers, at least in the United States, and a more effective political weapon in nations with government-controlled media. The late-twentieth-century trend in capitalist countries toward MONOPOLY and consolidation has produced a steady decline in the number of daily newspapers, and of newspaper owners as well, even though advertising revenues continue to rise. Newspapers are increasingly part of media conglomerates, or even of multifaceted, multinational organizations of which they may constitute only a small part, leading, in the opinion of some media critics, to a general uniformity.

Despite this situation and the competition of other media, newspapers in the late twentieth century have continued to hold their own as essential conveyors of information not duplicated elsewhere and as the medium most effective in holding governments accountable to the governed.

See also NEWSMAGAZINE.

Bibliography. John Tebbel, *The Compact History of the American Newspaper*, new and rev. ed., New York, 1969; idem, *The Media in America*, New York, 1974; The Times Newspapers, *The (London) Times: Past, Present and Future: To Celebrate 200 Years of Publication*, London, 1985.

JOHN TEBBEL

NEWSPAPER: TRENDS

This entry consists of seven articles:

1. Trends in Africa
2. Trends in Asia
3. Trends in Europe
4. Trends in Latin America
5. Trends in the Middle East
6. Trends in North America
7. Trends in the Soviet Press

1. TRENDS IN AFRICA

The vast expanse of Africa, inhabited by more than 500 million people, produces the fewest newspapers of any continent. Of the world's eight thousand daily newspapers, fewer than one hundred fifty are published in the forty-five countries of Africa. African newspapers have always been few, scattered, and concentrated in a handful of cities near the coast.

Historically, the press of Africa is a product of colonialism. The European colonizers and settlers imported printing presses to serve their own interests (see COLONIZATION). The first newspapers were official publications—the *Cape Town Gazette* in 1800 and the *Royal Gazette and Sierra Leone Advertiser*

in 1801. In the years following, two parallel traditions of journalism evolved, each directly influenced by the European incursion. First were the European, or "settler," newspapers, printed for the convenience and use of Europeans with the Africans as an eavesdropping audience. Later came the African nationalist newspapers, which, despite many obstacles, were published by Africans for many decades before independence. These early African newspapers fanned the flames of nationalism and, later, independence movements throughout the continent.

History. African journalism began in British West Africa. The first European papers appeared there, and the first journals published by Africans for other Africans were in the British colonies of Sierra Leone, Gold Coast (later Ghana), and, later, Nigeria. The guiding purpose of these African-produced newspapers, some of them handwritten, was politics; they were part of a strategy for gaining power. An indigenous English-language press developed in British West Africa originally to publicize African grievances and to criticize British rule. Later the press became a political weapon in the struggle for nationalism, to help organize political parties, and, finally, to win political independence itself. The first known newspaper in Nigeria was the *Iwe Irohin* in 1859, handwritten by missionaries in the Yoruba language. In time Nigeria became the principal center of journalism in black Africa.

In North Africa, too, an indigenous nationalist press, usually in Arabic, grew alongside the French colonial press. However, during the colonial era (roughly 1885–1960) the most important and dominant newspapers in North Africa were European publications.

A major and lasting influence on West African journalism was the establishment in the late 1940s of the London Mirror newspapers run by the redoubtable Cecil King. The *Daily Times* and *Sunday Times* of Lagos (Nigeria), the *Gold Coast Daily Graphic* and *Sunday Mirror* of Accra (Gold Coast), and the *Sierra Leone Daily Mail* (Freetown) dominated their areas in circulation and influence. Moreover, their Fleet Street style of tabloid journalism provided a model that was long emulated.

Other British influences came from the Lonrho group, which at one time owned newspapers in Tanzania, Uganda, Kenya, and Zambia, and from the Thomson group of newspapers in West Africa. Although most of these privately owned European enterprises were in time taken over by the independent African governments, they had a lasting impact on African journalism.

As independence neared, African politics and newspapers became closely entwined. Leading journalists were in many cases leading nationalists or

political leaders. Nnamdi Azikiwe (known as "Zik"), a major figure of West African journalism, and his National Council of Nigerian Citizens party (NCNC) controlled 10 newspapers in Nigeria by 1959. Zik's *West African Pilot* played a crucial role in galvanizing the movement for political independence. His longtime political rival, Obefemi Awolowo, and his Action Group party had 7 newspapers. Similarly, in the Gold Coast during the 1950s KWAME NKRUMAH and his Convention Peoples' Party had 7 newspapers serving their cause. A total of 227 newspapers appeared in British West Africa during the last years of the colonial period: 52 in Sierra Leone, 70 in the Gold Coast, 100 in Nigeria, and 5 in Gambia.

East Africa was long dominated by the more staid *East African Standard* (Nairobi, 1902). The *Standard* and its sister papers, the *Uganda Argus* (Kampala, 1955) and the *Tanganyika Standard* (Dar es Salaam, 1930), were owned, staffed by, and published for English-speaking Europeans. These papers spoke for settler interests, showing little concern for Africans or their political aspirations.

The first African-owned paper in East Africa was *Muigithania* ("The Reconciler" in Kikuyu), published in 1928 and edited by Johnstone Kamau, a young man later to be known as JOMO KENYATTA, independent Kenya's first president. By the time of the Mau Mau Emergency in the 1940s, there were about forty African vernacular newspapers being published, mostly in Kikuyu, all of which were eventually suppressed as seditious by the British.

French colonial policy did little to encourage African newspapers, and until the mid-1930s newspapers and journals could be published only by French citizens in either French West Africa or French Central Africa, a vast expanse including fourteen nations. The only successful and lasting newspapers were published in Dakar, Senegal, for French traders and colonial officials. *Le reveil du sénégalais* was founded in 1885 and *Le petit sénégalais* in 1886, but these were published by French nationals for other French nationals. The first French-language paper owned and operated by Africans themselves was the *Éclairreur de la Côte d'Ivoire* (Abidjan, 1935).

During the 1930s the Charles de Breteuil newspaper chain was the only group of its kind in francophone Africa. *Paris-Dakar* was launched in 1935, and in 1938 *France-Afrique* (which became *Abidjan matin* in 1954) appeared in the Ivory Coast. Other papers were started in Conakry and Cameroun, but francophone Africa was, and is, notable for its lack of newspapers.

During the 1950s European domination of the economic and cultural life of the Federation of Rhodesia and Nyasaland (later to become Zambia, Zimbabwe, and Malawi) was reflected in its press. Most

newspapers and periodicals, including those intended for Africans, were European enterprises. Argus South African Newspapers controlled the *Rhodesian Herald* and *Sunday Mail* (Salisbury), the *Chronicle* and *Sunday News* (Bulawayo), and the *Umtali Post* until Zimbabwe gained its independence in 1980 and, in effect, nationalized these papers.

In South Africa throughout much of the twentieth century the Argus group and other British newspaper publishers, notably the South African Associated Newspapers (SAAN) group, developed the most extensive English-language newspapers on the continent, with the financial support of mining interests and based on the traditions of British newspapers. *The Star*, *Rand Daily Mail*, *Cape Argus*, *Sunday Times*, *Cape Times*, and others dominated South African journalism. This commercial press was later challenged by the politically oriented Afrikaans-language newspapers that faithfully served the political goals of the National Party, which gained control of the South African government in 1948.

The black press of South Africa has had a long history, mostly quite separate from that of the white newspapers. Between 1836 and 1977 there were more than eight hundred publications written by or aimed at nonwhites. Some were small, ephemeral newsletters of only two to four pages; others were full magazines or newspapers with circulations up to one hundred seventy thousand. However, any newspapers or publications that supported the political interests and goals of black South Africans have been systematically suppressed in recent years. Two successful black-oriented dailies, *World* and *Post*, were closed down by the government in 1977 and 1981, respectively. As a result of the growing conflict and civil strife over apartheid and political dominance, freedom of the press for the opposition English press, as for the black press, has been steadily declining. Despite their numbers Africans do not own or control any newspapers in South Africa.

The press after independence. The decade of the 1960s was a critical time for the press of Africa. As political independence came to colony after colony, the need for more newspapers seemed apparent and the growth of newspapers was predicted. Instead, however, newspapers remained small and undercapitalized, circulations limited, and ADVERTISING sparse; trained journalists were hard to come by, and potential readership was sharply constrained by illiteracy and poverty (see LITERACY). Furthermore, significant changes in ownership occurred as African governments assumed control of both newspapers and electronic media.

This direct role of government was evident in other trends of the 1960s: a decline in the number of independent newspapers (both African- and European-

owned), nationalization of RADIO and television services (see TELEVISION HISTORY), and widespread establishment of government NEWS AGENCIES to control the flow of news in and out of the new nations. See NEW INTERNATIONAL INFORMATION ORDER.

At this time the most significant trend in African journalism was the proliferation of government and/or party newspapers. In Nigeria the federal government established its own group, the *Morning Post* and *Sunday Post* in Lagos, and each of the three regional governments did the same.

By 1970 the new look of African journalism had become clear: government- or party-controlled newspapers had taken center stage. European-owned newspapers gradually faded away except in Kenya and South Africa. The few independent African-owned newspapers such as the *West African Pilot* and *Nigerian Tribune* of Nigeria and *The Pioneer* of Kumasi, Ghana, were barely hanging on, while many small, irregular publications disappeared along with political opposition. In independent black Africa, Kenya remained something of an exception; two foreign-owned dailies, *The Standard* and *The Daily Nation*, continued to flourish under the one-party government of Kenyatta.

But political conditions were simply not conducive to the growth of vigorous, independent newspapers. Under colonial rule the African press had been a lively political press nurtured by nationalism and the independence movements, but the new governments that followed did not want outspoken papers that challenged politicians and their policies. Africa's new leaders felt the press should support the government and its development goals (see DEVELOPMENT COMMUNICATION).

The new one-party or military governments showed little tolerance for dissent or criticism. In Ghana, for example, Nkrumah bought out the British-owned *Daily Graphic* and made it a government publication; he shut down *The Pioneer*, an independent African dissenting newspaper, jailed its editor, and launched his own official newspaper, the *Ghanaian Times*. Journalists in Ghana and elsewhere became deferential civil servants, doing the bidding of politicians. Newspapers not yet directly under government control were harassed in various ways in Zambia, Rhodesia, Nigeria, Sierra Leone, Kenya, Uganda, and other countries, and their editors were often forced out of their jobs and into exile. A respected Kenyan editor, Hilary Ng'weno, expressed the frustrations of many African journalists:

In respect of the all-pervading power of the government, nothing has really changed from the bad old days of colonialism. Only the actors have changed; the play remains the same. Instead of a colonial governor you have a President or a field marshal. . . . Newspapers were

taken over and those which were totally opposed to being incorporated into the government propaganda machinery were closed down.

In addition to political barriers, the growth of newspapers in Africa was stymied by economic and social constraints deeply embedded in African societies. Such widespread conditions as low literacy, poverty, linguistic fragmentation, endemic disease, and malnutrition as well as transportation and production difficulties exacerbated the problems of producing profitable publications. Lack of investment capital, the high cost of imported newsprint and printing equipment, and difficulties of distribution all contributed.

In short, the newspaper did not take hold in Africa as a firmly rooted *African* institution. It remains an exotic plant imported from Europe and continues to struggle in a foreign and hostile environment.

Bibliography. Rosalynde Ainslie, *The Press in Africa: Communications Past and Present*, New York, 1966; Frank Barton, *The Press of Africa*, New York and London, 1979; William A. Hachten, *Muffled Drums: The News Media in Africa*, Ames, Iowa, 1971; William A. Hachten and C. Anthony Giffard, *The Press and Apartheid: Repression and Propaganda in South Africa*, Madison, Wis., 1984; George T. Kurian, ed., *World Press Encyclopedia*, 2 vols., New York, 1982; Dennis L. Wilcox, *Mass Media in Black Africa: Philosophy and Control*, New York, 1975.

WILLIAM A. HACHTEN

2. TRENDS IN ASIA

The Asian press underwent considerable change in the years after World War II. In many instances ownership and control of newspapers switched from European and local business interests to a mixture of national government, political party, and private enterprise, all often supportive of the status quo. Western-style freedom of press was replaced by GOVERNMENT-MEDIA RELATIONS that put the press in the role of promoting government policies. Perennial economic problems of the press were sometimes solved by local ingenuity, but more often through dependency on outside interests such as multinational corporations. In other regards change was slow. Mass readership has not been common except in Japan, Hong Kong, and Singapore. Newspapers in some areas such as India and the Philippines have problems addressing the needs and sensitivities of multiethnic and multilingual readers. Other problems persist: newspaper content tends to exploit the sensational, ignore the rural masses, and depend on foreign NEWS AGENCIES or local government sources.

History. Although missionaries brought printing presses to parts of Asia in the sixteenth century,

newspapers appeared much later, mainly in the late eighteenth and the nineteenth century. Previously, newsletters were occasionally published for royal courts; these included the *kawaraban* in Japan as early as 1610, the *Royal Court Report* in Korea during the sixteenth century, and Tomás Pinpin's *Sucesos felices* in Manila in 1637 (see NEWSLETTER).

Regularly published newspapers were introduced by the colonists and were designed to keep them in touch with their home countries or to propagate European religious, trade, or government policies. Even in countries such as Japan and Thailand, which escaped COLONIZATION, the first newspapers were either imitations of European-oriented papers (*Batavia shimbun* in Japan) or were started by missionaries (Dan Beach Bradley's *Bangkok Recorder* in Thailand). By the turn of the twentieth century, newspapers supporting nationalist and independence movements emerged. Notably in the Philippines, *La solidaridad* and its editors and contributors provided impetus for a nationalist movement. Korea's first modern newspaper, *Tongnip sinmun* (The Independent), listed goals of excluding foreign dominance, protecting national sovereignty, eliminating class distinctions, and expanding civil rights, while later Ceylon's nationalist movement was sparked by D. R. Wijewardene and his *Ceylon Daily News*. Most Asian countries had some newspapers that were characterized by nationalist motivation and politics.

Growing side by side with politically motivated newspapers were those that sought commercial success. The trend toward big-business journalism was most pronounced in Japan; the newspapers *Osaka asahi* and *Osaka mainichi*, predecessors of two of the three contemporary giants, claimed circulations in the hundreds of thousands by the 1890s. In the early twentieth century, newspapers that were more commercially than politically oriented were started in China, Hong Kong, Singapore, Malaya, the Philippines, India, and Ceylon. The result in a few countries, notably the Philippines, India, Ceylon, and of course Japan, was a trend toward concentration of ownership, resulting in the formation of newspaper groups.

As Japan advanced its military imperialism in the 1930s and 1940s, its press and the press of countries it occupied experienced similar hardships. Most editors were interned or sought refuge; all publications, except for a few used specifically by the Japanese military, were disbanded; and remaining media were reorganized as part of the PROPAGANDA apparatus. For example, in Japan the number of newspapers dwindled from 1,200 in 1937 to about 50 five years later. In occupied Japan in the postwar period, journalists who had supported the wartime military government and also those who had espoused Com-

munist principles were purged, and newspapers were censored. At the same time, most Asian countries, including Japan, witnessed an abundance of new newspapers. For example, 56 new papers sprang up in Burma between 1945 and 1946; 126 new papers in Japan by 1946; and 75 dailies in Indonesia by 1949. The freedom that came with the defeat of Japan and subsequent independence movements was not always matched with responsibility. At times newspapers were unabashedly reckless.

Government-press relations. Of all changes encountered by the Asian newspapers since World War II, the most sweeping have been those dealing with press-government relations. Trends toward authoritarian leadership altered the ways governments interacted with the press. Besides promoting a "guidance" concept to be used in conjunction with national development aims, most governments enacted or altered press laws, suspended offending newspapers, arrested errant journalists, restructured newspapers to include more government ownership and management, and imposed economic sanctions.

The guidance principle, coupled with self-censorship, prevails throughout the region. A subtle type of control, guidance is offered to journalists by officials who claim the press must diminish its role as critic and support government policies and institutions in the early years of newly emergent nations. Often, as in Bangladesh, Malaysia, Singapore, the Philippines, Indonesia, Pakistan, and Taiwan, the press practices self-restraint, avoids investigative reporting, includes all government speeches and campaigns, ignores opposition elements, and relies to a great extent on government news releases. The guidance comes in the form of public speeches by officials on the desired role of the press and the redefinition of press freedom, and telephone calls from officials offering "advice" and questioning editors' decisions.

In China, the Democratic People's Republic of Korea, the Indochina states, Afghanistan, and Mongolia the role of the press is in accord with Marxist-Leninist concepts of total integration with government and, in some instances, in harmony with Maoist concepts of mass line, anti-intellectualism, and antiprofessionalism. In China, for example, the press has been totally subject to the interests of society as defined by the authorities and by the party's opinion formation process. Communist presses are organized intricately along structural and functional lines, and are owned and controlled by the state or party.

In nearly all of Asia, legislation affecting the press has been scrupulously analyzed and strengthened through amendments, especially in the 1970s. Most Southeast Asian and many East and South Asian nations require annual licensing of newspapers; oth-

ers require prohibitively expensive security deposits, such as the forty-seven thousand dollars levied on South Vietnamese newspapers in the early 1970s. Security, public order, and LIBEL and sedition laws have been harshly applied to newspapers and journalists; in Malaysia and Singapore the Internal Security Act provides for up to two years' imprisonment, without formal arrest, of journalists suspected of breaking these rules. Malaysia's sedition regulations specify four sensitive issues that cannot be discussed critically; Singapore's libel laws are used by the prime minister and other officials to subdue newspapers; and most countries have instituted or updated legislation to scrutinize foreign publications and journalists.

Harassment and arrest of journalists and suspension of newspapers occur when officials believe their guidance has not been accepted or laws have been broken. Extreme examples occurred in the early 1970s as governments and media made the transition from old-style authoritarianism, with its overt methods, to guidance and developmental communications, perhaps more dangerous because of their relative subtlety. In the Philippines in 1972, nearly all newspapers were closed permanently, scores of journalists were arrested, and new structures and purposes were given to the dailies that were founded at that time. Between 1973 and 1975 officials of the Republic of Korea arrested journalists and forced the merger or closure of opposition newspapers, including for a short time the main daily, *Dong-a ilbo*. The country that must, especially in its final years, have set a record for number of confiscations and suspensions of newspapers was South Vietnam. In 1970 Saigon authorities confiscated newspapers 250 times; 718 times in 1971; and 907 times in 1972. One daily, *Tin sang*, was confiscated no less than 166 times in 1971. After an assassination attempt on President Lon Nol in March 1973, all Cambodian newspapers were closed; they were reopened in May 1974, after each deposited \$3,875 as security. In numerous other countries—India, Sri Lanka, Pakistan, Taiwan, Thailand, and Indonesia, to name a few—states of emergency or martial law drastically curtailed newspapers for substantial periods.

Another form of control includes economic restraints that were applied to newspapers through government control of newsprint and official advertisements. In Bangladesh the state rents office space and printing presses to newspapers and controls import licenses and newsprint and equipment allocations, while Nepalese authorities promise financially to support newspapers that favor "healthy journalism."

The economics of newspapers. Most Asian governments have recognized that punitive actions directed against the press contributed to a negative international image; in response, many purchased

and created their own newspapers. In the Philippines during the presidency of Ferdinand Marcos, a number of dailies were owned by his relatives and friends. In Malaysia many dailies have been owned by members of the ruling coalition. But the country that has most systematically controlled newspapers through ownership is Singapore. There, in 1974, the press law was amended to create two classes of newspaper shares—ordinary and management. The latter, carrying more voting weight, can be owned only by those approved by the Ministry of Culture. Another restructuring, which took place from 1982 to 1984, was more sweeping, as it accomplished the demise of three long-standing newspapers and their replacement by a new company of three dailies, Singapore News and Publications Ltd. SNPL ultimately merged with the country's main newspaper, periodical, and book publishers, Straits Times Press and Times Publishing, to form the largest industrial group in Singapore. Various reasons were given for this merger; some critics believed it was meant to create an official mouthpiece, while the government said it was to establish a "world-class player in the high-technology information and communications industry." The latter point is important because it illustrated Singapore's choice to invest in urban-oriented international information markets, rather than to pursue a development policy that would be more rural in its focus (see AGENDA-SETTING).

Actually, Singapore, through Straits Times Press, epitomized the trend of some developing countries to become involved in transnational business. By 1980 the Straits Times Press had engulfed, in whole or in part, media and other properties in England, Tahiti, New Caledonia, Singapore, New Zealand, Australia, Thailand, Brunei, Malaysia, Hong Kong, and the United States. By extension, Straits Times Press was tied in with corporate giants such as Dow Jones in the United States and Hachette in France. In other Asian countries between the 1960s and 1980s, newspapers became big businesses. Concentration of ownership became widespread in the Philippines through groups such as Times Journal and Express, in Malaysia through politically connected groups such as New Straits Times, in India through chains owned by business houses, and in Sri Lanka. Japan's press, with a number of newspapers in the million-circulation bracket, is highly concentrated; papers such as *Asahi*, *Mainichi*, and *Yomiuri* have scores of editions throughout the country.

The means of producing Asian newspapers were developed more rapidly than were methods to expand their markets. In the 1970s governments mounted projects to expand local newsprint industries. Many large-city newspapers adopted modern printing equipment; others, especially in Japan, tied in with new media. In most countries press revenues in-

creased, and some efforts at professionalization of newspaper employees took place, especially since the 1960s. But the transformation was less than complete. Economic changes often were isolated to certain countries, or even to capital cities in those countries, and the consumption of newspapers in many instances remained low as production costs drove the prices of newspapers out of the reach of the masses and as newspapers resisted changing their contents from an urban to a more rural orientation.

Another problem for the press of these countries concerns the sources of news. Although regional news agencies, similar to the recently created Asian News Network, have been in existence for decades, in the 1980s they continued to take a back seat to large international services such as Associated Press, United Press International, Reuters, and Agence France Presse. Nearly all countries have national news services, but their credibility is suspect because of close government ties. A number of these agencies disseminate their own brand of development-oriented journalism, which, although well intentioned when it was conceived in Asia in the 1960s, has come to be associated with government-supported journalism. Dependency on foreign news agencies, authoritarian control of the press, concentration of ownership, a deepening metropolitan orientation, and a lack of local economic resources to finance autonomous development all combined to place sharp limits on the informational value of the Asian press.

See also GOVERNMENT REGULATION; MONOPOLY; NEW INTERNATIONAL INFORMATION ORDER; NEWSPAPER: HISTORY.

Bibliography. Lawrence Beer, *Freedom of Expression in Japan: A Study in Comparative Law, Politics, and Society*, Tokyo, 1984; John A. Lent, ed., *The Asian Newspapers' Reluctant Revolution*, Ames, Iowa, 1971; idem, *Newspapers in Asia: Contemporary Trends and Problems*, Hong Kong, 1982; D. S. Mehta, *Mass Communication and Journalism in India*, Bombay, 1979; Sir Charles Moses and Crispin Maslog, *Mass Communication in Asia: A Brief History*, Singapore, 1978; Nihon Shimbun Kyokai, *The Japanese Press*, Tokyo, 1949–; Rosalinda Pineda-Ofreneo, *The Manipulated Press: A History of Philippine Journalism since 1945*, Manila, 1984; Wilbur Schramm and Erwin Atwood, *Circulation of News in the Third World: A Study of Asia*, Hong Kong, 1981.

JOHN A. LENT

3. TRENDS IN EUROPE

The press in European countries has a long history and reflects differences in national tradition, economic development, and political systems (see NEWSPAPER: HISTORY). Despite these differences, the press in all these countries has tended to move through similar stages of development, albeit at varying rates.

After the period in which newspapers were initially established, the press in many countries was supported increasingly by government or political parties. The politicized press was particularly characteristic of western European countries in the nineteenth century and continued to be important in other countries through the twentieth century. This stage was followed, particularly in western Europe, by an advertiser-supported or commercialized press.

Both the history and the current state of affairs of the European press can be approached from a variety of perspectives. Some researchers who prefer materialist explanations focus on the economic and political context of the press, while other scholars—especially in the Western capitalist countries—accept a more idealist causality and emphasize the autonomy of the press, stressing the influence of individual publishers, editors, and journalists.

Western Europe. The largest western European countries have the longest history of newspaper publishing in the world. Although some of the traditional characteristics of the press in these countries are still apparent, significant changes—particularly the commercialization of the press—have accelerated since World War II. The first newspapers in Great Britain, France, and Germany were founded at the beginning of the seventeenth century. They were followed in the nineteenth century by the politicized press, after which changes in economic conditions led to the development of the commercialized, advertiser-supported press.

The British press is characterized by the dominance of newspapers published in London and by recognized distinctions between popular and elite newspapers. Concentration of power in a few newspaper conglomerates is also characteristic of the modern British press. Newspapers controlled by political parties have never had much significance in Great Britain. However, editorial policies do tend to favor particular parties; the Conservative party has normally received sympathetic treatment from both popular press and elite newspapers like the *London Times*, while the Labour party has been supported primarily by the *London Daily Mirror*.

In the Federal Republic of Germany (FRG) regional papers have played a more important role than they have in Great Britain, but here too there is an increasing trend toward concentration of ownership. Recognized as elite newspapers are the *Frankfurter Allgemeine*, a liberal paper, and *Die Welt*, a conservative paper published in Hamburg. Another category is the sensational "boulevard paper" represented by *Bild-Zeitung*, which has been published in several cities. Political party papers have traditionally played a role, but they have not been a dominant element in the FRG.

The structure of the French press has differed from

both the British and the FRG models. National newspapers have been less centralized in the capital city than they have been in Britain but more so than in the FRG. While the concentration of ownership has increased, it has not approached the level of concentration characteristic of the other two countries. In recent decades the Parisian daily *Le monde* has been considered the most widely known liberal, elite newspaper. Two examples of the popular press include *Le figaro* and *France-soir*. Political party papers have some importance; the Communist *L'humanité* achieved a higher circulation than most other Communist papers in the West.

One notable Swiss newspaper deserves mention—the *Neue Zürcher Zeitung*, an elite paper most often classified as liberal. It has been successful, despite its somewhat old-fashioned TYPOGRAPHY and appearance.

Southern Europe. In many respects the development of the southern European countries—Italy, Spain, Portugal, and Greece—lagged behind that of the large western European countries. Consistent with this, their newspapers are more likely to be aligned with specific political parties and less dependent on advertisers.

In Italy *Corriere della sera*, published in Milan, is widely read, but some experts believe that the most influential Italian newspaper is *L'osservatore romano*, which is published by the Vatican and reflects the opinions of the Catholic church.

In the southern European countries that shifted from fascist to more democratic regimes in the mid-twentieth century—Spain, Greece, and Portugal—the problems of the press are distinctive. Since these political changes occurred, these governments have respected the freedom of the press in principle but in practice have interfered with the press in various ways, including economic pressure. Yet the role of the press as a forum for political debate increased, and in Spain the political role of the press became particularly lively. *El país* (Madrid), founded in 1976, developed into a large and highly influential newspaper.

Northern Europe. The northern European press has differed in important respects from the southern European press, as well as from the press in western Europe. A large proportion of the newspapers are aligned with political parties, which suggests an earlier stage in press development. However, the largest newspapers are either not politically affiliated or are only nominally affiliated. The press system in general is highly developed. As in southern Europe, the distinction between popular and elite newspapers is less clear than in western European countries.

In Sweden the two newspapers with the largest circulations are both evening papers from Stockholm—the liberal *Expressen* and the Social Democratic *Aftonbladet*, which is owned by the labor

unions. Perhaps the most influential newspaper, however, is the liberal *Dagens nyheter*, which is not affiliated with a political party.

Finland's leading newspaper is the liberal *Helsingin sanomat*, not affiliated with a political party. Its counterpart in Norway is the somewhat more conservative Oslo *Aftenposten*.

Denmark's small size led to a greater concentration of press ownership than in other Scandinavian countries. For the most part, political party papers disappeared. Two Copenhagen publishing firms own four papers with the largest circulations: the so-called lunch papers, *B.T.* and *Extra bladet*, and the two morning papers, the conservative *Berlingske tidende* and the liberal *Politiken*.

Eastern Europe. In the socialist countries of eastern Europe, the newspapers are not private enterprises but are published by the state, the Communist party, trade unions, youth organizations, citizens' organizations, and other such groups. There are also newspapers that target different geographical and social—rather than ideological—groups, as in the West.

There are very real differences between the aims and methods of journalism in the West and the East. They include different criteria for what constitutes news and a different presentation of argument in editorials. The socialist press has made some important contributions to journalism, such as the reliance on worker and peasant correspondents and the use of letters from readers as a way to facilitate communication among authorities, citizens, and the press itself.

The leading newspaper in each of these countries is that of the Communist party. They include *Neues Deutschland* in the German Democratic Republic, *Trybuna ludu* in Poland, *Rude pravo* in Czechoslovakia, *Nepszabadsag* in Hungary, and *Pravda* in the USSR. The Soviet Union has other important newspapers, including *Izvestia*, published by the Soviets (councils) of the People's Deputies; *Trud*, published by the trade unions; *Komsomolskaya pravda*, published by the Young Communist League; and *Literaturnaya gazeta*, published by the Union of Soviet Writers.

Economics of the press. The European press cannot be understood without a closer look at the press economy. The fundamental differences between the Western capitalist and the Eastern socialist systems are important; however, there are real differences between individual newspapers and between newspaper groups within each system, and these should not be overlooked.

The commercialization of the press in the western European countries created a situation in which ADVERTISING revenues determined the economic viability of newspapers. However, costs rose, especially since World War II, even faster than the advertising revenues that determined each newspaper's success

or failure. These costs were due primarily to investment in expensive new printing technologies and to the rise in the cost of labor in both the printing and editorial branches of the press. This situation led to an economic crisis for several major newspapers—usually elite papers—even those that had enjoyed large circulations. Well-known examples include several of the London newspapers that have had financial difficulties since the 1970s.

These conditions strengthened the trend toward concentration of ownership and decreased the overall number of newspapers in most European countries. In several western European countries governments responded to this situation by providing substantial subsidies for newspapers. From the point of view of the so-called social responsibility theory of the press, it is easy to defend state subsidies, the aim of which is to maintain a diverse press consisting of both large and small papers. However, there is much doubt about the independence of the newspapers that receive financial support from the state. Nevertheless, there is evidence that in countries with a tradition of press autonomy the newspapers that receive state subsidies continue to feel free to criticize the government.

Role of the press. The press has sometimes been referred to as the fourth estate, having its own independent social function. This notion is particularly characteristic of those Western capitalist countries that have traditionally valued press independence. However, it has been supplanted to a great extent by the view that the press is closely linked to and influenced by the structure and power relationships of a given society. This view is held to be true regardless of the particular economic and political system, and, therefore, it provides a common point of departure for interpreting the press in both capitalist and socialist countries.

The short-term impact of the press on news events is no longer particularly important; the press has been overshadowed in this area by television coverage of political events, election campaigns, world affairs, and so on. The issue of the long-term impact of the press is more complex. For some segments of the population television has superseded newspapers completely (see TELEVISION HISTORY; TELEVISION NEWS). However, in all European countries there is an active minority or elite for whom television coverage of domestic and world affairs is too superficial and limited. For this group the role of the press, especially the so-called serious newspapers, remains paramount. Furthermore, political decision makers also rely on serious political journalism for information and analysis of events. Thus in some cases the press influences both PUBLIC OPINION and the perspectives of leaders.

According to some theorists, however, the quality and economic viability of serious journalism is de-

clining. More and more, such newspapers alter their format and content to compete with the popular press. If this trend continues, newspapers may become more secure financially, but the press will lose much of its social and political role in the creation of informed public opinion and policy.

See also CENSORSHIP; GOVERNMENT-MEDIA RELATIONS; GOVERNMENT REGULATION; NEWS AGENCIES; NEWSMAGAZINE.

Bibliography. G. Bohere, *Profession: Journalist*, Geneva, 1984; Pertti Hemánus and Tapio Varis, *Mass Media Yesterday and Today*, Prague, 1983; John C. Merrill, ed., *Global Journalism: A Survey of the World's Mass Media*, New York, 1983; John C. Merrill and Harold A. Fisher, *The World's Great Dailies*, New York, 1980; Kenneth E. Olson, *The History Makers*, Baton Rouge, La., 1966; Kauko Pietila, *Formation of the Newspaper: A Theory*, Tampere, Finland, 1980; Fredrick S. Siebert, Theodore Peterson, and Wilbur L. Schramm, *Four Theories of the Press*, Urbana, Ill., 1956, reprint Freeport, N.Y., 1973; Anthony Smith, *The Newspaper, An International History*, London, 1979; UNESCO, *World Communications: A 200-Country Survey of Press, Radio, Television, Film*, 5th ed., New York and Paris, 1975.

PERTTI HEMÁNUS

4. TRENDS IN LATIN AMERICA

The press in Latin America has always been closely linked to the social and political history and conflicts of the region. Most of the newspapers that constitute the elite press of Latin America have experienced confrontations with governments, including CENSORSHIP and direct attacks on their journalists and printworks. On the other hand, the elite press newspapers have in many cases effectively defended their own social policies, which have sometimes represented the private interests of the newspaper owners. As a result of the newspapers' participation in social and political conflicts, the roles of journalist and politician have often been difficult to separate. In many cases the roles of publisher and banker or entrepreneur are also intermixed. The Latin American press has always been at the center of the storm during this region's frequent rebellions and revolutions.

History. The history of the Latin American press began in the eighteenth century, when Spain still controlled its New World territories (see COLONIZATION). Early newspapers include *La gazeta de México*, founded in 1722, followed by publications of similar name in Guatemala (1729), Lima (1743), Havana (1764), and Bogotá and Quito (1785). At the beginning of the nineteenth century the first Argentine and Uruguayan newspapers appeared: *El telégrafo mercantil* (Buenos Aires, 1801) and *La estrella del sur* (Montevideo, 1807).

The struggles for national independence—sparked

by the Napoleonic invasion of Spain—led to the appearance of newspapers that were committed to the objectives of the independence movements. The emancipation leaders were eager to found newspapers in the liberated countries. For example, *La aurora de Chile* (1811) and other comparable newspapers provided forums for patriotic intellectuals and attempted to promote the idea of independence. Simón Bolívar, liberator of Colombia, Ecuador, Peru, Panama, Venezuela, and to a large extent Bolivia, was an enthusiastic newspaper founder. He is credited with having stated that “the press is the artillery of thought,” and he apparently transported a small printer on muleback throughout his entire military campaign in order to make full use of the power of the press.

Bolívar’s struggles to create a single Latin America (a United States of the South) failed amid a multitude of disputes and political ambitions. The new nations soon found themselves involved in civil wars and other conflicts. Nevertheless, by the second half of the nineteenth century the majority of the Latin American countries had been established and were relatively stable. In this context the press was able to flourish. *El mercurio* (1869), founded in Valparaíso, Chile, became the basis for a large company, which operated without interruption from the time of primitive printing technology to the era of electronic production. *El comercio* of Lima (1839), *La prensa* of Buenos Aires (1869), *O estado de São Paulo* (1876), and *El día* of Montevideo (1886) are similar examples of both permanence and great influence over national and continental opinion.

The twentieth century brought with it the introduction of technologies and journalistic methods from the United States. The majority of the newspapers that were important through the century appeared between 1900 and 1920. Family-owned newspapers grew to positions of significant power and influence; examples of family organizations include Mitre and Gainza Paz (Argentina), Edwards (Chile), Batlle y Ordóñez (Uruguay), Santos (Colombia), Miró Quesada and Beltrán (Peru), and Mezquita (Brazil). Newspapers that were founded in these years include *El mercurio* (Santiago, 1900), *El diario* (La Paz, 1904), *El comercio* (Quito, 1906), *La razón* (Buenos Aires, 1905), *El tiempo* (Bogotá, 1911), and *Excelsior* (Mexico City, 1917). These newspapers constituted the main source of information until the arrival of RADIO in the 1920s and, subsequently, television in the early 1950s (see TELEVISION HISTORY).

Twentieth-century issues. Despite the presence of electronic media in Latin America, the role of the newspaper in the formation of public opinion and the expression of political debate continued to be significant. The Latin American newspapers can be grouped into three large political categories. The first

category is made up of the large traditional newspapers. Politically conservative, these newspapers reflect the interests of the families who were involved in various forms of private enterprise such as agriculture and mining during the nineteenth century. The second group, which arose from the time of the world economic crisis of the 1930s and the effects of World War II, can be classified as politically moderate. They are sympathetic to the concept of the welfare state and to strategies of national industrial development. Finally, the left and popular press increased its presence with the development of mass media and with the growing sympathies toward leftist political groups that accompanied the struggle against nazism during World War II and the subsequent revolution in Cuba. See DEVELOPMENT COMMUNICATION.

Socioeconomic conditions affected support for the press in Latin American countries. The more wealthy—and more literate—countries could support more and larger newspapers. For example, in 1970 in Chile, which had a population of 10 million and a LITERACY rate of 90 percent, one popular newspaper alone attained a circulation of 450,000; the three main newspapers together had a circulation of 1,100,000. In contrast *Excelsior*, in Mexico City, with a population of 10 million, did not even have a circulation of 150,000.

An increasing presence in the finances and management of the main newspapers was ADVERTISING. By the early 1960s the percentage of space devoted to advertising in the major Latin American newspapers ranged from 40 percent in *El nacional* (Caracas) to 73 percent in *O estado de São Paulo*.

Since the mid-1970s, research on and analysis of the Latin American press has increased. Much of it has been critical and has focused on the difficulty of maintaining independence, given the dependence on advertising and the newspapers’ interrelationships with other sectors of the economy. Another criticism concerned the sources for foreign news. Since World War II the major NEWS AGENCIES expanded to control 60 to 75 percent of the international news published in the region. This led to concern about the structure and imbalance in the world flow of information—a problem that was recognized increasingly in other developing areas. See COMPUTER: IMPACT—IMPACT ON THE WORLD ECONOMY; NEW INTERNATIONAL INFORMATION ORDER.

In addition, there have been trends among the press to reject censorship, other forms of government control, and any actions limiting the freedom of the press. The Interamerican Press Association’s (IAPA) annual report has had considerable influence on these policies. In the 1950s some newspapers suffered from censorship. The right-wing dictatorship of General Rojas Pinillas of Colombia led to the suspension of

El tiempo and *El espectador* in 1955. And in Brazil during the 1960s (following the 1964 coup d'état) the National Security Doctrine came into force with a rigorous censorship policy and violent actions (kidnappings, tortures, and murders) against journalists. Similar developments later occurred in Uruguay, Chile, and Argentina. Different experiments with censorship appeared in the left-wing governments. For example, Cuba applied a rigorous policy in this respect, giving the press a new role in "political education" (see POLITICAL SOCIALIZATION). By the beginning of the 1980s an attempt at "critical journalism" arose in Cuba, but still within the socialist framework. Nicaragua was another country where the radicalization of politics led to a confrontation between the traditional newspaper *La prensa* and the revolutionary government.

By the mid-1980s a large part of the Latin American press was in the process of technological transformation. This came about at the same time as a wave of redemocratization occurred in various Latin American countries, such as Brazil, Argentina, Uruguay, and Peru. As a result new prospects for journalistic development were opened up. The concept of "independent journalism" reemerged as an essential prerequisite for democratic stability and participatory development.

See also GOVERNMENT-MEDIA RELATIONS; GOVERNMENT REGULATION; LATIN AMERICA, TWENTIETH CENTURY; NEWSPAPER: HISTORY.

Bibliography. Simón Bolívar, *Cartas*, Vol. 1, *Obras completas*, Caracas, 1933; CIESPAL, *Dos semanas en la prensa de América Latina*, Quito, 1967; Dag Hammarskjöld Foundation/ILET (Latin American Institute for Transnational Studies), *Towards a New Information and Communication Order*, Uppsala, Sweden, 1982; Robert N. Pierce, *Keeping the Flame: Media and Government in Latin America*, New York, 1979, reprint (*Libertad de expresión en América Latina*), Barcelona, 1982; Fernando Reyes Matta, ed., *La información en el nuevo orden internacional*, Mexico, D.F., 1977.

FERNANDO REYES MATTA

5. TRENDS IN THE MIDDLE EAST

The first modern Arabic press in the Middle East was introduced in Egypt by Napoléon during his military campaign of 1798–1801. Aside from publishing Napoléon's declarations and orders, the press was used to publish two French newspapers and the first Arabic newspaper, which the French occupiers called *al-Tanbih*. The latter was used to publish legal cases and administrative news.

After the departure of the French from Egypt, no printing of newspapers or other publications took place until Muḥammad 'Ali Pasha, who in 1805 was

sent by the Ottomans to govern Egypt, decided in 1821 to have a press to meet the demands of government and to satisfy his wish to spread knowledge, especially of science. He therefore bought and upgraded the press that the French had left and established a publishing house that later printed books, government documents, and the second Arabic newspaper, *al-Waqa'i el-Masriyah*, in 1828. The third Arabic newspaper, *al-Moubasher*, was established by French settlers in Algeria in 1847.

Shortly thereafter the Arabs themselves engaged in the business of publishing newspapers. The first Arab to publish an Arabic newspaper, *Mir'at al-Ahwal*, was Rizek Allah Hassoun from Aleppo, Syria, in 1855. In 1870 there were about twenty-seven newspapers and magazines published by Arabs. A survey conducted by Philip Tarazi revealed that by 1929 the Arabs had published 3,023 newspapers and magazines, of which some had perished but others were still in existence.

From the beginning many Arabs viewed the press as an instrument of struggle against occupiers and outdated traditions. The press, therefore, tended to concentrate on inciting and awakening the populace through its content, paying little attention to style, appearance, and technical improvements. Not all Arab papers, however, were nationalist in orientation. Some were loyal to the occupiers—be they Ottoman, French, or British.

The end of World War I marked the end of relations between the Arab world and the Ottoman Empire. By the end of the war, however, the Arab world fell prey to other foreign designs, particularly those of the British and the French. Both powers imposed stringent controls on the Arab press through administrations authorized to shut down newspapers and to prosecute editors for criticizing the occupiers.

The post-World War II era, which witnessed the emergence of independent Arab states, was characterized by Arab governments that viewed the press as an enemy. These states did not encourage the development of the press and did not hesitate to punish newspapers and journalists for criticizing them. Consequently, much of the press in the Arab world expressed little criticism and was transformed into a mouthpiece for individual governments. The fate of many of these newspapers was tied to that of the government in power. The overthrow of a government often meant the demise of those newspapers that were associated with it.

This turnover, among other factors, is why most of the modern Arab press dates back only to the 1960s and 1970s. Another reason is that a number of Arab countries achieved independence only in the 1960s. Moreover, ownership of the Arab press during the first half of the twentieth century was primarily in the hands of individuals. This often meant

that the death of the owner or his abandonment of a newspaper marked the demise of that newspaper.

Relationship between government and press. The nature and role of the Arab press are directly and indirectly affected by the type of government that controls the country. In absolute monarchies such as Oman, Jordan, and Saudi Arabia there is limited freedom of the press on political issues and relative freedom on social and economic issues. Constitutional monarchies or sheikhdoms such as Kuwait are the exception. Kuwait has been known all along to have a freer press than most other parts of the Arab world; still, the Kuwaiti press is restricted, with a number of issues and subjects banned from public discussion. In the case of monarchies and sheikhdoms ownership of the press is usually private. However, governments have been known to support newspapers, directly through financial assistance and indirectly through astronomical ADVERTISING subsidies or through purchasing large numbers of newspapers that are later distributed by the government free of charge.

Authoritarian governments such as those in Syria, Iraq, and Libya have no freedom of the press. Other than the governing party no political parties are allowed to exist. Often the press is directly owned by the government itself or by the sole political party that runs the government. Usually the circulation of the press in these countries is extremely limited, and the people quench their thirst for news and analysis by listening to foreign broadcasts such as the BBC or by reading whatever foreign press might occasionally be allowed into the country. An underground press exists in some of these countries, the significance of which increases in proportion to the degree of suppression of freedom. This press is usually published by banned organized groups such as the Communists, student unions, or religious movements. On the other hand, the imported foreign press is often a mutilated source; some of these governments take pains to clip the news items relating to that particular country or simply tear off entire sections of newspapers or magazines.

The semidemocratic republics such as Egypt (which has been the largest PUBLISHING center in the Middle East) and Tunisia allow relative political freedom for the opposition within the limits set by the government in power. Opposition parties are given a legal status and permitted to publish their own newspapers, although not without restrictions. These restrictions have taken various forms, including "gentlemen's agreements" about what could be printed, and in at least one case the government limited the amount of printing paper that could be used by the opposition newspaper. Ownership of the press in these countries is usually associated with political parties, unions, and religious groups. Despite all the restrictions im-

posed by the Arab governments on the press, a number of journalists have developed the art of conveying their messages and thoughts to the public indirectly either between the lines or through political cartoons.

Variations. Lebanon's relationship to the press has been more the exception than the rule among Arab countries. Until 1977, and even during the upheavals of the 1975–1976 civil war, no CENSORSHIP of the press existed in that country. About two dozen newspapers and magazines continued to appear regularly, reflecting every shade of political opinion. In January 1977 censorship was imposed on all publications, forcing some papers to close down, if only temporarily. The absence of a strong central government to enforce the laws of the land made censorship regulations ineffective. Given the difficulties of publishing and distributing a newspaper in the war-torn country, the Lebanese also resorted to the airwaves. By March 1986 there were about forty-one private RADIO stations in Lebanon, although only one of them was officially registered with the government.

The violence and political turmoil in Lebanon, a country with one of the largest pools of experienced journalists and editors in the Arab world, forced not only many journalists but also entire publications to relocate, particularly to London, Paris, and Cyprus. (Under Anwar as-Sadat, Egypt too witnessed the emigration of opposition journalists to Europe and Kuwait.) Following the 1982 Israeli invasion of Lebanon, the core of the Palestinian press published in that country was also forced to relocate to Europe. These relocations introduced a new dimension—the expatriate press. These Arabic publications, although free of the daily harassments of censorship, political turmoil, and violence, were still unable to enjoy completely the freedom provided by the host countries. First, to survive, these news weeklies, such as *al-Mostaqbal*, *al-Hawadeth*, and *al-Watan Arabi*, have been forced to rely on certain commercial advertisers that favored only restrained criticism of certain Arab countries. Second, the readership of these publications is primarily in the Arab world, which means that if the Arab countries did not like what they saw, they could bar the publication from entering their borders. On the other hand, the presence of these Arabic publications in Europe helped increase the readership, thereby expanding their scope of interest and coverage. Moreover, these publications benefited from the availability of advanced technology, which improved their technical production and style.

It is important to note that the Palestinian press under Israeli occupation, although completely censored, enjoys more freedom than some of the Arab countries' presses. The Israelis have little to risk and much to gain from a policy of allowing selected critical articles to appear in the Palestinian press.

From Israel's vantage point the Palestinian press is important in defusing tension among the politically active segment of the population. The absence of this outlet could lead to a much more dangerous alternative, such as an underground press or possibly violent action. The press also provides Israel with "evidence" that its occupation is "liberal." Ultimately, however, it is the Israeli censor who becomes editor in chief of the Palestinian press because he has the power, which he frequently exercises, to censor any article, news item, editorial, picture, or advertisement.

Obstacles to press development. In comparison to many parts of the world, particularly industrialized countries, the percentage of Arabs who buy and read newspapers is small. The higher illiteracy rate among Arabs, coupled with social and cultural traditions that do not emphasize reading (most Arabs prefer to listen to the radio or watch television for the news), contributes to this phenomenon. The most important factor, however, is the Arab people's lack of trust in the press. Arab newspapers suffer from a serious lack of credible writers, thinkers, and investigative reporters. Many of the Arab newspapers fill their pages with translations from other sources because of lack of necessary resources owing to financial difficulties and the emigration of journalists. The pivotal question of credibility of the Arab press centers around the fact that these newspapers and magazines lack the freedom to express their opinions and to publish news items of their own choosing and are often viewed as the mouthpieces of the governments in power. As long as these factors persist, the Arab press stands little chance of expanding its readership.

See also ISLAMIC WORLD, TWENTIETH CENTURY; RADIO, INTERNATIONAL; TELEVISION HISTORY—GLOBAL DEVELOPMENT.

Bibliography. Bishara A. Bahbah, "Perspectives in Conflict: The Role of the Palestinian Media in the West Bank, the Gaza Strip, and East Jerusalem—A Palestinian View," *Journal of Communication* 35 (1985): 16–21; Adeeb Marwa, *Al-Sahafa, Al-Arabia*, Beirut, 1961; *The Middle East and North Africa, 1981–82* (28th ed.), London, 1981; *The Middle East and North Africa, 1986* (32d ed.), London, 1985; Munir K. Nasser, *Press, Politics, and Power: Egypt's Heikal and Al-Ahram*, Ames, Iowa, 1979; William A. Rugh, *The Arab Press: News Media and Political Process in the Arab World*, Syracuse, N.Y., 1979.

BISHARA A. BAHBAH

6. TRENDS IN NORTH AMERICA

The newspaper has had an enduring and pivotal impact within the communications systems and political life of North America. In the decades following World War II the number and circulation of news-

papers increased somewhat, in spite of the rise of television (see TELEVISION HISTORY). Yet fundamental shifts were modifying the newspaper industry.

Rise of newspaper chains. Concentration of ownership in groups or chains, already a prominent phenomenon before the war, rose sharply after the war. In the United States the percentage of newspapers owned by chains rose threefold between 1945 and 1980, so that some two-thirds of the approximately seventeen hundred U.S. dailies, representing more than three-quarters of the total daily circulation, had come under group ownership. The top five groups, in terms of circulation, were Gannett, Knight-Ridder, Newhouse, Tribune Company, and Dow Jones. In Canada the concentration of ownership was even more pronounced. By 1980 two groups, Southam and Thomson, controlled 45 percent of the nation's approximately 115 dailies. In the United States and Canada the number of independent press voices had shrunk to a fraction of its prewar total.

In all but a score of cities, the newspaper had become a local MONOPOLY. In a strictly commercial system offering few alternative revenue sources—such as those furnished in some European nations by political parties—the newspaper depended heavily on its major advertisers. In turn, the latter found few incentives to support more than a single journal in a given market. Newspapers that had been fixtures on the scene for a century collapsed in the face of competition for advertisers. Gone were the *New York Herald-Tribune*, the Washington, D.C., *Evening Star*, the *Newark Evening News*, the *Philadelphia Evening Bulletin*, the *Ottawa Journal*, the *Winnipeg Tribune*, and others. These journals seemed unlikely to be replaced, as the costs of entry into the major metropolitan newspaper market were now reckoned in the tens of millions of dollars. (During its first two and a half years of existence, Gannett's risky national daily, *USA Today*, launched in 1982, lost an estimated \$150 million.)

Attrition proved greatest among afternoon papers, although they remained the numerical majority. In competition with late-afternoon television news and with the newer suburban journals catering to affluent readers, and faced with distribution bottlenecks impeding timely delivery across sprawling metropolitan areas, the so-called PMs closed their doors by the dozen in U.S. and Canadian cities. Of the twenty largest papers published in the United States in the 1980s only one—*Newsday* on Long Island—remained a true afternoon daily.

The role of advertisers. Although the newspapers that survived enjoyed large profits, their dependence on ADVERTISING continued to deepen. Principally carriers of local advertising, newspapers as a whole comprised the largest advertising medium (followed by television and direct mail), generally garnering

over a quarter of all media advertising revenues both in Canada and in the United States. While advertisements were allotted only about two-thirds of total newspaper space, their sponsors were furnishing fully four-fifths of average newspaper revenue. Moreover, totally advertiser-supported shoppers or freesheets, which were sprinkled with editorial matter, were becoming the fastest-growing segment of the industry.

Changes in the structure of the newspaper work force reflected the need to market a newspaper to potential advertisers and, on behalf of these same sponsors, to monitor and measure circulation with growing precision. The white-collar work force expanded after 1960, and, accordingly, the proportion of female newspaper workers had doubled by the 1980s. Meanwhile, highly skilled unionized printers were made increasingly redundant by computerized composing and typesetting systems. Only twenty-three computer terminals were in use in U.S. newsrooms in 1970; there were forty-one thousand at the end of 1981. By that time only 17 percent of publishing costs were going into wages for production workers.

Newspaper content and format also became increasingly skewed by the purported interests of advertisers' "most-needed audiences." Special sections covering fashion, life-style, science, SPORTS, FOOD, and especially business were devised to meet the advertisers' concern for targeting particular groups of readers. Such sections permitted the strategic placement of advertisements that were related to the subject matter of the articles.

Paradoxically, the focus on specific audiences occurred while the news content within the national and international market was becoming increasingly standardized. Syndicated columns, COMICS, features, and news services have long been employed to provide a major proportion of editorial content while spreading its cost across the entire news market (see SYNDICATION). Licensed product spin-offs from syndicated comic strips comprised a growing profit source for some retail advertisers, representing a further relationship between advertisers and the press. A further extension of the trend toward content standardization was made possible by SATELLITE technology, with regional editions of the same newspaper sponsored by regional and national advertisers. The *Wall Street Journal* pioneered this technique with regional editions around the globe; it was followed, at least at the national level, by the *Toronto Globe and Mail*, the *New York Times*, and others.

New developments. The strength of the newspaper chains, benefiting from economies of scale in everything from the acquisition of newsprint to advertising sales and marketing, permitted an ongoing restruc-

turing of the newspaper industry. As RADIO and television broadcasting, followed by CABLE TELEVISION, began to challenge the role of newspapers for supplying news and advertising, the latter responded by acquiring a financial stake in the new media. Cooperative rather than competitive strategies generally followed. However, while joint ventures were becoming increasingly common, it was clear that newspapers had to depend—as a matter of survival—on their unique existing assets: printing and distribution facilities, intimate knowledge of local advertisers and their needs, valuable information-gathering and information-processing resources and staff.

With stiffening competition to supply electronic information services by means of new technologies, newspapers catapulted into the information market along with a slew of unrelated companies: TELEPHONE and computer firms, banks and brokerage firms, direct mailers, retailers. It was noteworthy that the new information services and technologies were no longer the domain of one relatively discrete media sector. An example of the newspapers' entry into this market was their commitment to "front-end systems"—computerized editorial systems that permit direct links between the paper and outside electronic networks. Once information was stored in newspaper computers, it could easily be transformed into new information products for electronic distribution. Another example was the use of in-house electronic libraries—computerized descendants of the old clipping library or "morgue"—to market news and information services. As the chains used their numerous local units as a springboard to national and international electronic information markets—Knight-Ridder, for example, planned "a web of regional data bases" around some of its twenty-nine papers—a variant of the television industry's network-affiliate relationship seemed to be taking shape (see DATA BASE).

As a result of competitive market strategies, information offerings varied widely (see VIDEOTEX). They included profiles of major companies, legislative tracking services, ocean shipping tariff lists, commodity and crop forecasts, even data-base management services for other information providers. Up-to-the-minute information was becoming available across an expanding set of professional, scientific, technical, and industry areas. It is important to note, however, that these specialized offerings were intended largely for a new public, comprising not individual citizens but corporate and organizational information users, and were priced not at twenty-five cents (the average newspaper price) but ranged up to thousands of dollars. Apparently the divergence between elite and mass news, which had existed

roughly since the commercialization of the press in the mid-nineteenth century, was being succeeded by new kinds of disparities in information services.

Just as entry into these new information markets was no longer confined to any single media sector, so new information technology was also being employed by nonmedia interests to wrest from the newspaper some of its traditional functions. The power of the editorial, for example, was no longer limited to newspapers, or even to the news media, when direct mail and computerized mailing lists made it possible for sponsored opinions and likely supporters to be matched with unprecedented precision. Newspaper "advertorials," pioneered by the Mobil Corporation but later in routine use by other companies, intruded systematically into the newspaper's once unchallenged domain. For example, computerized PUBLIC RELATIONS networks such as Business Wire or PR Newswire fed messages from their clients directly into newsroom computers, creating an extraordinary access to publicity for those organizations that could afford such services.

Limits on press freedom. The newspaper also encountered increasingly sweeping and sophisticated moves by government agencies and private corporations to define and shape news accounts. The U.S. presidential press relations staff, for instance, had grown by the 1980s to include hundreds, whereas a generation earlier it had included only two or three persons. The president—indeed the entire executive branch—was frequently able to influence decisively the character of press accounts or to float "trial balloons" to test public reaction before making a commitment to a particular public policy. News-gathering structures and processes were inevitably influenced by such pressures in the relative attention given to specific events. A 1984 economic summit conference among Western leaders in London was attended by no fewer than three thousand reporters, whereas the U.S. invasion of Grenada in 1983 was kept entirely off-limits to the press, and as a result the latter accepted future restrictions on wartime military coverage.

The independence of the press also received some setbacks in the courts. Although frequently overturned on appeal, initial LIBEL awards by juries turned consistently and dramatically against the press.

Highly touted in the wake of the Watergate presidential scandal, vigorous investigative reporting proved to be the province of only a handful of intrepid journalists such as Seymour Hersh, Alexander Cockburn, and I. F. Stone. A press corps inclined to be white, male, well educated, and relatively well off only infrequently directed sustained, trenchant criticism at institutions administered by analogous groups. Nevertheless, the newspaper continued to

play a critical role in setting the political agenda—both for other news media, which tended to rely on a few top papers in developing their own coverage, and for the population as a whole. In consequence, the newspaper's role as a source of news and information in North America continued to bulk large, even as it became less independent of government, business, and other influences.

See also AGENDA-SETTING; CENSORSHIP; COMPUTER: IMPACT; DIRECT RESPONSE MARKETING; NEWSPAPER: HISTORY; PRINT-AUDIENCE MEASUREMENT; TELEVISION NEWS.

Bibliography. Ben H. Bagdikian, *The Media Monopoly*, Boston, 1983; Benjamin M. Compaine, Christopher H. Sterling, Thomas Guback, and J. Kendrick Noble, Jr., *Who Owns the Media?* 2d ed., White Plains, N.Y., 1982; Alfred M. Lee, *The Daily Newspaper in America*, New York, 1937, reprint New York, 1973; Gaye Tuchman, *Making News*, New York, 1978.

DAN SCHILLER

7. TRENDS IN THE SOVIET PRESS

The Soviet press began with the Bolshevik newspaper *Iskra*. Founded abroad by Lenin in 1900 and smuggled into Russia, it contributed to the workers' struggle against czarism and helped to form the Bolshevik party. The legal newspaper *Pravda* was first published on May 5, 1912, and became a landmark in the development of the Bolshevik press and the Russian revolutionary movement. It played an important role in the victory of the October Revolution of 1917.

The Soviet press played an active part in the fight against the White Guards and foreign invaders during the civil war (1918–1920) and in the efforts to rehabilitate the economy in the postwar period. During the first five-year plans the press gave priority to the socialist reorganization of farming, and it continued to perform essential communication functions during World War II.

Illegal newspapers issued in the Nazi-occupied territories helped to organize the partisan movement. The newspapers brought out in the rear furthered the Soviet people's efforts to supply the army with weapons, munitions, and food. Special newspapers were distributed among soldiers at the front to encourage them and to increase the efficiency of the army as a whole. After the war Soviet newspapers, along with magazines, MOTION PICTURES, RADIO, and later television (see TELEVISION HISTORY), concentrated on the rehabilitation of the economy.

Scope of Soviet journalism. The Soviet media have played an important role in Soviet society. By the late 1980s they comprised some 13,500 periodicals, including 8,273 newspapers (with a circulation of

181 million copies) and 5,308 magazines. In addition to 13 national radio services there were 175 local radio stations as well as thousands of regional and local radio centers. During the 1960s and 1970s television became increasingly popular, and by the 1980s practically every Soviet family had a television set. From a total of 14 million television sets in 1965, the number had grown to more than 100 million by 1985. Programming came not only from the national service but also from 120 republican and local television studios. The circulation of newspapers had likewise risen sharply, from 98 million in 1965 to 181 million in 1985.

Soviet journalism is served by two NEWS AGENCIES—Tass (Telegraph Agency of the Soviet Union), run by the council of ministers, and APN (Novosti Press Agency), run by public organizations. Tass is the sponsor of fourteen news agencies serving individual republics, disseminating information in their languages. The Soviet media are multiethnic; newspapers are published in fifty-five languages, while radio transmits programs in seventy-one languages and television in forty-five.

The Soviet system of journalism. There is no private ownership of the Soviet media. Soviet newspapers are issued by the Communist party, soviets of people's deputies, the Young Communist League, trade unions, the writers' and journalists' associations, and other popular, research, and professional organizations. Newspapers, magazines, and radio and television programs are disseminated at national, republican, territorial, regional, and district levels, and even within work collectives.

Among national newspapers are *Pravda*, *Izvestia*, *Komsomolskaya pravda* (Communist Youth Pravda), *Trud* (Labor), *Krasnaya zvezda* (Red Star), *Selskaya zhizn* (Rural Life), *Economicheskaya gazeta* (Economics Newspaper), *Sovetskaya kultura* (Soviet Culture), and publications serving major industries, professions, literature, arts, and the sports world. Newspapers serving individual republics include *Sovetskaya Rossia* (Russian Federation), *Pravda Ukrainy* and *Radyanska Ukraina* (Ukraine), *Tsinya* and *Sovetskaya Latvija* (Latvia), and *Tiesa* and *Sovetskaya Litva* (Lithuania).

Territorial and regional newspapers are issued every day. There are city newspapers in big cities and rural newspapers in the country. Some major enterprises issue newspapers for their workers. All in all, there are 41 national, 160 republican, 426 territorial, district, and regional, 711 city, and 3,021 rural newspapers, in addition to 3,317 run by big enterprises. There are evening newspapers in cities with a population of more than 1 million; they number 29 (*Vechernyaya Moskva*, *Vecherny Leningrad*, etc.).

Economics of newspapers. Although newspapers are cheap (from two to five kopecks for dailies and

twenty kopecks for weeklies), most of them earn a surplus owing to their large circulations. Rural and evening newspapers give much space to ADVERTISING (three-fourths of a page in rural four-page newspapers), which adds to their income. There are advertisements in many other newspapers and magazines, but their number in the national and republican press is insignificant.

The role of media is growing as the new policy of "openness" (*glasnost*) involves more and more people in the political process. The Soviet media inform the public of the latest events at home and abroad; criticize the shortcomings in the work of various state, industrial, and agricultural bodies in a bid to involve more people in the management of the state and of industrial and agricultural enterprises; and promote socialist democracy.

Restructuring (*perestroika*) of the country's economic, social, and cultural life and accelerated socioeconomic progress are widely covered in the media, whose circulation grows every year. In the late 1980s the circulation of *Pravda* reached 11 million, *Izvestia* 8 million, *Trud* 18.5 million, and *Komsomolskaya pravda* 17 million.

Bibliography. *Mass Media in the Soviet Union* (in English), Moscow, 1979; Ellen Mickiewicz, *Split Signals: Television and Politics in the Soviet Union*, New York, 1988; Angus Roxburgh, *Pravda: Inside the Soviet News Machine*, New York, 1987; M. V. Shkondin, *Struktura sovetskoi pressy* (The Structure of the Soviet Press), Moscow, 1987; *Sovetskaya pechat v tsifrakh i faktakh* (The Soviet Press: Facts and Statistics), Moscow, 1986.

YASSEN NIKOLAEVICH ZASSOURSKY

NEWSREEL

For more than half a century, beginning long before the commercial introduction of television, the newsreel served as the world's only source of motion picture PHOTOJOURNALISM. It was usually a nine- or ten-minute potpourri of more or less newsworthy footage. Eight or nine items were strung together, separated abruptly from one another by a title and backed up, with the coming of sound, by a noisy musical score and a high-speed, invisible narrator. The newsreels appeared serially—usually twice a week—under well-known trade names and were seen in thousands of motion picture theaters around the world. It was a journalistic enterprise operating in an entertainment context.

Newsreels were corporate productions, backed by the resources of substantial news-gathering and motion picture distribution facilities. Some were distinctly national in release, rarely seen outside their countries of origin. Others, like the U.S. newsreels, were distributed globally; with the aid of foreign-



Figure 1. (*Newsreel*) Louis Lumière, *Le débarquement du Congrès de Photographie*, 1895. National Film Archive, London.

language versions they were seen by more than 200 million people each week. For many, especially the illiterate, the newsreel was a principal source of news.

Origins. Long before there were newsreels, there were *newsfilms*, individual short subjects on newsworthy topics. Newsfilms were released into theaters only as frequently as the cinematic availability of newsworthy subject matter allowed. The origins of newsfilms were *actualities*, short scenes of everyday people and events, showing unmanipulated activity of more or less general interest—citizens walking in the park, a train pulling into a station, workers

leaving a factory. It is with these humble actualities that one begins not merely the history of the newsreel but the history of all **MOTION PICTURES**.

At first, motion picture audiences demanded little more of actualities than the movement of recognizable people and objects. Gradually, newsworthiness was introduced, and vaudeville and music hall marquee headlined their newsfilms. Some of the earliest known newsfilm coverage includes celebrated **SPORTS** events photographed by the U.S. inventor **THOMAS ALVA EDISON** and his associates in 1894 and by the Englishman Robert Paul in 1896; the opening of the Kiel Canal by Kaiser Wilhelm II, photographed by the Englishman Birt Acres in 1895; and the coronation of Czar Nicholas II in Moscow, photographed by the Frenchman Francis Doublier in 1896.

The extent and volume of newsfilm coverage expanded rapidly during the first decade of the century. Despite its crudity, the primitive motion picture newsfilm provided a predominantly photographic kind of news coverage long before most newspapers and magazines of the period began to do so (*see* **MAGAZINE**; **NEWSPAPER: HISTORY**). By 1900, within five years of the commercial introduction of the motion picture and five years before the motion picture theater became a permanent entertainment phenomenon, every type of subject matter that was to characterize both motion picture and television journalism in the century ahead had already been pho-

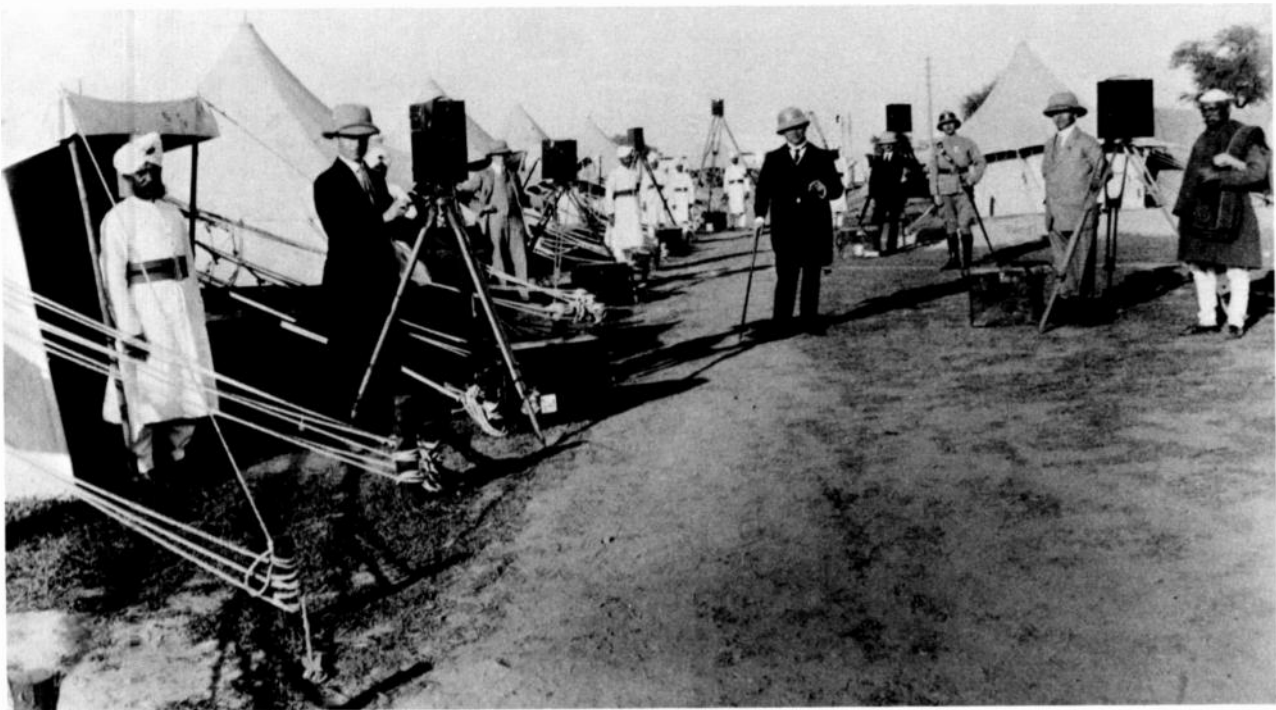


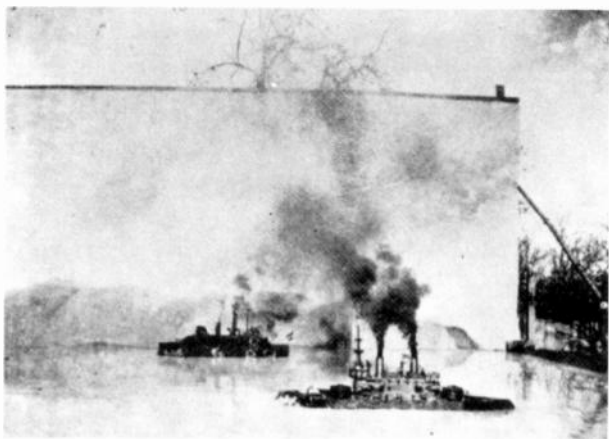
Figure 2. (*Newsreel*) Charles Urban and a group of Kinemacolor cameramen, probably in New Delhi for the 1911 Durbar marking the accession of George V. National Film Archive, London.



Figure 3. (*Newsreel*) Fox News aircraft, a company-owned plane used to transport footage from camera to laboratory. Raymond Fielding Collection/20th Century Fox Movietone, Inc.



Figure 4. (*Newsreel*) Fox cameraman shooting footage in England in the 1930s, from the reinforced roof of a Ford V8. Raymond Fielding Collection/National Film Archive, London.



tographed and presented to theater audiences: catastrophes, international celebrities, pageantry and ceremony, sports, political and governmental affairs, war and military events, industry and technology, education, spectacle, and novelty. Newsreel content could nearly always be classified by means of these established categories.

Rise of the newsreel. In 1909 the French firm of Pathé Frères introduced the world's first newsreel, the *Pathé Journal*, a newspaper of the screen containing several news subjects, which was released regularly in serial fashion (see PATHÉ, CHARLES). It was followed shortly by another newsreel series, produced in France by the Gaumont Company. Around 1910 the Pathé organization introduced a similar newsreel in England, followed by several competing British newsreels. In August 1911 Pathé Frères launched the first indigenously produced newsreel in the United States, under the title *Pathé's Weekly*. Two weeks later the U.S. firm Vitagraph was competing with its own reel. More than two dozen different U.S. newsreels were introduced in the years that followed, but only six survived and prospered for any length of time. Five of these were associated with major motion picture studios, their titles changing occasionally over fifty years: *Universal News*, *Fox Movietone News*, *Hearst Metrotone* (*MGM News of the Day*), *Paramount News*, and *Warner-Pathé News*. A sixth, independently released newsreel titled *Kinograms* survived from the late 1910s to the late 1920s, but it finally expired with the coming of sound.

World War I brought European film industries to a halt and destroyed the vigorous competition that had existed before the war. In the economic and creative vacuum that followed, the U.S. newsreel spread throughout the world, establishing its dominance within a few short years. The major newsreel companies opened overseas branch offices in major cities, assigning hundreds of staff and free-lance cameramen to photograph the millions of feet of news footage that annually found its way back to company headquarters in New York. The Fox newsreel alone had cameramen in fifty-one countries, reporting to nine producing centers in major cities. The same company exhibited its semiweekly newsreel releases in forty-seven foreign countries and in more than a dozen languages, each version tailored to the requirements of the exhibition situation involved. At its peak the weekly worldwide audience for this

◁ Figure 5. (*Newsreel*) Re-creation of the sinking of Admiral Cervera's fleet at Santiago Bay, Cuba, in the Spanish-American War, 1898. The photograph shows the pool, canvas backdrop, and miniature mountains and battleships constructed by E. H. Amet. *International Photographer*, 1933. Raymond Fielding Collection/International Photographer.

single company's newsreel was reported to be more than 200 million people. Each major studio distributed its newsreel under a "block-booking" plan; that is, a theater acquired it in the package deal along with the company's features and short subjects.

Over the years newsreels became streamlined, sophisticated operations. In addition to the two fresh issues of the newsreel delivered to theaters each week, special footage was rushed into theaters whenever the magnitude of an event warranted it. Sometimes the speed with which this occurred, especially in countries served by rapid rail or air transport, rivaled or exceeded the speed of coverage and publication provided by newspapers of the day. Films of the inauguration of Warren G. Harding in Washington were screened in New York six hours after the event. On another occasion, film coverage of the opening of a spectacular Armistice Day parade in New York was screened in theaters throughout the metropolitan area while the parade was still in progress. Compared with today's instant-replay, SATELLITE-distributed, electronic journalism, such examples of the speed of newsreel operation may not seem very impressive, but to audiences of the day they were extraordinary.

Newsreel content. The newsreel's content was fairly predictable, reflecting either the producer's conception of the public's interests or an obvious need for certain types of information. Analysis by researcher Leo Handel of U.S. newsreel content from 1939 through 1948 showed that in the peacetime year 1948, 88 percent of a typical reel was devoted to foreign news, sports, government news, political news, and national defense, in that order. The same analysis showed that in the wartime year 1943, 82 percent of a typical reel was devoted to war in Europe, national defense, war in the Pacific, sports, and government news, in that order.

Although the newsreel was popular with audiences and firmly established commercially, it was frequently criticized during its history for triteness and superficiality. Like the later TELEVISION NEWS programs, newsreels relied almost entirely on moving images to report and interpret news events. As in television, if you did not have pictures, it was felt you did not have much of a story. But, unlike television journalists, the newsreel's narrator was invisible; there were no stand-up reporters or "talking head" anchors to read the news. The newsreel had less than ten minutes in which to tell its several stories, no matter how complicated any single one might be. Because of these factors, the newsreel's treatment of complicated social, political, economic, and cultural issues was frequently sketchy, oversimplified, and trivialized.

The newsreel suffered the additional burden of having to operate in an entertainment context in which it played no significant economic function in generating income for exhibitors, distributors, or



Figure 6. (Newsreel) A staged scene from the *March of Time's* September 1935 issue on Ethiopia, featuring an impersonation of Haile Selassie, played here by a *March of Time* office boy. Raymond Fielding Collection/Time, Inc.



Figure 7. (Newsreel) A simulation of a banquet held by Dominican dictator Rafael Trujillo, from the *March of Time's* July 1936 issue. Raymond Fielding Collection/Time, Inc.

producers. Exhibitors received newsreels along with cartoons, travelogues, sports reels, and other block-booked trivia as a package designed to support the feature films that drew audiences to the theaters and that generated the principal income on which the industry relied. Unlike the television news medium that followed it, the motion picture newsreel was never allowed to stand alone. For this reason, it was rarely taken very seriously, from either economic or journalistic standpoints. An exception occurred during World War II, when numerous newsreel theaters



Figure 8. (*Newsreel*) Total equipment used by the Pathé company to film the coronation of Queen Elizabeth II in 1953. Raymond Fielding Collection/National Film Archive, London.

opened in the United States and some foreign countries to show only newsreels and DOCUMENTARY films. These theaters and their fare enjoyed considerable popularity until the conclusion of the war diminished much of their informational appeal.

Far more serious criticism of newsreel coverage centered on the occasional staging and faking of news footage when shots of the authentic event were not available. Such journalistic sins were not limited to any one country's newsreel output, nor were they absent from the subsequent operations of the television news industry. However, they were far more frequent, and more widely condoned, in motion picture newsreel circles than they were later in the broadcasting industry.

The March of Time. A journalistically more sophisticated variation on the newsreel was introduced in 1935 by the U.S. publishing firm Time, Inc., under the title *The March of Time*. An editorially interpretive twenty-minute reel, *The March of Time* was seen monthly in ten thousand theaters by as many as 25 million people in the United States alone, and by millions more in four foreign-language versions. *The March of Time*, as developed by executive producer Louis de Rochemont, was a unique form of cinematic journalism, its investigative and confrontational character anticipating by many years the more aggressive forms of television journalism. Censored in some countries, banned outright in others, the series lasted for sixteen years, treating political, social, and racial issues that the more conventional newsreels habitually avoided. Its most controversial feature was the practice of staging or "re-creating" news events at which newsreel cameras had not been present, using both professional and amateur actors who either looked or sounded like the newsmakers they impersonated, and sometimes integrating this staged material with authentic newsreel footage. The technique anticipated by many years the appearance on television of so-called docudramas, which combine the traditions of theater and journalism. See FACT AND FICTION.

The March of Time survived for more than fifteen years, finally disappearing from theater screens in 1951. In the following years all the other U.S. newsreels likewise vanished. The last, *Universal News*, ceased operations in December 1967. Theatrical newsreels continued to be produced in other countries, but as soon as widespread television journalism services became available newsreels tended to disappear from theater screens.

Newsreel archives. The motion picture newsreel is one of the very few major communications media ever to have gone out of business and disappeared. However, much of the footage has survived. It is estimated that perhaps as much as half a billion feet of negative were photographed by U.S. newsreel

cameramen alone. Fortunately, a good deal of that original material still exists in the holdings of widely scattered ARCHIVES throughout the world. Some of the largest of these collections have been donated to public archives: the Universal newsreel is at the U.S. National Archives, the Hearst Metrotone newsreel at the University of California at Los Angeles, and the Fox Movietone collection at the University of South Carolina. Other newsreel collections are administered by commercial stock-shot libraries. Their holdings provide valuable resources for historical research and for the continuing production of so-called compilation documentaries. Because of the varying circumstances under which such material was photographed, the reputation for staging and recreation that lingers over newsreel history, and the highly selective and superficial nature of all predominantly visual news media, historians approach this material with caution. They have found that some of the most revealing, instructive, and emotionally powerful footage exists in the outtake files of the archives—millions of feet of film never incorporated into the finished reels because they did not serve the purposes of the moment but which, for historical purposes, provide rich insights into the values, character, and behavior of human beings during the first half of the twentieth century. See ARCHIVES, FILM.

Bibliography. Peter Baechlin and Maurice Muller-Strauss, *Newsreels across the World*, Paris, 1952; Raymond Fielding, *The American Newsreel, 1911–1967*, Norman, Okla., 1972; idem, *The March of Time, 1935–1951*, New York, 1978; Jay Leyda, *Films Beget Films*, New York, 1964.

RAYMOND FIELDING

NIEPCE, JOSEPH-NICÉPHORE (1765–1833)

French physicist and pioneer in PHOTOGRAPHY. Joseph-Nicéphore Niepce is credited with having made the first successful and permanent image taken by a camera. The son of a lawyer with royal connections, he had the education, family resources, and leisure time to devote himself to being a gentleman inventor. The new art of lithography (see GRAPHIC REPRODUCTION; PRINTING), which was introduced to France in 1814, drew Niepce's attention. He sought to record the image of nature directly on a plate that could then be printed like an engraving.

Although Niepce's only surviving camera pictures date from about 1827, it is certain that he had obtained a camera image as early as 1816. For these early images he used paper sensitized with silver chloride and obtained a negative. Failing to make a positive image and overlooking the advantage of a negative—namely, the ability to replicate an image any number of times—Niepce continued to experiment to find a direct positive process.



Figure 1. (Niepce, Joseph-Nicéphore) J.-N. Niepce, the first surviving camera image, 1827. Heliograph. Gernsheim Collection, Harry Ransom Humanities Research Center, The University of Texas at Austin.

By using a plate coated with bitumen of judea, an asphaltlike substance that hardens when exposed to light, and by washing away the unhardened portions with oil of lavender, Niepce succeeded in producing a positive image. His initial attempts involved making copies of engravings, and he first achieved success in July 1822 by oiling a print of an engraving, placing it on a sensitized pewter plate, and then exposing it to sunlight. The area of the plate beneath the lines of the print did not harden and was washed away, and the bare metal of the plate was then etched and used to make prints.

Niepce's first surviving camera image is a view from a window at his estate showing the towers of the house and the courtyard (Figure 1). The image is grainy and of high contrast, and the exposure time was eight hours—all of which made his process impractical.

Unable to perfect his process, he signed a ten-year contract with LOUIS DAGUERRE in 1829 to collaborate on their investigations. However, in 1833, before any progress had been made, Niepce died.

Niepce's process of photography, which he called heliography, never became practical and was forgotten for many years. His importance lies mainly in his development of the first photomechanical reproduction technique, in his claim to having made the first permanent camera image, and in the impetus he gave to Daguerre in the invention of the daguerreotype, the first practical and widely used photographic process, which was completely different from Niepce's.

Bibliography. Gisèle Freund, *Photography and Society*, Boston, 1980; Beaumont Newhall, *The History of Photography from 1839 to the Present* (1949), 5th rev. and enl.

ed., New York, 1982; Naomi Rosenblum, *A World History of Photography*, New York, 1984.

STEPHEN PERLOFF

NINEVEH

Capital of the Assyrian Empire at its greatest extent and site of the first great LIBRARY of antiquity, assembled by Ashurbanipal during his reign (668–627 B.C.E.). The first major excavations there were undertaken by A. H. Layard in 1846–1849, but the nearly twenty-five thousand tablets and fragments that made up the contents of the library itself were recovered in subsequent excavations over the next eighty years and were taken to the British Museum.

Creation and organization of the library. Ashurbanipal (see Figure 1) boasted that he was both literate, which is quite possible, and learned, which is not very probable. An inscription from his library reads: “[I am one who] with a sharp eye learned the most important elements of the scribal craft, although among the kings who preceded me, none had learned this skill. The wisdom of the god Nabu, all the cuneiform signs that can be made, I wrote on tablets, checked and collated, and deposited in my palace for my reading and perusal” (see CUNEIFORM). Ashurbanipal assembled and/or had copied tablets from private and institutional libraries in both Assyria and Babylonia. In his own words again, “According to the text of clay tablets and wax writing boards, copies from Assyria, Sumer and Akkad [Babylonia], I wrote this tablet with the assembled scholars.” There is a letter from the king to one of his agents in Babylonia asking for specific compositions belonging to certain scholars to be sent to him, along

with “rare tablets known to you there, but not available in Assyria.” Letters from his agents to the king report on new acquisitions for the royal library.

These new acquisitions might consist of donated or confiscated texts from individuals or institutions, or copies made especially for the royal library. Acquisition lists of both kinds are extant. Catalogs listing texts by category, or listing the incipits (opening words) of individual tablets of multitablet compositions, are also known, but the details of the library’s organization remain unknown. Unfortunately, the bulk of the library was excavated long before archaeology was put on a scientific footing; specific locations were not recorded, and the original arrangement of the tablets went unnoticed.

Ashurbanipal’s amassing of tablets and copies from all the major centers of Mesopotamia was not simply a manifestation of bibliomania. There was great concern to establish the best text, which lay behind the effort to collect and compare exemplars from different scholars in different locales. And, in fact, tablets from Nineveh generally are of a much higher standard than texts written elsewhere in the first millennium B.C.E.

Format and content. Texts in the library were inscribed on single-column tablets of fifty or fewer lines, on large multicolumn tablets of up to three hundred and more lines, and on hinged multileaved and single-leaf wax-covered writing boards. Although we can estimate from acquisition lists that the writing boards comprised about 15 percent of the library’s holdings, none have survived because of their perishable nature, and, in fact, only one has survived from all of Mesopotamia. See WRITING MATERIALS.

The contents of the library are primarily technical



Figure 2. (*Nineveh*) The Babylonian version of the flood narrative from the Gilgamesh Epic in Akkadian cuneiform script (fragment). Middle of the second millennium B.C.E. Reproduced by courtesy of the Trustees of The British Museum.

rather than literary in the narrow sense. Texts such as the Gilgamesh Epic, Enuma Elish (Creation Epic), or Ludlul Bel Nemeqi (the Babylonian Job) made up no more than 5 percent of the total (see Figure 2). The majority consisted of technical literature, such as omens, incantations, and rituals; medical lore; and philological compendia, used both for teaching

Figure 1. (*Nineveh*) King Ashurbanipal (668–627 B.C.E.) and his queen feasting in an arbor. Alabaster relief from the palace at Nineveh. Reproduced by courtesy of the Trustees of The British Museum.



and for advanced study by scholars. Letters and other contemporary records provide ample evidence that such technical literature was regularly sought out and consulted. Ashurbanipal's library was thus an eminently practical enterprise, not simply an academic exercise. But the high scholarly standards and comprehensive goal that guided its formation, and which reflect the personal values of Ashurbanipal himself, set it apart from earlier tablet collections and justify the application of the term *library*.

See also ARCHIVES; BOOK.

Bibliography. A. Leo Oppenheim, *Ancient Mesopotamia*, 2d rev. ed., Chicago, 1977; Simo Parpola, "Assyrian Li-

brary Records," *Journal of Near Eastern Studies* 42 (1983): 1–30; Mogens Weitenmeyer, "Archive and Library Technique in Ancient Mesopotamia," *Libri* 6 (1956): 217–238.

JERROLD S. COOPER

NKRUMAH, KWAME (1909–1972)

First president of Ghana (1960–1966). Kwame Nkrumah's rise to power is closely related to his role as one of the pioneer journalists of the African nationalist movement. Born in what was the Gold Coast, in a small village where his father was a goldsmith, he received schooling at a Catholic mission. He started a teaching career but in his mid-



Figure 1. (*Nkrumah, Kwame*) Prime Minister Kwame Nkrumah waving to the crowd. The occasion was the creation of the sovereign state of Ghana, ninth member of the British Commonwealth, March 6, 1957. UPI/Bettmann Newsphotos.

twenties went abroad to continue his education. During ten years in the United States, first at Lincoln University (Pa.) and later at the University of Pennsylvania, he immersed himself in political activity, met many black leaders, organized an African students' association, and established its newspaper, *African Interpreter*. During a subsequent stay in England he took part in anticolonial meetings and for a time edited a monthly journal, *The New African*, which British authorities barred from the Gold Coast. But Nkrumah was becoming widely known, and in 1947, returning to the Gold Coast, he was appointed secretary-general of the United Gold Coast Convention (UGCC). When in 1949 he split from the UGCC to form the Convention People's Party (CPP), his organizational and journalistic skills served him well. He established three newspapers, one of which he personally edited, to publicize CPP policies, campaign for self-rule, and criticize the policies of the colonial administration. Besides publications, he furthered the cause with speeches, songs, drums, and town criers. In 1950 the colonial authorities sought to halt his activities by charging him with sedition. He was sentenced to three years in prison, but the imprisonment enhanced his role as the dominant political figure of the period. In 1951 an election was held for a newly authorized legislative assembly, and Nkrumah won a victory that brought his release from prison. In 1957, when the Gold Coast won independence, Nkrumah was made prime minister; in 1960, when it became the Republic of Ghana, he became president.

As president, Nkrumah committed considerable technical and financial resources to developing and expanding communications facilities. RADIO broadcasting was expanded, relay stations were established throughout the country, and an external broadcasting service was inaugurated in 1961 (see RADIO, INTERNATIONAL). A television station was started in 1965 (see TELEVISION HISTORY). In 1957 Nkrumah established a national news agency (see NEWS AGENCIES) and in 1959 a journalism training institution (see COMMUNICATIONS, STUDY OF); both were the first in sub-Saharan Africa.

Under Nkrumah, newspapers in six Ghanaian languages were regularly printed and distributed nationally, supplemented by a mass LITERACY campaign (see NEWSPAPER: TRENDS—TRENDS IN AFRICA). State-owned and party newspapers were expanded, but Nkrumah was expressly opposed to the private press. Privately owned newspapers either had been acquired by the state or were suppressed by the time of Nkrumah's overthrow in early 1966. President Nkrumah also made wide use of extension workers, mobile vans, and traditional promotion media to mobilize support and disseminate information about government policies. He subjected all communications in-

stitutions to strict state control, declaring a MONOPOLY policy to be essential for national development, unity, and the building of a socialist state in Ghana. After his overthrow Nkrumah spent his last six years in exile in Guinea.

See also AFRICA, TWENTIETH CENTURY; CENSORSHIP.

Bibliography. Henry L. Bretton, *The Rise and Fall of Kwame Nkrumah*, London, 1966; Basil Davidson, *Black Star: A View of the Life and Times of Kwame Nkrumah*, London, 1973; Kwame Nkrumah, *Ghana: The Autobiography of Kwame Nkrumah*, New York, 1957.

S. T. KWAME BOAFO

"NOISE." See INFORMATION THEORY; MODELS OF COMMUNICATION.

NONVERBAL COMMUNICATION

Taken literally, nonverbal communication would mean any sort of communication that is not accomplished through words. In established usage, however, the term has a much more limited application. Typically it is used to refer to communication between people who are in each other's presence, and it is accomplished through BODY MOVEMENT, GESTURE, FACIAL EXPRESSION and orientation, posture and spacing (see INTERPERSONAL DISTANCE), TOUCH and SMELL, and those aspects of spoken utterance, such as intonation, voice quality, rate of speaking, and the like, that can be considered apart from the actual verbal content of what is said. Studies of nonverbal communication (also sometimes referred to as nonverbal behavior) are usually concerned with the part these aspects of behavior play in establishing and maintaining interactions and interpersonal relationships and typically have dealt with those aspects of communication that individuals are said to be unaware of or do not normally report. The use of gesture to convey explicit messages that can be glossed directly or translated into words, as in SIGN LANGUAGE, for example, is not usually considered part of nonverbal communication (although some authors have done so). See also INTERACTION, FACE-TO-FACE; KINESICS; PROXEMICS.

The term *nonverbal communication* first came into use in the early 1950s. It appears to have been first used in print by Jurgen Ruesch, and it gained wide currency as a result of a book Ruesch published with Weldon Kees in 1956 called *Nonverbal Communication*. Ruesch, a psychiatrist of Italian birth and Swiss education, was interested in the processes of interaction in psychotherapy. He moved to Boston, Massachusetts, in about 1940 and became involved in discussions with WARREN WEAVER, NORBERT WIENER, and, later, GREGORY BATESON in which concepts

developed in INFORMATION THEORY and CYBERNETICS were applied to human interaction. The notion of "quantity of information," which had been developed as part of the mathematical theory of information (first evolved in the course of an endeavor to measure the transmission efficiency of telephone lines), required a way of thinking about information without any reference to the nature of the message transmitted. This meant that the information value of something could be considered regardless of the sorts of messages involved and regardless of whether any deliberate attempt to transmit messages had been made. When applied to the study of communication in human interaction, it led to the realization that all aspects of behavior that are detectable by another could be treated in information theory terms. Hence not only are such actions as SPEECH and gesture to be considered as signals, but all other aspects of behavior are as well, whether or not they are intended or designed to transmit messages. It is not only what A says to B that sends messages to B, it is also what A does.

The formulation of the notion of nonverbal communication that arose from these considerations has had several consequences. First, it has led to the investigation, from a communicational point of view, of many aspects of behavior that had been overlooked. Not only did nonverbal communication provide a new perspective for the long tradition in psychology of studies of expression, especially facial expression, but it also meant that aspects of behavior such as gaze direction, posture, and interpersonal spacing came to be studied. As a consequence of this notion, researchers began to realize that the way in which persons adjust or alter their behavior when in one another's presence was to be understood neither in purely practical terms nor in terms of some notion of expression, when expression is thought of simply as the translation into external forms of inner states. Rather, persons in the presence of others guide their behavior in relation to one another in the light of any information the behavior of each provides. Thus actions of all sorts can be viewed in terms of their possible significance as messages in interaction. All aspects of behavior, it appears, can function communicatively.

However, the notion of nonverbal communication has also encouraged the view that communication by actions can be studied independently of communication by words. It has suggested that there is a great divide in human communication, with words on one side and all else on the other. Yet this sharp distinction that the concept of nonverbal communication has seemed to encourage, in the hands of some authors, cannot be sustained. For example, it is impossible to establish consistent criteria by which to distinguish words and what they convey from

everything else. Furthermore, from a functional point of view, as developments in the study of discourse and CONVERSATION have made clear, verbal utterance plays as crucial a role in the establishment and maintenance of interactive relationships as nonverbal aspects of human action do. At the same time, as studies of gesture show, aspects of human action that are definitely not verbal may nevertheless serve in the place of words or may serve as an essential component of referential communication.

A further drawback of the concept of nonverbal communication is that it tends to encourage the notion that it is one *sort* of communication only. A number of authors have made statements claiming a general character for nonverbal communication—that it is analogic, whereas verbal communication is digital, for instance, or that it is developmentally or evolutionarily more primitive. A close study of the communicative functions of nonverbal aspects of human behavior shows, however, that such statements cannot be maintained. At best the term *nonverbal communication* can be no more than a shorthand expression for referring to a range of quite diverse phenomena. Although the development of the concept, vague though it has been, has greatly expanded our way of thinking about human communication, it is also clear that it lacks coherence and probably should be dropped.

See also BODY DECORATION; CLOTHING; EYES; FACE; SPATIAL ORGANIZATION.

Bibliography. Robert Hinde, ed., *Nonverbal Communication*, Cambridge, 1972; Mary Ritchie Key, *Nonverbal Communication: A Research Guide and Bibliography*, Metuchen, N.J., 1977; Mark L. Knapp, *Nonverbal Communication in Human Interaction*, 2d ed., New York, 1978; Jurgen Ruesch, *Semiotic Approaches to Human Relations*, The Hague, 1972; Jurgen Ruesch and Weldon Kees, *Nonverbal Communication: Notes on the Visual Perception of Human Relations*, Berkeley, Calif., 1956; Klaus Scherer and Paul Ekman, eds., *Handbook of Methods in Nonverbal Behavior Research*, Cambridge, 1982.

ADAM KENDON

NORTHCLIFFE, ALFRED (1865–1922)

British MAGAZINE and newspaper publisher. Alfred Northcliffe was Britain's leading press lord in the early twentieth century. Unlike his great rival, Lord Beaverbrook (see BEAVERBROOK, 1ST BARON), Northcliffe was primarily a journalist. Like JOSEPH PULITZER and WILLIAM RANDOLPH HEARST in the United States, Northcliffe was a master of sensational journalism who owed his success to an uncanny talent for understanding and exploiting mass tastes.

Born in Dublin as Alfred Charles William Harms-

worth, Northcliffe had an indifferent grammar and private school education in London. At the age of seventeen he was already a reporter for a Coventry newspaper, but he then made a lengthy detour into the magazine business. First the editor of *Youth*, he cofounded *Answers to Correspondents*—soon called merely *Answers*—with his brother Harold in 1888. His talent for satisfying mass tastes and Harold's remarkable business ability, particularly in the ADVERTISING department, propelled the brothers to extraordinary success.

After creating an entire stable of mass-appeal periodicals, Northcliffe organized them into the Amalgamated Press (later the Fleetway Press), then the world's biggest magazine publisher. This achievement made Northcliffe rich but left him unsatisfied; he looked toward newspapers as the true source of power. In 1894 he acquired the London *Evening News*, which was verging on bankruptcy, and made the respectable but moribund paper into a counterpart of his cheap magazines. New *Evening News* features such as a women's column and short FICTION gained Northcliffe a reputation as the greatest innovator in British journalism.

Northcliffe followed his initial newspaper success with another, the London *Daily Mail*, which he founded in 1896. The *Mail* was truly revolutionary, with its makeup in the Pulitzer style and news to match. It also exemplified Northcliffe's instructions to the staff: "Explain, simplify, clarify." In another pioneering effort Northcliffe in 1903 started the London *Daily Mirror*, the first newspaper designed for women. Failing to enchant its audience of "gentlewomen," the *Mirror* was converted into a mass-circulation tabloid. Buying another financially ailing paper, the *Weekly Dispatch*, Northcliffe renamed it the *Sunday Dispatch*; it eventually attained the highest Sunday circulation in Britain. Then, after rescuing the struggling but soon to be distinguished *Observer*, Northcliffe climbed to the peak of his profession by gaining control of the London *Times*—an incredible feat for a man of his class and background. Marked by elements of farce and melodrama, his negotiations for the *Times* proceeded secretly by code, and the acquisition was not known to the public for several months.

The British government recognized his achievements by making him a baronet, then a baron, and finally 1st Viscount Northcliffe. But as a person Northcliffe was considered eccentric, even bizarre. He used the political power that his papers gave him in contradictory ways, provoking numerous controversies (the *Mail* was once burned on the London Stock Exchange), and his death, as trade unionist Roy Jenkins has said, "was a relief to almost everybody." The *Times* passed into the Astor family and his other papers into different hands.

See also NEWSPAPER: HISTORY; NEWSPAPER: TRENDS—TRENDS IN EUROPE.

Bibliography. Henry H. Fyfe, *Northcliffe: An Intimate Biography*, New York, 1930, reprint 1969.

JOHN TEBBEL

NOVEL, THE. *See* FICTION; FICTION, PORTRAYAL OF CHARACTER IN.

NUMBER

The number symbols and numeration systems known to humanity have been developed over the course of many centuries by many different cultures. The details of the origins of the *names* for numbers as well as the *symbols* used to represent them are not available for some systems, whereas for others there are fairly complete descriptions. The variety of approaches, however, share a few principles that constitute crucial elements not only of such number systems but also of humanity's cultural heritage.

Principles. The first is *abstract symbolization*, a written form for numbers that is different from concrete representation (e.g., with lines) and that has general application: "5" rather than "five sheep" or "five days" (*see* SIGN SYSTEM; SYMBOLIC LOGIC). The second is the principle of a *multiplicative base*. The most widely used system has ten as its base, but many others have been devised. For example, the numeral 234 in a base-twelve system would denote the number 328 in base ten: $328 = (4 \times 1) + (3 \times 12) + (2 \times 12 \times 12)$. In a base-five system the numeral 234 would denote 69 in base ten: $69 = (4 \times 1) + (3 \times 5) + (2 \times 5 \times 5)$. The third principle is *positional notation*, which allows users to distinguish numerals containing the same digits—348 is very different from 843, 438, and 384. Finally, the fourth principle is a numeral as well: *zero*, also called a "position holder," which allows distinctions between 19, 109, 190, and 1009.

Though related to the principle of a multiplicative base, the principle of position is independent. In ancient Egyptian numerals, for example, there are symbols for units (a simple slash), tens, hundreds, thousands, and so on, but the order in which the symbols are written is not critical. Egyptian numerals are additive in the sense that as many unit symbols, ten symbols, hundred symbols, and so on as are required are merely listed. Almost all early systems, including those of the Greeks and Romans, were of this relatively primitive type, additive and nonpositional. The Roman system was essentially additive

	•	••	•••	••••
—	• —	•• —	••• —	•••• —
==	• ==	•• ==	••• ==	•••• ==
===	• ===	•• ===	••• ===	•••• ===

Figure 1. (*Number*) The Mayan counting system: the first nineteen numerals. Redrawn after David Eugene Smith, *History of Mathematics*, vol. 2, New York: Dover Publications, Inc., 1958, p. 44.

despite the subtractive complication (e.g., IV instead of IIII and IX instead of VIIII) introduced later.

Measuring and counting. Quantities were undoubtedly compared long before symbols for numbers were devised. The prehistoric man or woman who counted the days of the month by touching in sequence various body parts, one more each day, was ignorant of any summation system. Likewise the shepherd who counted the flock by moving his or her fingers along the notches in a tally stick did not need any written numeration system to know when an animal was missing. Such methods of comparing quantities supplemented people's limited immediate perception of number, which did not (and still does not) extend much past four. I is easily distinguishable from II and this from III or IIII. After four our perceptions waver: IIIIII and IIIIIII must be counted, explaining why numerals of many early systems, especially those based on the idea of tallying, change character at five. See PERCEPTION—STILL AND MOVING PICTURES.

These methods of comparison evolved into various concrete ways of indicating numbers—pebbles of different sizes (bigger ones being worth a fixed number of smaller ones), knotted skeins or rope (such as the Incan quipus), the abacus and other variations of the counting board, and of course the fingers on a person's hands and the toes on a person's feet, the likely source for the base-ten system. Base-twenty systems are suggested by the French words for twenty, eighty, and ninety—*vingt*, *quatre-vingts*, and *quatre-vingt-dix*—and evident in the Mayan system, which included a sort of nonfunctional zero and positional notation and allowed them to create a very accurate CALENDAR.

Problems of notation. It is difficult to avoid reading into earlier systems ideas or simplifications that were not there for the practitioners. For example, the Mayan and Babylonian systems were not completely positional. The Mayas had a position for ones and a position for twenties (their base), but the next position—because of their concern for the calendar—was for 360s and not 400s (twenty times twenty), and the next one after that was for 7200s (twenty times three hundred and sixty). Combined with their very

restricted use of a zero their principles generated ambiguity and, it would seem, great awkwardness: a dot was the symbol for one, a horizontal line the symbol for five, and the direction of increasing value from top to bottom. Thus two lines with three dots over them ($\begin{smallmatrix} \bullet & \bullet & \bullet \\ \hline \hline \end{smallmatrix}$) might represent either the number thirteen (ten plus three equals thirteen ones) or the number seventy (ten ones plus three twenties) or one of several other numbers, depending on the context or merely on the vagaries of how the symbols were mentally grouped. Even a single dot was indetermi-

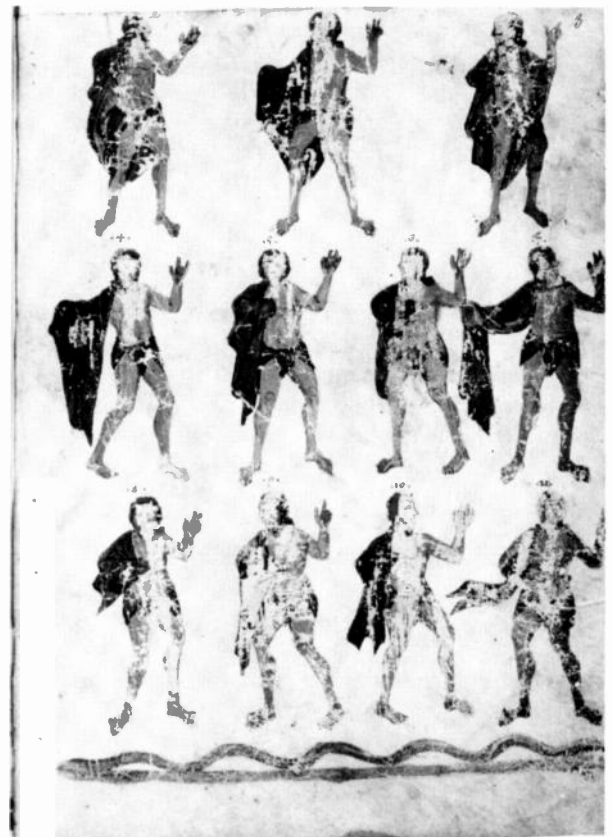


Figure 2. (*Number*) Venerable Bede, *De Temporum Ratione*, fourteenth century. Colored drawing on vellum showing how to count on one's fingers. Phot. Bibl. Nat., Paris.



Figure 3. (*Number*) Chinese tradesman counting on his *suan pan* ("reckoning board"), a hand-held abacus. The Bettmann Archive, Inc.

nate, representing 1, 20, 360, or 7200, analogous perhaps to a 1 representing 1, 10, 100, or 1000. See AMERICAS, PRE-COLUMBIAN.

Similar remarks apply to the Sumerian-Babylonian system, the oldest known positional numeration system, dating from 1900 to 1800 B.C.E. The CUNEIFORM system of wedges and crescents was often an ambiguous hybrid of systems having multiplicative bases sixty and ten, with additive elements within each order or position. See CLAY TOKENS; EAST ASIA, ANCIENT.

Many early numeration systems, besides being additive and nonpositional, had numerals that were simply hieroglyphs or letters in a written LANGUAGE. Although the connection between WRITING and numeration is unclear, the necessities of trade probably played a significant role in the development of both. The relationship between language and numbers has a different character in numerology, widely practiced by different cultures, in which letters are assigned numerical equivalents. For example, the Hebrew words for "love" and "one" each have the same numerical equivalent of thirteen, and their "sum" is thus twenty-

six, the number assigned to the divine name of Yahweh. The Greek words for "God," "holy," and "good" all have the same numerical equivalent of 284 in the Greek alphabet.

The invention of zero. The invention of a functional zero within a system of positional notation constitutes a major achievement for the people of South India and for humanity at large. The Arabs borrowed this notion of zero, created algebra, and communicated much of their knowledge to western Europe. See ISLAM, CLASSICAL AND MEDIEVAL ERAS; MATHEMATICS.

It is most likely due to the lack of a zero that the abacus, in most places based on powers of ten, did not lead sooner to these discoveries. Had there been a numeral for zero, numbers could have been directly read from the state of the abacus, a zero symbol indicating an empty column on the abacus. Like Franciscus Vieta's (1540–1603) use of a letter to represent an unknown quantity, or the idea of René Descartes (1596–1650) of identifying a point on a bidimensional plane with an ordered pair of num-

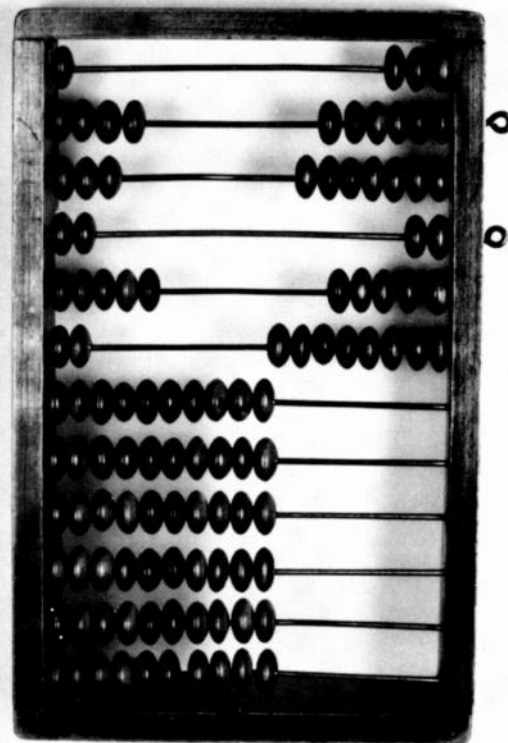


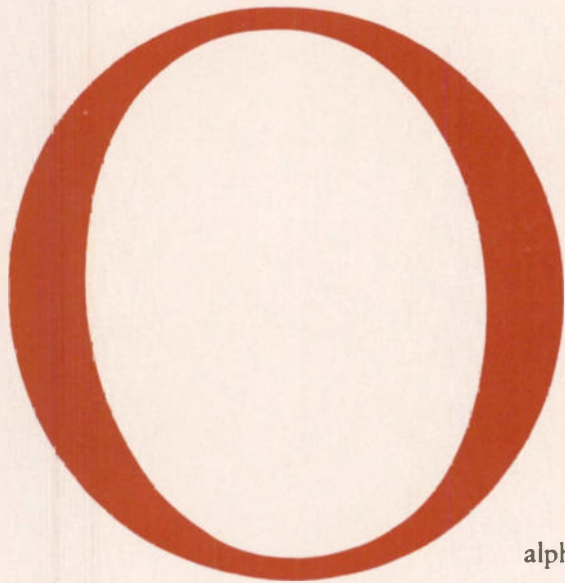
Figure 4. (*Number*) A Russian abacus. The Bettmann Archive, Inc.

bers, inventing a zero was a stunningly simple idea that was “merely” a matter of notation. The Hindu-Arabic number system, and not just the notion of zero, is thus one of the most important technical discoveries in the history of humanity.

Bibliography. Carl B. Boyer, *A History of Mathematics*, New York, 1968; Tobias Dantzig, *Number: The Language of Science* (1930), 4th ed., rev., New York, 1959; Georges

Ifrah, *From One to Zero: A Universal History of Numbers* (*Histoire universelle des chiffres*), trans. by Lowell Blair, New York, 1985; Otto Neugebauer and A. Sachs, eds., *Mathematical Cuneiform Texts* (*Mathematische Keilschrifttexte*, 3 vols., Berlin, 1935–1937), New Haven, Conn., 1945; David E. Smith, *History of Mathematics*, 2 vols., Boston and New York, 1923–1925, reprint New York, 1958.

JOHN ALLEN PAULOS



(\bar{o}), the fifteenth letter of the alphabet in English and other modern languages, and the fourth vowel letter. O was the fourteenth letter in the ancient Roman alphabet, corresponding in form and value to the ancient Greek O, derived from the sixteenth letter of the Phœnician and ancient Semitic alphabet, O , O , O , (Hebrew O), called 'ain, i.e. 'eye'.

OCHS, ADOLPH S. (1858–1935)

U.S. newspaper publisher and exponent of “clean, dignified, and trustworthy journalism.” At the age of eleven Adolph Simon Ochs went to work as an office boy at the *Chronicle* in Knoxville, Tennessee. He never graduated from high school or attended college, but by the time he joined the *Chattanooga Dispatch* at the age of nineteen, he had experience in news gathering, writing, and printing.

In 1878, using \$250 of borrowed money, Ochs bought controlling interest in the *Chattanooga Times*, becoming the publisher of a paper before reaching age twenty-one. He turned his paper into a model of responsible journalism, printing national and local news rather than the viewpoints of special interests. The paper prospered, and Ochs prospered with it; he made many influential friends across the nation and served as chairman of the Southern Associated Press.

In 1896 Ochs borrowed \$75,000 and, with a group of investors, purchased the moribund *New York Times*, which was losing \$1,000 a day. He took over as publisher of the *Times* in August of that year. It was a tremendous gamble, but Ochs applied to the New York paper the principles he had used in Chattanooga. He refused ADVERTISING that was fraudulent or improper and refrained from sensationalism, hewing carefully to the slogan he had devised: “All the News That’s Fit to Print.” In 1898, to boost circulation, he reduced the price of the *Times* from three cents to one, the price of the “yellow” dailies. Although many predicted failure, the tactic succeeded brilliantly; both circulation and advertising revenue increased, and the paper showed a profit for the first time in many years.

Ochs kept close control over the *Times* from the beginning but permitted his reporting and editorial staff great latitude, never imposing his own views on his editors or permitting editorial viewpoint to take precedence over the news. Under Ochs the *Times* gained a position of national news leadership and maintained a tradition of responsible reporting. Ochs also served as director of the Associated Press (see NEWS AGENCIES) from 1900 to 1935 and was instrumental in beginning publication of the *New York Times Index* (which has become a guide to the news of the day) and in founding the *Dictionary of American Biography*.

See also NEWSPAPER: HISTORY.

Bibliography. Elmer Holmes Davis, *History of the New York Times, 1851–1921*, New York, 1921, reprint St. Claire, Mich., 1971; Harrison E. Salisbury, *Without Fear or Favor: The New York Times and Its Times*, New York, 1980; Gay Talese, *The Kingdom and the Power*, New York, 1969, reprint Garden City, N.Y., 1978.

ROBERT BALAY

OPERA

Opera unites DRAMA, POETRY, and SPECTACLE in musical PERFORMANCE. As a GENRE of communication, forms of drama in which actors sing some or all of their parts have occurred in many cultures. But from the seventeenth century in Italy opera developed as a large-scale form of public entertainment primarily in the Western world.

From the start the cultural status of opera derived from its support by royal and noble patrons, but the

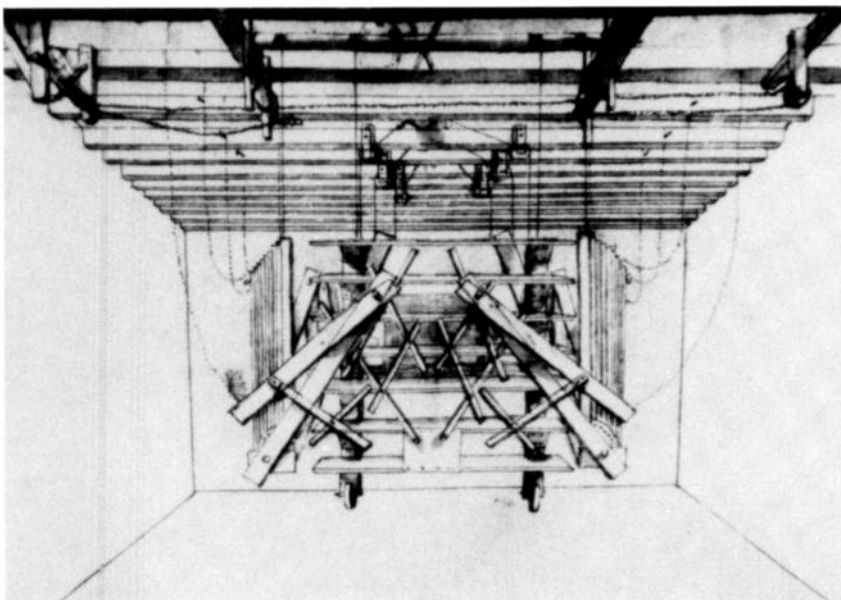


Figure 1. (*Opera*) Germanico sul Reno, descending cloud machinery. Spectacular stage effects, from the deus ex machina to machinery that allowed the heavens to open, were featured in performances at Venice's first public opera house, which opened in 1637. From Simon Towneley Worsthorne, *Venetian Opera in the Seventeenth Century*, London: Oxford University Press, 1954, plate 10.

Figure 2. (*Opera*) A curtain designed by Eugene Berman for *La serva padrona* (an opera buffa), by Giambattista Pergolesi. Jean-Jacques Rousseau used *La serva padrona*'s "naturalness" in music and plot to oppose traditional French opera during the "War of the Buffoons," a controversy that led to the inclusion in French opera of ordinary people as characters and more popular musical forms. From *Theatre Arts*, March 1963, p. 10. Courtesy of the Free Library of Philadelphia.



Figure 3. (*Opera*) Title page to *Le mariage de Figaro*, by Beaumarchais. Paris, 1784. Wolfgang Amadeus Mozart and his librettist Lorenzo da Ponte turned this play into a 1786 comic opera of love and manners to comment on the class constraints of servant and master, man and woman, by having them share ensemble singing and comic and serious roles. The Bettmann Archive, Inc.



MARIAGE DE FIGARO

LA FOLLE JOURNÉE

DE BEAUMARCHAIS

PAR M. DE LA HARPE, DE L'ACADEMIE FRANCOISE

OPERA EN UN ACTE

PAR M. DE LA HARPE, DE L'ACADEMIE FRANCOISE

PAR M. DE LA HARPE, DE L'ACADEMIE FRANCOISE

PAR M. DE LA HARPE, DE L'ACADEMIE FRANCOISE

PAR M. DE LA HARPE, DE L'ACADEMIE FRANCOISE

PAR M. DE LA HARPE, DE L'ACADEMIE FRANCOISE

PAR M. DE LA HARPE, DE L'ACADEMIE FRANCOISE

PAR M. DE LA HARPE, DE L'ACADEMIE FRANCOISE

PAR M. DE LA HARPE, DE L'ACADEMIE FRANCOISE

PAR M. DE LA HARPE, DE L'ACADEMIE FRANCOISE

reasons for its longevity and influence reside in its emotive and evocative musicality. Its capabilities for uniting and arousing a mass public were recognized, and in many countries the state supported an opera that glorified princely power. But as opera grew from being an Italian export of humanist values and lyrical melodies into a nineteenth-century expression of nationalist sympathies and romantic sensibilities, its revolutionary potential was equally exploited by its new patrons, the middle-class audience. Even though the twentieth century has seen its role as mass entertainment usurped by electronic forms, in scope, size, and spectacle opera remains a vital form of performance that has made its own accommodations to the new electronic media.

The relationship of words and music. The relationship between musical and nonmusical elements, particularly the words and dramatic structure, has been a central tension in the history of opera. Music was thought to enhance the emotional content of the word and to intensify its drama, and the nature of this relationship is the main focus of most theoretical writing. The best-known “reforms” of opera too

have called for the primacy of the word as its organizing feature.

As originally conceived by the Florentine Camerata during the 1590s, opera represented a humanist attempt to reclaim the expressiveness of the word as it was then believed to have been sung in the performance of Greek TRAGEDY. The realization of this literary doctrine in the performance of Jacopo Peri's *Euridice* in 1600 marks the conventional starting point of opera, not coincidentally because it is also the first published opera with verse play, or libretto, and figured bass.

However, even though many writers have seen the drama located in the content or MEANING of the words and the progression of the plot, composers have tended to override dramatic unities with musical ones, with themes and tonal relationships providing the ground, from figured bass to full orchestra. Composers' sensitivity to the poetic possibilities of the word did not necessarily make their musical settings work dramatically, as witnessed by the operatic failures of the most prominent nineteenth-century lieder composers, Franz Schubert, Robert Schumann, and

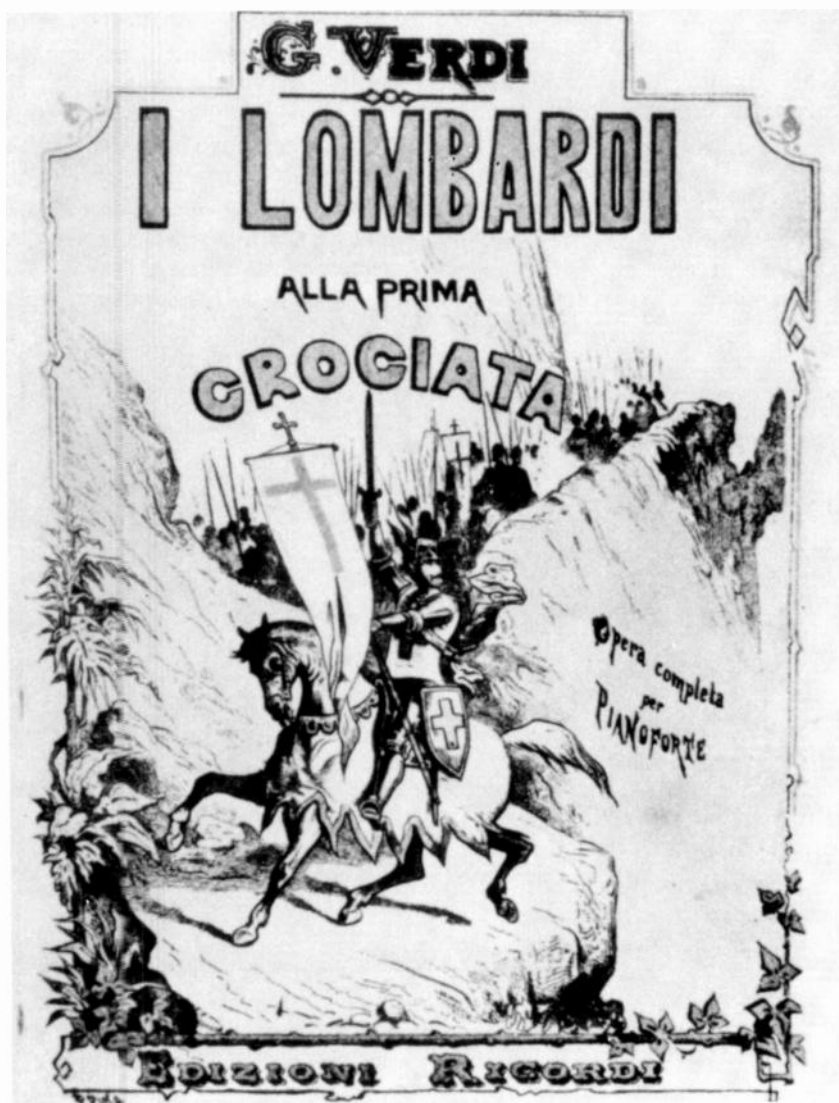


Figure 4. (Opera) Giuseppe Verdi, *I Lombardi*. Frontispiece from a piano score. In 1843, when Verdi staged this opera at La Scala, Italian patriots of the *Risorgimento* took up the battle cry of his Crusaders—"Today the Holy Land will be ours!" From Lorenzo Arruga, *La Scala*, Milan: Electa Editrice, 1975, plate 115. By courtesy of Electa Editrice, Milan.

Hugo Wolf. Whatever the import of the word in an opera's conception, many of the words are lost in its performance because of the technicalities of singing. In fact, even though the poetic union of that language and the melody forms part of its expressive quality, many enjoy opera without even understanding the language being sung. And if one sees opera as expressing affect, then the exact words—at least as information—are subservient to the suggestive harmonies, melodies, and rhythms. Overall, the organizing feature of an opera as a whole and what communicates in performance is the music.

Opera as a social institution. Opera has always been a transnational entertainment industry and in its first two hundred years was a major Italian export. Italian poets and composers took up residence in the courts of Vienna and Paris and the smaller German cities and principalities. With the establishment of public theaters came the professionalization of impresarios to manage the theaters, arrange for court entertainments, book opera touring groups, and handle the engagements for leading singers. Italians took the lead in this PROFESSION through the beginning of the nineteenth century, with Gioacchino Rossini as the “Napoléon of music” and Domenico Barbaja managing theaters in Vienna and throughout Italy.

Italian opera demanded Italian singers, and their ability, availability, and reliability in drawing audiences were key elements to an opera's financial success. The star-making machinery in Italy was constrained for its first centuries by church prohibition against female singing, but an underground industry developed to provide castrati (male singers who had been castrated at a young age to preserve their high voices) for the female roles. The castrati

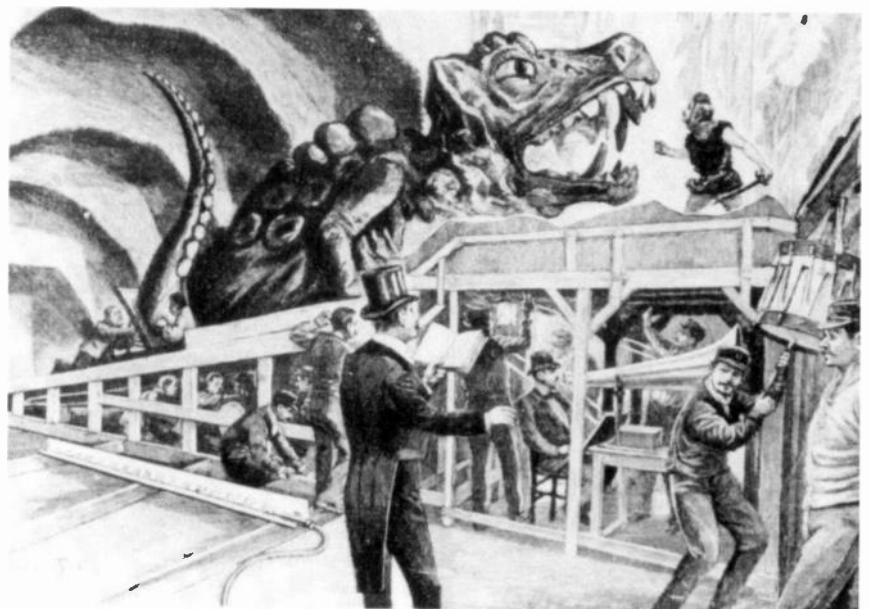
were the first STARS, and they cultivated the benefits of celebrity through both financial and personal license. Their reputations crossed national boundaries faster than they could and helped them achieve international status.

Several communications factors encouraged the DIFFUSION of this Italian export. TOURISM, especially to Venice and other Italian cities, spread the reputation of and desire for Italian opera to such far-flung places as London and Saint Petersburg, and Italian touring companies followed the trade routes throughout Europe. Music PRINTING benefited opera, as it did other large-scale forms, particularly because the export of movable type had helped to standardize the various regional musical notation systems (see MUSIC THEORIES—NOTATIONS AND LITERACY). Although many operas composed before 1900 were not actually printed, Italy's role as a major center of music printing established Italian as the language of notation used to the present.

The Italian export was desirable because it represented the ideal expression of the reflected glory of princes in the age of Louis XIV. After Italian opera had been taken up by Cardinal Mazarin, Louis XIV's regent, it was natural for it to come of age in the life that was lived as a pageant. The noble rulers of up-and-coming cities and principalities found opera something they could buy, if not imitate, in the celebration of divine right. The excesses and waste of Italian baroque opera may have been the result at least as much of its use in competition among the nobility as of the form itself, for ART imitated life.

Printed pamphlets in the eighteenth century recorded the first resistance to baroque opera. This period also saw the rise of musical magazines, which

Figure 5. (*Opera*) Richard Wagner, *Der Ring des Nibelungen*. Drawing showing how Siegfried's slaying of the dragon was staged at the Paris Opera in 1902. Stagecraft was an essential component to Wagner's *Gesamtkunstwerk* (“total art work”), and he placed the audience in darkness and the orchestra in a pit to focus attention on the stage. From Charles Osborne, *The World Theatre of Wagner*, Oxford: Phaidon, 1982, p. 123. © Bildarchiv Preussischer Kulturbesitz, Berlin (West).





PARSIFAL
 DRAMMA MISTICO IN TRE ATTI
 DI
RICCARDO WAGNER

Figure 6. (Opera) Giuseppe Palanti, poster for *Parsifal*, by Richard Wagner. From Mario Monteverdi, *La Scala: Four Hundred Years of Stage Design from the Museo Teatrale alla Scala*, Milan, Washington, D.C.: International Exhibitions Foundation, 1971, p. 82.

carried criticism of musical compositions and performers. By the beginning of the nineteenth century music journalism gained an increasing role in the selection of stars, composers, and opera fashions. Many opera composers, from Hector Berlioz to Richard Wagner, made extra money writing for music publications.

The development of SOUND RECORDING in the late nineteenth century utilized opera in a new way. The



Figure 7. (Opera) Enrico Caruso recording for the Victor Company: a self-caricature. Singing into a megaphone to capture the sound was the method of acoustic recording used before microphones were introduced in the mid-1920s. From Roland Gelatt, *The Fabulous Phonograph 1877-1977*, New York: MacMillan, 1977, p. 144.

technical compatibilities between opera singing and the first recording techniques along with the social prestige of opera singing made opera arias a staple of the phonograph and Enrico Caruso its major star. Particularly in the United States, recorded sound provided opera in just the right four-minute segments to attract a new public and encourage support of its live performance. As RADIO broadcasting became available in the 1920s the home became a place in which opera melodies mingled with more popular tunes, and MOTION PICTURES of the 1930s drew upon opera stars in bringing sound to the screen. Television too used opera to lend prestige to its role as mass entertainment, and videocassettes of operas are today rented along with other filmed entertainment.

Meanwhile opera continued to provoke criticism. As a temple of music it did not please all the social critics, and some of the best invective of twentieth-century music criticism was leveled against opera by such figures as George Bernard Shaw and THEODOR ADORNO. Opera also fit into the growing specialty of professional musical study. Conservatories and universities invested in opera as a serious subject and turned out singers and composers for the opera industry.

Live opera continues to depend on the financial support of both its audiences and private individuals and is still a leading subject for daily music journalism. The twentieth century has found it socially allied with other high-culture institutions, and its electronic availability perhaps generates more support from these institutions than appeal for a mass audience, except for occasional superstars. Electronic media in particular, while contributing to the solidification of the opera repertoire of the past, have also revived an interest in its live performance, and opera continues

to be both an extravagant and a vital form of musical and theatrical communication.

See also MUSIC HISTORY; MUSIC PERFORMANCE; MUSIC THEATER; SONG; THEATER.

Bibliography. Edward J. Dent, *Opera*, Harmondsworth, Eng., 1940, reprint Baltimore, Md., 1965; Max Graf, *Composer and Critic: Two Hundred Years of Musical Criticism*, New York, 1946; Donald J. Grout, *A Short History of Opera*, 2d. ed., New York, 1965; Paul Henry Lang, *The Experience of Opera* (orig. title: *Critic at the Opera*, 1971), New York, 1973; "Opera," *The New Grove Dictionary of Music and Musicians*, Vol. 13, London and New York, 1980 ed.; Henry Raynor, *Music and Society since 1815*, London, 1976; idem, *A Social History of Music: From the Middle Ages to Beethoven*, London, 1972; Hamish F. G. Swanson, *In Defense of Opera*, London, 1978.

MARSHA SIEFERT

OPINION LEADER

A concept used to designate influential individuals who do not hold formal positions of power or status. Although attention has been paid to the role of leaders in small or well-defined group settings (as in the work of KURT LEWIN), informal leadership in other contexts had been largely ignored as a research topic until the work of PAUL F. LAZARSELD.

Lazarsfeld and his colleagues directed two large-scale studies of voting behavior in the 1940s that found less evidence of a direct "one-step flow" of influence through the mass media than expected. Instead many respondents attributed changes in their voting decisions to the influence of face-to-face communication (see INTERACTION, FACE-TO-FACE; INTERPERSONAL COMMUNICATION). The researchers labeled "opinion leaders" those persons who were regularly consulted for their views by people around them.

These informal opinion leaders resembled their followers in most respects: social status, age, education, and so on. Unlike them, however, opinion leaders paid closer attention to the mass media. In a later work Elihu Katz and Lazarsfeld stated that opinion leadership was specialized by topic, so that leaders influenced opinions only in those areas in which they were perceived to have some expertise or experience.

Lazarsfeld and his group hypothesized that ideas and information were transmitted by a "two-step flow" process, first *from* the mass media to opinion leaders and second *through* opinion leaders to the larger audience. However, the widespread DIFFUSION of television during the 1950s has altered the media environment significantly (see TELEVISION HISTORY). Research since then has transformed the notion of opinion leadership. Direct media influence has been suggested to be most important during the early

"awareness" stages of opinion formation, and the multiplicity of media sources allows audiences access not necessarily mediated by opinion leaders. Thus research on the AGENDA-SETTING power of the mass media suggests the media's ability to direct public concern toward those issues to which the media give prominent attention or confer status. In the United States far fewer people engage in news conversation in an average day or week than watch a television newscast (see TELEVISION NEWS) or read a newspaper, and news media topics comprise only a small proportion of discussion topics that people describe as important on a typical day.

Electoral research also suggests that rather than a "trickle-down" process of information flow from leaders to followers, most interpersonal communication consists of "information sharing" among opinion leaders; these leaders may rarely talk to or influence followers. The main arena in which the original two-step flow model seems appropriate for voting behavior may be the nuclear FAMILY.

Nonetheless, research on information flow does confirm that the Lazarsfeld group's conclusions about the power of interpersonal sources, when activated, were well founded. Thus people who engage in interpersonal conversation about news topics are better informed than those who do not, other factors being equal. And word of mouth is still considered a powerful form of ADVERTISING, even though the role of opinion leaders in the influence flow process still needs more systematic study.

See also COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT; ELECTION; MASS COMMUNICATIONS RESEARCH; MASS MEDIA EFFECTS; POLITICAL COMMUNICATION; PROPAGANDA.

Bibliography. Elihu Katz and Paul F. Lazarsfeld, *Personal Influence*, Glencoe, Ill., 1955; Paul F. Lazarsfeld, Bernard Berelson, and Hazel Gaudet, *The People's Choice* (1944), 3d ed., New York, 1968; John P. Robinson and Mark R. Levy, *The Main Source*, Beverly Hills, Calif., 1986; Everett M. Rogers, *Diffusion of Innovations* (1962), 3d ed., New York, 1983.

JOHN P. ROBINSON AND DENNIS K. DAVIS

OPINION MEASUREMENT

As a method of assessing PUBLIC OPINION, surveys have become a major form of enterprise in many countries, of interest to scholars and to those in government, industry, and not-for-profit associations as well as to the general public. Their rise has been largely a post-World War II development, spurred by the computer and other new technologies (see COMPUTER: IMPACT). The opinion survey has achieved this standing despite continuing disputes over the

meaning of such concepts as “opinion” and “public opinion” and over appropriate ways of measuring them.

Wide dissemination of findings via newspapers, magazines, and television has tended to make opinion surveys a prominent feature of mass communication. Surveys of representative samples have created a new channel of communication between the general public and those in government, who do not rely simply on mass media reports of findings but often conduct or sponsor special surveys to guide administration and policy (see POLITICAL COMMUNICATION). Other methods of assessing public opinion are also used (e.g., CONTENT ANALYSIS), but the survey has become a constant and highly visible accompaniment to decision making.

Issues

Surveys depend on the willingness of individuals to express their opinions by answering questions posed by the surveyors. The validity of opinion measurements depends heavily on procedures that encourage respondents to answer candidly and not in a thoughtless or frivolous fashion. Some critics cast doubt on the ability of any survey procedure, no matter how carefully designed, to achieve valid results, arguing that all measurement procedures are reactive—that is, they create an awareness of being tested that produces artificial responses. While certain procedures may well create invalid responses, being surveyed seems to have become an ordinary experience for most respondents, not an extraordinary testing situation. Often the problem is to get respondents to act more attentively; one school of thought argues that the fact of being measured and the reasons for it should be emphasized more strongly to respondents.

The willingness to talk at all, and to express candid opinions, might seem far more dependent on political conditions in the society than on the procedures of the survey. The fear of being branded or punished for one's opinions, the belief that government is utterly indifferent to the people's wishes, the idea that only some are entitled to express political opinions—these might be so pervasive in certain places and periods as to make public opinion surveys unworkable or worthless. However, since World War II the method has found acceptance in many diverse countries. With well-planned procedures adapted to the local circumstances, the publics of a great many countries welcome the opportunity to express their views. The physical and social conditions in some countries may make nationwide surveys difficult. Some regions may be inaccessible; the population may be fragmented into linguistic enclaves, and a majority may be unable to read a printed questionnaire in any

language; respondents may be hostile to interviewers of another ethnicity—indeed even to those of another clan or faction within the same ethnic group. Nevertheless, determined and resourceful researchers have managed to conduct useful surveys, although the stringent conditions have curtailed their extent and regularity.

Stages in the Conduct of Surveys

A survey measuring the opinions of a public on some issue or measuring other characteristics of a population (e.g., use of television) is a large, complex, and expensive inquiry. The public may be heterogeneous and spread over thousands of miles. Ideally, all types must be represented in the sample, whose members then must be located and agree to be interviewed. The samples used to achieve sufficient precision in the findings rarely are smaller than a thousand people, and for greater precision and other reasons often much larger. Reliable, comprehensive measurement and depth of understanding usually require multiple measurements on each individual. The voluminous raw data must be treated statistically and analyzed carefully to yield responsible conclusions on public opinion. This complex method may be divided into several major stages: design, collection of data, analysis of data, and report of findings. Each stage has many steps. The various technical principles and procedures must be adapted to the circumstances of each study, and are sometimes compromised by difficult conditions.

Designing the survey. The first step is to choose a basic research design suited to the problem and the resources available. Changes in public opinion following natural events or some planned intervention (e.g., a mass media campaign) are best studied by expensive “trend” designs in which equivalent samples of the public are surveyed by comparable procedures at two or more points in time, or by even more expensive “panel” designs in which the same sample is measured successively by comparable procedures. A single survey conducted in one brief interval of time may serve simply to describe public opinion at that point or also, with some modifications in the basic design and the instruments, to explain the patterns of opinion. It may also serve as a “quasi-panel” requiring retrospective questions on change.

Next, the public or population to be surveyed must be clearly defined, ideally in such fashion that everyone whose opinions should be counted is included within its boundaries and thus given a chance to be sampled and measured, and others are excluded. A useful term conveying the principle is *target population*. In theory this second step should govern later decisions, the method of sampling, data collection, and instruments being those best suited to achieve a

representative sample and valid measurement of the target population. In practice those procedures often are predetermined for various practical reasons. The target population is then redefined and restricted to those who *can* be sampled and measured in ways already selected.

In most opinion surveys in the United States prior to 1970 the target population was defined as adults twenty-one years old or older; it was then changed to those eighteen years old or older as young adults became eligible to vote. Implicitly, the public was modeled on the electorate, those who had the right to vote their opinions. For surveys on national policy, that definition is reasonable, although teenagers might quarrel with it and want their opinions communicated to government. However, some might argue that the boundaries occasionally are drawn too broadly in surveys on particular issues. For example, on legislation on health hazards inside industrial plants, perhaps those working in industry are the exclusive public with a stake in the matter. Why dilute survey results by counting the opinions of those for whom the issues have few or no consequences? To be sure, defining the public too broadly is remediable. Groups with little or no interest at stake can always be distinguished in the analysis and presentation of findings or subtracted from the final count, although failures to make such crucial distinctions do occur. The more common problem is a too restrictive definition of the public, irremediable since those excluded from the start can never be given any weight in the results.

U.S. surveys redefine the public as adults living within the United States, since there is no feasible way to sample and measure the opinions of U.S. citizens living all over the world. Similarly, most surveys redefine the public as adults living in private households because it is difficult to gain access to and collect data from those residing in institutions—nursing homes, college dormitories, and military barracks as well as mental hospitals and prisons. These exclusions eliminate only a small fraction of the total public and do not seriously hamper the generalizability of findings. However, two other common redefinitions of the public should be noted. Since the 1970s, many surveys in the United States are conducted completely by telephone interviewing, mainly because face-to-face interviewing has become too costly; thus the public is redefined as those living in telephone households. In the affluent United States by 1980, 96 percent of households had telephone service. However, in less affluent times or countries, such surveys would exclude most people with modest incomes as well as the poor and the homeless. In addition, only an English-language version of the questionnaire is constructed and used by interviewers in most U.S. surveys. It would be too costly and

would present serious problems of comparability to have instruments and interviewers appropriate for all U.S. foreign-language groups. Perforce, those who cannot communicate in English are excluded. In summary, the public opinion reported in many U.S. surveys in the 1980s is the opinion of noninstitutionalized, English-speaking adults living within the continental United States in telephone households, a fact usually clearly stated but neglected by uncritical readers.

After the public has been clearly defined, a sample is designed and drawn from it, ideally by procedures known as *probability sampling*, which ensures that the set of individuals designated to be measured is representative of that much larger public. If the entire sample were measured—an unlikely achievement—the results would be the same as what would be found by measuring the total public in the same way, within a determinable margin of uncertainty at a stated probability. That *sampling error* is described in reports by words such as “ninety-five chances in a hundred, the results are within a margin of plus or minus 4 percent.” Samples of the type and size used currently have small sampling errors, but this is only one component of the total error that may occur. Other errors arise from the inability to complete the measurements on all the designated individuals because they refuse to participate or are not home despite repeated calls, from flaws in the measuring instruments or how they were used during the collection of data, and from the ways the raw data are processed and analyzed.

Finally, long experience and careful experiments have produced sound general principles for formulating discrete questions and designing the total questionnaire and other instruments of measurement. The characteristics of the particular public to be surveyed (their literacy, education, limits of patience, time, etc.) may require modifying standard principles, and a predetermined method for collecting the data is also a limiting factor. The present technology of telephone interviewing, for example, makes questions with pictorial materials and interviewer ratings of visual characteristics impossible. Foresight is important, and no competent surveyor waits for hindsight to learn from mistakes in design after it is too late to correct them. Hence pretests, or trials of the provisional instruments on members of the public not drawn into the sample, often lead to necessary revisions.

Both the form and the content or coverage of the instruments are essential to adequate measurement of public opinion. A questionnaire is more than a series of standardized questions in a prescribed sequence, although that is its most crucial feature. The introduction, by stating a sponsor and purpose and such safeguards as confidentiality of the information

provided, serves to encourage participation, candor, and thoughtful response and to satisfy ethical canons of informed consent. Instructions are essential to clarify ambiguities and specify the conditions to be followed: "Tell me the first words that come to your mind," "Just give me your opinion," "There are no right and wrong answers." A questionnaire is not confined to questions. When administered by interviewers, it generally includes their ratings of the respondent's interest, honesty, and so on; their reports of the circumstances (e.g., others present at the time); and even their character sketch of the respondent. And a questionnaire often is not confined to a single series of questions. Several forms varying the wording or sequence of questions may be administered to equivalent subsamples to determine the effects of the instruments on the opinions elicited.

The heart of the instrument, however, contains batteries of questions on each major variable or topic, the basic principle being that reliable and comprehensive measurement requires multiple questions for each topic. The types of questions composed by ingenious investigators show almost endless variety, but two major types are usually used in combination: "closed" questions forcing respondents to answer in terms of a limited set of fixed alternatives (e.g., "Do you favor or oppose _____?"); and "open" questions permitting them to describe or explain an opinion at length in their own words (e.g., "How do you feel about _____?").

In terms of content, sophisticated surveys do not limit the questions to opinion or ATTITUDES on the particular central topic of the survey. A wide range of variables is ordinarily included to deepen understanding and explain specific opinions. Opinions on other matters might be elicited to see whether the opinion is part of a broader position or IDEOLOGY—for example, on foreign policy. The cognitive realm, knowledge and belief, would be explored to see whether the opinion is informed or based on ignorance or misperception of the situation. An opinion question measuring support of a general policy might be followed by questions on the application of the policy to concrete cases to determine the breadth or depth of the support and the meaning implied by the general public. Questions measuring various hypothesized determinants of the particular opinion might be included—for example, questions on exposure to information and influence from mass or interpersonal communication. Wise investigators often ask a set of questions on voting and political involvement to differentiate the opinions of active versus apathetic members of the public, and questions to distinguish those with interests at stake. Invariably, a set of questions, sometimes wide-ranging, on the respondent's personal characteristics—age, education, occupation, religion, and so on—is asked to distinguish

the opinions of various segments of the larger public and to suggest possible explanations for the findings. And sometimes questions seemingly unrelated to the topic are asked for the sole purpose of evaluating errors of measurement. For example, the telephone number often is obtained to call back and check whether the interviewer had conducted or faked the interview. A question about "knowing" a fictitious event or "reading" a nonexistent book might be asked to see whether the respondent is confused or posing as informed. A set of such questions might be asked to estimate the magnitude of various kinds of response errors that have been identified. In these and other ways, instruments elaborate in form and content are designed to ensure accurate and comprehensive measurement.

Collection of data. Three survey methods, dramatically different in benefits and costs, are available for collecting data: personal interviewing, telephone interviewing, and self-administered mail questionnaires used to measure dispersed publics. Mail questionnaires are the cheapest method, permit reflection but allow influence from others to intrude, preclude control over the situation of measurement, eliminate the illiterate, and normally produce the lowest response rate. Personal interviewing, the most expensive method, gives interviewers maximum opportunity to make observations, but it permits their personalities to influence respondents. Telephone interviewing (sometimes assisted by computer terminals to display the questionnaire for the interviewer and for instantaneous tabulations of answers) eliminates the poor and the hard-of-hearing, the use of pictorial questions, and ratings of observable characteristics. Other distinctive properties not mentioned here may make a method appropriate to a given problem and a special public. Surveys sometimes combine different methods—for example, telephone or letter to make appointments and encourage cooperation, and personal interview thereafter.

All methods require follow-ups to pursue those initially not available or uncooperative and to reduce the potential error from nonresponse. The reasons for refusals should always be recorded to aid in estimating the error from that loss. All interviewing methods require careful training and supervision of the staff to reduce error, increase quality, and ensure proper use of the prescribed standardized instruments. The operative questionnaire is not what is printed but what is actually asked.

Analysis of data. Before analysis can begin, raw data must be refined and processed. Free answers to open questions must be classified or coded into categories. Tabulation and quantitative analysis of the voluminous data require conversion into machine-usable form for computer processing. A prelude to or early step in analysis is the construction of *indexes*,

composite measures or scores based on combining questions or indicators to provide more reliable and comprehensive description of major variables.

Descriptive analysis of public opinion involves relatively few steps. The distribution of answers on single questions and of scores on composite indexes for the total sample are estimates of the opinions of the general public (as it was redefined). The separate distributions for subgroups within the total sample are the estimated opinions of various segments of the public, such as the classes, regional blocs, racial groups, and attentive and uninterested groups that compose it. These breakdowns, depending on the background questions asked, can be myriad and based on combined characteristics. For example, working women can be distinguished from nonworking women. These estimates, of course, are subject to all the sources of error noted earlier, and the magnitude of errors of sampling, nonresponse, measurement, and so on should be noted to qualify the findings or used to make corrected or adjusted estimates. This quantitative analysis should be supplemented by qualitative analysis, the use of individual answers, interviewers' reports, and so on to illustrate and enrich the abstract statistical findings. Explanatory analysis of survey data goes many steps beyond this point and is too complex to be treated here.

The report. The end point of the institution of public opinion measurement is the communication of findings to scientific audiences, mass audiences, and political elites. Therefore, a responsible report, appropriate for the particular audience and medium and containing the information on procedures specified by the standards of the associations for public opinion research, is the final stage and the fulfillment of the research.

See also POLL.

Bibliography. Richard W. Boyd and Herbert H. Hyman, "Survey Research," in *Handbook of Political Science*, Vol. 7, Reading, Mass., 1975; W. Edwards Deming, "Sample Surveys: The Field," in *International Encyclopedia of the Social Sciences*, Vol. 13, New York, 1968 ed.; Frederick W. Frey, Peter Stephenson, and Katherine Archer Smith, eds., *Survey Research on Comparative Social Change: A Bibliography*, Cambridge, Mass., 1969; Robert M. Groves and Robert L. Kahn, *Surveys by Telephone: A National Comparison with Personal Interviews*, New York, 1979; Stanley L. Payne, *The Art of Asking Questions*, Princeton, N.J., 1951; Morris Rosenberg, *The Logic of Survey Analysis*, New York, 1968; Howard Schuman and Stanley Presser, *Questions and Answers in Attitude Surveys: Experiments on Question Form, Wording, and Context*, New York, 1981; Judith M. Tanur, "Methods for Large-Scale Surveys and Experiments," in *Sociological Methodology*, 1983-84, San Francisco, 1983.

HERBERT H. HYMAN

ORAL CULTURE

A CULTURE without WRITING. Many of the standard comparisons between oral and literate cultures are flawed because the role of writing is misrepresented. Writing does not supplant oral communication; it is merely another channel of communication, substituting for the oral only in certain contexts but at the same time developing new ones. It is the same with the new electronic media; they are only substitutes for oral and written communication in certain contexts and are always dependent on them, just as writing is dependent on the oral use of LANGUAGE, which remains the primary means of human communication. See also LITERACY.

Issues in the Analysis of Oral, Literate, and Mixed Cultures

It is very important to distinguish between societies (or cultures) with and without writing and also between the written and oral traditions in societies with writing. Oral communication in societies with writing is not the same as it is in those without it. In the latter the oral tradition has to bear all the burden of cultural transmission. In literate societies, however, the oral tradition is vested with only part of the total body of literary activity, of standardized verbal forms. The café songs from Novi Pazar collected by Milman Parry and Albert Lord in the 1930s in Yugoslavia and the "fairy" stories of the European countryside collected by the Grimm brothers in nineteenth-century Germany formed part of popular culture, which was supplemented by printed romances and other works that were linked to the literacy-based manifestations of high culture that emanated from the towns (see ROMANCE, THE). And while these oral aspects of popular culture may be related formally to the oral productions of nonliterate societies, both their role and their content have clearly undergone important changes. From the standpoint of the total society, their role is now subordinate to those of written origin, although they are differently valued by different social groups and at different points in the life cycle. For example, religious practices and beliefs in literate cultures are based largely on scriptures and mediated by literate priests, so what is left in the oral tradition tends to be "magic" rather than "RELIGION," the peripheral rather than the core. In other words, the content of the oral tradition tends to be marginalized.

In addition to distinguishing between oral and literate cultures and between the role of oral and literate traditions in societies with writing, we must also distinguish among literate, nonliterate, and illiterate individuals. In some literate complex societies there are subgroups whose members communicate only in SPEECH. Comparisons between these subcul-

tures and oral cultures in the fuller sense have to be made with great caution. A nonliterate is not the same as an illiterate, though they may have various attributes in common.

The notion of an oral tradition is very loose. In a nonliterate society the oral tradition consists of everything handed down (and ipso facto created) through the oral channel—in other words, virtually the whole of culture itself. In a society with writing both the literate and oral traditions are necessarily partial. Moreover, elements of the oral tradition, like folktales, inevitably get written down, whereas elements of the written tradition are often communicated orally, like the Indian Vedas. The fact that a sonnet is learned orally in school does not make it an oral production. From the standpoint of composition, even literate works are composed at least partially in the head—*orally*—before being written down. In other words, the interface continues to be of great significance. Bible stories, for example, become part of what is communicated orally between parent and child, even in societies or groups lacking a literate tradition but in contact with ones that have such a tradition.

The word *tradition*—a handing over, in the wide sense of intergenerational communication, indirect as well as direct—implies some notion of quasi-continuity, albeit if only over a single generation. The word is used in a more limited way to cover the literary tradition or its oral counterpart consisting of the FOLKTALE, legend, SONG, RIDDLE, and PROVERB—what are sometimes called *standardized oral forms* to avoid some of the possibly distorting ambiguities of using the term *literature* (i.e., to do with letters). No hard-and-fast line can be drawn between the verbal art forms of societies with and without writing, but certain genres such as the novel (or in music the symphony) are clearly products of the former alone. See GENRE.

Not only do the genres differ, but some of them change characteristics depending on whether they are oral or written. A written work necessarily has a fixed text, but an oral composition may be added to or subtracted from at any time and by different people. The notion of unity, so often mentioned in LITERARY CRITICISM, is much less useful in examining an oral product. What one hears on a particular occasion is less likely to be the product of a single human mind at a single point in time than is a literary work. The notion of the individual signature at the bottom of the canvas is out of place when the mural has been touched and retouched by numerous hands in the course of its preparation. See also AUTHORSHIP.

There is a danger here of falling into earlier errors of romantically inclined nineteenth-century scholars who contrasted the communal composition of bal-

lads with the individual creation of lyric POETRY. The contrast is false, like other applications of this dichotomy; in this case it confuses composition, PERFORMANCE, and transmission. In oral societies each performance of a long poem such as the Bagre of the LoDagaa of northern Ghana reshapes the work and provides a new model for future versions, because performance is transmission. The process of composition, in the sense of the original act of creation, is impossible to reconstruct for lack of evidence or lack of relevance. On the other hand, it is in principle feasible to see how an individual has constructed his or her own performances, which tend to resemble one another more closely than versions by different performers. Individuals contribute, some being more creative than others, but their signatures rarely remain for long because of the very nature of oral transmission over time.

A further version of this fallacy recognizes the extent of variation but sees it as variation on an ideal or underlying version. For example, influenced by structuralist approaches, Robert Kellogg suggests that whereas written literature establishes communication between the minds of author and reader, the constant behind oral artistic activity is “an ideal performance, an aspect of tradition shared by performer and audience alike.” He gives as an example of an oral work the Mwindo Epic of Zaire, which exists as an unperformed and very long and detailed ideal. This and similar contentions represent a misapplication of the idea of a deep structure and share the same difficulties as those that view oral literature as emerging from the spirit of the folk by common authorship. While it is clear that in oral societies individuals play a different role with regard to verbal performances, we must not introduce the idea of unanalyzable processes or mechanisms to account for the differences. See STRUCTURALISM.

Characteristics of Oral Cultures

What are the characteristics of an oral culture, as distinct from an oral subculture, or from an oral tradition in a society with writing? First, from the standpoint of communication, all interaction effectively takes place in face-to-face situations, a fact that gives a special importance to the individual who communicates information (see INTERACTION, FACE-TO-FACE). It is true that in literate societies the schoolteacher also holds a unique position as a transmitter of information, at least for children. But the “authority” behind the teacher lies ultimately in the BOOK, and intelligent, inquiring students soon learn to consult the LIBRARY directly. The teacher then becomes significant for the explanations of, commentaries on, and additions to the knowledge stored on the written page. In oral cultures all is stored in the

heads of the adults, so the one who has seen most and lived longest remains a major source of knowledge. The elders have to be respected for this reason alone; they are irreplaceable storehouses of information about the past, that is, about the culture and traditions of the community. Such is true only in a limited sense of societies with writing.

Second, the fact that virtually the only store of information lies in human memories means that it is always susceptible to selective forgetting and remembering. There are, of course, techniques for preserving special kinds of information. But, unless deliberately directed, memory bends to other interests, tending to set aside what does not fit. This feature of oral storage and transmission contributes to the relatively homogeneous character of such cultures, in which uncomfortable dissonances tend to be forgotten while memory works with those experiences that link well with others.

As a result, many individual inventions or personal doubts tend to be either set aside or incorporated into the culture as if they had always been there. For example, innovations are a constant feature of religious activity, partly because of its creative complexity, partly because its solutions to practical problems of health and disease, of life and death, are always inadequate. The god who failed is replaced by a new creation or one imported from outside. Some of these creations are tried and rejected, others live on, producing a changing constellation that normally offers the appearance, to itself and to others, of a fixed tradition.

To the participants the tradition may be regarded as "the same," just as the versions of the Bagre are regarded by many as "the same." To interpret such statements as indications that each performance, each RITUAL, is a deviation from a disembodied ideal or that a hidden continuity lies at the level of deep structure has little justification in practice or theory. Variations occur, some of them leading to significant change; otherwise how would one account for the extraordinary variety of oral cultures in relatively small areas, such as Papua New Guinea? Some changes may be disregarded deliberately and some unintentionally; the determination of verbal sameness is often difficult. Since the long Bagre recitation of the LoDagaa has been written down, literate members of this society are able to perceive that the written version differs from current versions. This first written version has been invested with the authority of the ancestors, who recited it, giving rise to the notion of an orthodox version from which others have strayed. But it might equally be argued that in an oral culture the "genuine" version is the one produced by one's contemporaries—not the oldest but the youngest—because then the influence of present interests rather than past concerns will be reflected.

In the same way that change tends to get swallowed up by the nature of oral memory and the mode of oral transmission, so too do doubt and skepticism. Members of oral cultures do doubt from time to time the validity of their gods, their rituals, their premises. But only when these are written down does a real tradition of criticism emerge, a tradition that builds on itself. The generation of incredulity—disbelief—is partly a matter of placing alternative versions side by side, of recording systematically the outcomes of predictions, of perceiving in visual form the ambiguities of oracles. In oral cultures the slate tends to be wiped clean at every generation, maintaining the appearance of homogeneity of belief, of total attachment to cultural values.

Education, Social Relations, and Other Social Institutions

Part of the process of transmission between generations is what we call EDUCATION, referring to the deliberate act of TEACHING the young. In literate cultures the process is fairly formal and usually takes place in separate organizations: schools, colleges, and universities. In oral cultures, learning is inevitably a more contextualized process, taking place "on the job" rather than in a special setting. In formal schooling verbal accounts of acts and beliefs are little used compared with their written equivalents; reliance on the written word, in any case, permits a more abstract, more generalized, more analytical approach. Oral learning entails a greater amount of showing, of participation. Hence the world of childhood is less segregated from that of adults. Children sit or play when discussions and performances are taking place, absorbing at least the general atmosphere of these activities and occasionally, if they listen attentively, some of their content as well. Much more learning takes place publicly, since verbal communication depends on the voice, on face-to-face interaction. Whereas in literate cultures an individual can go off alone with a book, in oral cultures another partner is needed as narrator or instructor. Partly for this reason, the act of being alone, communicating to oneself, is sometimes regarded with some suspicion in oral cultures, possibly as a prelude to some malicious action such as witchcraft or sorcery. Solitary activities such as eating alone may take on a negative value; in this sense an individual's right to privacy is not necessarily prized because the interactive nature of human life is more immediately apparent to everyone.

In other words, what ÉMILE DURKHEIM saw as the mechanical solidarity of simpler societies is not only a matter of the division of labor. Social relations and values have to be upheld more obviously in face-to-face situations; there is no possible recourse to a text

as an external source of guidance. It is the same with the very meaning of words. Semantic properties are validated in interaction; past meanings cannot be revived by historical etymology; that which is not carried in memory has disappeared for good. The restriction of linguistic communication to the oral channel accounts for some of those features that are commonly regarded as characteristic of the "primitive mentality." The greater concreteness and relative lack of abstraction must be linked to the dominance of the context of the interactive situation. Inhibitions are placed on the elaboration of general rules, which are more often implicit than explicit. In the terminology developed by sociologists MAX WEBER and Talcott Parsons, such societies tend to be particularistic rather than universalistic.

Social institutions are much affected by a limitation to the oral channel. Religions tend to have a more local focus, to be more clearly intertwined with everyday life. Legal transactions are less governed by general laws, by formal procedures. Precedent will rarely play a distinct part in lawmaking because recent judgments constitute the practice of the law itself. There are no written formulations that have outlived their usefulness to provide an embarrassing relic for the judge to modify and the legislature to undo by formal resolution. The homeostatic tendencies of memory usually consign to oblivion what is no longer wanted. Being limited to oral communication in the political field obviously restricts the buildup of bureaucratic government. While it does not prevent the rise of states, the relationship between the center and the periphery is likely to remain a weak link in the chain of messages. Both internal communication and central accounting can operate by adding mnemonic devices to oral storage, but the more complex the organization of the state and the economy, the greater the pressure toward a graphic representation of speech.

See also HUMOR; INSULT; MUSIC, FOLK AND TRADITIONAL; ORAL POETRY; SPEAKING, ETHNOGRAPHY OF.

Bibliography. Ruth H. Finnegan, *Oral Literature in Africa*, Oxford, 1970; Jack Goody, *The Myth of the Bagre*, Oxford, 1972; Jack Goody and S. W. D. K. Gandah, eds., *Une récitation du Bagré*, Paris, 1980; Robert Kellogg, "Oral Literature," *New Literary History* 5 (1973): 55-66; Albert Lord, *The Singer of Tales*, Cambridge, Mass., 1960, reprint 1981.

JACK GOODY

ORAL HISTORY

Essentially an account of firsthand experience, recalled retrospectively and communicated to an interviewer for historical purposes. Most practitioners

would also argue that the interview should be recorded on a system of reproducible sound, thus preserving the spoken word as the original historical source. Oral history is a methodology, not a historical subfield such as political, economic, or social history. In its modern form it dates from the late 1940s, when tape recorders facilitated the collection and preservation of oral communications, but it had a number of precursors.

Forerunners

At least since the time of the ancient Greeks, historians have asked participants in past events to communicate their memories as part of the historical record. Although these accounts exist only as documents, many historians accept them as early oral history because they had the clear historical purpose of collecting information that did not exist outside the living memories of participants in the events. An interest in FOLKLORE was part of nineteenth-century romantic nationalism; numerous folk song and folklore groups were formed in Europe and North America. The purpose of these groups was to document and study the traditional and mainly rural societies that had been, or were being, replaced by industrial and urban societies. An interest in music and spoken lore prompted the recording of informants' recollections (see also MUSIC, FOLK AND TRADITIONAL). Similar retrospective evidence can also be found in the publications of early journalistic, sociological, and government inquiries into social and industrial conditions.

Most of these early reports were in the form of written transcripts, but by the end of the nineteenth century actual sound recording became possible and practical. The cylinder phonograph, which recorded sound on wax cylinders, was marketed widely and was used by anthropologists, folklorists, and ethnomusicologists to record recollections and songs that previously had to be laboriously transcribed on paper (see also SOUND RECORDING—HISTORY).

All these precursors of modern oral history had two things in common: informants related personal experiences, and informants were usually ordinary people, particularly working class, ethnic minorities, and underprivileged. This gave oral history a prime locus in those classes and groups in society that, although part of a literate society and even literate themselves, did not leave much documentary evidence of their own creation. If documented at all, they appear through the eyes of their middle-class and upper-class contemporaries. Relative economic, social, and political power affects the access particular groups have to the production and the preservation of documentary sources of all types. The oral communication of remembered experience can be

used to shed new light on events that were distorted by contemporary social prejudice or by political CENSORSHIP. Giving a voice to the voiceless was a strong impulse in the development of oral history.

Modern Oral History

Given its precursors, it is rather ironic that modern oral history started in 1948 at Columbia University with historian Allan Nevins (1890–1971) recording “significant” Americans. This concern with prominent figures was outside the tradition of the American Folklore Society, the Chicago School of sociologists, and the Federal Writers’ Project, which, as with early European work, was most interested in the experience of ordinary people. Nevins wanted to use oral history to supplement a dearth of personal documentation. Prominent people in the twentieth century wrote fewer diaries, letters, and so forth than their nineteenth-century counterparts (*see* DIARY; LETTER). Initially the oral communication was seen merely as a way to produce a document. Although modern American oral history started as a study of elites, it soon returned to its roots and spread in the 1960s as a record of nonelite groups. And although elite groups are still researched, the study of nonelites is now central to oral history throughout the world.

In its present form oral history allows historians to collect data that will illuminate particular subjects or groups about which too little information has survived from other sources. It is an ideal method for studying the recent past of unorganized workers, domestic life, ATTITUDES and IDEOLOGY at the grass roots, the experience of childhood, or indeed any historical dimension of the recent past that can be explored through lived experience. In Europe, for example, it is now virtually the only method of fully exploring the many underground struggles against fascism, because these were by definition clandestine and documented only by their opponents. The method is particularly strong in areas in which life is routine and fixed. Those most skeptical of oral history have been historians and biographers of elites. It has been argued that important figures can be too intent on concealing their mistakes and misjudgments and may be too experienced in avoiding the truth to be good subjects for interview methodology of any description. Nevertheless, even here the advantage of the voice for capturing atmosphere and the quality of relationships, particularly personal ones, is generally acknowledged.

Methodological Issues

Part of the methodological strength of oral history is that the source of the information is known. Also, any relationships between different aspects of experience—for example, between religion and politics,

or social and industrial attitudes—are known and certain because it is the unified experience of one individual. The large numbers of cases necessary to establish such relationships by statistical induction are not required. But accounts do remain individual, and there must be some concern with the degree to which informants’ lives are typical of their time and social location if generalizations are to be made on the basis of oral evidence. Although a BIOGRAPHY or life history can illuminate the wider history of the time, it is possible for it to stand alone as a study of an individual’s development and psychology. History, however, is about social processes, so oral history must be concerned with using individual experiences as one type of evidence in establishing a wider account. As with all historical evidence, it is most illuminating when integrated with other sources. Nevertheless, the most popular disseminators of oral history have been authors (for example, Studs Terkel in the United States) who publish interview extracts with very little comment and little attempt to synthesize the various experiences into a historical account. This approach can be part of a radical/democratic impulse to allow ordinary people to speak with their own voices and not to have their experiences interpreted by another. But the result can be quite conservative: history is presented as a series of self-directing, individual lives without examination of the economic and social processes that shaped them. Individual experience can provide only a partial account of historical change; a great deal of power is exercised beyond the individual at the level of groups and institutions.

The value of retrospective oral evidence is entirely dependent on the accuracy of memory. Psychologists appear to know very little about how the process of remembering the past works or how accurately individuals can recall the previous events of their lives. Most oral historians operate on the commonsense notion that people do remember their pasts with greater or lesser accuracy in different contexts; practical experience has demonstrated to them that useful knowledge can be collected by retrospective interviewing. They are acutely aware of the problems of omission, suppression, and selectivity that may favor a recall of memories of pleasant rather than unpleasant aspects of life. Similar biases can be introduced by life-cycle factors. In basing, for example, descriptions of family history on accounts of the childhoods of elderly informants, one must be aware that it is a child’s-eye view of the period. Many children are unaware of the domestic worries, conflicts, and stresses that must have been experienced by adults of the period. Careful interviewing and informed practice can, however, go a long way toward counteracting these potential pitfalls.

Many oral historians feel that oral history interviews have to be recorded and those records

preserved as the original source. Some feel that typescripts made from the recording contain all the historical information in the recording, but this is disputable. If the recording is erased, there is no proof that the transcription is a full one. A more fundamental objection is that typescripts, however accurate, are not oral. Oral communication is different in kind from written sources; it is richer in communicative power, containing as it does inflections, hesitations, expressions, and nuances that are not easily reproduced in written form. Both the oral and the aural qualities of the historical source may be thought of as part of its distinguishing feature. To accept this final point would, of course, rule out as full oral history any sources predating the mechanical reproduction of sound from wax cylinders—a rigorous position not all oral historians would share.

Oral History and Oral Tradition

It would be artificial to draw too firm a line between oral history and oral tradition, but there are differences. Many nonliterate societies have special remembrancers and storytellers who are the living repositories of all that is known or mythologized of their history. This material presents different problems of authenticity. In going beyond living memory and relying on information that has been transmitted orally from generation to generation and is not part of the direct, lived experience of the communicator, collectors of oral traditions work with data of a different quality from that of direct experience. Such information requires a different methodology for its evaluation and authentication.

See also AUTOBIOGRAPHY; ORAL CULTURE; PERFORMANCE.

Bibliography. Daniel Bertaux, ed., *Biography and Society: The Life History Approach in the Social Sciences*, Beverly Hills, Calif., 1981; David Henige, *Oral Historiography*, London and New York, 1982; *International Journal of Oral History*, Westport, Conn., 1980–; Trevor Lummis, *Occupation and Society*, Cambridge and New York, 1985; Ulric Neisser, ed., *Memory Observed: Remembering in Natural Contexts*, San Francisco, 1982; *Oral History*, The Journal of the Oral History Society, Colchester, Eng., 1972– (now includes *Life Stories/Récits de vie*, Colchester, Eng., and Paris, 1985–); Studs Terkel, *Hard Times*, New York, 1970; Paul Thompson, *The Voice of the Past*, Oxford and New York, 1978.

TREVOR LUMMIS

ORAL POETRY

Poems that are unwritten either because the cultures in which they occur are partially or wholly nonliterate (like the traditional native cultures of Africa,

Australia, Oceania, and America) or because oral forms are cherished despite a population's overall LITERACY. The exact scope of the term is disputed, but it usually also includes POETRY originally composed and performed orally that has reached us through written transmission, like some of the early epics. Some scholars also include poetry transmitted or performed by nonwritten media, such as broadcast performances or modern pop lyrics.

Oral poetry takes many forms. Oral epics are widely found, particularly in Eurasia, from historic cases like the early Babylonian, Greek, and Indian epics to the later Finnish Kalevala and contemporary or near contemporary Asian examples like Kirghiz or Mongol narrative poetry or the modern Indian Pabuji epic. Ballads—shorter or more lyrical narratives—are particularly associated with Euro-American tradition but are found in arguably comparable form in various areas of the world. Panegyric odes are highly developed in Africa and Oceania, while short lyrics seem to be common everywhere, usually as words set to music, among them love lyrics, dancing and drinking songs, topical verse, war songs, laments, and lullabies (*see also* MUSIC, FOLK AND TRADITIONAL; SONG). Some forms do not fit easily into established Western genres: the great Australian Aboriginal song cycles; Polynesian mythological chants; verse set in prose NARRATIVE; dialogue verse; and short forms like spells, curses (*see* INSULT), street cries, or counting-out rhymes.

For a long time oral poetry was considered inferior, partly because of the Western emphasis on WRITING, partly through the various stereotypes that linked orality with “primitive” stages of development or, alternatively, glamorized it by romantic associations with nature or the “folk.” Its study has also suffered by being split among a number of disciplines, each with its own preoccupations and interests. By the 1970s and 1980s it had partly emerged as a subject in its own right, relying on both historical analysis and contemporary field study. Oral poetry is a traditional form of literary expression widely distributed through the world and is now recognized as one important form of human communication.

Composition and Transmission

The genesis and distribution of oral poems have often seemed puzzling because of Western preconceptions about writing as the natural way to formulate and transmit literary compositions. However, much is now known about the processes by which poems are orally composed and communicated.

One process is prior composition followed by transmission through memorization. This was once the favored explanation for all oral poetry, supported by such varied examples as nursery rhymes, English ballads surviving in the Appalachian Mountains, or

the Indian Vedic literature, all known (or claimed) to have come down over centuries. Changes in the text over time were explained by faulty memory. This view was also bolstered by a cluster of ideas that postulated communal or folk composition of oral items followed by long transmission through undifferentiated and uncreative "oral tradition." This generalized model has been queried recently for several reasons: reactions against earlier evolutionist and romanticist assumptions, evidence that memorized transmission is not as well established or widespread as once appeared, and, above all, the discovery of another oral process known as oral-formulaic composition.

The oral-formulaic process depends on creation by the performer during the act of PERFORMANCE. Results from the classic research carried out on Yugoslav traditional narrative poetry in the 1930s showed that oral versions even of "the same" narrative differed extensively because poets varied and, in a sense, improvised their performances according to their own interests and skills and the demands of a particular occasion. What was transmitted was not memorized texts at all but a stock of formulas at every level (from part-lines and sequences right up to major incidents, themes, and narrative patterns) on which poets drew for their own creative performances. This was a truly oral mode of composition-in-performance in which, unlike written texts, there was no concept of a correct version. Each performance was unique and authentic in its own right.

The elucidation of this oral-formulaic process had an immense effect on studies of comparable—or arguably comparable—oral forms throughout the world. Similar approaches have been applied to, for example, Chinese lyric poetry, Xhosa panegyrics, English ballads, Sumatran narrative songs, and blues and chanted sermons in the American South. Oral-formulaic composition has also been detected in historic texts, from ancient Greek and Indian epics to the early English *Beowulf*, Old Testament poetry, Hittite epics, and a range of medieval European poetry. By the 1960s and 1970s this form of composition was accepted as the typical process underlying traditional narrative oral poems, or even behind all oral poetry.

More recently some scholars have argued that, though the oral-formulaic process is indeed common (particularly in lengthy narrative verse), it cannot be assumed to be the only compositional process. Examples of long-considered composition followed by memorized performance have been found in, for example, Africa, Oceania, and native America. Such prior oral composition by reflective individuals working on their own, or in some cases in twos or threes, and separated from the occasion of actual performance contrasts with the composition-in-performance

of the oral-formulaic mode. In other cases composition and transmission and/or performance are split between different agents, or collective performance (as in choral singing) imposes a degree of textual fixity on the joint performers. Such examples have not necessarily displaced the oral-formulaic mode as one important form but have led to further questions about the variety of ways in which composition, transmission, and performance are related in the oral poetic traditions of differing cultures and genres.

Formal Features

Oral poems are not typographically distinguished from PROSE as in written literature, nor is the distinction always made clear in local languages. Many formal features characterize oral poetic forms and signify the artistic (rather than, as once supposed, merely "natural") properties of oral poetry.

First among these are prosodic systems. These are not always based on strict meter, though metrical patternings based on stress or quantity occur in some oral poems (chiefly in the European tradition); in some Asian poetry metrical patternings are based on syllable counting. Other prosodic features may perform much the same function as meter, among them alliteration, assonance, or end assonance (rhyme)—a controversial feature possibly more characteristic of European traditions but also found in, for example, Malay quatrains, medieval Chinese ballads, or Fijian heroic poems. Tone rhyme is a less usual feature but arguably occurs in tonal languages such as Chinese, Burmese, or Yoruba in which tonal patterning may be one of the formal poetic devices particularly effective in oral performance.

Parallelism is another important structural device, a type of repetition with variation in meaning or structure. This is a familiar form in biblical poetry ("Praise him with the sound of the trumpet/praise him with the psaltery and harp" in Psalm 150, for example); in Toda and Navajo poetry or the elaborate South African panegyrics, parallelism is one of the most significant prosodic features. Many subvarieties of parallelism have been distinguished, as well as variations such as chiasmus (cross-parallelism), deliberate change in word order in one of a series of parallel lines, and linking or chain parallelism. In other cases again, parallelism marks larger units such as verses or—a common form—question-and-answer sections in parallel format. The device is so widespread in oral poems that some consider it a characteristic feature of oral poetry.

The language of oral poetry is often distinguished from everyday speech, sometimes to such an extent that poets go through special training to acquire it, as with some Polynesian poetry or West African divination verse. Figurative language is also common,

although its form and incidence vary among genres as well as cultures. It is popular in epic and panegyric; in southern Bantu poems, for instance, the hero is figured as a lion, leopard, storm, whirlwind. Metaphorical expression may underlie the whole structure of a poem, as with many of the overtly "nature" poems in the Polynesian tradition or the "miniature" Somali or Malay lyrics—highly condensed imagery that would surprise those who assume that oral poems must be simple. The complexity is also often heightened by music that sometimes forms one essential element of the poem as well as one of the local criteria for genre differentiation.

These formal features, along with local poetic canons and terminologies, are often taken as indicators of whether a particular case should be classified as poetry. That this is still problematic comes out in well-documented claims that some American Indian narratives are poetry and not, as once assumed, prose and controversies about African epics that turn partly on whether certain forms are prose or poetry (*see also* ETHNOPOETICS).

Whether there is a specifically oral style is another controversy. Some argue that the stress on parallelism, formulas, and perhaps repetition constitutes a defining quality of oral formulation, sometimes linking this with the composer's need to create without writing and the audience's need to understand even without having a text to study. Views about "primitive mentality" or the supposed resistance to change in oral culture are also sometimes drawn on here. Others argue against the existence of any one oral style, pointing to the variation in oral poetry among genres, cultures, and local expectations of audience reactions as well as the interaction and overlap between oral and written forms.

Modes and Contexts of Presentation

Oral poems are more than just texts, for they rely essentially on performance for their realization. The main modes of delivery are the singing, intoning, and spoken voice of one or more performers, sometimes supplemented by instrumental accompaniment. There are also specialized forms such as African drum poetry, in which words are communicated through percussion or wind instruments. It must be stressed here that performance forms an essential rather than (as in the Western written model) a merely contingent part of the oral poem itself.

The audience for oral poems is an essential element as well. There are occasional instances of solitary poetic delivery, but most oral presentations have audiences, who sometimes themselves take an active part in the performance. Thus some oral poems are performed jointly by a participatory group, particu-

larly in work and dance songs and some political and religious poems. Sometimes two groups alternate, taking turns as audience and performer, as with the interchange between relatives of the bride and those of the groom at weddings. In other cases performer and audience roles are completely separate, with the audience only influencing indirectly by its presence and behavior, as with 1930s Yugoslav heroic songs or nineteenth-century Kirghiz recitals. Between these two extremes are many variants in the roles of performer and audience: the exchange between leader and chorus typical of African lyrics; alternating performances by two individuals in Eskimo poetic duels or Polynesian song competitions; the differentiation between primary and secondary audiences when a poem is overtly directed to one party but known to be overheard by others; and a whole range of other variants, not least among them (if we take the widest sense of oral poetry) the distant yet in a sense personal relation between radio or television performer and audience.

The same variety applies to contexts for performance. Contrary to some assumptions, oral poetry is not always equally accessible to all members of a society or necessarily delivered in public. Cultural conventions determine both to whom particular poetic genres should be delivered and by whom. Some is court poetry composed and delivered mainly for the elite, some for specific groups like West African hunting or military societies' songs, some for just men or just women (as performers or audience or both) or particular age groups.

There are also conventions about the appropriate occasions for oral poetry. These vary according to local cultural conventions, but common ones include social occasions when people are relaxing and free of work (perhaps the most common settings for lengthy and specialized verse); work contexts in which poetry (often with music) accompanies such tasks as hoeing, paddling, grinding, or rocking a baby; religious rituals; and the celebration of recognized ceremonial points such as harvest, enthronement, initiation, marriage, or death.

Functions

Given the variety of contexts for oral poems, generalizations about their functions can be misleading. It used to be assumed that the function of oral literature was to uphold the status quo, socialize children into ancestral morals and wisdom, and generally inhibit change. This is sometimes one element, not least in the praise poetry for the powerful, but there are also poems that express rebellion, put pressure on authority, or encourage change. Political and protest songs are common, and even panegyrics sometimes subtly admonish as well as praise. Oral poetry can

also play religious, ceremonial, artistic, and recreational roles for both individuals and wider groups. Indeed, the range of purposes for which it can be used is, like communication itself, almost infinite: to express hostility or love, intensify or resolve disputes, delight, scandalize, distance, worship, heal, innovate, conserve, add solemnity to public occasions, or clothe imagination in beautiful words. Much often depends on the actual occasion and the intentions of audience or performer. A poem can be used in one context to convey one message, in another (or in another listener's ears) for something quite different—a facet well exploited in political poetry. Nor is the element of individual expression by the poet lacking, as is revealed in the many intense love and mourning poems and the lengthy and carefully wrought personal poetry among, for example, the Eskimo, Somali, or Gilbertese.

Future Study

There are many continuing controversies and lines of possible development in the study of oral poetry. Some analysts concentrate on the oral-formulaic approach, stress the insights of ethnopoetics, or explore such approaches as linguistic or structuralist analysis, each with its own implications about the definition as well as the interpretation of oral poetry. Others disagree about the relative attention to be paid to performance as against text or whether to differentiate traditional or folk from other forms or the feasibility of taking a wide definition of oral in order to include both the many cases of overlap with written forms and the modern and arguably oral forms distributed and performed through electronic media. These and similar arguments will no doubt continue, but it can at least be concluded that the older generalizing assumptions about the “artless,” “communal,” or “primitive” nature of oral poetry can now be rejected, and oral poetry can be treated seriously as one of the long-established and still continuing forms of literary expression and communication.

See also ETHNOMUSICOLOGY; ORAL CULTURE; SPEECH PLAY.

Bibliography. Ruth Finnegan, *Oral Poetry: Its Nature, Significance and Social Context*, Cambridge, 1977; idem, ed., *A World Treasury of Oral Poetry*, Bloomington, Ind., 1978; A. T. Hatto, ed., *Traditions of Heroic and Epic Poetry*, London, 1980; Dell Hymes, “In Vain I Tried to Tell You”: *Essays in Native American Ethnopoetics*, Philadelphia, 1981; Albert Lord, *The Singer of Tales*, 1960, reprint Cambridge, Mass., 1981; Felix J. Oinas, ed., *Heroic Epic and Saga: An Introduction to the World's Great Folk Epics*, Bloomington, Ind., 1978; Isidore Okpewho, *The Epic in Africa: Towards a Poetics of the Oral Performance*,

New York, 1979; Jeff Opland, *Xhosa Oral Poetry: Aspects of a Black South African Tradition*, Cambridge, 1983; Jerome Rothenberg, ed., *Technicians of the Sacred: A Range of Poetries from Africa, America, Asia and Oceania*, New York, 1968; Dennis Tedlock, *Finding the Center: Narrative Poetry of the Zuni Indians*, New York, 1972, reprint Lincoln, Neb., 1978; Willard R. Trask, ed., *The Unwritten Song: Poetry of the Primitive and Traditional Peoples of the World*, 2 vols., New York, 1966.

RUTH FINNEGAN

ORATORY

The art of using SPEECH effectively in addressing an audience within political, legal, ceremonial, or religious settings. In the Western tradition of Greek and Roman RHETORIC, oratory is strongly associated with PUBLIC SPEAKING in political and legal settings, and it is defined as the art of getting the audience to take a particular perspective and eventually to accept the speaker's position or resolution on a particular issue (see HELLENIC WORLD; ROMAN EMPIRE). In the anthropological and linguistic literature, oratory also refers to the skillful PERFORMANCE of particular speech genres within ceremonial or magico-religious settings, such as curing sessions, initiation rites, weddings, and funerals. In these contexts the orator's task may include one or more from a variety of functions that range from interpretation of the occasion to creation of a context in which psychological, social, or even physical change can be said to occur. See also HOMILETICS; RELIGION; SPEAKING, ETHNOGRAPHY OF.

Characteristics and Contexts

The LANGUAGE of oratory is usually distinct from other ways of speaking in the same speech community. Oratorical speech tends to make more concentrated use of PROVERB, METAPHOR, parallelism, and repetition than is typically found in most everyday talk. It is, however, difficult if not impossible to predict in any speech community which specific linguistic features will characterize oratorical speech vis-à-vis other verbal genres (see GENRE). Although it is usually possible to distinguish between the language of oratory and that of CONVERSATION, other distinctions are problematic without an understanding of the relationship between oratory and other areas of verbal art, such as POETRY, verbal dueling, singing, and THEATER, within the same community (see INSULT; SONG). In fact, in some cases this very distinction may be questionable, given the interdependence of some of these genres in many communities around the world. Furthermore, despite the expectations of participants in a given social event regarding what constitutes oratorical language, in-

dividual performers often achieve fame by successfully mixing features from more than one genre (e.g., archaic formulas and jokes). Such controlled violations of the audience's expectations can help establish a particular atmosphere that the performer can then exploit for needed theatrical effects. *See also* DRAMA—PERFORMANCE.

The nature of the social activity in which oratory is used also affects both the actual form and content of oratorical speeches and their interpretation by the participants in the event. It is quite common, in fact, for a reflexive relationship to develop between oratory and the social event in which it is performed: the event is defined by the language used, whereas the language is said to be interpreted in light of the larger ongoing activity.

The Work of Orators

Like any other form of communication in any community, oratory is always tied to a tradition that both gives it MEANING and offers a background against which new values and new forms of expression can be tried. The most well-known and respected orators tend to be those individuals who establish a relationship with their audiences by addressing current concerns while at the same time displaying an impressive knowledge of the tradition (e.g., historical facts, myths, proverbs, metaphorical expressions).

For any orator the ability to communicate with an audience is not measured by linguistic skills alone. Knowledge of the appropriate linguistic repertoire and its organization in coherent units of talk must be accompanied by knowledge of effective paralinguistic features (e.g., voice quality, volume, tempo, pauses, and prolonged silence). Furthermore, culturally and situationally appropriate nonlinguistic behaviors, such as body posture, GESTURE, eye gaze, and FACIAL EXPRESSION, must accompany a speaker's verbal performance (*see* BODY MOVEMENT; EYES; FACE). The importance of such nonverbal expertise in a public speaker has long been recognized in the Western tradition of rhetoric, as documented by the special term, *actio*, given by the Romans to the nonlinguistic behavior that was supposed to accompany any public address. The introduction of modern mass media such as film or television can highlight certain aspects of nonlinguistic behavior (for example, facial expression) that could not be detected easily in a public performance in front of a large crowd. *See also* NONVERBAL COMMUNICATION.

Nature of Oratorical Speech

A tradition of oratory has been found in many different types of socioeconomic systems. Oratory has

been documented among both so-called hierarchical and egalitarian societies. Societies vary, however, in terms of how they see the relationship between oratory and power.

Oratory and power. In many communities, such as the ancient Greeks, the Maori of New Zealand, and the Kuna of San Blas (Panama), oratorical ability is considered the entry point into politics, and the skills necessary for publicly addressing an audience are defined as directly linked to the exercise of power. In societies such as Bali and Samoa, however, powerful figures delegate others to speak for them in public, thus retaining the privilege of saving face or in some cases contradicting their spokespersons. Where this complementary model is adopted, such as in Tikopian political meetings (*fono*), the relationship between the chief and his spokesman is a complex one, in which the spokesman may take public blame and lose face on behalf of the chief but will then expect political and economic support from the chief on other occasions. *See also* POLITICAL COMMUNICATION.

The definition of oratory as the art of making any political or judicial decision acceptable to a given audience has been criticized by those social and cultural anthropologists who question the very ability of talk to affect social processes. In particular, the typically formalized and formulaic nature of oratorical speech has been cited as a means of so restricting an individual's choices that it is very difficult to do anything other than reaffirm or celebrate the existing social order. This perspective goes hand in hand with a deterministic view of the relationship between sociocultural context and talk, with the former always affecting the latter but not the reverse.

Oratory as action. Detailed studies of language use in a variety of cultural settings have instead stressed the dialogical, if not dialectical, relationship between speech and its social context. These studies have confirmed that in particular social settings people have to work out conflicts and to achieve an understanding of their own polity through speech. This view originated from an appreciation of words as deeds and not just labels for an already taken-for-granted reality. Many anthropologists, linguists, and folklorists are convinced that the action-producing force of oratorical speeches is also quite common to other uses of language. In particular, participants in conversation routinely employ a range of techniques to ensure preferred interpretations of what they are saying and to establish common ground and alignments with their addressees. It is thus quite common for speakers in all kinds of situations to try to get their audiences to see the world through their eyes, to get others to follow or at least to approve of their conduct. There may be little uniqueness, then, in the orator's use of language to win a case or to be elected,

to celebrate the past and to make it relevant to the present, to play with words and to teach, to create the very context in which a distant or unlikely reality becomes the here and now (see SPEECH PLAY). All of these functions and contexts are in fact part of the inherent multifunctionality of speaking. Why in only some cases these activities would be glossed as oratory by either the participants or the observers is what future research must explain in reconsidering oratory as a universal category.

See also FORENSICS; ORAL CULTURE; PERSUASION.

Bibliography. Roger D. Abrahams, *The Man-of-Words in the West Indies*, Baltimore, Md., 1983; Richard Bauman, *Let Your Words Be Few: Symbolism of Speaking and Silence among Seventeenth-Century Quakers*, Cambridge, 1983; Maurice Bloch, *Political Language and Oratory in Traditional Society*, London and New York, 1975; Donald L. Brenneis and Fred R. Myers, eds., *Dangerous Words: Language and Politics in the Pacific*, New York, 1984; Alessandro Duranti, *The Samoan Fono: A Sociolinguistic Study*, Canberra, Australia, 1981; Laurence Goldman, *Talk Never Dies: The Language of Huli Disputes*, London, 1983; Gary H. Gossen, *Chamulas in the World of the Sun: Time and Space in a Maya Oral Tradition*, Cambridge, Mass., 1974, reprint Prospect Heights, Ill., 1984; Robert Paine, ed., *Politically Speaking: Cross-cultural Studies of Rhetoric*, Philadelphia, 1981; Joel Sherzer, *Kuna Ways of Speaking: An Ethnographic Perspective*, Austin, Tex., 1983.

ALESSANDRO DURANTI

ORGANIZATIONAL COMMUNICATION

The domain of human communication study and practice concerned with relations between communication phenomena and the functioning of those collectivities known as organizations. The field began to take shape in the late 1940s.

Approaches

Historically, specialists in the field have debated whether communication is a central component of the process of organizing or merely one of a number of variables affecting the ways in which an organization functions. Some theorists have proposed that *communicating* and *organizing* are virtually synonymous terms.

Indeed, as early as 1938 it was the businessman-turned-theorist Chester I. Barnard who declared in his classic treatise *The Functions of the Executive*: "In an exhaustive theory of organization, communication would occupy a central place. . . ." A more definitive statement appeared in 1951 when Alex Bavelas and Dermot Barrett, social scientists at the Massachusetts Institute of Technology, argued that communication, rather than being a "secondary or

derived aspect of organization," should be regarded as "the essence of organized activity" and the most basic process to be studied if one is to understand organizational phenomena. This view was supported by such other communication scholars as Lee Thayer in the 1960s, Leonard Hawes in the 1970s, and Phillip K. Tompkins in the 1980s. Most behavioral scientists, however, have perceived communication as an independent, dependent, or intervening variable alongside other variables, such as organizational structure, technology, leadership style, working conditions, motivation, and the like. Communication specialists during the 1950s and 1960s tended to follow this trend as they examined the relationships between communication behaviors and such variables as job satisfaction, employee morale, group decision making, absenteeism, attitudes toward supervisors, and various indicators of productivity.

The view that puts communication at the center of organizational dynamics is still being challenged. However, the general premises underlying this position have become sufficiently influential that researchers are inclined to qualify carefully their use of the conventional constructs of organization theory: upward-downward-lateral, internal versus external, formal versus informal, tall versus flat, span of control, group decision making, performance appraisal, management by objectives, supervisory leadership, and so on.

Issues

Although in theory it would be fruitful to apply the concepts of organizational communication to the study of such entities as the family or the bowling club, virtually all systematic research in the field has been focused on formally designated and formally structured collectivities: business firms, government agencies, the army, voluntary associations, labor unions, religious organizations, academic institutions, and so on. This means that such aggregates as concert audiences, street-corner crowds, mobs, bus passengers, and spectators at athletic contests are customarily perceived as lying outside the purview of organizational communication. However, even though formal organizations have almost always provided the context of research, a major concern has been the innumerable ways in which informal (i.e., unofficial) groups and subunits within the larger, formal entity originate, function, and exercise influence on the formal organization. Indeed, the formal/informal dichotomy has been a persistent research theme. It can be applied not only to groups and channels but also to media (e.g., formal written reports versus conversations on the golf course), message formats (e.g., typed letters on official letterhead versus handwritten notes on scratch paper), and mes-

sages themselves (e.g., official pronouncements versus rumors).

In addition to the formal/informal distinction, there is also the troublesome internal versus external dichotomy. Traditionally the academic study of organizational communication has focused on the so-called internal phenomena, those communication events and behaviors thought to take place within the boundaries of an organization. This posture typically has resulted in the exclusion from study of such subjects as PUBLIC RELATIONS, ADVERTISING, and public affairs on the grounds that they belong under external communication. In the 1980s scholars were being urged to avoid such rigid compartmentalization and to recognize the artificiality of the external/internal dichotomy. Unfortunately most textbook definitions of organizational communication have continued to reflect the concentration on so-called internal phenomena, and research studies have continued to be framed within this traditional context.

Criteria Attributes of Organizations Used in Research

Organization theorists have found it difficult to define any universal set of attributes characterizing all organizations. However, it has been possible to identify a limited number of characteristics found in almost all *complex* organizations. One way to define a large, complex organization is to describe it as being of such size that it is no longer possible for all members to communicate, at any desired time and face to face, with all the other members. Within this framework scholars have perceived the following attributes as inherent in complex (especially large) organizations and have defined their research problems accordingly.

Interdependence. Whether an organization is defined in terms of human beings or of activities, the members or "units" are related in such a manner that no single component is a completely free agent. According to the general systems paradigm (dominant in the field during the 1960s and thereafter), any change in one part of the organization will produce changes in other parts. Reciprocity and circularity of causal chains must therefore be expected when examining so-called causes and effects of communication in an organizational context. For example, investigators have considered whether being informed leads to higher productivity in employees, whether more productive employees are ones who seek out more information, or whether a self-accelerating positive (response-enhancing) feedback loop is being enacted.

Differentiation of tasks and functions; division of labor. Under this heading fall such phenomena as

specialization (of jobs, skills, knowledge, etc.), departmentalization (based on purpose, technology, location, etc.), and line versus staff distinctions. The classic account of specialization is Scottish economist Adam Smith's description of a pin factory in *Wealth of Nations* (1776). Functional differentiation is one of the basic forces behind the creation of various groups within the organization, some official (formal) and many more unofficial (informal): work groups, task forces, interest groups, committees, coalitions, cliques, leagues, and so on. Communication researchers have investigated such topics as semantic barriers, intergroup rivalries, and group dynamics as corollaries of the differentiation principle.

Goal orientation or purposiveness. No organization is a random aggregate of persons and activities. Although any organization exhibits a multiplicity of goals—including frequent conflicts between officially espoused objectives and goals being pursued by various subunits—and although goals are commonly stated in vague or ambiguous terms, all organized activity is in some sense purposive. The formulation, statement, and dissemination of goals represent important research problems in organizational communication.

Control mechanisms: hierarchy of status and authority. No coordination of effort can be accomplished without some sort of centralization; this means a minimum of two hierarchical levels. Many organizations are tall, pyramidal structures featuring layer upon layer of supervisors and managers; others are described as flat. Tall structures imply short spans of control; flat structures imply broad spans of control (span of control is, of course, a communication construct). The fact of hierarchy is not nullified by various power-sharing or delegation schemes, such as matrix structures, temporary task groups, labor-management teams, and the like. Even when work groups select their own supervisors on a rotating basis, such supervisors—while they occupy the position—still exercise hierarchical authority.

If one were to designate a single area in this field as the most intensively researched, it would almost surely be superior-subordinate (or management-employee) communication—the so-called vertical dimension. This orientation has accounted especially for a substantial corpus of research dealing with a wide range of topics subsumable under the rubric *communication climate*. A review of the climate literature shows the research findings largely clustered under five major dimensions, each hypothesized as contributing to organizational effectiveness: (1) a "supportive" style of supervisory/managerial leadership; (2) the use of participative decision making; (3) high levels of trust, confidence, and credibility (applicable in a reciprocal sense in both vertical and horizontal channels); (4) openness and candor, with

particular focus on “upward” and “downward” communication; and (5) emphasis on high performance goals.

Control mechanisms: plans, policies, regulations, rules, premises, and role prescriptions. Whereas hierarchical controls are associated with persons exercising directive powers, these other forms of control gain their force by being incorporated into the basic structure of the organizational culture. Every member of an organization has at least one position or role, and much of his or her behavior (especially communication) is governed by the expectations and prescriptions attached to these roles. In other words, organizational members are ipso facto agents of the organization, and their communication behavior can reflect this fact.

Categories of Organizational Theory

Just as researchers have used different definitions of organization, so they have also used different theories of the organization to guide their work. To some extent the model chosen influences the categories of topics that are studied and the research techniques that are used.

The received model. The five criterial attributes described above represent basic premises of what may be called the received model of organizational functioning. It is grounded in the assumption that an organization is essentially a control system designed to increase the predictability of results. Subsumed under this model are two variants. The first is characterized by a focal concern for *control, productivity, and efficiency*, and the second by a focal concern for *human relations, human resources, and participation* (but all in a control frame of reference).

Investigators associated with the first variant typically study such phenomena as “information adequacy” (who receives what information, from what sources, at what times, with what effects); fidelity and distortion in message transmission; mass media (e.g., employee magazines); downward, upward, and horizontal channels; and communication skills. Those associated with the second variant have dealt with such topics as supervisory/managerial styles of communication (especially supportive versus nonsupportive); job satisfaction, “communication satisfaction,” and morale; conflict resolution, including management-union *BARGAINING*; trust and confidence; and openness, including two-way feedback, reciprocity, self-disclosure, and candor.

Network analysis. Another research tradition in organizational communication incorporates some elements from both variants of the received model but also adds an important frame of reference: general systems theory (including its close relatives, *INFORMATION THEORY* and *CYBERNETICS*). This tra-

dition is identified with the study of *communication networks*. Concepts typically encountered in *NETWORK ANALYSIS* include unofficial versus official (i.e., organization chart) channels; patterns of centralization versus decentralization (centrality and peripherality); one-way versus reciprocated channels; network roles, such as liaisons, isolates, and bridges; and the creation of cliques. Network specialists stress the study of relationships rather than psychological variables; their vocabulary features terms like *input, throughput, output, and feedback loops*.

Political framework. This approach represents a radical departure from both variants of the received model and from network analysis. It posits the organization as a *political* entity—politics taken in the fundamental sense of the manipulation of power. Theorists adopting this view take a special interest, for example, in groups striving to gain power; hence they are concerned with coalitions and power tactics, including especially intergroup negotiation.

Interpretive or cultural paradigm. This approach, which emerged during the early 1980s, draws heavily on anthropological concepts and methods. Its central concerns are with symbolism, *LANGUAGE*, socially constructed reality, and shared meanings. Hence investigators commonly deal with such phenomena as *RITUAL, METAPHOR, stories, myths, and ideologies*.

The study of organizational communication has continued to be marked by contrasts. Many texts used in the field are written by managers, staff specialists, corporate editors, and others, who often focus on solutions to practical problems, such as how to conduct an interview or how to motivate subordinates. At the other extreme are academicians emphasizing theory and research. Their studies typically utilize constructs derived from organization theory and the social sciences, combined with concepts commonly regarded as components of communication theory. The 1970s and 1980s have also seen the rise of critics who argue that traditional concepts of organization theory have seriously crippled attempts to understand communication in organizations. Especially since the early 1970s the volume of research has grown dramatically. But it is clear that the field is far from finding consensus around a central, defined body of knowledge.

See also *GROUP COMMUNICATION*.

Bibliography. Carroll C. Arnold and John Waite Bowers, eds., *Handbook of Rhetorical and Communication Theory*, Boston, 1984; Samuel B. Bacharach and Edward J. Lawler, *Power and Politics in Organizations*, San Francisco, 1980; Chester I. Barnard, *The Functions of the Executive*, Cambridge, Mass., 1938; Marvin D. Dunnette, ed., *Handbook of Industrial and Organizational Psychology*, Chicago, 1976; Howard H. Greenbaum, Raymond L. Falcione, and Susan Hellweg, eds., *Organizational Communication: Ab-*

stracts, Analysis, and Overview, Vol. 9, Beverly Hills, Calif., 1984; Louis R. Pondy, Peter J. Frost, Gareth Morgan, and Thomas C. Dandridge, eds., *Organizational Symbolism*, Greenwich, Conn., 1983; Linda L. Putnam and Michael E. Pacanowsky, eds., *Communication and Organizations: An Interpretive Approach*, Beverly Hills, Calif., 1983; W. Charles Redding, *Communication within the Organization*, New York and West Lafayette, Ind., 1972; Everett M. Rogers and D. Lawrence Kincaid, *Communication Networks*, New York and London, 1981; Edgar H. Schein, *Organizational Culture and Leadership*, San Francisco, 1985; Lee Thayer, *Communication and Communication Systems*, Homewood, Ill., 1968.

W. CHARLES REDDING

OSGOOD, CHARLES (1916–)

U.S. psychologist whose writings—especially *The Measurement of Meaning* (1957) and *The Cross-Cultural Universals of Affective Meaning* (1975)—brought new insight into the meaning of MEANING and shed light on both the nature and the mechanism of human LANGUAGE behavior. Born in Somerville, Massachusetts, Charles Egerton Osgood received an A.B. from Dartmouth College in 1939, a Ph.D. from Yale University in 1945, and a D.Sc. from Dartmouth in 1962. He served as director of both the Institute of Communications Research and the Center for Advanced Study at the University of Illinois. He is widely known as a distinguished psycholinguist, cross-cultural psychologist, and critic of nuclear diplomacy by the superpowers. His reputation reflects the three interests that developed during his undergraduate days at Dartmouth and have continued throughout his life, with roughly equal emphasis: (1) psycholinguistic research and theory, (2) cross-cultural research on affective meaning and attribution of feelings, and (3) psychosocial dynamics and the prospects for humanity.

Osgood is most often associated with his work on the measurement of meaning and the SEMANTIC DIFFERENTIAL method. He assumed that meanings of words are mediated internal reactions to objects of judgment that can vary consistently in a limited but still unknown number of dimensions. Building on these assumptions, he developed a psychological theory of meaning that he named “affective meaning” and constructed a psychological measuring instrument termed “semantic differential” with which affective meanings can be quantitatively measured and analyzed. A typical semantic differential consists of both a set of concepts to be judged and a set of bipolar seven-point scales on which meanings of the concepts are rated. Each scale is defined by two qualifiers having opposite lexical meaning, such as good and bad, large and small, fast and slow. Subjects rate each concept on a set of bipolar scales, and

the generated “cube” of data is submitted to a statistical analysis, for which the logical-mathematical tool is factor analysis. Using the factor-analytic method, Osgood discovered that three dimensions, or factors, keep appearing, with a number of scales almost always loading high on the same factor, “clinging” to one another. This proved true despite differences in sex, age, culture, and language of subjects. Osgood named the three most salient factors *evaluation*, represented by such scales as good-bad and beautiful-ugly; *potency*, represented by such scales as strong-weak and large-small; and *activity*, represented by such scales as fast-slow and active-passive.

Osgood called this multidimensional structure of meanings a “semantic space” and showed that meanings of concepts can be allocated in such a semantic space along the evaluation, potency, and activity dimensions. In extensive cross-cultural field research in more than twenty countries Osgood and his colleagues were able to demonstrate the cross-cultural universality of such semantic spaces, or the generality of “affective meaning systems,” according to which people judge various concepts. In general, Osgood’s work on affective meaning systems profoundly altered the traditional, mentalistic views of meaning. Although his particular conceptualization of meaning is still subject to challenge, his continued cross-cultural work has provided evidence that meanings can be viewed as an important psychological process playing a central role in human language behavior and, most important, that the “structure” of meaning systems is universal to all humans (see LÉVI-STRAUSS, CLAUDE).

Osgood is also widely known as a pioneering psycholinguist. His contributions in this area, both theoretical and empirical, are often associated with his modeling of an intrapersonal communication process. In order to elucidate the complexity of human language behavior, Osgood developed a multistage model of human information processing, following CLAUDE SHANNON’S contribution to INFORMATION THEORY. Osgood posited four basic stages in this model, each stage corresponding to a particular type of information processing in humans: *sensory recoding* (perceiving), *decoding* (interpreting), *encoding* (intending to act), and *motor recoding* (responding). According to Osgood’s model, meanings of signs (see SIGN) are considered to be a psychological phenomenon that mediates decoding (input) and encoding (output). Meanings of a particular sign are thus taken at once as an internal response at the destination of information to the brain and as an internal, mediated stimulus at the source of information from the brain. Any overt response to the given sign is elicited by the internally mediated stimulus. This shorthand model of human information processing has proved useful for describing a decision-making process in groups as well as in individuals. For example, U.S. political

scientist Robert North derived a model for international foreign policy decision making from Osgood's psycholinguistic model.

Osgood's devotion to the study of human communications, coupled with his deep personal concern for humanity in the nuclear age, led him to develop a psychopolitical theory to provide a way for both the United States and the Soviet Union to step down their nuclear arms escalation. In *An Alternative to War or Surrender* (1962) he named this psychopolitical theory GRIT (graduated reciprocation in tension-reduction). Although the GRIT theory was originally intended to avoid a major nuclear war between the two superpowers, its applicability has proved so universal that it has been borrowed by scholars in other disciplines as well—by political scientists dealing with the dynamics of domestic as well as international conflict and the strategy for its resolution and by sociologists and psychologists coping with the pathology of and cures for serious disputes in family, racial, labor, and other interpersonal and intergroup relations.

YASUMASA TANAKA

OZU, YASUJIRŌ (1903–1963)

Japanese film director. Yasujirō Ozu was the creator of fifty-four films (of which thirty-two remain extant) devoted almost entirely to the GENRE the Japanese call home drama. Considered in Japan "too Japanese" for export, his films were for a long time little known to audiences elsewhere. But the minuteness and subtlety with which he examined the conflicts of the home eventually won him worldwide attention and honors. The ordinary home drama wanted only a little smile, a few tears, and a warm feeling on leaving the theater. Ozu desentimentalized the genre, stirring deep emotion, real smiles, real tears. The problems of the Ozu home drama are always pertinent and important: the tensions created by the old and the new, loving clashes between the generations. Ozu's pictures were always about the FAMILY (or the Japanese family surrogates, the SCHOOL and the office), but they show this family in dissolution. Ozu is the poet of social transition.

At a time (roughly the two decades following

World War II) when the Japanese audience wished itself to be shown as it was rather than as it wished to be, the films of Ozu were very popular. He reflected his audience's dilemma, faced with both new and old, and suggested (in a manner exasperating to some, inspiring to others) that one could have sympathy with both. This postwar audience did not know it was viewing high art—Ozu being an artist whose art hides art—but viewers recognized their own lives. Once a new affluence arrived and the old ways vanished, a new generation found Ozu old-fashioned. Yet succeeding generations find in these films a wonderful lost world and discover a precision of observation, an economy of means, that has made Ozu something of a cult figure for contemporary filmgoers in Japan and elsewhere.

Just as Ozu limited what he showed, so he limited how he showed it (*see* FILM EDITING). The celebrated Ozu style (invariable camera placement; almost invariable camera immobility; the straight cut as the only cinematic punctuation; a typical and invariable method of construction in which, for example, sequences are separated by "placing" shots; a very controlled use of film space) is based on limitation. What is shown is what is necessary.

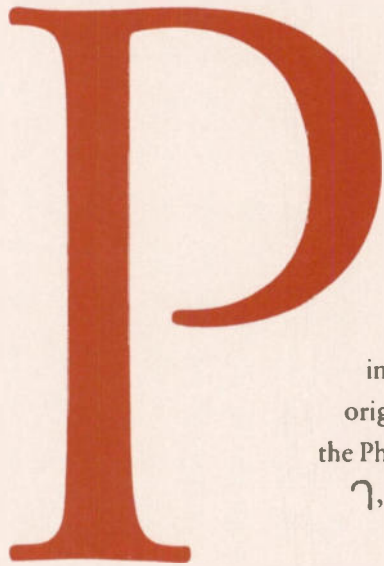
This extreme economy is the frame, as it were, that sets off the Ozu character, who emerges all the more human because of his or her "geometrical" setting. Given Ozu's genius for characterization, the father in *Banshun* (Late Spring, 1949), the daughter-in-law in *Tokyo monogatari* (Tokyo Story, 1953), and the mother in *Hitori musuko* (The Only Son, 1936) remain unforgettable. These people are not controlled by plot; rather, they seem controlled by life. Ozu disliked plot and said that to "use" people in this way was to "misuse" them.

Within the extraordinary economies of the Ozu film (each filmed in the same way, all with similar stories and similar titles, often using the same actors) one finds a freedom rare in cinema. As in other forms of art, it is the restriction that in part creates this flowering.

See also MOTION PICTURES—SOUND FILM.

Bibliography. Donald Richie, *Ozu*, Berkeley, Calif., and London, 1974.

DONALD RICHIE

A large, bold, red capital letter 'P' is positioned on the left side of the page. It has a classic serif font style with a thick vertical stem and a curved top that ends in a small hook.

(*p̄i*), the sixteenth letter of the alphabet in English and other modern languages, was the fifteenth in the ancient Roman alphabet, corresponding in position and value to the Greek *pi*, π, Π, earlier Π, Ϝ, originally written from right to left Ϝ, and identical with the Phœnician and general Semitic *pi*, forms of which were Ϝ, Ϝ. During its whole known history the letter has represented the same consonantal sound. . . .

PALEY, WILLIAM (1901–)

U.S. broadcasting executive. William Paley, the son of a wealthy cigar manufacturer, purchased a small and shaky RADIO chain in 1928 and transformed it, through more than a half-century of explosive growth and complex technological change, into a major communications empire. When he bought it the chain was less than two years old, had had several names and owners, and had consistently lost money. One of the short-term owners, the Columbia Phonograph Record Company, had given it the name "Columbia." Paley took it over at a moment when it could not meet its forty-thousand-dollar bill from AT&T for cable connections. Always a shrewd, imaginative negotiator, Paley persuaded Paramount to become a 49 percent owner of the Columbia Broadcasting System (CBS) and to help him challenge the MONOPOLY position of the National Broadcasting Company (NBC), which had been founded in 1926. A few years later, when Paramount was in trouble and CBS was not, Paley bought back the Paramount interest. During the 1930s he persuaded stations throughout the country to become affiliates of the network, in part by offering them free programs in exchange for rights to broadcast CBS's commercially sponsored shows at specified hours. The affiliates gained programs too expensive to be produced locally, and CBS could promise advertisers a national audience during peak hours.

Though NBC remained dominant in audience ratings (see RATING SYSTEMS: RADIO AND TELEVISION) until the late 1940s, when Paley lured away some of its most popular entertainers, including Jack Benny and "Amos 'n' Andy," CBS garnered wide praise for its offerings in music, radio drama (e.g., Norman Corwin, ORSON WELLES), and especially the news. CBS's Edward R. Murrow, a widely respected journalist, vivified the European war for U.S. audiences in the 1940s and helped expose the excesses of Senator Joseph McCarthy in the 1950s.

Yet CBS was not without its controversies. McCarthyism influenced talent selection there as at other networks; QUIZ SHOW scandals eroded public faith; Murrow lost favor with his bosses and found himself interviewing celebrities. CBS nevertheless held public favor with enormously successful shows ranging from "I Love Lucy" in the 1950s to "All in the Family" in the 1970s.

As CBS consolidated its successful expansion into television and a variety of other profitable ventures, Paley continued to delegate significant authority without relinquishing control over the entire operation. In the 1970s the holdings included a major recording subsidiary, publishing ventures, a toy-maker, and several companies that manufactured musical instruments. In 1978 CBS registered sales of more than \$3 billion, a tribute in part to the business

skills and political instincts of its presiding officer. Paley remained an offstage force even after he reluctantly retired. His career spanned more than fifty years of media history, an era commemorated in the Museum of Broadcasting, an institution he helped found and finance.

See also SPONSOR; TELEVISION HISTORY; TELEVISION NEWS.

D. L. LEMAHIEU

PALIMPSEST

Parchment manuscript from which the writing has been removed so that the surface can be reused. The term is from the Greek for "scrape again." Parchment, among the most durable of WRITING MATERIALS, could stand up under repeated scrapings and was costly enough to encourage the practice. It apparently began in the first century C.E. and continued through the MIDDLE AGES. In the process writings no longer considered important were obliterated—or partly so—to make way for other writings. It has been of interest to historians that removals were seldom perfect; traces of earlier writings could often be discerned and could sometimes be made legible by chemical or optical means. In some cases historians found the unsuccessfully obliterated material more interesting than the superimposed writing. The removals also gave some insight into historical shifts in interests and values.

The term *palimpsest* has been taken over in the art field for a canvas or panel on which a painting has been painted over another painting. Again tech-



Figure 1. (*Palimpsest*) An example of a palimpsest. M. 786, f.4v. The Pierpont Morgan Library, New York.

nical procedures, such as X rays, can often make the underlying material visible. These techniques hold special interest and financial importance when, for example, a work ascribed to the seventeenth-century Dutch artist Frans Hals is found to have underneath it a portrait of Queen Victoria. *See* FORGERY, ART.

WILBUR SCHRAMM

PAMPHLET

A nonserial publication, written for a general audience and not originally intended for permanent preservation. The pamphlet has rarely been studied as a medium of communication in its own right, partly because of the difficulty of distinguishing it from other genres of printed material such as books and broadsides (*see* BOOK). The lack of a precise definition is reflected in the numerous synonyms used interchangeably to describe such publications: brochure, tract, libel, booklet, and so on. Many definitions have limited the term to unbound works of a certain length, generally not more than one hundred pages, while others stress the essentially ephemeral nature of the pamphlet rather than its size. The term is most commonly applied to polemical publications, intended to persuade readers and rouse them to action, but it is sometimes also used for informational works meant to be disposed of after use, such as the leaflets given out by organizations like the U.S. Department of Agriculture. The difficulties in defining what is meant by a pamphlet make it equally difficult to measure the number that have been printed over the centuries, or even in distinct periods such as the French Revolution.

The term *pamphlet* was used as early as 1344 to refer to short manuscript works, but with the invention of PRINTING it became restricted to published texts. Wars and political controversies inspired early pamphlets. The Protestant Reformation was the first great social upheaval in which pamphlets played a central role; within a few years of MARTIN LUTHER'S denunciation of indulgences thousands of titles had appeared. The pamphlet remained the leading medium for religious and political controversies throughout the next three centuries. Events such as the Thirty Years' War, the English Revolution, the wars of Louis XIV, and the American Revolution all occasioned floods of pamphlet literature, and the French Revolution inspired what was probably the greatest outpouring of all.

With that REVOLUTION and its destruction of traditional CENSORSHIP systems, however, the pamphlet found itself outstripped by a rival medium, the periodical. Newspapers and magazines, which could create a continuing bond with their readers and which offered publishers a much better chance of recovering their expenses, came to overshadow pam-

phlets in the Western world during the nineteenth century (*see* MAGAZINE; NEWSPAPER: HISTORY). Even so, the number of pamphlet publications remained substantial. In an analysis published in 1796 the French revolutionary politician Pierre-Louis Roederer explained the pamphlet's decline by noting that its impact was explosive but generally short-lived, in contrast to the more continuous and predictable impact of the periodical and the slow, unpredictable, but sometimes very durable effect of books. This punctual impact became one of the pamphlet's handicaps. Increasingly, success in political controversies depended on being able to keep one's troops together over a long period of time, and the periodical served this purpose much more effectively. As formal constitutional safeguards permitted wider uses of the periodical in most Western countries, the polemical pamphlet declined in significance. The distinction between pamphlets and other media became blurred, too, as it became more common for pamphlets to be nothing more than a collection of reprinted newspaper or magazine articles.

Even as the polemical pamphlet gradually sank from sight, the informational pamphlet continued to appear in large numbers. Some, such as the short tracts published by the Methodists and other religious movements, were produced by private groups; others were put out by government ministries and agencies. In the twentieth century commercial enterprises issued many publications that can be considered informational pamphlets. In addition to publicizing ideas, advice, or products to the general public, pamphlets in the modern world often serve to maintain internal communication within large organizations. Thus the pamphlet versions of the works of KARL MARX, V. I. Lenin, and Mao Zedong distributed to members of radical groups during the 1960s functioned to maintain ideological consensus within the group rather than to spread the gospel to outsiders.

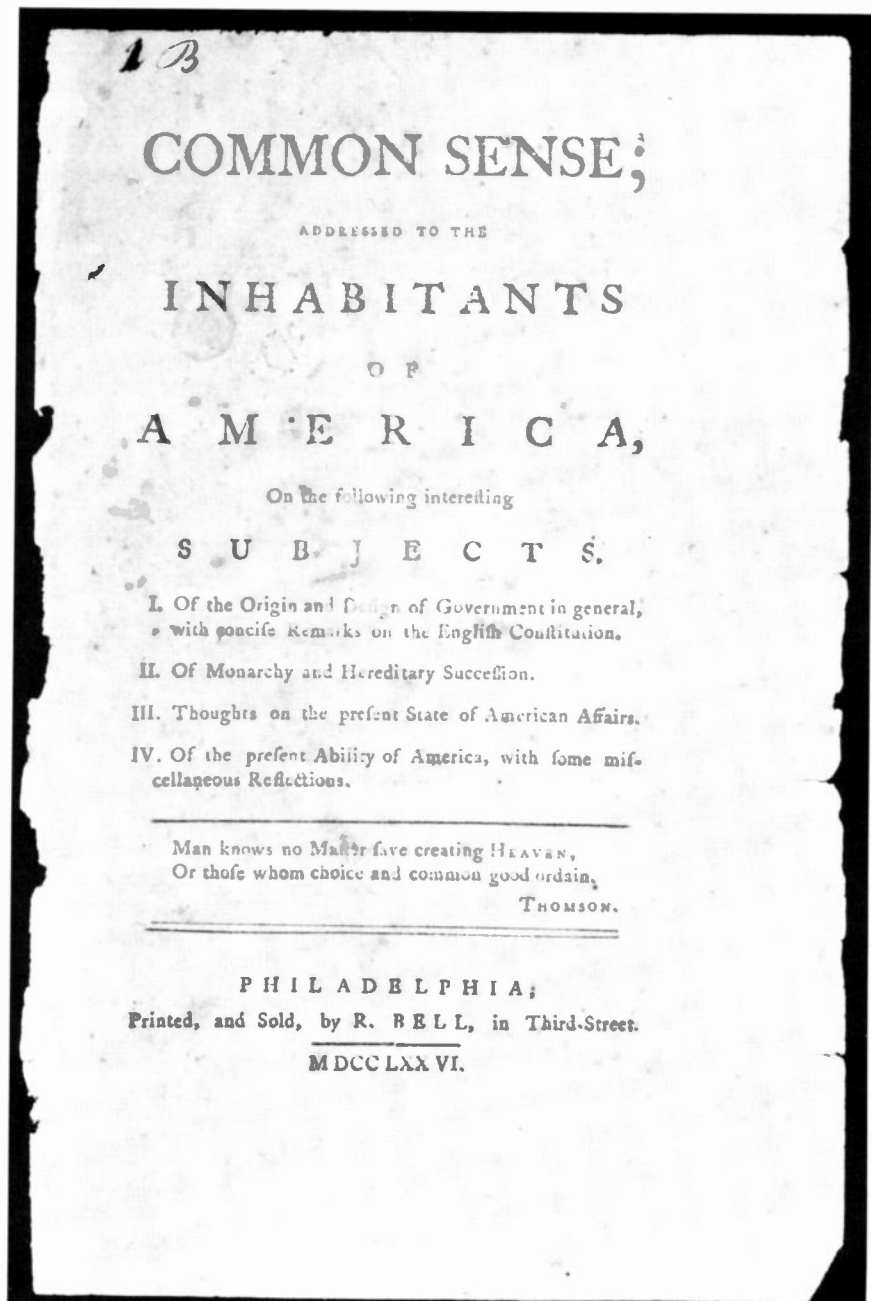
Although pamphlets have often been interpreted as direct expressions of PUBLIC OPINION, in fact they have normally been the products of professional writers and probably served more to mold and manipulate opinion than to represent it. Pamphlet authors have included many of the great writers of the past five centuries, such as Luther, JOHN MILTON, Jonathan Swift, Voltaire, and Marx, as well as agitators who produced pamphlets almost exclusively, such as Thomas Paine and the Abbé Sieyès. Not all pamphlet texts originated as written works; many were transcriptions of sermons or political speeches. Many pamphlets are anonymous or pseudonymous, and in any event, even when written by celebrated authors, pamphlets often reflected the views of organized parties or interest groups more than those of the individuals who put the words on paper; they were rarely the direct result of a heartfelt individual impulse for

expression. A few pamphlets, such as Swift's *A Modest Proposal*, have achieved the status of literature in their own right, but the vast majority have been forgotten once the controversy that inspired them ended.

In every age the essence of the pamphlet was to be easily readable, so that its message could be communicated to as wide an audience as possible. Pamphlet language was normally clear and simple, eschewing obscure words and complex ideas, although pamphlets have always been influenced by the literary style of their day (see *STYLE, LITERARY*). Thus seventeenth-century German pamphlets against

Louis XIV imitated the baroque literary style of the period, while Paine employed a simpler, more direct language characteristic of the American world of his day. Pamphlet language was often freer than that employed in other media. The rhetorical violence of Luther's Reformation pamphlets is well known, and the scandalous *libelles* that helped undermine the French monarchy in the eighteenth century used obscenity to discredit high-ranking political figures like Marie-Antoinette. Some pamphlets of the premodern era employed woodcuts or engravings to illustrate their message, but more typically they lacked illustrations and such common features of books as tables

Figure 1. (*Pamphlet*) Thomas Paine, title page of *Common Sense*, 1776. American Philosophical Society Library, Philadelphia.



of contents and indexes. Modern informational pamphlets, benefiting from more sophisticated printing technology, are more likely to have such features.

Production of pamphlets has never required special printing technology; any publisher capable of putting out books, magazines, or ordinary job printing has been capable of printing pamphlets. In view of their direct connection with current events, polemical pamphlets were ordinarily printed in haste, with little concern for typographical exactitude or style. Up to 1800, when mechanically powered presses began to replace the wooden handpress, print runs of pamphlets rarely exceeded two or three thousand copies, but a successful pamphlet would be reprinted in multiple editions, often in cities far removed from its place of origin. Pamphlets might be distributed by booksellers or by itinerant vendors or colporteurs who specialized in the dissemination of these easily transportable works. The authors and publishers of polemical pamphlets were normally more concerned with getting their message across than with making a commercial profit. Pamphlets, often subsidized by interested parties, were frequently given away, or, if they were sold, the distributor rather than the publisher often kept the money.

Pamphlets, as George Orwell noted in an essay on the subject, were uniquely suited to the conditions of Europe in the early modern period, when systems of censorship restricted writers' freedom without really abolishing it as in modern totalitarian systems. Easy to produce, pamphlets were hard to control, whereas periodical publications were compelled to offer readers some clue about the publisher's location so that they could subscribe for future numbers and were therefore easier for government officials to supervise. Despite formal censorship restrictions, pamphlets actually circulated fairly freely in most of the Western world in the centuries before 1800; indeed, many ostensibly clandestine publications actually had tacit permission to circulate or were even produced with government assistance.

Historians have credited specific pamphlets or waves of pamphlet literature with considerable impact on a number of movements, primarily in the early modern period. Luther and other Protestant pamphleteers presented their theological ideas in clear, simple language in their short works, making them accessible to a broad audience, and Paine's *Common Sense* decisively changed the nature of the debate about the goals of the American Revolution. But recent historical research has underlined the fact that pamphlets do not act in a vacuum; their success depends on appealing to favorable predispositions in their audience and on reinforcement through direct social contacts.

Although pamphlets are by their nature ephemeral literature, intended to be discarded when the context in which they were written has changed or when the

information they purvey is no longer relevant to the individual reader, they have attracted collectors from early times, as the massive holdings of major research libraries, some of them assembled as early as the seventeenth century, demonstrate. Pamphlet literature has posed major challenges of cataloging and preservation for librarians, who have been virtually the only group to study and write about the GENRE systematically. Catalogs of major pamphlet collections, such as Knuttel's guide to the Dutch pamphlets in the Royal Library of The Hague or the Martin and Walter index to the Bibliothèque Nationale's French revolutionary pamphlet holdings, have been both triumphs of bibliographic industry and invaluable research tools for historians. Librarians have been acutely aware of the difficulty of staying abreast of current pamphlet literature, however. In contrast to books and periodicals, the vast flood of informational pamphlets that continue to appear in modern societies is almost impossible to trace; they constitute a virtually unnoticed and unstudied medium of communication.

Although often ignored in communications studies since World War II—the term does not even appear in the indexes of most U.S. mass communications textbooks—the pamphlet genre has proved adaptable enough to remain in existence from JOHANNES GUTENBERG's day to the present. While their present-day impact is difficult to measure, pamphlets remain a significant presence on the communications scene.

See also ARCHIVES; COPYRIGHT; GOVERNMENT REGULATION; LIBRARY; LITERACY; NEWSLETTER; PROPAGANDA; PUBLISHING.

Bibliography. Bernard Bailyn, *Ideological Origins of the American Revolution*, Cambridge, Mass., 1967; Lester Condit, *A Pamphlet about Pamphlets*, Chicago, 1939; Erich Everth, *Die Oeffentlichkeit in der Aussenpolitik*, Jena, 1931; Christian Jouhaud, *Les Mazarinades*, Paris, 1985; H. J. Kohler, ed., *Flugschriften als Massenmedium der Reformationszeit*, Stuttgart, 1981; George Orwell and Reginald Reynolds, eds., *British Pamphleteers*, 2 vols., London, 1948, 1951; Pierre-Louis Roederer, "Essai analytique sur les divers moyens établis pour la communication des pensées entre les hommes en société" (1796), *Oeuvres* 7 (1859): 84–87.

JEREMY D. POPKIN

PAPER. See BOOK; PRINTING; WRITING MATERIALS.

PARK, ROBERT (1864–1944)

U.S. sociologist. Born in Pennsylvania, Robert Ezra Park grew up in Red Wing, Minnesota, where his family moved after he was born. He went to the University of Minnesota for a year, then to the University of Michigan, where he was taught by JOHN DEWEY. Park, along with Dewey, became interested

in a proposal for a new kind of newspaper, to be called "Thought News," which would report fluctuations in popular opinions as other newspapers reported changes in the stock market. The plan was abandoned, but Park remained interested in PUBLIC OPINION throughout his career.

After graduating from the University of Michigan, Park spent eleven years as a newspaper reporter for dailies in Minneapolis, Detroit, Denver, New York, and Chicago. This experience provided a solid basis for his later theoretical work on the mass media.

In 1898 he left journalism to enter Harvard University as a graduate student. There he studied psychology with Hugo Münsterberg and philosophy with WILLIAM JAMES and Josiah Royce. After receiving an M.A. in 1899, he moved to Germany and became a Ph.D. candidate at the University of Heidelberg. He studied sociology with GEORG SIMMEL, under whose supervision he wrote his dissertation, "Masse und Publikum" (Mass and Public), which picked up his old interest in public opinion. He received his doctorate in 1904 and returned to the United States.

After serving for a year as assistant in philosophy at Harvard, Park became secretary of the Congo Reform Association, which was greatly concerned with reported Belgian cruelty to blacks in the Congo. Making use of his newspaper experience, he wrote a series of articles on this subject for *Everybody's Magazine*. These articles and his job with the reform association brought him into contact with U.S. educator Booker T. Washington, at whose suggestion Park examined the condition of U.S. blacks in the South. Park, who entered into a kind of secretarial relationship with Washington and collaborated with him on *The Man Farthest Down*, continued to study minority problems for the rest of his life.

In 1914 he became a professor of sociology at the University of Chicago. Park was probably best known in academia for his *Introduction to the Science of Sociology*, written with Ernest W. Burgess and published in 1921, which was for years the leading college text in sociology. Like others of his writings, it included case studies and field observations, general and theoretical formulations, and suggestions for empirical study.

Park's works dealt with a wide range of subjects, including race relations, public morale and PROPAGANDA, cities, and human ecology, but his writings on the nature of news are of particular interest to the field of communications. News, as Park described it, has affinities with history but ultimately is not history. News deals primarily with discrete events in isolation, whereas history seeks to illuminate causal connections, to detail the succession of happenings that precede and follow a particular event, to put an event into context.

An event is considered newsworthy, according to Park, if when published "it will either startle, amuse,

or otherwise excite the reader so that it will be remembered and repeated." Indeed, people typically react to news first by repeating it. This can lead to discussion and, because interpretations of events may vary, to disagreement. At this point the focus of the debate shifts from the news event itself to the issues it raises. From the "clash of opinions and sentiments" evoked by this debate, a consensus, or collective opinion, emerges. This, Park says, is public opinion. Thus "it is upon the interpretation of events, i.e., news, that public opinion rests." The circulation of news, Park continues, by orienting a society toward a considered end, is what makes political action possible. Sometimes, however, public debate on public issues leads merely to a superficial consensus that belies deep-rooted disagreement; other times overt dissension surfaces. In such cases conflict generally results.

Park believed that news plays a further important role in democratic societies. At certain times situations give rise to social unrest. As tension increases, the focus of public attention narrows, public discussion ceases, and public demand for some kind of action grows. Under these circumstances the influence of dominant community leaders is great, and dictators often are able to seize and hold power—provided they can maintain public tension. However, if news is freely circulated, public attention is dispersed, tension abates, and individuals are encouraged "to act on their own initiative." It is for this reason, Park declares, that dictatorships require some form of CENSORSHIP.

Park maintained that news has become more rather than less important with advances in science and methods of communication; changes in the modern world are so rapid and so dramatic that news is indispensable for understanding. As Park wrote, "Ours, it seems, is an age of news, and one of the most important events in American civilization has been the rise of the reporter."

Bibliography. Robert E. Park, *The Collected Papers of Robert Ezra Park*, ed. by Everett C. Hughes et al., Glencoe, Ill., 1950–1955.

WILBUR SCHRAMM

PATHÉ, CHARLES (1863–1957)

French motion picture executive. It is hard to overestimate Charles Pathé's role in the early evolution of MOTION PICTURES. The first great film industrialist, he built an empire encompassing every aspect of the business, from the manufacture of film stock and equipment to photoplay production, distribution, and exhibition. Known for his blunt yet complicated personality, Pathé supported experimental work and pioneered the NEWSREEL (*Pathé Journal*, *Pathé Weekly*), color processing, and other innovations.

Born in Chevry-Cossigny, France, Pathé began his career before the turn of the century by exhibiting phonographs in French fairground booths. This led to experimentation with other technological novelties, and by 1896 Pathé began marketing his own variation of LOUIS AND AUGUSTE LUMIÈRE's cinematograph. That same year Pathé, with brothers Émile, Jacques, and Théophile, created the Pathé Frères company to manufacture cameras and projectors as well as to make short films. Within a few years the company built large studios in Vincennes and Montreuil. Led by Pathé, French filmmakers soon dominated the pre-World War I film market. In 1901–1902 the company's profits totaled 421,000 francs; by 1907–1908 they had increased to more than 8.5 million. This rush of profits encouraged expansion, and by 1907 Pathé Frères had worldwide distribution facilities and chains of theaters in many countries, including Australia, Brazil, and Japan. In addition, Pathé studios in England, Germany, Italy, Russia, Spain, and the United States were grinding out films with the familiar Pathé crowing rooster symbol.

Pathé participated in the 1909 International Film Congress, which met in Paris in an unsuccessful attempt to establish patent control similar to that exercised by the Motion Picture Patents Company (of which Pathé Frères was a member) in the United States. That year Pathé sold more films in the United States than all U.S. companies combined and began leading the way toward the rental system. By 1914 the number of Pathé employees in France alone exceeded five thousand.

World War I proved disastrous for the French film industry. After August 1914 production and distribution were severely restricted because of CENSORSHIP and because the nitrate used in making celluloid was needed for armaments. Pathé also became a victim of the massive entry of Wall Street into the U.S. motion picture field, fostering a monopolistic HOLLYWOOD industry. To stave off bankruptcy, Pathé Frères disposed of many of its assets; parts of the manufacturing operation were sold to Eastman Kodak. In 1920, on the advice of his financiers, Charles Pathé reorganized the remaining Pathé-Cinéma holdings into two companies: Pathé-Cinéma, which limited itself to film-stock manufacture, processing, and sale of amateur camera equipment (see PHOTOGRAPHY, AMATEUR); and Pathé-Consortium, which was formed by Pathé and allied investors to concentrate on distribution and exhibition. But Charles Pathé was no longer in control, and in 1921 he was ousted from the company in a policy dispute. By the mid-1920s he was a declining force, although he continued to produce through a company known as Société d'Éditions Cinématographiques, which served as a personal vehicle for speculative film ventures, often

in support of promising young directors. He also served as a board member for a company called Société Générale des Films, which underwrote completion of the first part of Abel Gance's epic masterpiece *Napoléon* (1927). By the end of the decade Pathé was ready to retire from active involvement in the industry and settled in Monaco, where he resided quietly for another quarter of a century.

Bibliography. Richard Abel, *French Cinema: The First Wave, 1915–1929*, Princeton, N.J., 1984; Charles Pathé, *De Pathé Frères à Pathé Cinéma* (orig. published as part of Pathé's memoirs, 1940), Lyons, 1970; Georges Sadoul, "Napoleon of the Cinema," *Sight and Sound* 27 (1958): 183.

RICHARD ALAN NELSON

PEIRCE, CHARLES S. (1839–1914)

U.S. philosopher whose comprehensive theory of signs has been influential in developing a logical and formal basis for the analysis of communication and has been important in such fields as communications, LINGUISTICS, SEMIOTICS, and ANIMAL COMMUNICATION. Born in Cambridge, Massachusetts, Charles Sanders Peirce was the second son of Harvard mathematician Benjamin Peirce. He received a B.A. from Harvard University in 1859, and in 1862 he entered the Lawrence Scientific School, where he studied under Louis Agassiz, Jeffries Wyman, and Asa Gray. In 1863 he graduated summa cum laude with a B.S. in chemistry. Peirce worked as an astronomer at the Harvard Observatory and also for thirty years as a physicist for the U.S. Coast and Geodetic Survey. He had a difficult personality and held only one stable academic position—a part-time lectureship in logic at Johns Hopkins University from 1879 until 1884. In 1887 Peirce inherited some money with which he acquired an estate in Milford, Pennsylvania, where he lived in isolation and economic deprivation until his death.

Peirce's philosophical work was wide ranging and touched on many subjects, but the thread most relevant to the field of communications was his attempt to work out a theory of signs and to provide a program of inquiry into the problem of MEANING. After spending several years studying the works of German philosopher Immanuel Kant, particularly *The Critique of Pure Reason*, Peirce became interested in developing a system to reformulate Kant's a priori categories that in his philosophical system were considered true (of all possible experience) in order to let the human mind synthesize the sense data received from experience and thus to acquire knowledge. The reformulation of Kant by Peirce followed the study of the logical structure of argument. From Peirce's

point of view the heart of the matter was to find the relationship between subjects and predicates in a single statement and premises and conclusions in a syllogism. Peirce called these relations a "sign relation." According to Peirce,

A sign, or *representamen*, is something which stands to somebody for something in some respect or capacity. It addresses somebody, that is it creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the *interpretant* of the first sign. The sign stands for something, its *object*. It stands for that object, not in all respects, but in reference to a sort of idea, which I have sometimes called the *ground* of the representamen.

These three elements—the ground, the object, and the interpretant—were central in Peirce's reformulation of Kant because they constituted an irreducible relationship of signification, and thus they designate the chief a priori modes that give us knowledge of the world. See SIGN; SIGN SYSTEM.

As noted, Kant's a priori categories help us to synthesize sense data and to understand the world. These data simply are; they do not refer to experience. In order to refer to something the human mind has to recognize it as something. This operation already involves, according to Peirce, a conceptualization, an interpretation in a very fundamental way. Thus raw data, impressions, or intuitions are not a part of this system. Humans are not able to know without the intervening conceptualization processes called cognitions (see COGNITION). Therefore, we can never reach the state of knowing on first impression or intuition of whatever phenomenon we are interested in; we can only know phenomena through a series of cognitions that relate to them. Every cognition is preceded by a priori cognition of the same object determined by a priori cognition, and so on ad infinitum. Peirce concluded that our series of cognitions or interpretations of sense data forms a series without beginning or end. The sign relation described above is fundamental to any conceptualization or cognition. Thus the series of cognitions is paralleled by a sign series. From these propositions Peirce concluded that thinking or knowing the world is a process involving an endless series of signs. Having eliminated intuitions, he could argue that the entire manifestation of consciousness is a sign series.

Peirce is also known as the intellectual father of pragmatism, the philosophical movement originating in the United States that was widely diffused by WILLIAM JAMES, who, along with JOHN DEWEY, recognized his debt to Peirce. Peirce's pragmatic concern was with meaning, which differed from James's interest in truth. In his pragmatic theory of meaning Peirce made two contributions. The first is a principle of scientific definition. Scientific theories or proofs are to be considered in terms of their observable

consequences under laboratory or explicitly stated test conditions. Second, Peirce stressed the importance of taking into account the ends to which science is directed. This utilitarian aspect of science, according to Peirce, cannot be separated from the first methodological and ontological aspect. In sum, Peirce thought that the meaning of an idea corresponds to the ways we act on it or the habits involved in it and to the ways we operate with experiences as consequences of such an idea.

Peirce's theory of meaning posed several problems, one of which derived from the fact that according to this theory nothing was possible that was not actual or would not become actual. Nevertheless, Peirce's work was very influential on some thinkers of twentieth-century doctrines such as operationism, positivism, and philosophy of LANGUAGE and fields of inquiry such as communication, in which the problem of meaning is of central concern.

Bibliography. Bruce Kuklick, *The Rise of American Philosophy: Cambridge, Mass., 1860–1930*, New Haven, Conn., 1977; John A. Passmore, *A Hundred Years of Philosophy*, New York, 1980; Charles S. Peirce, *Collected Papers of Charles Sanders Peirce*, Vols. 1–6 ed. by Charles Hartshorne and Paul Weiss, Vols. 7–8 ed. by Arthur W. Burks, Cambridge, Mass., 1931–1960.

ABRAHAM NOSNIK

PERCEPTION

This topic is discussed in three sections:

1. Music
2. Speech
3. Still and Moving Pictures

1. MUSIC

Music is a form of communication involving composers, performers, and listeners. Perception of music occurs by means of physiological structures that make it possible to identify individual and combined pitches, durations, volumes, and timbres.

Physiological basis. Musical sounds are conveyed to the brain through the mechanism of the ear and the pathways between the ear and the brain. The conversion of SOUND waves into neural activity occurs in the cochlea (part of the inner ear), specifically in hair cells that are attached to a membrane. Sound waves cause the membrane to vibrate, and the vibrations result in electrical impulses in nerve fibers that end on the hair cells. Information concerning the pitch of a sound is conveyed by the placement of the nerve fibers that are activated and the periodicity of the activation. Their placement is also important in conveying sound quality, or timbre.

The mechanism of the ear provides only a preliminary analysis of the acoustic signal; most of the processing underlying the perception of music occurs in the brain. Its temporal lobes play a prominent role in such processing. Damage to these lobes, particularly to the anterior temporal region, may impair musical processing such as the ability to recognize melodies or rhythms or to identify the sounds characteristic of different MUSICAL INSTRUMENTS.

Musical illusions. Perceived musical sounds are composed of a number of attributes, such as pitch, loudness, location, and timbre. These various attributes are analyzed by separate brain systems, and the final perception results from a combination of information from these different systems. When more than one sound is presented at a time, the information may combine incorrectly so that musical illusions result. For example, if two melodic patterns are presented, one to each ear, and these patterns are in overlapping pitch ranges, listeners will typically reorganize the sounds so that a melody corresponding to the higher tones is heard in one ear, and a melody corresponding to the lower tones is heard in the other. Most right-handers hear the higher tones in the right ear and the lower tones in the left, regardless of where they did originate. Left-handers do not, however, display the same tendency. Analogous illusions occur under certain circumstances when sounds are presented through spatially separated loudspeakers and even in live performances in concert halls. They show not only that musical patterns may be profoundly misperceived but also that there are striking variations among individuals in the ways in which they are misperceived.

Grouping of musical sounds. In listening to music we do not simply process each sound as it arrives; rather, we form groupings out of combinations of sounds. The principles underlying such perceptual organization are analogous to those in vision and were formulated by the Gestaltists early in this century: (1) In accordance with the principle of proximity, we tend to group together sounds that are close in pitch or time and to separate out those that are further away. (2) We tend to follow pitch changes that move consistently in one direction, following the principle of good continuation. (3) Sounds that are produced by the same type of instrument tend to be grouped together, in accordance with the principle of similarity. (4) Sounds whose volumes change in correlation with each other are perceived as grouped together, following the principle of common fate.

Perception of pitch structures. The abstraction of musical patterns involves both the detection of low-level features and their combination into higher-level configurations. One prominent feature based on pitch is pitch class: tones that are separated exactly by

octaves (whose fundamental frequencies stand in a ratio of 2:1) are perceived as equivalent in certain respects. Another feature is the interval: when the fundamental frequencies of two pairs of tones stand in the same ratio, the intervals formed by these tone pairs are perceived as identical. This is why a melodic or harmonic pattern retains its perceptual identity when it is transposed in pitch, provided that the intervals formed by the tones in the pattern are unaltered.

At higher levels abstractions are formed out of larger numbers of pitches. Virtually all traditional music is tonal; that is, one particular tone assumes prominence, with other pitch materials organized around it. In Western tonal music this central tone is termed the tonic, or keynote. Traditional musical styles also employ musical patterns and formulas that have statistical properties, which become internalized and can be recognized when we hear an unfamiliar piece composed in a familiar style. See MUSIC, FOLK AND TRADITIONAL; MUSIC HISTORY; MUSIC THEORIES.

Much twentieth-century Western art music provides an exception to the use of tonality as an organizing principle. Here attempts are made to organize tonal materials along different lines. Notably, the theory of twelve-tone composition, put forward by the composer Arnold Schoenberg, is based on the concept of a musical shape that retains its perceptual identity when presented backward or when its pitch relationships are inverted. Schoenberg likened a succession of tones that has been transformed in this fashion to a visually perceived object that retains its identity when viewed from a different position or through a mirror.

Perception of rhythm. Temporal patterns are organized by the listener in terms of successive divisions of time into approximately equal units. Patterns that can be divided in this way can be accurately perceived, and patterns that cannot be divided into equal time spans are perceived only poorly. Furthermore, a rhythmic pattern retains its perceptual identity when it is transposed to a different tempo, provided that the ratios of the time spans between successive sounds are preserved. This generalization holds, however, only for a certain range of tempi. At very fast rates the component sounds of the pattern fuse to produce timbres instead, and at slow rates temporal relationships are not perceived accurately.

Bibliography. Diana Deutsch, ed., *The Psychology of Music*, New York, 1982; Leonard B. Meyer, *Emotion and Meaning in Music*, Chicago, 1956; John R. Pierce, *The Science of Musical Sound*, New York, 1983.

DIANA DEUTSCH

2. SPEECH.

The perception of SPEECH involves complicated processes whereby an acoustic signal generated by a speaker is decoded by a listener to determine the speaker's intended MEANING. The obvious ease of speech communication among native speakers of the same LANGUAGE belies the inherent complexity of speech perception as well as its intelligent nature. It is only as one tries to analyze the process of speech perception and to simulate it that one begins to appreciate speech perception as a skilled, intelligent process. As will be shown, analysis of this process involves LINGUISTICS, psychology, acoustics, and hearing science.

The Structure of Speech

Speech can be conceived of as being made up of segments called speech sounds, commonly referred to as consonants and vowels. These segments are the phonetic elements or phonemes of a language. Phonemes are linguistic units that have their bases in speech as it is perceived or spoken. All of the syllables and words of a language are composed of a relatively small number of phonemes. In the case of English, textbooks in phonetics may list as few as twenty-five consonants and twelve vowels for a total of thirty-seven elements. However, phonemes may be realized in slightly different ways depending on the surrounding context. Such contextually determined variants are called allophones. If these finer phonetic distinctions are included, the number of distinguishable speech sounds or allophones of English may reach fifty or sixty.

The phonemes and allophones of a spoken language can be characterized by a small set of distinctive features numbering about sixteen. These features have been inferred from analyses of the movements of the organs of speech, such as the tongue, lips, and jaw; from analyses of the perceptual attributes of the phonetic elements; and from linguistic analysis of the rules governing the sound sequences of a language. Thus, sounds are very often described as bundles of these features, and some theories of phonetic recognition make use of these features.

Linguistic theory includes the notion that phonemes are combined into larger morphological units called morphemes. A morpheme is defined as a minimal sequence of sounds that has its own meaning or grammatical function. Words are then made up of one or more morphemes. Thus, the word *talked* is made up of the verb morpheme *talk* and the past-tense morpheme *ed*. Morphemes are stored in the lexicon, and the rules of the morphological component of the GRAMMAR operate on morphemes to form

words. The proper order of words and relationships among words in a sentence for a certain language are then controlled by the rules of the syntactic component. These rules generate what is called a syntactic tree, which reflects the functional groupings of the words in a sentence, such as subject noun phrase—verb phrase or verb—object noun phrase.

The acoustic waveform of speech carries relevant information—syntactic, morphological, and phonological—about the speaker's intended meaning. On hearing an utterance, the listener must extract this information from the waveform. Theories of speech perception must provide an account of how and in what steps this information is recovered by the listener.

Some researchers believe that the process of production of an utterance in any language can be modeled as a step-by-step procedure. In general, once the message is conceived, a syntactic tree is generated by the syntactic component with the appropriate structure. The morphological component combines the relevant morphemes (which are made up of phonemes) into words and inserts them under the proper nodes of the syntactic tree. The syntactic tree may or may not undergo any transformations. Next, the rules of the phonological component apply, converting any unacceptable sequences of sounds into acceptable ones, as well as determining the form of the positional variants of the phonemes (allophones). Thus, the word sequence *did you*, beginning a question, will be converted to and pronounced *didja*. Finally, the so-called phonetic implementation rules convert the sound sequences into sequences of commands to the relevant articulators (larynx, tongue, jaw, velum, lips, etc.). Speech is finally produced by forcing air through the vocal tract, and the acoustic wave radiates from the lips on its way to a hearer's ears.

A theory of speech perception must then explain how a listener extracts the phonemes from the acoustic waveform; how the listener groups the phonemes into morphemes and words; how the listener determines the syntactic structure of the utterance; and, finally, how the listener determines the speaker's intended meaning. Although researchers have examined all the stages of this process, the greatest amount of research on speech perception has concentrated on the lower end, that is, on the extraction of phonemes from the speech signal.

Acoustics

The acoustic signal generated by a speaker is made up of minute, rapid variations in the atmospheric pressure that are propagated through the air as an acoustic wave from a speaker to a listener. The

frequency of the variations in atmospheric pressure that are of interest for speech perception range from about sixty to six thousand hertz. Spectral analysis or spectral estimation techniques allow the complicated acoustic waveform to be converted to a spectral representation. In a spectral representation the sound is represented by the distribution of intensities across the frequency range from sixty to six thousand hertz. The intensities of the components are usually given on a logarithmic scale expressed in sound pressure level. Because the acoustic signal generated by the speaker is changing constantly, the spectral estimation must be based on a relatively brief segment of the speech waveform and must be refreshed at frequent intervals so that changes in the spectral representation of speech can be tracked or followed. It is generally held that each spectrum should be based on a sample of .020 second to .040 second in duration and should be refreshed about every .001 second. These values seem to allow the input waveform to be analyzed with adequate temporal and spectral resolution, and it is generally believed that the listener's auditory system performs such spectral analyses.

Speakers generate two major classes of sounds. One class—called glottal-source sounds—is generated at the vocal folds or glottis. Usually these are voiced sounds wherein the vocal folds open and close in a periodic manner. Examples are sounds like the *ee* in *beat* or the *l* in *lip*. Whispered or aperiodic glottal-source sounds are generated by creating turbulence as air flows through a slit between the edges of the vocal folds. Burst-friction sounds are generated by forcing air through narrow constrictions in the vocal tract at supraglottal locations. These constrictions can be formed by bringing the tongue into contact with the more rigid parts of the vocal tract, such as the roof of the mouth, as in the sound *sh*. Burst sounds can be generated by stopping the air-flow, building up pressure, and then suddenly releasing the air. For example, in making the sound of *t* the tip of the tongue is placed against the upper gum ridge to block the flow of air. When the block is removed, the sudden rush of air through the resulting narrow opening produces a burst-friction sound. During the time that the airflow is blocked, no sound is emitted. These periods of silence occur during the vocal tract closures associated with the stop consonants *p*, *t*, and *k* and may last from about .060 second to .120 second.

The Process of Phonetic Perception

The listener uses information from the sequence of glottal-source spectra, burst-friction spectra, and silences to decode the speaker's intent. Most theorists believe the listener transforms the acoustic wave

through a series of stages to reach a stage wherein the speech is represented by a series of phonetic elements such as phonemes or allophones. Each such element represents a category; thus, these abstract representations are category codes. A major issue in speech perception is to determine how the acoustic patterns of speech trigger or induce the perception of a sequence of category codes that correspond to the allophones of a language. A great deal is known about this process even though certain aspects of it are not yet clarified.

For example, the perception of vowel sounds is highly dependent on the spectral patterns of the acoustic signal. Moving from the low-frequency end to the high-frequency end of the spectrum, a series of peaks in amplitude or spectral prominences are usually found. These are restricted regions with high concentrations of energy. Measurements of natural speech and perceptual experiments with synthetic speech have demonstrated that vowel quality is largely related to the positions of the first three spectral peaks. For a male speaker, the vowel *ee* in *beat* usually has peaks near 270, 2,300, and 3,000 hertz. In contrast, the vowel *aa* in *father* for the male speaker would have prominences near 730, 1,100, and 2,400 hertz.

The prominences in the spectra are related to the resonant frequencies of the speaker's vocal tract. These resonances and associated spectral prominences are frequently referred to as formants, are numbered from low to high as F1, F2, and F3, and are often used to succinctly describe the spectral pattern.

Almost all glottal-source spectra can be described in terms of formant patterns—F patterns—which can be quantified by listings of the values of F1, F2, and F3. Burst-friction sounds have been more resistant to such description. Generally they do not have much energy in the low-frequency range usually associated with the F1 of glottal-source sounds. Also, in the higher-frequency region, the presence of multiple peaks and valleys, some of which are small, makes the assignment of formant values difficult. Nonetheless, sustained friction sounds such as those of the consonant *s* in *sip* or *sh* in *ship* have distinct spectral shapes. The shapes to be associated with the friction sounds of *b*, *f*, and *th* are not yet well defined, perhaps because of articulatory variability augmented by the conditioning effects of neighboring sounds. The voiced fricative sounds such as *z* and *v* consist of a simultaneous combination of glottal-source spectra and burst-friction spectra. The voiced and voiceless stop consonants, that is, *b*, *d*, *g*, and *p*, *t*, *k*, have their acoustic bases in sequences of burst-friction sounds, glottal-source sounds, and silences. For example, for the *t* in *stop*, the *t* percept is generated by the following sequence. Initially, there

is the burst-friction sound associated with *s*, followed by a silence associated with the tip of the tongue meeting the upper gum ridge, blocking the flow of air from the vocal tract. When the block is released, a brief burst of noise is generated, after which the vocal folds begin periodic vibration, and there is a transition to the following vowel. It is this whole sequence, then, that is responsible for inducing the perception of *t*.

Another class of consonants consists of the nasals such as *m* and *n*, and these are special cases of glottal-source sounds wherein the passageways to the nose are opened. This alters the F pattern in the region of the first formant, F1, usually by adding a nasal resonance and by weakening and broadening the first resonance of the oral part of the vocal tract. More detailed descriptions of the acoustic correlates of the perceived phonetic elements can be found in material cited in the bibliography below.

A complete account of the process of phonetic perception will include the solutions to several unresolved problems. One is that of *segmentation*. Consider the case of a simple sentence. As the speaker utters a sentence, a sequence of spectra is generated. If a spectrum is to be calculated every 0.001 second and if the sentence lasts 1.8 seconds, the sequence will contain 1,800 spectra. If the sentence contains fifteen allophones, which of the 1,800 spectra are associated with each of the fifteen allophones and which are simply parts of transitions and not associated with any of the allophones? At the present time, we have preliminary notions about the solution of this problem. For example, vowels are often associated with stationary or slowly changing glottal-source spectra, but the exact criteria for the segmentation of vowels are not known. Some consonants are similarly associated with either stationary or slowly changing glottal-source spectra or burst-friction spectra, and others, such as the stops—*p*, *t*, *k*, *b*, *d*, *g*—seem to be associated with very rapid spectral changes. Just as in the case of vowels, the exact criteria for the segmentation of consonants have not been established.

Another unresolved problem involves very large variations in the acoustic expression of an allophone related to its phonetic environment. Thus, the vowel *oo*, as in *boot*, may have a very different spectrum in the word *dude* as opposed to that found in the word *loop*. These are called coarticulation effects, and methods for describing the unifying characteristics of each allophone in the face of such variations are being sought.

Two other major problems are those of speaker normalization and rate normalization. The problem of speaker normalization is that the spectra generated by CHILDREN are higher in frequency than those generated by adult females, which, in turn, are higher

than those generated by adult males. Thus, the human perceiver must normalize these differences related to age and GENDER in order to recognize the linguistic content of the signal. Even though several models of such normalization are reasonably successful, consensus about which of these models best matches human performance has not been reached. It has also been argued that the acoustic expressions of the allophones vary with speaking rate. If that is so, the listener must normalize the interpretation of spectral changes in terms of the speaking rate of the current speaker. The details of the mechanisms of this hypothesized rate normalization are not known.

Characteristics of Speech Perception

Research on speech perception has elucidated several of its interesting characteristics. One of these is the *speech mode*. When a listener attends to a stimulus in the speech MODE, that stimulus is likely to induce the perception of phonetic codes even when the stimulus is not very speechlike. Similarly, when the listener attends to a stimulus in an auditory mode, as opposed to a speech mode, the stimulus may be heard as buzzes, noises, tones, and/or glides rather than as syllables or words.

Another characteristic is that of *categorical perception*. A large variety of acoustic expressions of an allophone induce the same categorical response from a listener, and thus many seemingly different spectral sequences may all induce perception of the same phonetic element. Furthermore, under certain circumstances, listeners do not perceive differences among members of the same category, although they clearly perceive objectively similar differences between members of different categories. The concepts of *speech mode* and *categorical perception*, along with other considerations, suggest that the decoding of the acoustic waveform into a string of phonetic elements may be done by a special perceptual system that is uniquely structured, with speech-specific mechanisms, for this perceptual task.

Another set of interesting characteristics of speech is revealed by studies of infant speech perception and of cross-language differences. It has been shown that infants of two to four months of age can discriminate intercategory pairs of speech sounds relatively independent of language. Soon thereafter, at six to eight months of age, infants categorize disparate members of that class into a single class. By adulthood, of course, listeners exhibit categorical perception of the allophones of their own language but are often unable to distinguish categorical differences in other languages. Taken together these findings suggest that as a spoken language is acquired and phonetic categories are learned, the listener becomes capable of distinguishing only those categorical differences in

other languages that are either isomorphic with or otherwise do not conflict with those of the listener's native language. *See also* LANGUAGE ACQUISITION.

Other Factors in Speech Perception

The process of speech perception extends well beyond the issues discussed above. The listener not only uses information from the acoustic wave to decode the speaker's intention but also uses a variety of other sources of information. Specific information regarding the phonetic content of the message can be obtained from viewing the speaker's FACE and movements of the jaw and lips. Deaf persons, for example, can become skilled lip-readers and can achieve useful, although not perfect, levels of speech perception.

It is also well known that listeners use gestures and other elements in the situational context to determine the speaker's intended message. Additionally, very general knowledge of language and SEMANTICS often plays a crucial role in speech perception. *See also* BODY MOVEMENT; FACIAL EXPRESSION; GESTURE; KINESICS.

Theories of Speech Perception

Theories of speech perception seem to share a common four-stage structure; they differ in the exact nature of the processes occurring in the last three stages. All theories seem to agree that there is a stage 1, wherein the listener's auditory system performs a short-term spectral analysis on the incoming speech waveform. This analysis extracts the amplitudes of the lower harmonics of periodic signals and obtains smooth spectral envelopes of higher unresolved harmonics or of aperiodic signals. In this first stage the voice pitch of the periodic components and the shapes of the relevant spectra and their loudnesses are determined. Thus stage 1 converts the input waveform into auditory or sensory parameters. In stage 2 these sensory parameters are converted into perceptually relevant parameters. In some cases these parameters are lists of features, either auditory or linguistic. In motor theories the perceptually relevant parameters are thought to be abstract descriptions of the motor commands required to produce spectra that would match those determined by stage 1 processing. In still other theories the perceptual parameters are expressed in terms of abstract spectral patterns. In stage 3 the perceptual parameters of stage 2 are converted to linguistic terms. That is, based on the perceptual parameters and their changes over time, a sequence of allophones or phonemes is generated. Thus in stages 1–3 the acoustic waveform is converted into a phonetic-linguistic description. A distinction is often made between theories that posit a common acoustic pattern or class of patterns as the

basis of phonetic perception and those that posit disjoint sets of acoustic patterns that are only uniformly related to phonetic perception through the intermediary of motor commands. The former are called acoustic invariance theories, and the latter are called motor theories or special-mechanism theories.

Unfortunately, a phonetic description does not map simply onto a lexical description or word because the phonetic expression of a word is highly dependent on context, rate of speaking, and dialect. Therefore, once the listener has gained a phonetic description of the speaker's utterance, the additional processing of stage 4 must be used to recover the intended lexical items.

Part of the problem of lexical access is that of grouping the phonetic string into meaningful morphological units such as syllables, morphemes, words, and syntactic groups. The process of lexical access appears to be affected not only by the phonetic content of the utterance but also by a number of other factors such as the frequency of occurrence of a word in the language, syntactic category information, and semantic relatedness. In this process the prosodic characteristics of speech play an important role. The prosody of speech is given by patterns of stressed and unstressed syllables, by the insertions of pauses of varying duration, and by the patterns of change in the voice pitch or intonation.

The next step in the process of speech perception involves a syntactic parsing of the utterance. An initial analysis scans the input from left to right and divides the words into phrasal groups based on their syntactic-category membership. Further processing takes as input these phrases and builds a coherent syntactic structure for the entire utterance. In the last stage of processing the meaning of the utterance is finally extracted on the basis of the syntactic structure, the words, and their meaning.

A complete theory of speech perception not only must describe the manner in which the acoustic waveform is converted by a listener into a string of phonetic elements (the focus of most research, as mentioned above) but also must deal with the way in which the listener uses prosody, rules of PHONOLOGY, visual input, knowledge of the situation, and general and linguistic knowledge to arrive at the speaker's meaning through several stages of processing. The transformation of the acoustic wave to a phonetic description is often isolated as a problem in acoustic phonetics, whereas the later stages of the process are thought to be in the linguistic-cognitive domain. *See also* COGNITION; LANGUAGE VARIETIES.

Implications

Speech perception involves high-resolution spectral analyses by the listener's auditory system and the conversion of the resulting spectral sequences to a

string of phonetic elements known as allophones or speech sounds. In turn, the string of speech sounds must be grouped into a sequence of words that is used along with other information to determine the speaker's intended meaning.

The study of human speech perception and the search for a detailed description of the acoustic-phonetic CODE is an extremely exciting enterprise. The discovery of the detailed nature of this code may well rank as a major advance in the understanding of human perceptual and linguistic abilities. In speech perception the interplay of sensory, perceptual, linguistic, and cognitive functions is exquisitely coordinated in an everyday activity common to all human cultures. A more detailed understanding of each of the steps in the process will enhance our abilities to improve electronic voice communications, to provide easy voice communication with machines, to ease the process of second-language acquisition, and to assist those with hearing or language impairments.

See also SIGN LANGUAGE; SPEECH AND LANGUAGE DISORDERS.

Bibliography. Adrian Akmajian, Richard A. Demers, and Robert M. Harnish, *Linguistics: An Introduction to Language and Communication*, 2d ed., Cambridge, Mass., 1984; Peter D. Eimas and Joanne L. Miller, eds., *Perspectives on the Study of Speech*, Hillsdale, N.J., 1981; Norman J. Lass, Leija V. McReynolds, Jerry L. Northern, and David E. Yoder, eds., *Speech, Language, and Hearing*, Vol. 1, Philadelphia, 1982; James D. Miller, "Auditory Processing of the Acoustic Patterns of Speech," *Archives of Otolaryngology* 110 (1984): 154–159; J. M. Pickett, *The Sounds of Speech Communication*, Baltimore, Md., 1980; David B. Pisoni, "Speech Perception," in *Handbook of Learning and Communicative Processes*, ed. by W. K. Estes, Hillsdale, N.J., 1976; Eileen C. Schwab and Howard C. Nusbaum, eds., *Speech Perception*, Vol. 1, *Pattern Recognition by Humans and Machines*, Orlando, Fla., 1986.

JAMES D. MILLER AND MARIOS FOURAKIS

3. STILL AND MOVING PICTURES

Although both still and moving pictures are flat, they must either somehow resemble the three-dimensional scenes they represent or stand for them as words stand for things by arbitrary convention. As a limiting case, pictures may resemble their objects by providing the eye with the same pattern of light, or optic array (Figure 1). A stationary viewer, looking from the proper viewpoint with only one eye at such a surrogate (one that is made with perfect optical fidelity), cannot distinguish picture from scene. Although this conception underlies most technical discussion about pictures, almost no still or moving picture is even intended to meet these conditions. Pictures are neither arbitrary conventions nor optical surrogates.

Still Pictures

In the late 1400s, Leonardo da Vinci taught that by examining tracings made as in Figure 1, artists could learn what are now called pictorial *depth cues*, including linear perspective (Figure 2ai), textural perspective (2aii), interposition (2aiii; Figure 3c{1–3}), modeling through shading (Figure 3a), and aerial perspective (Figure 3c4). To traditional perceptual theorists and to philosophers concerned with how we come to know the world (notably George Berkeley in the early 1700s), depth cues underlie our perceptions of the real world as well as of pictures. However, if the eye moves while viewing a real scene (Figure 2aiv), near objects move more in the field of view than far ones (Figure 2c); but because all parts of a picture lie at the same distance, they move together (Figure 2b), revealing the picture as a flat dappled object.

This difference between picture and scene can be minimized (by increased viewing distance, shallower represented depth, etc.), but in most cases no real attempt is made to fool the eye. Most pictures are deliberately distorted or altered so that they do not provide the same light as the scenes they represent; indeed, pictures routinely use outlines to represent objects' edges and the modeling of form, although outlines exist neither in the scenes they represent nor in the light those scenes provide.

Because pictures and objects are so different, some theorists, including philosophers Nelson Goodman and Marx Wartofsky, argue that we learn a language of pictures from specific experience with them. In this view, and given the appropriate CULTURE, any picture can then arbitrarily represent anything. Although it is true that certain aspects of picture perception require pictorial learning, in that some viewers without Western schooling may not comprehend perspective in highly schematic sketches, we now know that pictures cannot in general be conventions acquired through experience with them. Julian Hochberg and Virginia L. Brooks reported in 1962 that a child of nineteen months, with no training whatsoever in pairing pictures with their objects or with the names of those objects (and who had almost no exposure of any kind to pictures), nevertheless was able, on first contact, to recognize objects not only in photographs and shaded drawings, but in line drawings as well.

Pictorial distortions. Distortions and departures from fidelity made with representational intent often serve nonarbitrary perceptual principles. In general, brightnesses in any scene must be rearranged in the interests of pictorial representation. Chiaroscuro, the arrangement of light and dark in a picture (Figure 3a), extends the apparent range of pigments by placing dark areas next to the region that is to look most bright (e.g., the face and the candle flame). This

exploits the fact of simultaneous contrast, which is what causes the same gray ribbon to look lighter against the dark background in Figure 3b2. Such contrast-induced differences between two regions are not as manifest without a contour, so that the effects of the dark and light surrounds on the gray ribbon are not noticeable at 3b1, and the artist can maintain apparent unity of surface by avoiding contours where these would reveal contrast.

Familiar objects and people are usually drawn as though from straight ahead, that is, each from its own separate viewpoint perpendicular to the canvas (Figure 3c). This violates the conditions of Figure 1, in which the picture is so made as to provide the eye with the same pattern of light that it would receive, at a single viewpoint, from the scene itself. By showing each object from straight ahead, the picture is made internally inconsistent. This is done in part to remedy the fact that we normally view paintings from various positions away from the central station point (Figure 3c), so that then whichever object we may stand in front of is appropriately drawn, and the inconsistencies thus produced are not salient.

Gestalt theories. Even in a completely accurate surrogate, three-dimensional objects can look flat, figure and ground can reverse so that the spaces between objects assume visible shapes, and familiar shapes can become invisible. To Gestalt theorists in the 1930s such as Max Wertheimer and Kurt Koffka, “laws of organization” determine whether and how we perceive an object. Figure 4a, in which a familiar number is concealed in 4ai but not in 4aii or 4aiii, demonstrates the *law of good continuation*: we perceive the alternative organization that best preserves smoothly continuing contours. The number is hidden in 4ai because to see it we must break the unfamiliar but smoothly continuing shape. Figure 4b looks flat because good continuation must be broken to perceive 4bi and 4bii as dihedrals at different distances, but Figure 4c looks three-dimensional because the dihedrals would have to be broken at 4ci, 4cii, and so on for the pattern to look like a set of closed polyhedrons.

As with depth cues, one may ask whether Gestalt “laws” are pictorial conventions. Learning and convention can certainly affect how organization occurs. Figure 5 is completed differently if taken as two words (CAT and DOG) than if taken as a pair of simple geometric shapes. Because they generally group together those parts that in fact belong to the same object, these principles are not arbitrary; rather, as Egon Brunswik argued in the 1940s, they may reflect the probable structure of the world. For example, it is very unlikely that edges of different objects lying at different distances from the viewer will so line up in the field of view as to form a single smoothly continuing contour. In general, only from one out of

Figures 1–12. (*Perception—Still and Moving Pictures*) Drawings by Julian Hochberg and Virginia L. Brooks.

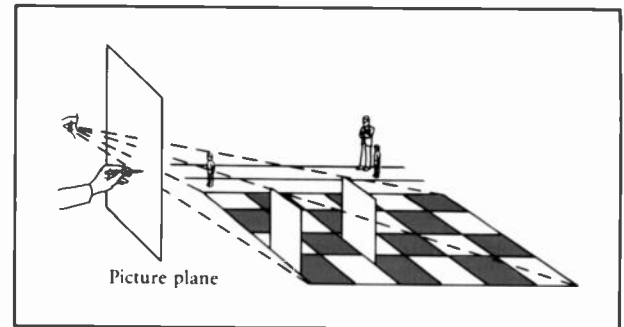


Figure 1.

all the myriad places from which the viewer could look at a pair of objects would their edges be aligned. For this reason the parts of a smoothly continuing contour probably comprise a single object. If learned at all, a law like good continuation is probably learned from experience with the world and not from pictorial convention.

The minimum principle. The *minimum principle*, proposed by Koffka in 1935, is that we perceive the simplest structure that fits the stimulus pattern. Various attempts have been made to measure simplicity objectively. Given an objective rule, a computer could *in principle* assess any picture before displaying it and display only those views for which the desired appearance is in fact the simplest alternative, for example, 4c rather than 4b.

The famous “impossible figures” discovered in 1958 by British father and son Lionel and Roger Penrose, and popularized in the graphic art of Maurice Escher, refute the minimum principle. Figure 6a looks three-dimensional although that is not a simple possible solution. Pictorial constraints are more piecemeal and local: in Figure 6b, if one attends intersection 6b1, the cube is then perceived so that the vertical edge at 6b2 looks nearer than the horizontal; observe intersection 6b2, and the perspective soon reverses, against any overall simplicity principle.

Structure through motion. *Motion parallax* refers to the fact that relative motion between the observer and a scene laid out in three-dimensional space results in a change in the position of the objects in the visual field, and objects at different distances move at different velocities in the pattern of light reaching the eye. These phenomena provide the moving observer with a rich source of information about the structure of the world and comprise a cue for depth. Shadows of unfamiliar three-dimensional structures that lack depth cues, and are perceived as flat when stationary, appear three-dimensional when moving.

In the 1960s and 1970s proponents of direct per-

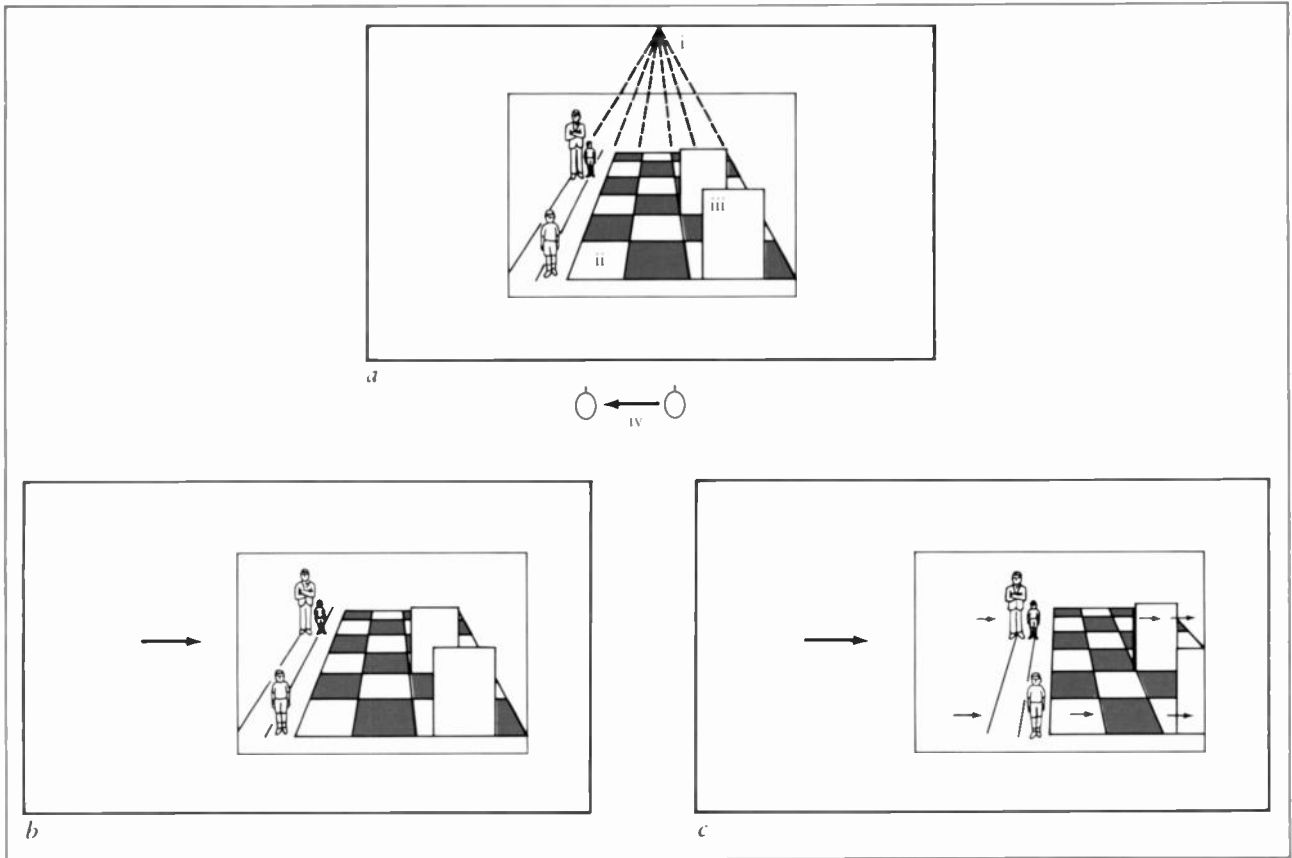


Figure 2.

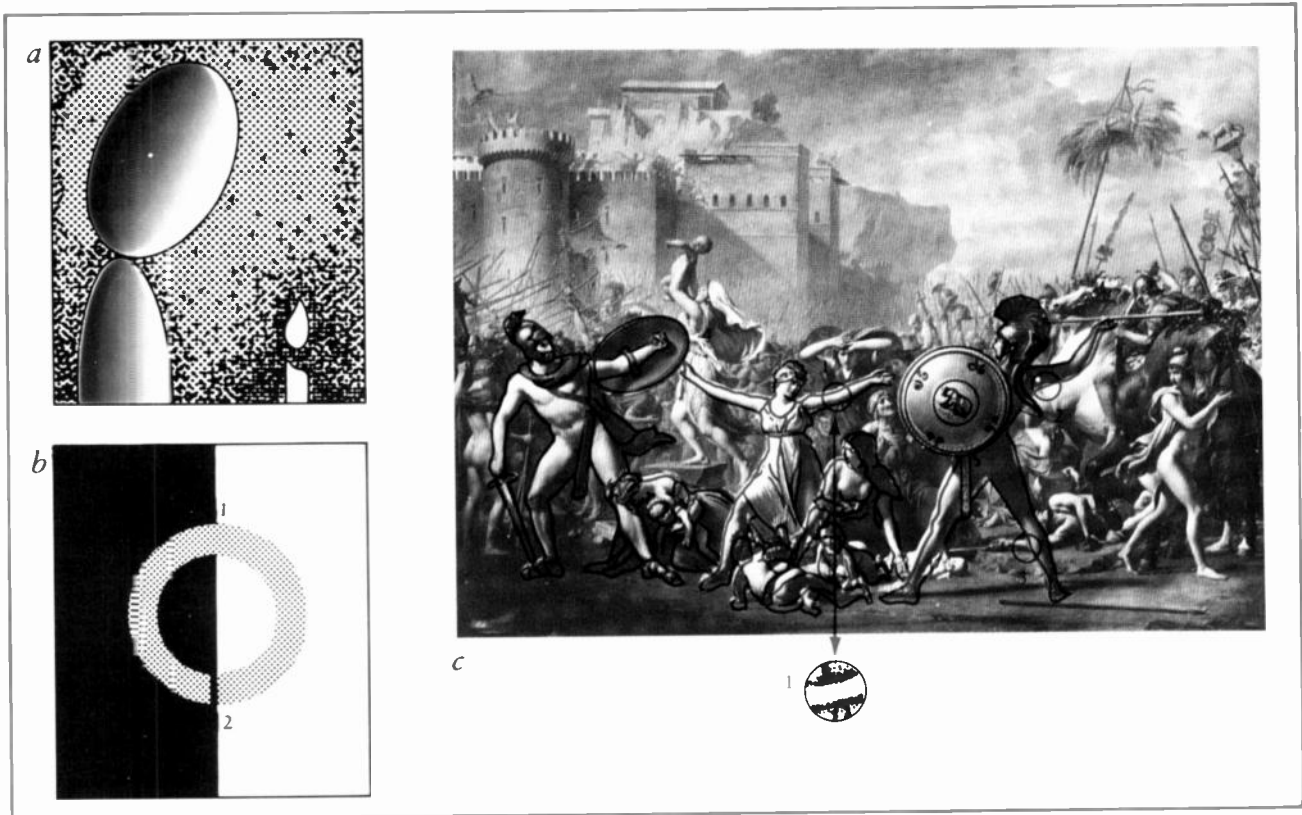


Figure 3c. (Perception—Still and Moving Pictures) Drawing by the authors over a painting by Jacques-Louis David, *The Rape of the Sabines*, 1794–1799. Louvre, Paris. Alinari/Art Resource, New York.

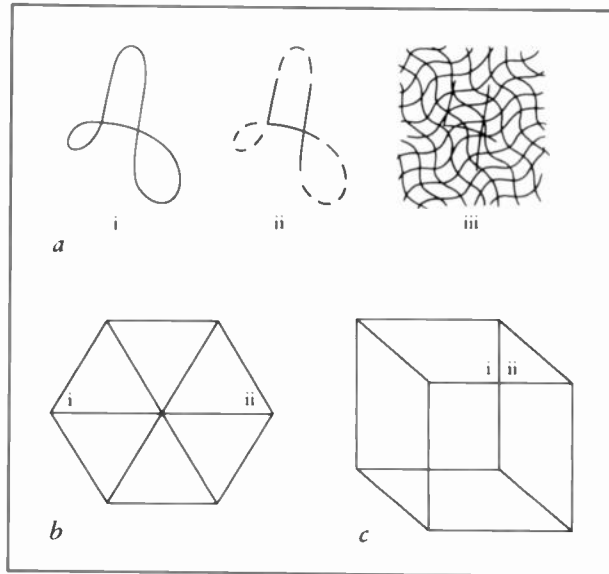


Figure 4.

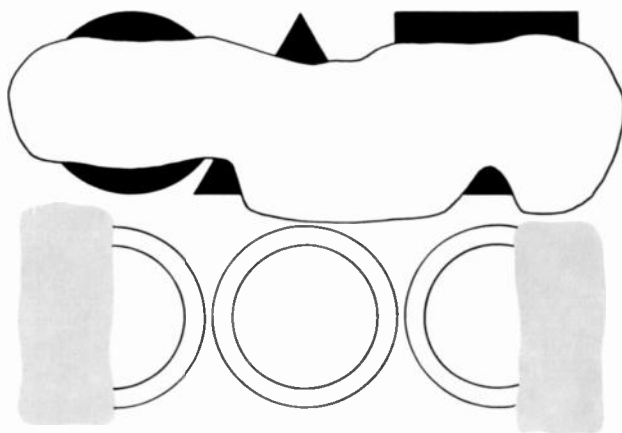


Figure 5.

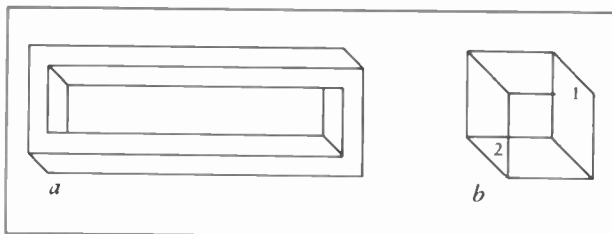


Figure 6.

ceptual theories, particularly James J. Gibson and Gunnar Johansson, proposed that the moving viewer's nervous system performs a reverse of the geometry represented in Figure 1. In this view our normal perceptions are of events, from which we extract the invariant object or layout that fits the changes in stimulation. Depth cues and Gestalt factors would then both be irrelevant.

As a more specific version of this approach, several psychologists and computer scientists in the late 1970s advanced versions of a *rigidity principle*, asserting that we perceive a rigid three-dimensional object or layout if one can be found that fits the moving pattern. Because most objects are rigid, when in motion we would normally perceive the world correctly if our nervous systems indeed followed this principle.

Even with rigid moving shapes in full view, however, in some cases we perceive instead quite different shapes undergoing nonrigid deformation. In 1949, Adelbert Ames showed that a trapezoid rotating continuously in one direction is perceived instead to oscillate, so that the larger end always appears nearer. Indeed, we now know a whole class of such illusions, in which the static depth cue of linear perspective seems to dominate the motion information and to contradict the rigidity principle. This goes against the theoretical assertions that were proposed to sidestep the complexities of cues and Gestalt laws. Moreover, moving pictures normally involve many practices that violate the rigidity principle with impunity.

The perception of motion and moving pictures. If an object moves relative to the direction of gaze, the object's image moves in the array of light reaching the retina at the back of the eye. Retinal movement that is too fast, too slow, or too brief is below threshold and not perceived. Much smaller and slower movements can be detected for *relative motion*, in which the distance between two seen objects changes, than for *absolute motion*, where the only change produced is the result of a single object moving in an otherwise empty field of view.

If a viewer's eye and the object are in lateral relative motion (Figure 9a), nearer objects move faster; as viewer and scene approach each other, there is an expansion pattern, with nearer objects expanding faster (Figure 9b). These motion patterns might provide information about spatial layout and are therefore important in direct theories of perception, but research does not show that we actually use such information reliably or with precision.

Moving Pictures: Why Do They Move?

Moving pictures do not, of course, actually move; they present still samples from the flow of motion at the rate of twenty-four and thirty per second for film and VIDEO, respectively. The perception of movement is usually, but incorrectly, explained as "persistence of vision." In fact, persistence results only in superposition (Figure 7b), although it does serve to mask the dark periods between still frames. In video, persistence of vision builds the whole picture from sweeps of a single moving dot of phosphorescence. See MOTION PHOTOGRAPHY.

Apparent movement from successive stills—stroboscopic movement—results from a complex range of sensory and cognitive processes only partially understood. (A closely related set of phenomena, in which apparent movement occurs between two stationary lights separated in time and space, has been studied with varied distances and times; these are summarized as Korte's laws.) We distinguish at least two processes:

1. Movement between nearby elements, regardless of the overall shapes of which they are a part. These movements are thought to rest on low-level motion-detecting mechanisms in the visual system that do not distinguish actual transitions from succession. With such small displacements as are normal in moving pictures (e.g., Figure 7a), movement is perceived correctly; with larger displacements (as in a too-rapid pan), spurious motion may occur between noncorresponding objects. In Figure 7c, 7c1 and 7c2 are successive frames providing a brief impression of movement (arrow *m*).
2. Movements perceived to account for change in views (e.g., Figure 7d). These movements bridge larger displacements and are more cognitive and inferential in nature. Because they are not immediately evident as sensory events, they require more time to grasp what has happened; it takes longer for the viewer to establish the new subjective viewpoint.

In viewing the world, these two components normally complement each other; on film, they agree only if certain precautions are taken.

Sources of movement in moving pictures. If the camera tracks a moving object with no background (Figure 8a), no motion is seen. Given a stationary background, which moves on the screen behind the stationary image of the moving object (Figure 8b), the larger or enclosing area appears stationary, and the object appears to move. (Indeed, in a moving visual environment in the real world, the stationary viewer perceives himself or herself to be moving.) The same effect, of course, can be achieved with a moving background and stationary object and camera (Figure 8c). How movement is perceptually partitioned (first systematically studied by Karl Duncker in 1929) has been the subject of intensive investigation by perception psychologists and computer scientists.

The camera has four primary component movements relative to the scene: (1) *track* (Figure 9a), in which the camera moves through the visual field parallel to the scene that is being recorded (a vertical tracking shot is called a crane shot); (2) *dolly* (Figure 9b), in which the camera moves toward or away from the subject matter; (3) *pan* (Figure 9c), in which

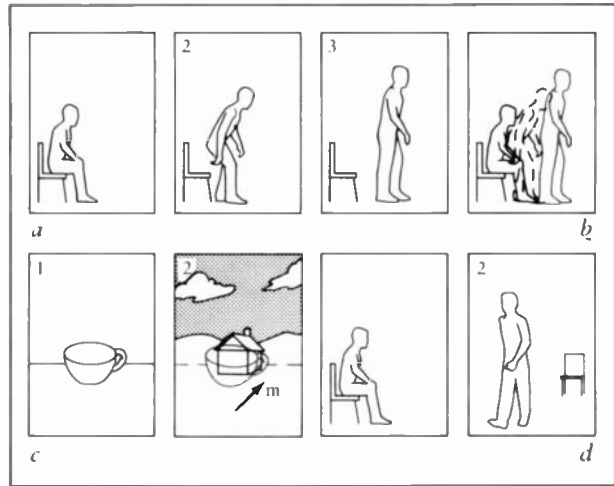


Figure 7.

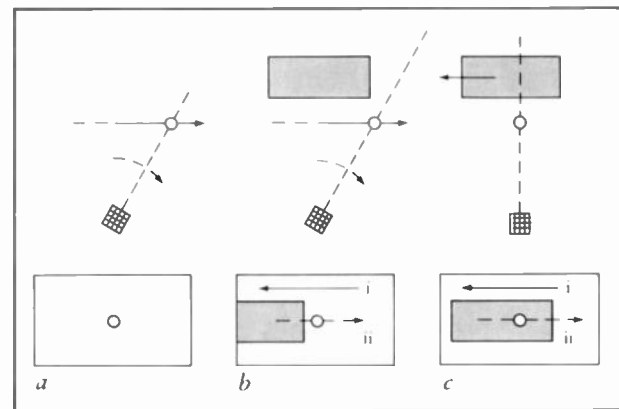


Figure 8.

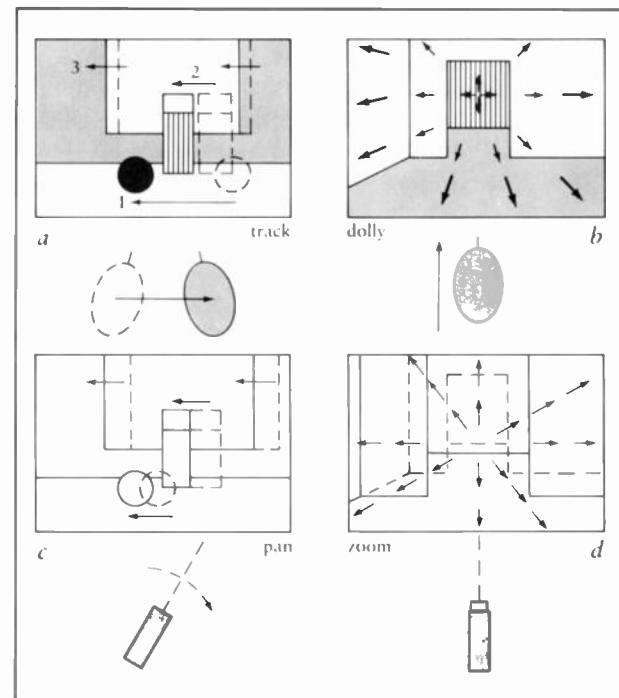


Figure 9.

the camera rotates in place to sweep the scene from side to side (a vertical pan is called a tilt); and (4) *zoom* (Figure 9*d*), in which the camera does not have to move but the focal length of the lens changes, enlarging or reducing the portion of the scene visible on the screen.

These motion picture techniques reveal three facts important in understanding visual perception:

1. Movement in telephoto or wide-angle shots must violate any rigidity principle. When the lens's focal length changes, the viewer's distance from the screen would have to change to maintain the relations of Figure 10*c*. If the viewing distance remains unchanged, the represented pirouetting dancer's arms must stretch and contract, in telephoto (close-up) and wide angle (long shot), respectively, if they are to fit the image on the screen as she turns. These are visualized as viewed from the top in Figures 10*b* and 10*d*. Such deformations are normally ignored. Given that no rigid objects in space will fit the swirl of moving patterns on the screen under these very common conditions, however, we cannot then say that we perceive people and things in moving pictures only by extracting the underlying rigid structures, in accordance with the rigidity principle.
2. Motion-produced stimulation is not fundamental to spatial perception. In pan and zoom, the lack of parallax conflicts with the static depth cues within the scene (Figures 9*c* and 9*d*). In Figure 9*c*, for example, the depth cue of interposition would show the tumbler to be nearer than the window, but the motions provided by the pan are equal, instead of being larger, for the nearer object (cf. Figure 9*a*). The fact that in moving pictures pan and zoom are routinely used in place of track and dolly (Figures 9*a* and 9*b*, respectively) shows that the parallax information cannot be fundamental, as maintained by direct theorists, and that the pictorial depth cues are not merely conventions.
3. Represented space and events extend beyond the present stimulation. A major function of camera movement is to represent scenes far larger than the screen. This function is more economically filled by discontinuous changes or cuts. Cuts divide moving pictures into identifiable shots. The classic sequence (Figures 11*a–d*) from long shot, through medium shot, to a series of close-ups establishes the scene, indicates the players, and presents the action by changing distances or lenses.

Considered in terms of the light they present to the eye, moving pictures resemble the world even less than still pictures do. Much that is represented in the normal moving picture is never actually shown but is seen only in the mind of the viewer. In a limited

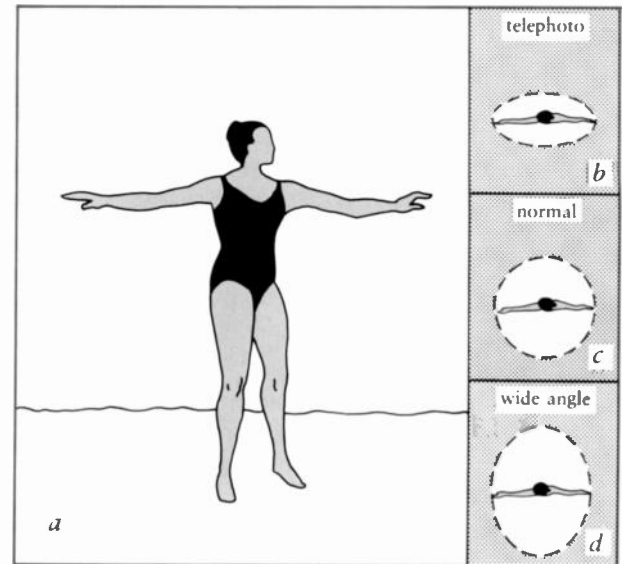


Figure 10.

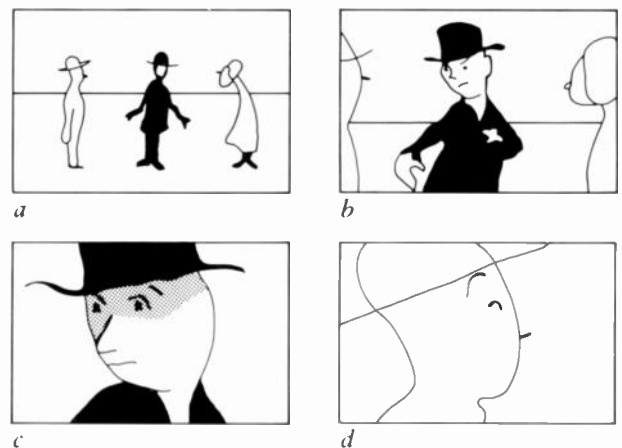


Figure 11.

way, cuts between overlapping shots resemble the results of the eye movements that we usually make in glancing at the world, but in cuts, as opposed to normal vision, there is always the danger of spurious movement (see Figure 7*c*). With a cut from position 1 to 2 in Figure 12*b*, the camera “crosses the axis” and the man's contours in shot *a* (Figure 12*a*) turn into those of the woman in *b*, providing the viewer with a momentary (usually undesirable) disorientation. In Figure 12*c*, a group of dancers advancing leftward (arrow *a*) is perceived to jump backward (arrow *b*) because of the change in viewpoint. The care needed in cutting reminds us that the flow of images is not merely an identical surrogate for a sequence of glances.

Moreover, moving pictures routinely cut between shots that do not overlap at all (Figures 7*c*, 11*c*, and 11*d*), and these are surely not a general feature of

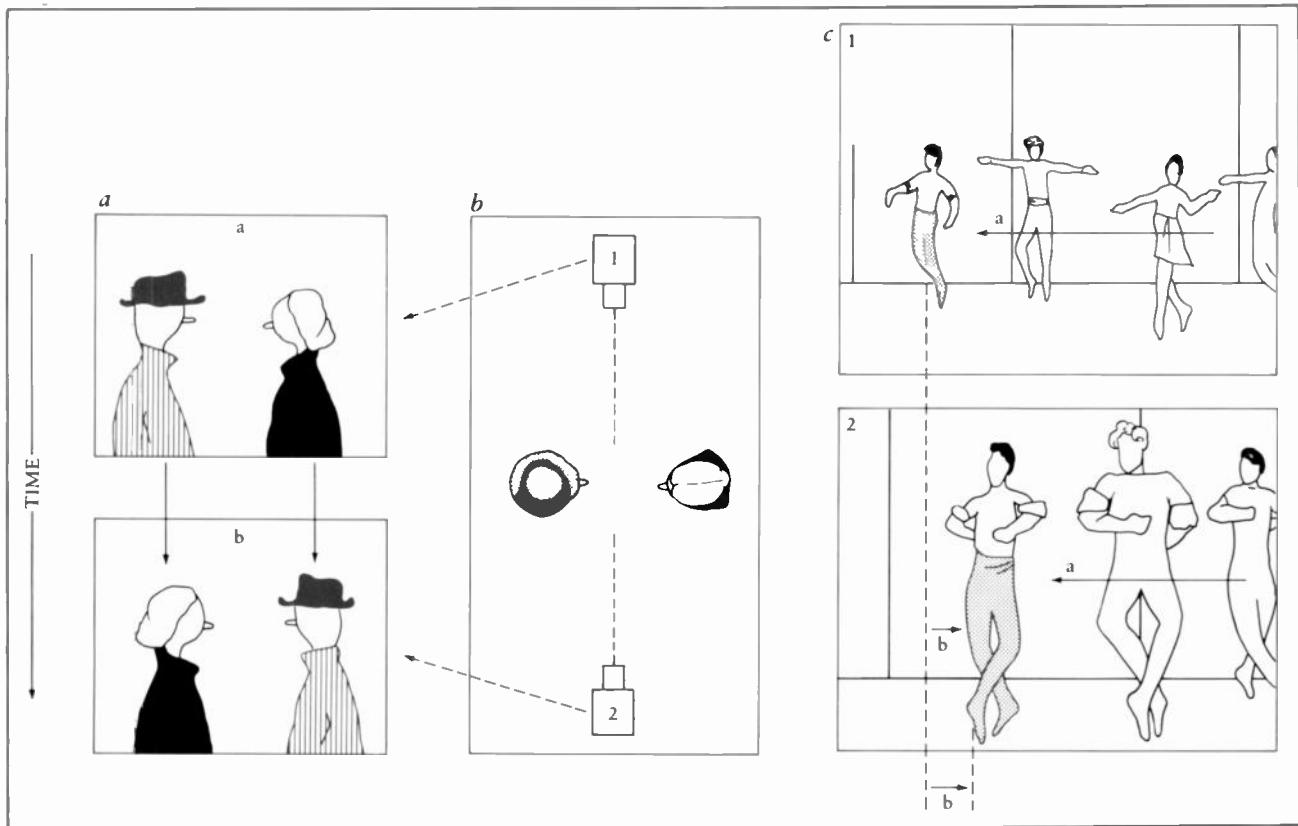


Figure 12.

normal vision. Nevertheless, cuts are ubiquitous and readily comprehended (if such pitfalls as those in Figures 7c are avoided).

What Then Are Pictures?

A picture—whether still or moving—need not look at all three-dimensional itself, nor need the entire shape be shown at any time in order to represent a three-dimensional object. How then is the picture like the object?

We must consider the processes by which we perceive the world itself before we can speculate about what they might share with picture perception.

- We do not see everything in detail at once. To see different things clearly, we need successive glances. No matter how flat the picture and how solid the scene, the two-dimensional relations within the optic array provide the medium within which eye movements are made. Picture and scene are very similar so far as this fundamental process of perceptual inquiry is concerned.
- Glances are *elective*. The viewer is not compelled to look at all parts of any picture (or of a real scene in the world) or to test its consistency, and perceptual tolerance of elisions (Figures 6 and 7d) may merely reflect this.

- Given that eye movements are made to answer visual questions, the viewer must keep some account of the questions and answers. That account constitutes a schema of the object or scene. The schemas that guide the viewer's perceptual inquiry in the world work with the picture as well.

The competent artist and filmmaker both aim at eliciting visual questions that make the subsequent visual answer comprehensible. Conventions guide this process. They provide expectations about what schemas are to be tested and about where information is to be found.

Conventions also provide MEANING for otherwise meaningless or unfamiliar patterns or events. Some arbitrary graphic symbols—such as electrical circuit diagrams, or film devices like the dissolve, signifying the passage of time or parallel action—are only meaningful with previous experience. Pictorial representations, both still and moving, are generally accessible and nonarbitrary when they draw on the characteristic processes by which we seek information about the three-dimensional world from the two-dimensional optic array.

See also GRAPHICS; MOTION PICTURES; REPRESENTATION, PICTORIAL AND PHOTOGRAPHIC; VISUAL IMAGE.

Bibliography. Rudolf Arnheim, *Art and Visual Perception: A Psychology of the Creative Eye*, rev. ed., Berkeley, Calif., 1974; James J. Gibson, *The Ecological Approach to Visual Perception*, Boston, 1979; Ernst H. Gombrich, *Art and Illusion: A Study in the Psychology of Pictorial Representation*, 4th ed., London, 1972; Ernst H. Gombrich, Julian Hochberg, and Max Black, *Art, Perception, and Reality*, Baltimore, Md., 1972; Julian Hochberg, *Perception*, 2d ed., Englewood Cliffs, N.J., 1978; idem, "Pictorial Functions and Perceptual Structures," in *The Perception of Pictures*, Vol. 2, ed. by Margaret Hagen, New York, 1980; idem, "The Representation of Space and Events in Video and Cinematic Displays," in *Handbook of Perception and Human Performance*, Vol. 1, ed. by Kenneth R. Boff, Lloyd Kaufman, and James P. Thomas, New York, 1986; Julian Hochberg and Virginia L. Brooks, "The Perception of Motion Pictures," in *Perceptual Ecology*, Vol. 10, *The Handbook of Perception*, ed. by Edward C. Carterette and Morton P. Friedman, New York, 1978; Calvin F. Nodine and Dennis F. Fisher, eds., *Perception and Pictorial Representation*, New York, 1979.

JULIAN HOCHBERG AND VIRGINIA L. BROOKS

PERFORMANCE

A mode of communicative behavior and a type of communicative event. While the term may be employed in an aesthetically neutral sense to designate the actual conduct of communication (as opposed to the potential for communicative action), performance usually suggests an aesthetically marked and heightened mode of communication, framed in a special way and put on display for an audience. The analysis of performance—indeed, the very conduct of performance—highlights the social, cultural, and aesthetic dimensions of the communicative process.

Conceptions of Performance

In one common usage performance is the actual execution of an action as opposed to capacities, models, or other factors that represent the potential for such action or an abstraction from it. In the performing arts this distinction can be seen in the contrast between composed guidelines or models for artistic presentations, such as playscripts or musical scores, and the presentational rendition of those works before an audience (*see* ACTING). A form of intersemiotic translation is involved here, a shift from the encoding of a message in one SIGN SYSTEM (CODE) to another. The transformation can go the other way as well, from performed action to transcribed text, as when a DANCE is transcribed into Labanotation or an orally performed FOLKTALE into written form. The approach to verbal art known as ETHNOPOETICS is centrally concerned with the problems of such transcription.

In this sector of performance studies, THEATER people, for example, have long been interested in the



Figure 1. (*Performance*) Yanagi Buncho, the celebrated actor Ichikawa Hakuyen or the Second Danjuro, represented in his main roles. The Bettmann Archive, Inc.

relationship between playscript and performance and the process of moving from the former to the latter. Folklorists, to take another example, contrast text-centered perspectives, which focus on disembodied, abstract FOLKLORE items, with performance-centered perspectives, which are concerned with the actual use of folklore forms.

The focus of debate on these issues centers upon how much and in what ways the script or score or folkloric tradition determines performance as against how much flexibility, interpretive choice, or creative opportunity rests with the performer. A corollary concern, in the fine arts especially, is how accurately a given version of a playscript or musical score represents the intentions of the playwright or composer. We do not, for example, have *Macbeth* written in Shakespeare's hand. Can we reconstruct what he intended, and, if so, how are we bound by that understanding in performance? As a general tendency, critics and scholars tend to vest authority in the musical or dramatic text and through it in the author of the artistic work, whereas performing artists tend to provide the strongest arguments for their own creative contribution to the artistic process. It is also clear that a neutral performance of a received and authoritative text is an idealist fiction; performance always manifests an emergent dimension, as no two performances are ever exactly the same. Beyond this, there is too much variation across the range of performing arts, cultures, and historical periods (and within each of these) to make a conclusive argument. Ultimately, the relative proportion and interplay of authority and creativity, the ready-made and the emergent, must be determined empirically, in the close study of performance itself.

A similar contrast between the potential for communicative action and the actual conduct of communication is found in linguistic usage in the opposition between competence and performance. This contrast was proposed by U.S. linguist Noam Chomsky and is central to the theory of generative grammar. In generative grammar competence is tacit grammatical knowledge, the formal structure of language as an abstract, idealized, cognitive system of rules for the production and comprehension of grammatically appropriate sentences. Performance, by contrast, is "natural speech," what the speaker actually does in using language. For Chomsky and other generative grammarians, competence is the primary concern of linguistic theory; a grammar is no more or less than a theory of competence for a given language. Performance tends to be seen as deviant, imperfect, encumbered by such "grammatically irrelevant" factors as distractions, memory restrictions, errors, shifts of attention and interest, and the like.

Other students of language, however, especially psychologists, sociolinguists, and linguistic anthropologists, are centrally concerned with performance.

For example, Dell Hymes, a U.S. anthropologist, argues that a socially constituted linguistics demands an alternative conception of competence and performance and their relative importance to linguistic theory. In this view, social function gives shape to linguistic form, language has social as well as referential MEANING, and the communicative function of language in the constitution of social life is fundamental to its essence. Hymes emphasizes "communicative competence," encompassing the whole range of knowledge and abilities that enable one to speak in socially appropriate and interpretable ways. It involves not only grammatical knowledge but also the knowledge and ability to greet, tell a story, pray, or promise. In this view, what transformational grammar would relegate to performance and thus exclude from the purview of linguistic theory assumes at least parity with grammar at the center of a theory of language. Performance here is an accomplishment.

In contrast to notions of performance as any doing of an act of communication are conceptions of performance as a specially marked mode of action, one that sets up or represents a special interpretive frame within which the act of communication is to be understood. In this sense of performance, the act of communication is put on display, objectified, lifted out to a degree from its contextual surroundings, and opened up to scrutiny by an audience. Performance thus calls forth special attention to and heightened awareness of the act of communication and gives license to the audience to regard it and the performer with special intensity. Performance makes one communicatively accountable; it assigns to an audience the responsibility of evaluating the relative skill and effectiveness of the performer's accomplishment.

To the extent that the skill and effectiveness of expression may become the focus of attention in any act of communication (some would argue that to some extent it is always so), the potential for performance is always present. In these terms, then, performance is a variable quality, relatively more or less salient among the multiple functions served by a communicative act. Accordingly, performance may be dominant in the hierarchy of functions or subordinate to other functions—informational, rhetorical, phatic, or any other. Thus, for example, a sea chantey sung on board ship primarily to coordinate a work task may be secondarily presented to and appreciated by the sailors for the skill of the chanteyman's performance; on the other hand, performance may become paramount if the same singer is featured onstage at a maritime folk FESTIVAL. The relative dominance of performance, then, will depend on the degree to which the performer assumes responsibility to an audience for a display of communicative skill and effectiveness as against other communicative

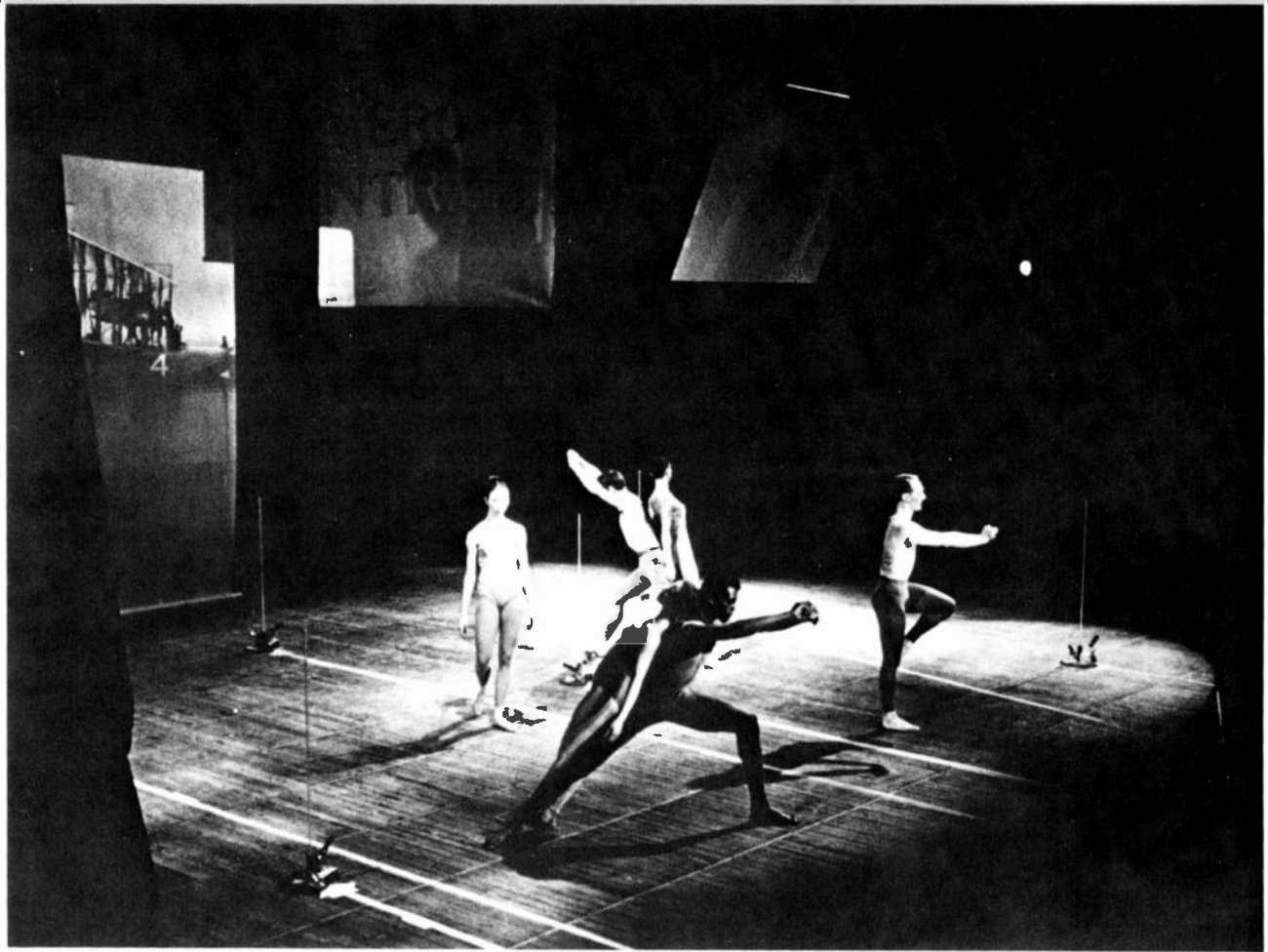


Figure 2. (*Performance*) Variations V (1965), by John Cage. Performed by Merce Cunningham and Dance Company at the Brooklyn Academy of Music. © 1967 by Peter Moore.

functions. It may range along a continuum from sustained, full performance, as when an operatic diva sings at La Scala, to a fleeting breakthrough into performance, as when a child employs a new and esoteric word in conversation with peers as a gesture of linguistic virtuosity. Situated somewhere between the two might be hedged performance, as when someone presents an off-color joke and claims it was picked up from someone else in case it is not well received by the audience, but tells it as well as possible in the hope that the skill and effectiveness of the presentation may be evaluated positively.

Integral to the conception of performance as a frame that puts on display the intrinsic qualities of the act of communication itself is the way in which this framing is accomplished, or in the Canadian sociologist ERVING GOFFMAN's term, how performance is keyed. Every act of communication includes a range of explicit or implicit framing messages that convey instructions on how to interpret the other messages being conveyed. This communication about communication was termed *metacommunication* by GREGORY BATESON. In empirical terms this means that each community will make use of a structured set of distinctive communicative means to key the performance frame so that communication within that frame will be understood as performance within

that community. These keys may include special formulas ("Once upon a time . . .," "Did you hear the one about . . .?"), stylizations of speech or movement (e.g., rhyme, parallelism, figurative language), appeals to tradition as the standard of reference for the performer's accountability ("The old people say . . ."), even disclaimers of performance ("Unaccustomed as I am . . ."). The culture-specific constellations of communicative means that key performance may be expected to vary from one culture to another, although areal and typological patterns and universal tendencies may exist.

Characteristics of Performance

Prominent among the cues that signal performance may be situational markers: elements of setting, such as a raised stage, a proscenium arch, or an altar; special paraphernalia, such as costumes or masks (*see MASK*); occasioning principles, such as seasonal festivals or holy days. All performance, like all communication, is situated, enacted, and rendered meaningful within socially defined situational contexts. The comparative study of performance, however, has tended to emphasize those events for which performance is a criterial attribute, what the U.S. anthropologist Milton Singer has called "cultural

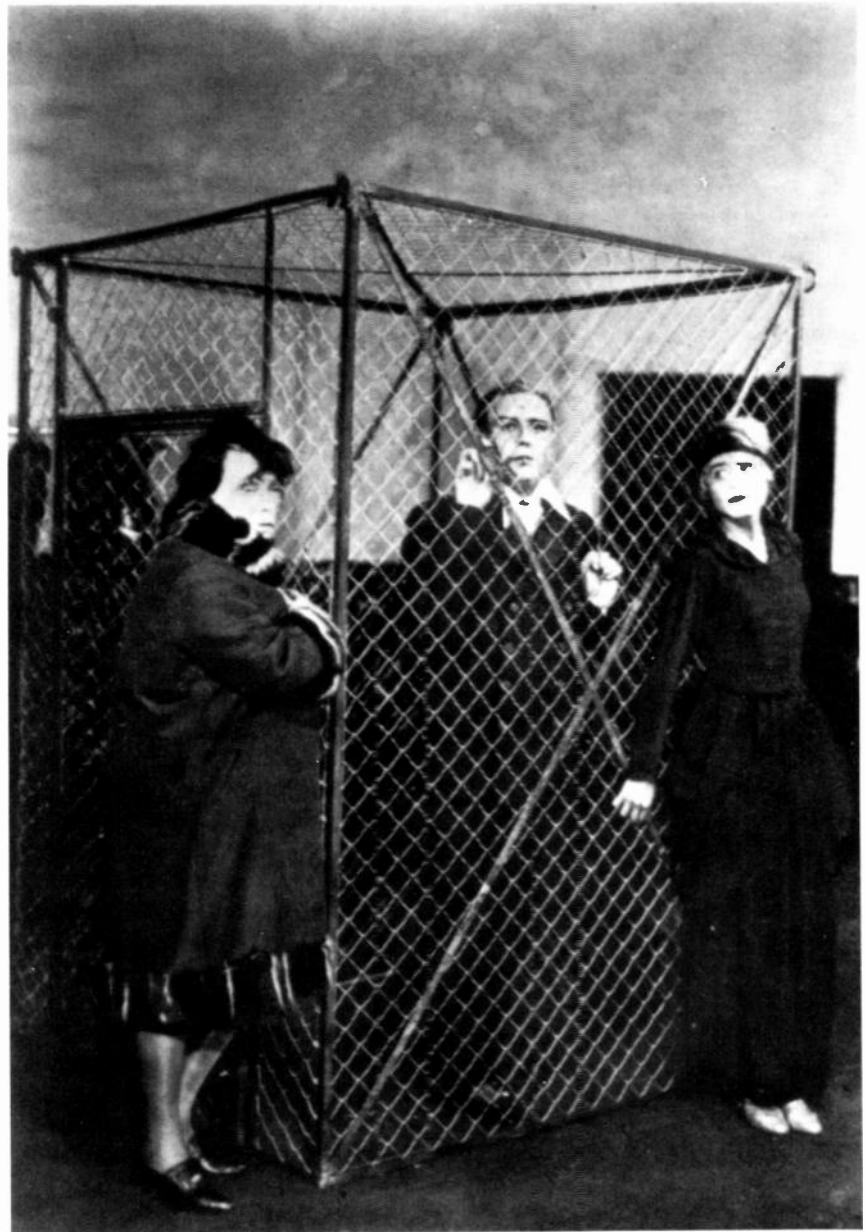
performances." Cultural performances tend to be the most prominent performance contexts within a community and to share a set of characteristic features.

First of all, such events tend to be *scheduled*, set up and prepared for in advance. In addition, they are *temporally bounded*, with a defined beginning and end; they are also *spatially bounded*, that is, enacted in a space that is symbolically marked off, temporarily or permanently, such as a theater, a festival ground, or a sacred grove. Within these boundaries of time and space, cultural performances are *programmed*, with a structured scenario or program of activity, as in the five acts of an Elizabethan DRAMA or the liturgical structure of an Iroquois condolence ceremony. These four features are in the

service of an additional one, which is part of the essence of cultural performances, namely, that they are *coordinated public* occasions, open to view by an audience and to collective participation; they are occasions for people to come together. Moreover, involving as they do the most highly formalized and aesthetically elaborated performance forms and the most accomplished performers of the community, such performance events are *heightened* occasions, available for the enhancement of experience through the present enjoyment of the intrinsic qualities of the performative display.

Perhaps the principal attraction of cultural performances for the study of society lies in their nature as *reflexive* instruments of cultural expression. U.S.

Figure 3. (*Performance*) Bertolt Brecht, *Die Dreigroschenoper* (Three-penny Opera), Theater am Schiffbauerdamm, 1928. Deutsches Theatermuseum, Munich.



scholar Barbara Babcock has suggested that the term reflexive identifies two related capacities of performance, both rooted in the capacity of any system of signification to become an object to itself and to refer to itself, thus opening up to view the organizing and patterning principles by which the system is constituted.

First of all, performance is formally reflexive—signification about signification—insofar as it calls attention to and involves self-conscious manipulation of the formal features of the communicative system (physical movement in dance, language and tone in song, and so on), making one at least conscious of its devices. At its most encompassing, performance may be seen as broadly metacultural, a cultural means of objectifying and laying open to scrutiny culture itself, for culture is a system of systems of signification. Thus, Singer, in his efforts to understand the complex culture of India, concentrated his attention on such cultural forms as plays, concerts, lectures, ritual readings and recitations, rites, ceremonies, and festivals, because his “Indian friends thought of their culture as encapsulated in these discrete performances, which they could exhibit to visitors and to themselves.”

Reflexive is a more potent term here than the still widely current *reflective*, which treats performances and other artistic forms as reflections, mirror images (though perhaps distorted ones, as in a fun house) of some primary cultural realities such as values, patterns of action, structures of social relations, and the like—an “art follows life” perspective. Recent performance studies in anthropology, as in the work of Roger Abrahams, Clifford Geertz, Richard Schechner, and Victor Turner, demonstrate that cultural performances may be primary modes of discourse in their own right, casting in sensuous images and performative action rather than in ordered sets of explicit, verbally articulated values or beliefs, people’s understandings of ultimate realities and the implications of those realities for action. Geertz’s analysis of the court rituals of what he calls “the theater state in nineteenth-century Bali” are especially revealing in this regard.

In addition to formal reflexivity, performance is reflexive in a social-psychological sense. Insofar as the display mode of performance constitutes the performing self (the actor onstage, the storyteller before the fire, the festival dancer in the village plaza) as an object for itself as well as for others, performance is an especially potent and heightened means of taking the role of the other and of looking back at oneself from that perspective, in the process that social philosopher and social psychologist GEORGE HERBERT MEAD and others like him have identified as constitutive of the self. Indeed, Mead himself cites the efficacy of drama in reporting situations through

which one can enter into the attitudes and experiences of other persons. Such dimensions of consciousness of consciousness are not, of course, confined to cultural performances but may illuminate identity in any social context; a sense of being “on” or doing something “for the camera” in the course of ongoing social actions does constitute performance in the general sense developed here. However, when the attribution of a performance quality to social interaction carries with it a range of metaphorical meanings drawn more narrowly from theatrical performance in variations on the venerable “life as theater” trope, the analogy is best explored in terms of the conventions of theater or drama that are pressed into the service of the metaphor.

See also BODY MOVEMENT NOTATION; CANTOMETRICS; CHOREOMETRICS; MUSIC PERFORMANCE; ORAL CULTURE; ORAL POETRY.

Bibliography. Roger D. Abrahams, *The Man of Words in the West Indies*, Baltimore, Md., 1983; Barbara Babcock, ed., *Signs about Signs: The Semiotics of Self-Reference* (special issue), *Semiotica* 30, nos. 1–2, 1980; Richard Bauman, *Verbal Art as Performance*, Rowley, Mass., 1977, reprint Prospect Heights, Ill., 1984; Noam Chomsky, *Aspects of the Theory of Syntax*, Cambridge, Mass., 1965; Clifford Geertz, *Negara: The Theater State in Nineteenth-Century Bali*, Princeton, N.J., 1980; Erving Goffman, *Frame Analysis*, Cambridge, Mass., 1974; Richard Hornby, *Script into Performance*, Austin, Tex., 1977; Dell Hymes, *Foundations in Sociolinguistics*, Philadelphia, 1974; George Herbert Mead, *Mind, Self, and Society*, ed. by Charles W. Morris, Chicago, 1962; Richard Schechner, *Essays on Performance Theory*, New York, 1977; Milton Singer, *When a Great Tradition Modernizes*, New York, 1972; Victor Turner, *From Ritual to Theater*, New York, 1982.

RICHARD BAUMAN

PERSONAL SPACE. *See* INTERPERSONAL DISTANCE.

PERSUASION

The process whereby a person’s cognitions, ATTITUDES, or behaviors toward an object are influenced by another person’s communication about that object. The persuasion process has been subjected to intense theoretical analysis during several periods in Western history, but only during the past half-century has the theorizing been supplemented by concentrated empirical research.

Historical Background

Only in four scattered centuries has persuasion played so central a role in Western society that it became an art, a craft, and a science with a systematic body of theory. The first was the Hellenic century that can

be dated from the 427 B.C.E. arrival of the Sophists in Athens to the death of Demosthenes in 322; ARISTOTLE's *Synagoge Technon*, which reviewed other Hellenic theories of persuasion, has been lost, but his own persuasion theory remains accessible through his *Rhetoric* and *Topics* (see also HELLENIC WORLD). A second persuasive age that left a lasting legacy of theory and techniques is the last century of the Roman Republic, dating from the Gracchi to the assassination of CICERO in 43 B.C.E. by the triumvirate who brought an end to the republic; Quintilian's *Institutio oratoria* provides a detailed summary of the persuasive techniques and theories of Roman orators (see also ROMAN EMPIRE). The reappearance of the *Institutio* in 1470 as one of Europe's earliest printed books began the third persuasive age, the RENAISSANCE century of eloquence that terminated with the murder of the French philosopher Petrus Ramus (Pierre de La Ramée), the period's foremost rhetorician, in the 1572 St. Bartholomew's Day Massacre. A fourth great age of persuasion is the present century of the mass media. See also RHETORIC.

Serious scientific study of persuasion began in the 1920s and grew quickly; currently well over a thousand empirical studies on how persuasive communications change attitudes and behaviors are published each year by basic and applied researchers in such fields as social psychology, marketing, and communication science. While the focus here is on persuasive communications from other people as a major determinant of the person's attitudes and behaviors, it should be recognized that attitudes and behaviors may be affected also by factors such as genetic endowment, transient physiological states, direct experience with the object, and participation in socializing institutions such as the childhood home, peer groups, schools, governmental structures, and social rituals.

An Input/Output Analysis of the Communication/Persuasion Process

The persuasion process can be analyzed on an input/output basis, the inputs being various components of the persuasive communications and the outputs being the successive steps that lead to the desired change in attitudes and actions. It is useful to group input communication variables into the five classes of source, message, channel, receiver, and target, each of which can be subdivided: source variables into credibility, attractiveness, and power cues; message variables into appeals, arguments, styles, organization, amount of material, and the like. These second-order input categories can be further subdivided, as when message style is analyzed into vividness, literalness, speed, HUMOR, and so forth. This hierarchy of input categories provides useful check-

lists for constructing and diagnosing persuasive communications. Their hierarchical structure allows the communication to be analyzed either by looking at the big picture or by focusing on specific aspects.

The output side of the persuasive process can be analyzed into a series of behavioral steps that leads to the intended change in attitudes or action. A dozen successive steps leading to persuasion are usefully distinguished, including exposure to the communication, attending to it, developing interest in it, comprehending its content, generating supportive cognitions, acquiring skills needed to comply, accepting the position advocated, storing this agreement in memory, retrieving the stored material when opportunity for acting arrives, decision making on the basis of the retrieved material, acting in accord with this decision, and consolidating the new position.

Constructing or evaluating a persuasive communication is facilitated by analyzing its potential for evoking each of the dozen steps; where some output step is found to be only weakly evoked, inputs can be added to the communication to elicit it. A number of errors common in constructing persuasive communications can be avoided by using such a checklist of steps. For example, a communication input such as humor or GRAPHICS may be added to evoke some output step such as interest in the message, but an examination of this output list suggests that the addition could impede other output steps, as when humor makes the message more enjoyable but distracts from comprehension of the arguments. With unimportant issues, the receiver may take a shortcut through these dozen steps, accepting or rejecting the message conclusion on the basis of incidental cues such as source credibility without paying attention to the arguments.

Source variables. The notion that the effectiveness of a given communication can be enhanced by attributing it to a favorably regarded source underlies efforts of advertisers and political campaigners to have their products or candidates endorsed by credible, attractive, and powerful persons and institutions. Credibility derives from the source's perceived expertise and trustworthiness. Expertise is attributed on the basis of the source's perceived general intelligence or specific acquaintance with the issue. The basis for the attribution of trustworthiness is the source's perceived general honesty and objectivity on the issue; for example, sources may be more trusted and elicit more agreement when they are perceived as arguing against their own best interests. Source attractiveness derives from the source's familiarity, similarity, or physical beauty. Source power derives from the source's control, or perceived control, over the target person's rewards and punishments, the source's desire for agreement, and ability to ascertain

if the agreement has occurred; for example, source power is more effective in eliciting public compliance than private agreement.

While source credibility, attractiveness, and power typically enhance persuasiveness, these commonsense effects may be reversed in various circumstances. For example, revealing the source's persuasive intent may reduce credibility but enhance impact when the target person wants to ingratiate the source or when the source's interestedness is taken as a sign of expertise or when the revelation clarifies the point of the message. Likewise, the usual positive impact of source attractiveness can be reversed, for example, when the source's niceness is taken as an attempt at ingratiation or a willingness to tolerate noncompliance, when identification with the aggressor is involved, or when praise from a stranger is more convincing. And while source power generally enhances compliance, the reverse relationship obtains when a disadvantaged person dominates through weakness or a powerful source evokes reactance. Such reversals are reminders that persuasion theory should not only codify commonsense assumptions but also make explicit exceptional situations in which the usual relationships are reversed.

Message variables. The persuasive impact of a half-dozen illustrative classes of message variables will be considered: type of argument and appeal, style, inclusions and omissions, organization, amount of material, and extremity of position taken. As for type of argument, induction from a vivid example tends to be more persuasive than deduction from a general principle. The relative effectiveness of fear versus reassurance appeals can be studied by looking at messages urging people to get cancer examinations, either by stressing the dangers of waiting too long or by stressing the benefits of early detection. Fear appeals are more effective with people who feel invulnerable or are uninterested in the issue, but they may be counterproductive by motivating the person to cope with the anxiety rather than with the problem (for example, by repressing the whole topic rather than taking action on the danger). Reassuring appeals may thus be more effective in producing long-term behavioral results.

Figurative language and humor illustrate message style variables. Figures of speech, especially sustained metaphors, enhance persuasion by attracting attention, increasing perceived source competence, or providing aesthetic pleasure (*see* METAPHOR). Humor is used widely in commercial ADVERTISING and political ORATORY, but surprisingly little evidence for its persuasive effectiveness has been found. A considerable body of empirical research shows that humor decreases as often as it increases persuasive impact and seldom has the expected mediator or interaction effects. Faster speaking (up to one-and-one-half times the normal rate) enhances persuasion.

As for what is best included versus left out, persuasion is usually greater if the conclusion is presented explicitly in the message rather than left implicit for the audience to induce. It is more effective to deal explicitly and early with opposition arguments than to ignore them (unless there is near certainty that the audience will remain unaware of them). It is also more effective to include only very strong arguments and omit those of modest strength, because people tend to use a weighted-averaging model of cognitive algebra.

A "first the good news, then the bad" ordering of desirable and undesirable information in a message is more persuasive because starting with the bad news may cause the audience to tune out before the good news arrives. Whether there is a primacy advantage in creating the initial impression by presenting one's side first or a recency advantage in going last and leaving the freshest impression at decision time depends on spacing of the time gaps. Because of the negatively accelerated decay of memory and of proactive inhibition, the first side has the advantage when the two sides come in immediate succession and there is a delay before audience decision; but the second side has the advantage when there is an interval between first and second sides and the decision is made immediately after the second side.

Repetition has limited cost-effectiveness because persuasive impact increases only for the first three or four hearings and then levels off. When number and spacing of supportive arguments are considered, some evidence indicates that information-overload effects occur at high speeds of presentation, beyond which more information yields less impact. This negative return from increased information occurs only at unusually high rates of presentation, however.

A final type of message variable—extremity of the position urged—affects exposure, perception, and attitude change. The selective exposure postulate—that people seek out agreeable and avoid disagreeable information—is widely held by communication theorists, but empirical evidence shows that the desire to avoid discrepant information is often overridden by the advantages of becoming familiar with the opposition's position. Some evidence suggests that mildly discrepant material is perceptually distorted to appear more agreeing than it actually is, while highly discrepant material may be distorted slightly to appear more discrepant than it actually is. The more extreme the message position, the more change it produces in the audience, up to gigantic discrepancies where incredulity sets in, especially with suspect sources. For example, in simulated jury trials, the higher the award asked by the plaintiff's attorney (up to extravagantly high amounts), the more money the jury actually awards.

Channel variables. Channel variables include the sensory receptors by which the communication reaches

the person (such as eye versus ear), the medium through which it is transmitted (such as print versus television), the contextual circumstances surrounding the transmission, and so forth. The television medium is thought to be particularly effective because of its vividness and the amount of time the average person spends watching it (over three hours per day in industrialized countries). Much research has focused on intended effects of television, such as advertising's impact on buying or the impact of political campaign materials on voting, and on such unintended effects as how the pervasive VIOLENCE in programs affects viewer aggression or how biased television representation of various demographic groups affects viewers' stereotypes. Some studies on each of these possible effects report statistically significant impacts but usually of small magnitude, and many studies find no significant effects at all. The smallness of the demonstrated effects of television may be due to methodological or conceptual deficiencies in the studies or to the impacts actually being less than commonly expected.

Examples of the source's NONVERBAL COMMUNICATION that are found to reduce persuasive impact include very high and low levels of eye contact, narrow pupil dilation, a closed and symmetrical posture, and self-grooming gestures. Examples of auditory nonverbal cues that tend to reduce persuasion by lowering perceived credibility, attractiveness, or power include high pitch, long latencies and other nonfluencies, hedges, and tag questions. It is dangerous to generalize about the persuasive effects of these nonverbal variables because of their nonmonotonic relationships and interactions with other variables.

Communication context variables affect persuasive impact. For example, hearing a persuasive communication in the presence of other people has been found to lessen impact even if the others are strangers. Also being in a benevolent mood when one hears a message often enhances its impact.

Receiver variables. Characteristics of the receivers (audience) that have been studied for their effects on persuadability include demographic characteristics, personality traits, and degree of active participation. There is a nonmonotonic relationship of age to susceptibility to social influence such that suggestibility reaches a maximum at about age nine, while conformity and persuadability peak a few years later. There is a marginal tendency for women to be more influenceable than men, while ethnic differences in susceptibility appear negligible. The relationship of many personality characteristics including self-esteem, anxiety, and depression to persuadability is that people at intermediate levels on such characteristics tend to be more influenceable than people very high or low on the variables. This inverted-U relationship of age and personality traits to persuadability suggests the operation of compensatory mediators. For

example, as age or self-esteem goes up, capacity for attention and comprehension increases, making the person more open to persuasion; but concomitantly skepticism and critical ability increase, reducing persuadability, these compensatory mediators accounting algebraically for why susceptibility is greatest at intermediate ages or self-esteem levels. Research on forced-compliance "dissonance" situations in which the person is induced to give a counterattitudinal speech indicates that internalized self-persuasion results to the extent that the speaker experiences the participation as voluntary and as having produced serious consequences.

Target variables. The extent to which induced attitudinal and behavioral changes decay as time passes after the communication depends on various factors. In the case of unimportant matters, very incidental aspects of the communication such as source attractiveness may induce the change, which is then likely to decay rapidly. Persuasion on more involving topics tends to be more persistent, because the recipient is motivated to assimilate the message arguments and generate further cognitive responses. There are even "sleeper effects" in which communications have delayed-action effects, their persuasive impact growing as time passes (*see* SLEEPER EFFECT).

A person can be made resistant to later persuasive communication by a variety of pretreatments. Prior anchoring of the belief to other beliefs, to the person's values, or to significant reference groups makes it more resistant to subsequent persuasive attacks. Preexposure to a weakened form of the attacking material also confers resistance to subsequent strong attacks, analogous to inoculation with a weak virus to stimulate disease resistance in a biologically over-protected person who might subsequently be exposed to the virus in strong form. Resistance can also be conferred by modeling, that is, having the person witness resisting behavior by other people. Training in critical ability and inducing resistant motivational states such as hostility have proven less successful in conferring resistance.

The selected communication variables reviewed here in relation to their persuasive impacts are representative of the wide range of variables that have been studied for their theoretical significance or practical importance. The field awaits general theories of persuasion that will integrate these many specific relationships that have been empirically observed.

See also POLITICAL COMMUNICATION; PROPAGANDA; PUBLIC RELATIONS.

Bibliography. Robert B. Cialdini, *Influence: The New Psychology of Modern Persuasion*, rev. ed., Glenview, Ill., and New York, 1985; Harold D. Lasswell, Daniel Lerner, and Hans Speier, eds., *Propaganda and Communication in World History*, 3 vols., Honolulu, Hawaii, 1979-1981; William J. McGuire, "Attitudes and Attitude Change," in

Handbook of Social Psychology, 3d ed., Vol. 2, ed. by Gardner Lindzey and Elliot Aronson, New York, 1985; Richard E. Petty and John T. Cacioppo, *Attitudes and Persuasion: Classic and Contemporary Approaches*, Dubuque, Iowa, 1981; D. W. Rajecki, *Attitudes: Themes and Advances*, Sunderland, Mass., 1982; Kathleen K. Reardon, *Persuasion: Theory and Context*, Beverly Hills, Calif., 1981; Mary J. Smith, *Persuasion and Human Action: A Review and Critique of Social Influence Theories*, Belmont, Calif., 1982.

WILLIAM J. MCGUIRE

PHALKE, DHUNDIRAJ GOVIND (1870–1944)

Better known as Dadasaheb Phalke, he was the “father of Indian cinema,” maker of its first full-length fiction film in 1913. Dhundiraj Govind Phalke was born a Brahmin and raised to be a Sanskrit scholar. But he was attracted to the arts and trained first in drawing and later in PHOTOGRAPHY. In 1910 he saw *The Life of Christ* at the America-India theater in Bombay, and it changed his life; as the film rolled, Phalke visualized Indian gods and goddesses and their doings on the screen. It became his mission to make Indian films for Indian audiences.

Phalke saw his task as a part of the nationalist movement against British and other foreign influences. He journeyed to England, made friends with the editor of *Bioscope* magazine, and through him saw the “secret processes” of filmmaking at the Walton studios of Cecil Hepworth. He returned with the basic equipment he needed and made his first film, *Raja Harishchandra*, in 1913. The film was a huge success with both the press and the public. Phalke was hailed as a pioneer and went on to make three more films in quick succession, laying the foundation of a major GENRE of Indian cinema—the mythological film (see MYTHOLOGICAL FILM, ASIAN).

Phalke’s wife, Saraswathi (“Kaki”) Phalke, helped him immensely in realizing his dream of putting Indian images on the screen. When World War I’s threat to supplies from abroad alienated his financiers, his wife cooked for his unit, pawned her jewelry to finance his business, and offered, at a time when prostitutes refused to act in films because it was beneath their dignity, to act as his heroine on condition that her name not be publicized and only her husband play the hero. His daughter Mandakini played the child-god Krishna in some of his films. His staff offered to work without salary. Even so, Phalke’s independent production came to an end. The short films he had turned to during the scarcities of the war years could not sustain his business. In 1918 he joined the Hindustan Film Company, for which he made ninety-two full-length films. Although Phalke missed the creative independence of working in his own studio, his films continued to please large



Figure 1. (Phalke, Dhundiraj Govind) Phalke at work. State Historical Society of Wisconsin, Erik Barnouw Collection.

audiences with their depiction of gods and goddesses. He portrayed miracles through the use of intricate SPECIAL EFFECTS, causing critics to compare him to Georges Méliès in France. In fact, after *Lanka Dahan*, Hepworth invited him to make films in England.

After the coming of sound Phalke made two talkie films, the last of them, *Gangavatan* (The Descent of the Ganges), in 1937. Although he made a hundred features and thirty documentaries (see DOCUMENTARY), only one reel of his first film, *Raja Harishchandra*, and some fragments of his documentaries have survived. He wrote articles advocating the recognition of cinema as an ART and an industry and promoting film appreciation, marking him as a vi-

sionary. In contemporary India Phalke is recognized as a pioneer, and the Indian government has instituted an award in his memory that is given annually for substantial contribution to the cinema. In his lifetime, however, except for the success of his very early films, Phalke generally went unrecognized.

See also MOTION PICTURES.

Bibliography. B. V. Dharap, "Dadasaheb Phalke: Father of Indian Cinema," in *Seventy Years of Indian Cinema, 1913-1983*, ed. by T. M. Ramachandran, Bombay and Springfield, Va., 1985; Narmada Shahane, *Studies in Film History: A Compilation of Research Papers Devoted to D. G. Phalke 1870-1944*, Poona, India, 1970.

CHIDANANDA DAS GUPTA

PHONOGRAPH. See SOUND RECORDING.

PHONOLOGY

The branch of LINGUISTICS that studies the nature and behavior of SPEECH sounds. Many of the questions that occupy phonologists go back to prehistoric times: What is speech and how is it produced? How did articulate speech originate? What is the relationship between human speech and animal vocalization (see ANIMAL COMMUNICATION; ANIMAL SIGNALS; ANIMAL SONG)? How do given speech sounds come to be associated with given meanings (see MEANING)? How is pronunciation learned? Why does pronunciation vary with style of speaking, with speakers of different generations, and with those from different regions? The biblical tower of Babel story and the idea that speech was a gift from specific deities (e.g., Hermes for the Greeks, Sarasvatī for the Hindus) represent early attempts to answer such questions. For many of these topics, such as the origin of speech, there are still no adequate answers, but progress has been made on others. Perhaps the first significant

accomplishment in phonology—and one that probably makes phonology the oldest of the behavioral sciences—was the system devised by the Hindu grammarian Pāṇini (ca. fourth century B.C.E.) for the description of speech sounds and how they vary when words are joined to form compounds or phrases. With some modifications, we use Pāṇini's descriptive system today. In the following abbreviated review of this system the phonetic symbols for speech sounds, which are those used in Webster's Collegiate Dictionary, are differentiated from traditional orthographic symbols by being enclosed between slashes.

Speech Sounds

Speech sounds may be characterized by their *manner* and *place* of articulation. Manners of articulation include, for example, *stops* (those sounds that completely block the air issuing from the lungs) and *fricatives* (those that let air pass through a narrow constriction and thus create audible high-frequency turbulence). Independent of other manners of articulation, sounds may also be *voiced* or *voiceless* depending on whether or not they are produced with accompanying vibration of the vocal cords. Places of articulation, where the speech sound's principal constriction is made, include, for example, the *labial* region and the *alveolar* region (the ridge on the palate behind the teeth). Using these and other classifications for manner and place, the articulations of the distinctive consonants of Midwest American English may be classified as in Table 1.

This system can be used—as Pāṇini did for Sanskrit—to describe in a consistent way the changes in pronunciation that words undergo when joined with other words. For example, when the word *don't* /dōnt/ becomes /dōnch/ in the phrase *don't you*, it may be characterized as a voiceless alveolar stop changing to a voiceless palatal affricate before a

Table 1. Consonants of Midwest American English

	<i>Labial</i>	<i>Dental</i>	<i>Alveolar</i>	<i>Palatal</i>	<i>Velar</i>	<i>Glottal</i>
<i>Stops & Affricates</i>						
voiced	b		d	j	g	
voiceless	p		t	ch	k	
<i>Fricatives</i>						
voiced	v	th	z	zh		
voiceless	f	th	s	sh		h
<i>Nasals</i>						
(voiced)	m		n		ŋ	
<i>Resonants</i>						
(voiced)			l r			
<i>Glides</i>						
(voiced)	w			y		

following palatal glide. This terminology permits the further generalization that (under certain circumstances) all alveolar stops are liable to become palatal fricatives or affricates when they appear before following palatal sounds; for example, /did/ changes to /dij/ in *did you*, /gas/ to /gash/ in *gas shortage*, and /wəz/ to /wəzh/ in *was she*. This is an example of a much more general process called *assimilation*, whereby the place or manner of articulation of a sound changes to be more like those of adjacent sounds. Thus the alveolar nasal at the end of /sən/ becomes the velar nasal /ŋ/ when it appears before a velar stop, as in *sun kissed*.

The Comparative Method

During the first half of the nineteenth century, in what is probably the greatest achievement of phonological science, a way was devised to answer at least partly the age-old question of how languages come to differ from one another. Danish scholar Rasmus Rask and Germans Franz Bopp, Jacob Grimm, and August Schleicher, among others, are credited with development and refinement of a technique—the *comparative method*—for the reconstruction of the history of languages: identifying the *sound changes* (changes in pronunciation) that gave rise to daughter languages from a parent tongue (see LANGUAGE). The comparative method utilizes practical knowledge about the usual construction of languages' sound systems and likely directions of sound change, a qualitative notion of probability (to recognize similarities in different languages that could not have arisen by chance), and the application of something not unlike the theory of optimization in MATHEMATICS (in the sense that it involves finding the shortest path between the posited parent language and the daughter languages—consistent with all other evidence, of course). After finding a set of cognate words in different languages, such as those in Table 2A in

Table 2. Selected Indo-European Voiceless Consonant Correspondences

English	Latin	Greek	Reconstructed PIE initial consonant(s)
A. father	pater	patēr	*p
foot	pēs	poūs	*p
fee	pecūs	pekō	*p
spike	spīca	spilos	*sp
sprout	sperma	spora	*sp
B. thaw	tābēs	tēkein	*t
three	trēs	treis	*t
straw	sternere	sternon	*st

which borrowing of words can be ruled out, it is possible to deduce that the original forms for these words in the parent language—called Proto-Indo-European (abbreviated PIE)—started with the consonants or consonant sequences given in the rightmost column of Table 2A. The PIE *p (the asterisk marks the segment as hypothetical) remains as a voiceless labial stop /p/ in the daughter languages except in word-initial position in English (and other Germanic languages), in which a sound change has transformed it into a voiceless labial fricative. This conclusion is reinforced by the discovery of comparable sets of cognates such as those in Table 2B, which suggest that in the Germanic languages the change of a voiceless stop to a voiceless fricative also occurred at the dental place of articulation.

The same methods can be applied to words from a single language to deduce aspects of that language's history, in which case it is called *internal reconstruction*, but the time depth that can be penetrated in this way is often much shallower. It is possible, for example, to deduce common parent stems to such pairs of English words as *bake/batch*, *wake/watch*, and *book/beechn*, in which the final velar stop /k/ would be original and the /ch/ the result of a sound change. Moreover, this finding would be a guide in reconstructing a parent form for *teach* that had a velar stop at the end. (In fact, *teach* is derived historically from the same source as *token*.) The phonological history reconstructed in this way has often been confirmed through subsequent discovery of ancient texts or inscriptions.

Structuralism

In the beginning of the twentieth century Swiss linguist FERDINAND DE SAUSSURE argued that a narrow focus on the purely superficial properties of speech sounds ran as much risk of missing the really important aspects of the communicative function of speech as a study of chess would if it focused only on the way the chess pieces were constructed. He also thought that more attention should be given to the present-day structure of a language, not only to its historical development. STRUCTURALISM, the approach to the study of speech sounds that implemented this program, was refined to a high level by a group of linguists in Prague. It sought to describe the underlying relationships that existed between the overt spoken elements of language. The function of /d/ in English, for example, is inherently different from that of /g/ in ways that could not be predicted by simply considering that the two differ in place of articulation. The /d/ contrasts with—is “crowded” by—its relatively numerous near neighbors, for example, /t, n, s, z, l, r/, whereas /g/ contrasts with fewer near neighbors, /k, ŋ/. This notion is not unlike the fun-

damental tenet of INFORMATION THEORY, that the measure of the information in a given signal is related to the number of possible different signals in the set from which it is drawn.

The Phoneme

A consideration of the function of speech sounds—whether or not they contrast with other sounds—led to the development of the concept of the *phoneme* (approximately 1890–1930). Regarded as the ultimate unit of speech, phonemes are the “chunks” that form words when strung together. For example, the stops at the beginning of the words *key* and *caught* are quite different: the former articulated in the midpalatal region, the latter almost at the rearmost margin of the palate. But they do not contrast functionally; substitution of one sound for the other would produce a strange English pronunciation but not different words. Therefore they are considered members—*allophones*—of the same phoneme, /k/. However, two sounds that are even more similar than these two allophones of /k/—/z/ and /zh/—do contrast, and the substitution of one for the other can create a different word, for example, *closure* /klōzhər/ versus *closer* /klōzər/ (i.e., something that closes). (As illustrated in this last example, phonemes should not be confused with the letters used to spell words, especially in English, which utilizes a very conservative orthography that reflects a centuries-old, not a current, pronunciation.)

Some who helped to develop and elaborate the phoneme theory, for example, Polish scholar Baudouin de Courtenay and EDWARD SAPIR in the United States, regarded it as essentially a psychological entity, the units used to store words and the chunks into which heard speech was divided and categorized. The attitude of most structuralists in the United States, however—following the lead of Leonard Bloomfield, who was influenced by the then-current behaviorist orientation in psychology—carefully avoided ascribing any mentalistic character to the phoneme or to any other phonological construct.

Generative Phonology

This antimaterialist stance was challenged in the mid-1950s by Noam Chomsky and Morris Halle, both of the Massachusetts Institute of Technology, who encouraged phonologists to try to discover the psychological basis for native speakers' mastery of their language. This approach, called *generative phonology*, adapted the methods used to reconstruct language history to deduce the psychological structure underlying the surface forms of language. Competing grammars (the accounts of this structure) were evaluated on the basis of their overall generality and

simplicity. In principle, they asserted, there is, or should be, a parallelism between the way the linguist constructs a GRAMMAR of a language and the way the child learning its first language constructs its own mental grammar (see LANGUAGE ACQUISITION).

For example, given the related words *electric* and *electricity*, a common underlying stem /ēlektrik/ was posited for both, the stem-final /s/ in the latter word being derived by a *phonological rule* that changes /k/ to /s/ when it appears before a vowel like /i/. In some cases the posited underlying form may be quite abstract in the sense of being unlike any of the words derived from it. For example, /ōpak/ is said to be the form English speakers know—tacitly, not consciously—to be common to both *opaque* /ōpāk/ and *opacity* /ōpasitē/. It was argued that some principles governing phonological rules were so complex that they could not be learned and therefore must be innate, part of the human genetic endowment.

Other Approaches

In the wake of generative phonology (approximately since the mid-1970s) a vigorous and healthy debate over the content and methods of phonology has flourished. Most of the proposed alternative approaches accept the goals of generative phonology, that is, they seek the cognitive understructure that language is built on, but try to attain them with different means. Common to many of these schools is the assumption that what was perceived as the excessive power of the model of grammar used by generative phonology could be limited by finding more rigorous universal (cognitive) constraints on the form of grammars, for example, on the form and content of phonological rules, on the degree of abstractness of underlying forms, or on how rules may be sequenced. Some would rely more on experimental methods to restrain unbridled speculation. Others have argued that the bulk of sound patterns found in a language tell us more about its history and about the physics and physiology of speech than they do about the way language is represented in the mind of the native speaker.

Some of the social forces that determine a speaker's choice of style of pronunciation, such as the desire to show solidarity with the person spoken to, were explored in numerous field studies by U.S. linguist William Labov and his coworkers. These sociolinguistic studies not only clarified some of the ways speech is used to convey nonlinguistic information (social and attitudinal messages) but also speculated on how sound changes occur.

The data and generalizations accumulated by phonologists over the last two centuries have been applied in such diverse practical areas as language TEACHING, speech pathology, lexicography (dictio-

nary making), speech synthesis, and automatic machine recognition of speech. *See also* LANGUAGE REFERENCE BOOK; PERCEPTION—SPEECH; SPEECH AND LANGUAGE DISORDERS.

Bibliography. Daniel A. Dinnsen, ed., *Current Approaches to Phonological Theory*, Bloomington, Ind., 1979; Eli Fischer-Jørgensen, *Trends in Phonological Theory*, Copenhagen, 1975; Erik C. Fudge, ed., *Phonology: Selected Readings*, Harmondsworth, Eng., 1973; D. L. Goyvaerts, ed., *Phonology in the 1980's*, Ghent, Belgium, 1981; Valerie Becker Makkai, ed., *Phonological Theory: Evolution and Current Practice*, New York, 1972; John J. Ohala and Jeri J. Jaeger, eds., *Experimental Phonology*, Orlando, Fla., 1986; R. H. Robins, *A Short History of Linguistics*, London, 1967, reprint (Indiana University Studies in the History and Theory of Linguistics) Bloomington, Ind., 1968; Alan H. Sommerstein, *Modern Phonology*, Baltimore, Md., and London, 1977.

JOHN J. OHALA

PHOTOGRAPHY

Invented as a practical picture-making medium in the third decade of the nineteenth century, photography is the most pervasive and influential means of depiction in modern culture. The basic elements of still photography—an optical system and a photosensitive receiving medium for the optical imagery—are also the foundations for other developments in mass communications technology. In addition to its most commonly considered pictorial uses, various nonillustrative applications of photography play a central role in modern communications technology. Nearly all contemporary books and printed materials are set by photographic typesetting equipment, composed by photocompositors, and printed by means of photographically produced plates (*see* ELECTRONIC PUBLISHING). The revolution in electronic data processing would have been impossible without the mass production of electronic circuitry, itself dependent on the development of highly sophisticated methods of photoengraving. The integrated circuits, which are basic to modern computers and electronic systems, are produced by the optical reduction of complicated circuitry that is photographically etched directly onto wafers of silicon (*see* MICROELECTRONICS). In sum, photography is not only an important means of depiction and illustration; it is also a critically important tool in the technology of information processing and transfer.

Theoretical Considerations

It is possible to make simple pictures by pressing translucent objects (leaves, engravings, swatches of lace, etc.) directly onto paper impregnated with suit-

able light-sensitive chemicals and permitting light to fall onto the object and pass through it to the photosensitive paper. The first experimental pictures made by photographic means were made in this manner (Figure 1). These pictures, usually called photograms, are photographic in origin but are somewhat like stenciled patterns. The object to be printed can be thought of as a kind of stencil, selectively transmitting light to portions of the photosensitive paper against which it is pressed, while blocking light from other portions of the paper. Photographs in the more general sense are made by means of an optical imaging system like a camera or an enlarger in conjunction with various kinds of light-sensitive materials.

Photography has been the subject of intense critical examination since the announcement of its invention in the late 1830s. W. H. F. Talbot called photography "the Pencil of Nature" and "a bit of natural magic," and LOUIS DAGUERRE referred to it as "the Mirror of Nature." Modern critics have viewed photographs as "stencils off the real" (Susan Sontag), "reality recorded" (Gail Buckland), "the scene itself, the literal reality" (ROLAND BARTHES), traces of the objects they represent (Rosalind Krauss), and essentially automatic productions (Stanley Cavell). Some, like Rudolf Arnheim, have claimed that photographs can only show the facts of the moment and are tied to what is termed visible reality; others, such as André Bazin, Edward Weston, and Beaumont Newhall, have insisted that photographs reveal a visible world beyond the reach of human vision.

Theoretical accounts of photography usually define it in opposition to all other graphic media.



Figure 1. (*Photography*) W. H. F. Talbot, photogram of flowers, 1839. The Metropolitan Museum of Art, New York, Harris Brisbane Dick Fund, 1936. (36.37)

Photographs are said to be mechanical in origin, and this, more than any other feature they may be thought to possess, is generally held to be definitive. It is often argued, for example, that a drawing, painting, or engraving originates in the mind of an artist, whereas a photograph necessarily originates in "reality." This mode of analysis is essentially ontological and places the burden of explanation for any particular photograph on the role played by the represented object in the sequence of events causing its depiction. Nearly all accounts of photography are causal in nature and emphasize the special relations said to hold between photographs and the objects they represent. Thus, according to philosopher Kendall Walton, "a photograph is always a photograph of something," whereas a drawing or painting need not be of anything at all. A further defining feature of photography is held to be its automatic character, which is fundamentally and crucially opposed to the manual genesis of other kinds of pictures.

Causal or ontological accounts of photography explain only a small part of what photographs are, and are so riddled with equivocal terminology and misleading emphases that they have proved incapable of providing comprehensive explanations of photography as a medium of depiction. Considered superficially, it seems as if a photograph of, say, the Taj Mahal necessarily depicts that structure because radiation of various kinds is mechanically reflected from it and ultimately, by means of the camera, onto the surface of a photosensitive film. Described in these terms, the photograph is understood to be a passive and necessarily accurate record of the Taj Mahal. On the causal view a photograph of a building is also a picture of it because the building was present before the camera at the time of exposure. But the presence of the building in front of the camera is only a necessary and not a sufficient condition of its photographic depiction. If the camera is not properly focused on the building, if the film receives too little or too much exposure, or if it is improperly developed, the resulting photograph may fail to represent anything standing in front of the camera at the time of exposure even though light reflected from the building initiated changes in the film.

According to theorists such as Walton, Sontag, Krauss, and Arnheim, if light reflected from the Taj Mahal enters a camera and exposes a piece of film, the resulting print from the film is necessarily a photograph of the Taj Mahal whether or not it happens also to be a picture of the building. That is, the print is equally a photograph of the Taj Mahal if it depicts the building, if it is blank, or if it is a dense, featureless black. This view does not correspond to our ordinary understanding, but, worse, it is incapable of explaining how it is that any photo-

graph might also be a picture. A sunburn, after all, is caused by the action of the sun on human skin, which for these purposes may be considered a photosensitive medium. But a sunburn is not a photograph of the sun in the accepted meaning of that expression. Causal theories of photography cannot distinguish between light-induced changes in various media (including skin) and light-induced changes resulting in pictures of objects. The challenge to theorists of photography is to explain how light can be used to make pictures.

As a means of picture making, photography cannot be understood outside the context of the history of pictorial practice in the West. Most theorists of photography have attempted to explain it solely in mechanical, causal terms, but a comprehensive explanation of photography involves an appreciation of the subtle relations between ideas generally conceived of as artistic and matters thought to be scientific or technological in character (*see* ART; VISUAL IMAGE).

Art Practice and the Invention of the Camera

The inventors of photography characterized their inventions as mechanical processes by means of which the images on the ground glass of a camera obscura ("dark room") could be captured on sheets of paper without the aid of an artist. They saw photographs as the products of science and industry and not of the fine arts, a view found in many modern descriptions and analyses of photography.

The camera obscura evolved in Italy in the sixteenth century and was used by a number of picture makers in laying down lines for perspective views and assisting in the difficult task of representing foreshortened objects—problems that other artists and illustrators had mastered without such means (*see* REPRESENTATION, PICTORIAL AND PHOTOGRAPHIC). The earliest camera was nothing more than a completely shuttered room with a single, small aperture drilled in the door or a window shutter. When light is permitted to pass through a sufficiently small aperture into a darkened room, a dim, inverted, and laterally reversed image of illuminated objects outside will appear on a screen placed in the room, opposite the aperture. This phenomenon was known to the ancient Greeks and was studied in detail by the Arab and Latin students of *perspectiva*, the influential medieval theory of vision that flourished in the West from the tenth through the sixteenth century. Although the phenomenon was widely reported and studied, it was not until the art theory of the Italian RENAISSANCE had transformed the practice of painting in the West that pinhole images were thought of as a potential aid for picture makers.

According to theorist Erwin Panofsky, the ten-

dency to emphasize spatial arrangement of objects and figures in Italian painting, together with an emphasis on foreshortened figures, reappeared in the West with the work of the late-thirteenth-century painter Giotto di Bondone. In Panofsky's view the period starting with Giotto and culminating two hundred years later with Leonardo da Vinci was one in which concerns about spatial organization and foreshortening brought about a confluence of artistic practice with scientific theory. This can be seen most vividly in Leon Battista Alberti's text on art theory and practice, *De Pictura*, written in Florence in 1434.

Alberti provides an analysis of vision in terms of what he calls visible things, concluding that a painter can paint what is seen because that is in fact nothing more than a series of conjoined planar surfaces. In other words, the elements of vision and the elements of painting are identical. Alberti's text provides the first written account of the theoretical basis for the use of linear perspective in painting together with the first codified rules for the construction of paintings in perspective. The formal values emphasized by Alberti include sharply outlined figures and objects, their rational (i.e., mathematically sanctioned) arrangement within a geometrically composed pictorial space, and the coherent use of light and shadow in the depicted space (Figure 2). Although these values were expanded and modified over the next two hundred years, his prescriptions for painting form the foundation of what might best be termed pictorial naturalism.

By the mid-sixteenth century most Western artists and illustrators had mastered the use of various techniques of perspective projection as well as the rules of foreshortening and the coherent treatment

of light and shadow in painting, and their practice transformed the pictorial habits and expectations of their audience (see PERCEPTION—STILL AND MOVING PICTURES). Some of these techniques are reducible to rules and were discussed in great detail by authors of Renaissance texts on the practice of drawing and painting, but their appropriate application is nonetheless dependent on lengthy and difficult training. In 1558 Giambattista della Porta, in his encyclopedic *Magia Naturalis* (Natural Magic), mentioned the use of a camera for pictorial purposes, available to amateurs as a shortcut for the production of formally acceptable pictures. The manufacture of cameras meeting the requirements of artists and illustrators awaited advances in the design and production of appropriate lenses, and although improved cameras were used in the seventeenth and eighteenth centuries by amateur sketchers and some professional picture makers as well (Figure 3), it was not until the third decade of the nineteenth century that cameras were capable of meeting existing standards of depiction.

It is an important and often overlooked fact that camera and lens makers had to learn the specific needs of artists and illustrators before they could go about designing and producing instruments that would satisfy those needs. Cameras were designed to incorporate the pictorial requirements demanded by their users and cannot be thought of as machines for the production of natural imagery any more than a Jacquard loom can be thought of as a machine for the production of natural designs or pictures.

As improved cameras became available in the mid-eighteenth century the imagery they produced came to be thought of in popular terms as scientific or natural pictures. Camera images were easily likened

Figure 2. (Photography) Piero della Francesca, *The Flagellation of Christ*, ca. 1444–1451. Galleria Nazionale delle Marche, Urbino. Alinari/Art Resource, New York.



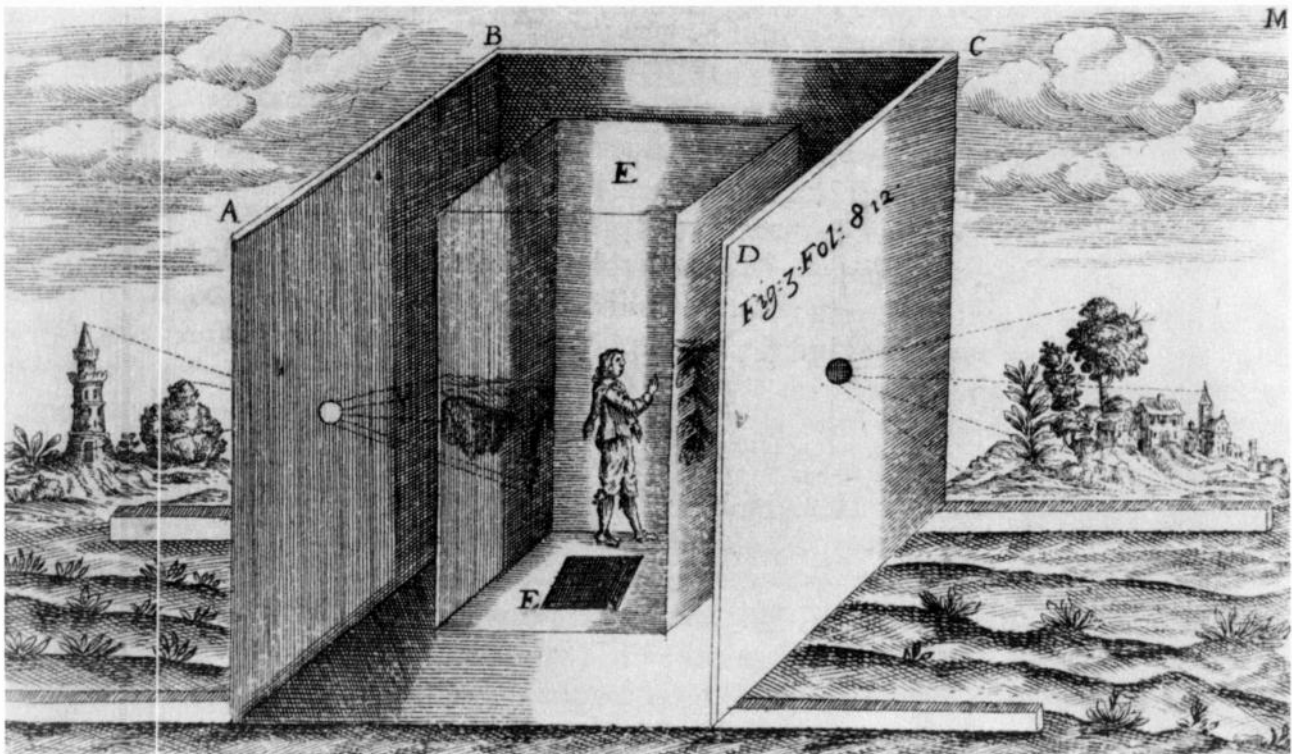


Figure 3. (*Pinorography*) Athanasius Kircher, large portable camera obscura, 1646. Gernsheim Collection, Harry Ransom Humanities Research Center, The University of Texas at Austin.

to the images projected onto the retina of the eye, and this helped to create the impression of cameras as mechanical eyes. This reinforced the Albertian notion that vision itself was essentially pictorial in character. It was forgotten that cameras were designed to produce the kind of imagery routinely crafted by artists and illustrators. This kind of camera came to be conceived of as a mechanical picture-making machine that produced the natural images.

The myth of the camera's natural pictures, together with the discovery of previously unknown chemical elements and compounds in the late eighteenth and early nineteenth centuries, gave rise to the hope that a purely natural means of fixing these images might be found. In his introduction to *The Pencil of Nature* (1844–1845), the first book about photography to be illustrated with photographic prints, Talbot reminisces about the circumstances leading him to the invention of photography. After describing his frustration with his inability to draw freehand, or even to trace the images produced by his camera, he says:

And this led me to reflect on the inimitable beauty of the pictures of nature's painting which the glass lens of the Camera throws upon the paper in its focus—fairy pictures, creations of a moment, and destined as rapidly to fade away. . . . It was during these thoughts that the idea occurred to me . . . how charming it would be if it were possible to cause these natural images to imprint themselves durably, and remain fixed upon the paper!

Thus, from the very outset of the experiments leading to the invention of photography, the entire enterprise appeared to be essentially scientific and mechanical. The inventors of photography failed to understand that the camera was the product of a long-established depictive practice and that it had been designed to accord with the prevailing norms of representation. They viewed photography as an independent and scientific corroboration of existing pictorial practice when in fact the system of photography incorporates many key formal features of that practice.

Although the inventors of photography characterized their goal as fixing the camera's image, it is important to bear in mind that cameras do not produce a single, uniform imagery. For example, cameras using pinhole apertures produce images in strict conformity with the rules of linear perspective projection, whereas, strictly speaking, cameras with lenses do not. Moreover, some cameras (e.g., panoramic cameras made with lenses that rotate about an axis during exposure) produce imagery having an infinite number of principal vanishing points, whereas fixed-lens cameras produce pictures with a single principal point. Even with simple cameras intended for amateur use, the correspondence between what might be seen on a ground glass and what appears in a finished photograph is always a matter of degree.

The most obvious discrepancy between camera

image and photograph is seen clearly in black-and-white photography. Here not only is the range of colors represented by tones of black, gray, and white, but also the tonal responses will vary with different kinds of film. Panchromatic-, orthochromatic-, isochromatic-, infrared-, ultraviolet-, and X-ray-sensitive films provide very different tonal responses to the same camera image. Indeed, scientists value infrared, ultraviolet, and X-ray films because they can be used to produce photographs of structures that may not or cannot be seen in the image on a camera's ground glass. High-speed photography can be used to represent actions that occur in, say, a hundred-thousandth of a second and cannot be seen on the ground glass of a camera, whereas photographs resulting from exposures running many seconds, minutes, or even hours often show blurs and swirls that were never present on the ground glass. The characteristics of images produced by means of a lens depend on the lens focus as well as on the aperture setting used for any particular exposure. Under such circumstances the notion of a single kind of camera imagery is little more than fanciful. Properly understood, images are the result of the photographic process and are not its evanescent raw material.

Technical History

The earliest recorded attempt to produce photographs was made by Englishmen Thomas Wedgwood and Humphry Davy in the late 1790s. By pressing objects like leaves and lace in close contact with pieces of leather impregnated with a strong solution of silver nitrate and exposing these to the sun, they were modestly successful in making photographs, but these images turned dark with further exposure to light.

In 1824 two French brothers, Claude and JOSEPH-NICÉPHORE NIEPCE, produced the first successful photographs made with the camera. Using materials employed in lithography, they coated lithographic stones with a lacquer made of bitumen of judea and oil of lavender and exposed these in a homemade camera to the action of light for more than eight hours. They discovered that the image formed in the lacquer could be measurably enhanced by subjecting the exposed plate to the action of various chemicals, a process now known as development. The Niepces, who named the process heliography, hoped to treat the developed stones with the same chemicals used in lithography, ink them, and pull paper prints in the customary fashion, but the photographic image proved too fragile to withstand the necessary chemical treatment. Although heliography established the possibility of photography as a pictorial medium, the length of exposure time and the extreme difficulty of its operation made the process unworkable by all but the most dedicated experimenters (Figure 4).

In 1829 Joseph Niepce entered into a partnership agreement with Parisian painter-entrepreneur Daguerre for the perfection and commercial exploitation of heliography. Unlike Niepce, Daguerre was unschooled in scientific matters, but through luck and sheer obstinacy he managed to invent a practical photographic process, entirely distinct from heliography, that produced highly detailed and exquisitely modeled pictures. This new process, daguerreotypy, was sold to the French government in 1839 and was released to the world without patent (Figure 5).

The daguerreotype process required the buffing of a silver-coated copper plate until it reached a high polish, at which point it was exposed to iodine vapor, exposed in the camera, and developed by the fumes of heated mercury. The process produced one-of-a-

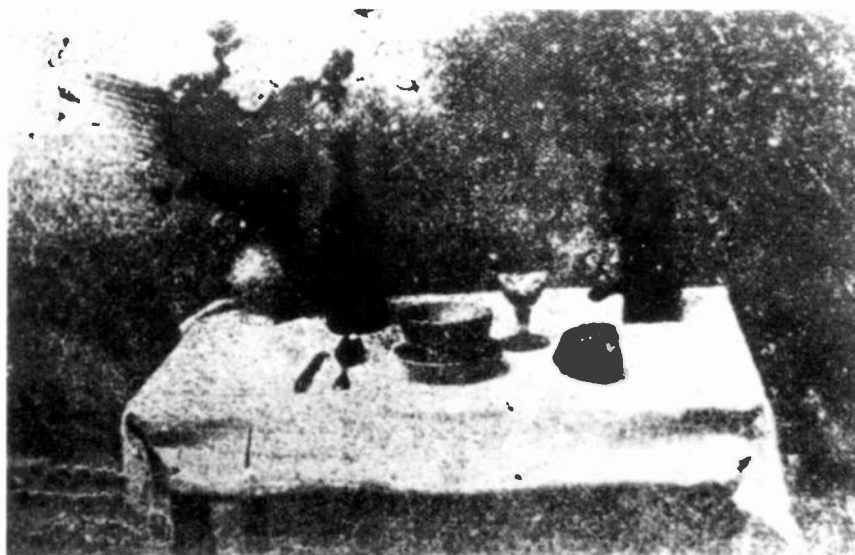


Figure 4. (*Photography*) Anonymous, table prepared for a meal, ca. 1829. Photograph on glass (original destroyed, reproduction from a photo-engraving). Courtesy of the Société Française de Photographie, Paris.

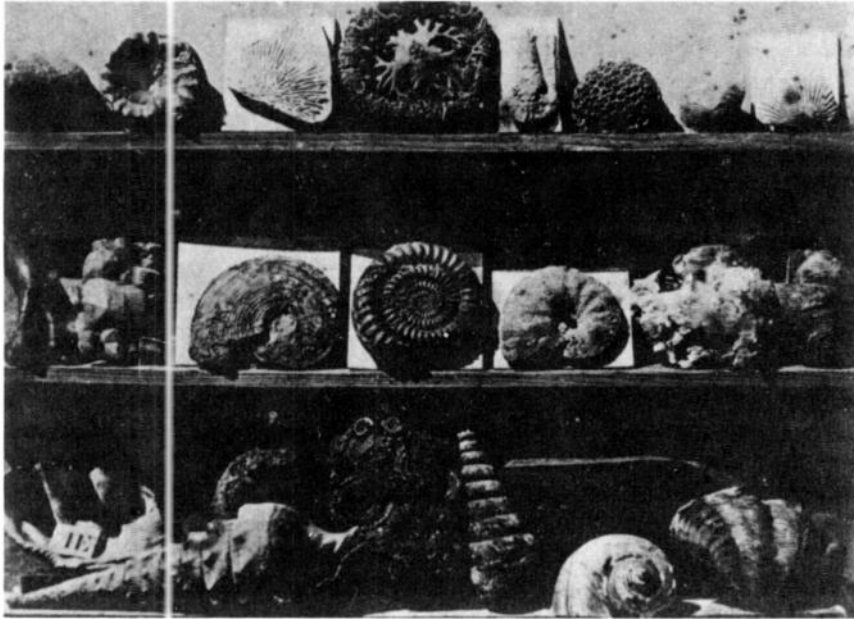


Figure 5. (*Photography*) Louis Daguerre, still life, 1837–1839. Daguerreotype. Courtesy of the Musée National des Techniques, Paris.

kind pictures—it was not a print process—and although this was seen as a distinct fault, the ease and low cost of its operation made daguerreotyping an immediate success. The first daguerreotypes required many minutes of exposure in bright sun, but in less than four years new chemicals were employed along with the iodine, and exposure times were reduced to a matter of a few seconds in a daylight studio. These advances paved the way for studio portraiture, creating the conditions for commercial photography and for the development of a photographic supply industry.

The first negative/positive system of photography was invented by Talbot in England in the same year as the daguerreotype. Talbot's process, called photogenic drawing, involved coating writing paper with various compounds that deposited silver halides (e.g., silver iodide, silver chloride, and silver bromide) directly in the fiber of the paper. After exposing the sensitized paper to the action of light, Talbot washed the images in solutions that stabilized or "fixed" them. These pictures were tonally reversed (light tones appeared as dark deposits of silver, and dark tones appeared as blank areas), and Talbot discovered that by printing these negatives onto another sheet of paper he could reestablish the correct arrangement of lights and darks.

The photogenic drawing process was difficult to work, and in-camera exposures ran as long as two or three hours in bright sunlight. These problems led Talbot to experiment with more sophisticated chemistry, and in 1841 he patented an entirely new paper negative process called calotype that allowed for very rapid exposures (one or two seconds in bright sunlight) and for the relatively simple and rapid production of many prints from an individual negative (Figure 6). The process provided the technical foun-



Figure 6. (*Photography*) W. H. F. Talbot, *Chess Players*. 1842. Calotype. Gernsheim Collection, Harry Ransom Humanities Research Center, The University of Texas at Austin.

dation for modern photographic practice, but Talbot's patent restrictions, by limiting commercial use, worked against its widespread adoption. In addition the fibrous structure of the paper negative worked against the resolution of fine detail in finished prints, and many photographers found the soft, impressionistic quality of the prints objectionable.

In 1851 Frederick Scott Archer, an English amateur photographer, invented a variation of Talbot's process that permitted the production of highly detailed negatives on glass. The process, which came to be called wet plate because the sensitized coating had to be exposed and processed while wet, could be used to produce large numbers of highly detailed prints with ease and at a small cost. Within less than

a decade the wet-plate process became the standard of the photographic trade and paved the way for large-scale commercial photography and for photographic publishing companies that annually sold millions of prints to an audience interested in photographs of current events, travel views, and pictures of celebrated aristocrats, politicians, artists, performers, and military men (Figure 7).

The mass production of photographic prints by publishing houses accounted for a large percentage of total photographic income until the 1890s, when inexpensive, type-compatible photomechanical reproduction techniques first became available. The inexpensive reproduction of prints in newspapers and books enormously extended the range of photog-

Figure 7. (*Photography*) Timothy H. O'Sullivan, *Canyon de Chelly, Arizona, 1873*. International Museum of Photography at George Eastman House.



raphy as a means of communication in Western societies. See GRAPHIC REPRODUCTION; PHOTOJOURNALISM.

The development of the technology of photography after the wet-plate period was spurred by the need for more sensitive and predictable photographic materials. Until the late 1870s photographers had to produce their own photographically sensitive plates and printing papers. During the early and mid-1870s photographic experimenters invented procedures for producing silver emulsions based on the use of gelatin. These emulsions revolutionized the practice of photography because coated plates and papers could be produced and stored for weeks or months before use and could therefore be manufactured by photographic suppliers. Moreover, they were hundreds of times more sensitive to light than previous photographic materials.

The new gelatin emulsions were responsible for the rapid growth of companies such as Eastman Kodak in the United States (see EASTMAN, GEORGE), Lumière in France (see LUMIÈRE, LOUIS AND AUGUSTE), and Ilford in Great Britain. These companies established sophisticated research-and-development laboratories that rapidly replaced amateur experimentation as the source of technological innovation in photography. The laboratories brought about a complete standardization of photographic materials and equipment. Eastman Kodak was particularly aggressive in photographic research and in the development of new markets for its products. The greatly increased speed of photographic printing papers allowed easy and inexpensive negative enlargement by means of electric light and encouraged the production of much smaller cameras whose negatives were designed to be enlarged. Beginning in the 1880s Eastman's production of clear plastic films coated with gelatin emulsions, together with the introduction of the Kodak camera, revolutionized the practice of photography throughout the world. The Kodak created an entirely new type of amateur photographer—the occasional snaphooter whose ability to make photographs is not dependent on any knowledge of the technical details of the medium. See PHOTOGRAPHY, AMATEUR.

Twentieth-century advances in the technology of photography have been aimed increasingly at the needs of the large amateur market. Advances in photochemistry, including the introduction of simplified color photography, have generally been elaborations of the silver gelatin processes invented in the nineteenth century coupled with major discoveries in the chemistry of dyestuffs. The incorporation of electronic components (e.g., computer-driven exposure meters) into the design of relatively inexpensive cameras has placed sophisticated equipment in the hands of many amateur photographers and, ac-

cordingly, has served to blur the distinction between amateurs and professionals.

Bibliography. Rudolf Arnheim, "On the Nature of Photography," *Critical Inquiry* 1 (1974): 149–161; Stanley Cavell, *The World Viewed: Reflections on the Ontology of Film*, enl. ed., Cambridge, Mass., 1979; Helmut Gernsheim, *The Origins of Photography*, rev. 3d ed., New York and London, 1982; Helmut Gernsheim and Alison Gernsheim, *The History of Photography, 1685–1914*, 2d ed., New York, 1969; Ernst H. Gombrich, *Art and Illusion: A Study in the Psychology of Pictorial Representation*, 4th ed., London, 1972; Nelson Goodman, *Languages of Art*, 2d ed., Indianapolis, Ind., 1976; Beaumont Newhall, *The History of Photography from 1839 to the Present* (1949), 5th rev. and enl. ed., New York, 1982; Joel Snyder, "Picturing Vision," *Critical Inquiry* 6 (1980): 499–526; Joel Snyder and Neil Walsh Allen, "Photography, Vision, and Representation," *Critical Inquiry* 2 (1975): 143–169; Susan Sontag, *On Photography*, New York, 1977.

JOEL SNYDER

PHOTOGRAPHY, AMATEUR

The emergence of mass-produced camera technology and associated supplies has profoundly affected the maintenance and transmission of information, social values, and cultural ideals. Cameras were initially characterized as tools of accurate reproduction (see GRAPHIC REPRODUCTION) and documentation, and later as tools of entertainment and artistic creation (see ART), but photographic activities have played an important role in the everyday lives of ordinary people as well. Business interests, technological developments, and social forces combined to promote popular participation in a relatively new MODE of pictorial communication—snapshots as a vernacular form of PHOTOGRAPHY. In this context GEORGE EASTMAN and EDWIN LAND did more than invent, manufacture, and market inexpensive cameras for popular use. They provided a process of photographic representation that had significant implications for interpersonal relations, for cultural continuity, and for the emergence of the home mode of pictorial communication. See REPRESENTATION, PICTORIAL AND PHOTOGRAPHIC.

Development

Although historians date the invention of still photography to 1839, it was not until the early 1890s that untrained nonprofessional photographers could purchase equipment and supplies marketed for mass consumption. The major thrust of development occurred between 1871 and 1888 and was largely the responsibility of Eastman and his colleagues George Seldon, Henry A. Strong, William H. Walker, and



Figure 1. (*Photography, Amateur*) Snapshot made with a Kodak, ca. 1890. International Museum of Photography at George Eastman House.

later Frank Brownell, among others. Major technological problems had to be solved because the photographic process was simply too complicated and cumbersome for use as a popular LEISURE activity. But by the late 1870s daguerreotypes, which put a positive image on metal, were being replaced by a wet-collodion process that put a negative photosensitive solution on glass plates. The plates were then printed on photosensitized pieces of paper to produce a positive image. However, the plates lost their photosensitivity as the collodion solution dried. A more permanent dry gelatin emulsion was invented to allow photographers to prepare many plates ahead of time, expose them as needed, and return later to a darkroom for processing and printing.

Increased competition, rising costs, and reduced profit margins led to the replacement of dry plates with a roll-film system. Here a continuous roll of paper-backed, emulsion-coated material passes between two rollers held inside a camera. Problems of film flexibility, fragility, tension, and initial cost, coupled with needs for camera redesign and photographic paper-coating machines, were addressed and solutions were proposed by 1884. But processing and printing the film were deemed too complicated even by professional photographers and certainly inappropriate for amateurs. Eastman then laid the

foundation for what became known as the Kodak system, initiating a factory service for developing and printing film for professionals and amateurs alike.

Between late 1887 and early 1888 Eastman redesigned a camera for mass production and public consumption. The first Kodak box camera was marketed later that year, accompanied by the slogan "You press the button—we do the rest." The original Kodak box camera, which measured $3\frac{1}{4}$ by $3\frac{1}{4}$ by $6\frac{1}{2}$ inches, with a fixed-focus lens of 57-mm focal length and an aperture of $f/9$, was loaded with a 100-exposure roll of film. After exposing the film the photographer sent the camera and its contents to the factory, where the film was removed, processed, printed, and returned to the customer, together with the camera and a fresh roll of unexposed film. After several modifications and improvements the Kodak system was accepted, and by 1895 an eager public had endorsed it; demands for both cameras and supplies soon outran their production. One estimate stated that by 1898 1.5 million roll-film cameras were in use throughout the world. By the turn of the century a foundation had been created for a mass market for amateur photography, one that continues to grow worldwide.

A new range of daylight-loading cameras was introduced in 1891, followed in 1895 by the Bullet

models and Pocket Kodaks, which were Eastman's first daylight-loading cartridge cameras. Eastman sought to maintain his leadership by marketing the Brownie camera in 1902, taking another step toward putting photographic capabilities in the hands of persons of every income level. The first Kodak camera sold for twenty-five dollars, but the new Brownie models cost only one dollar. According to one account more than one hundred thousand Brownie cameras were sold within one year, and variations on the original model were sold until the late 1950s.

Eastman was not alone in his desire to develop a market for amateur photography. Competition was provided by European entries such as Lizar's Challenge (1898), Thornton-Packard's Automan (1901), and Busch's Cycam (1899) and the Tribes (1900), as well as a line of Houghton's Ensign cameras, among others. In addition, film manufacturers such as Agfa and Lumière introduced simple cameras for the mass market, as did leading professional camera makers like Voigtländer and Zeiss-Ikon.

Each successive line featured improvements in shutter speed and quality of lens and aperture; most lenses were fixed-focus ones set at $f/16$ for $1/25$ th of a second, a setting that seemed to satisfy most photographic situations chosen by the amateur photographer. By the end of World War II specific technical innovations originally developed in the 1930s, such as automatic exposure, miniaturization, color processing, and flash photography, had been improved and prepared for the mass market.

Land's invention of instant photography provided amateurs with a second system for simplifying the process, thereby increasing the leisure and social aspects of photography. The key to Eastman's success had been the separation of camera use from


developing and printing (sometimes enlarging and copying) pictures, processes that could be performed with guaranteed success by specialists. Land changed this pattern of image production by creating a one-step system that eliminated the delay between taking and seeing the image.

On February 21, 1947, Land demonstrated his Polaroid instant camera, claiming the arrival of "a new medium." His first line of cameras weighed four pounds and sold for less than one hundred dollars. According to one report approximately half a million Model 95 Polaroids were sold between 1947 and 1952, and about two hundred million Polaroid pictures were taken. Like Eastman, Land sought to bring photographic activity within the reach of everyone, and he later marketed an inexpensive line of models for between fifteen and twenty dollars. Paradoxically, the competition between the two corporate giants increased the overall size of the market and escalated the general public's production of personal photographs.

Implications

Clear evidence for the increased use and enormous popularity of amateur photography is reflected in marketing reports produced for the photographic industry. Although worldwide figures are not available, according to the Wolfman Report published annually in the United States, 93.2 percent of U.S. families owned some type of camera as of 1983, and 79 percent of U.S. households were actually taking pictures as of 1981. A total of 11.75 billion still photographs were taken by U.S. amateur photographers in 1983, with no slackening of pace in sight.

The Wolfman Report uses the term *amateur pho-*



THE KODAK CAMERA.

*"You press the button, - - -
- - - we do the rest."*

OR YOU CAN DO IT YOURSELF.

The only camera that anybody can use without instructions. As convenient to carry as an ordinary field glass.
World-wide success.

READ WHAT A TOURIST SAYS.

THE EASTMAN COMPANY, ROCHESTER, N. Y. NEW YORK, Oct. 21st, 1890.

DEAR SIR:—While lugging a No. 4 Kodak through Europe, I wondered if the same was worth the powder, but on receipt of 260 beautiful prints out of a possible 300, my doubts are dispelled, and I can heartily recommend traveling friends to do likewise. No more delightful journal of a summer outing can be devised. Yours truly, E. B. CONVERS.

The Kodak is for sale by all Photo stock dealers. Send for a copy of "Do I want a Camera?" free.

THE EASTMAN COMPANY,
115 OXFORD STREET, LONDON. ROCHESTER, N. Y.

Eight styles and sizes, all loaded with the new Transparent Film.

Figure 2. (*Photography, Amateur*) Kodak camera advertisement, 1890. Reprinted courtesy of Eastman Kodak Company. © Eastman Kodak Company.



Figure 3. (*Photography, Amateur*) "f/16 at 1/500th." Cartoon by Mort Gerberg, reprinted from the *New York Times*, December 4, 1977.

"f/16 at 1/500th."

Mort Gerberg

tographer to mean someone who is not a practicing professional or does not earn income primarily from some form of photographic specialization. Yet this broad classification subsumes many different kinds of photographic practice and behavior. As early as 1892 Eastman recognized two broadly conceived categories of nonprofessionals: the "true amateur," who wished to participate in all phases of the process (developing, printing, toning), experimented with camera equipment, and worked on creating special effects; and those who merely wanted to possess private pictures or memorandums of their everyday lives, family members, favorite objects, and special travels. Eastman estimated that the true amateurs were outnumbered by about ten to one, a ratio that has continued to increase dramatically. True amateurs also tend to be distinguished by their participation in local photo clubs or national photographic societies. As early as the 1890s journals such as *The Amateur Photographer* and *The American Amateur Photographer* were published by photographic societies in England and the United States, respectively. But these organizations were not dedicated to the interests of the majority of amateurs—people who were less interested in photography as an art form and more concerned that their "snapshots came out." These photographers found more relevance in such how-to publications as *The Kodak News* and *The Kodak Recorder*, both of which appeared in England, and *The Kodak Magazine*, published in the United States between 1900 and 1930.

The majority of mass-marketed, inexpensive cameras have been used primarily to produce *snapshots*,

a term borrowed in 1860 from the sport of hunting to refer to photographs made in a hurried manner, without deliberation. However, snapshot photography and amateur photography should not be understood as synonymous. The amateur photographer's ability to make snapshots is important to recognizing and appreciating a relationship between cultural significance and pictorial communication. See VISUAL IMAGE.

Amateur photography has reinforced the truism that members of contemporary society are the most "imaged" people in history. The frequency of photographic activity is not evenly distributed across all societies, but few people will be deprived of the privilege or dilemma of being photographed or taking photographs during the course of a lifetime. Travelers, missionaries, and anthropologists have contributed statements about indigenous values placed on personal photographs by people from relatively undeveloped or geographically remote regions of the world. People do not have to own cameras in order to have pictures of themselves. Native itinerant photographers, explorers, tourists, and even social scientists have contributed to this irreversible trend (see EXPLORATION; PHOTOJOURNALISM; TOURISM). Studies have documented how snapshots and private photograph collections are ranked among the most valued personal possessions. Social, psychological, and symbolic studies are also beginning to explain the immense popularity and ubiquity of amateur photographic forms as a medium of pictorial communication.

By allowing ordinary people to create pictorial

renditions of their own lives, amateur photography has altered the ways people can keep track of themselves and their pasts. Snapshot albums have been added to versions of personal life previously relegated to diaries (*see* DIARY), notebooks, and scrapbooks. Amateur photography has dramatically supplanted the ways ordinary people can share pictorial information across barriers of time and space. Collections of snapshots help people to retain pictorial representations of their lives and present future generations with visual evidence of their predecessors' existence.

The availability of inexpensive photography equipment has brought the potential for photographic communication to virtually everyone. It has enhanced the quality and quantity of detailed information that can easily pass between individuals, small groups of people, and generations. Ordinary people, untrained in photographic skills, can intentionally create and organize views of themselves, for themselves, and for sharing with others. A technological support system continues to develop to guarantee the renewed and continued growth of both an industry and a mode of pictorial communication. Amateur photography has fostered and enhanced the INTERPERSONAL COMMUNICATION of pictorial information on a mass scale.

Bibliography. Richard Chalfen, *Snapshot Versions of Life*, Bowling Green, Ohio, 1987; Brian Coe and Paul Gates, *The Snapshot Photograph: The Rise of Popular Photography*, London, 1977; Reese V. Jenkins, *Images and Enterprise: Technology and the American Photographic Industry, 1839–1925*, Baltimore, Md., 1975; Beaumont Newhall, *The History of Photography, from 1839 to the Present* (1949), 5th rev. and enl. ed., New York, 1982; Mark Olshaker, *The Instant Image: Edwin Land and the*

Polaroid Experience, New York, 1978; Robert Taft, *Photography and the American Scene: A Social History, 1839–1889*, New York, 1938, reprint 1964.

RICHARD M. CHALFEN

PHOTOJOURNALISM

Photographs of current events published in newspapers and magazines are an influential aspect of news (*see* MAGAZINE; NEWSPAPER: HISTORY). PHOTOGRAPHY has been used as a news medium since the 1840s, but photojournalism requires techniques of GRAPHIC REPRODUCTION that were not developed until the late nineteenth century. Photojournalism is a complex international phenomenon shaping and shaped by individual careers, organizations, the technologies of making and publishing photographs, and the events recorded and distributed as news.

History. The first news photographs are considered to be the daguerreotypes of the aftermath of a fire that destroyed much of Hamburg, Germany, in 1842. The event was reported in the first issue of the *Illustrated London News* using a print from the British Museum of the city's skyline embellished with flames. The earliest illustrated newsmagazines (*see* NEWSMAGAZINE), including *L'illustration* (Paris) and *Die illustrierte Zeitung* (Leipzig), were limited to engravings and block prints of important public ceremonies and events; there was as yet no way to print a photo block alongside type.

This pattern was followed throughout the early illustrated press. Englishman Roger Fenton's photographs of the Crimean War appeared in the *Illustrated London News* and *Il fotografo* (Milan) in 1854–1855 as wood engravings. In the United States



Figure 1. (*Photojournalism*) Illustration from the cover of the first edition of the *Illustrated London News*, May 14, 1842. The *Illustrated London News* Picture Library.



A SCENE IN SHANTYTOWN, NEW YORK.
REPRODUCTION DIRECT FROM NATURE.

Figure 2. (Photojournalism) Stephen H. Horgan, *Shantytown* (taken by H. J. Newton), as published in the *New York Daily Graphic*, 1880. International Museum of Photography at George Eastman House.

Mathew B. Brady's team of photographers, which included Timothy O'Sullivan and Alexander Gardner, produced seven thousand wet-plate negatives of the U.S. Civil War, some of which were copied as engravings for *Harper's Weekly* and *Frank Leslie's Illustrated Newspaper*. Jacob Riis, a Dane who became a reporter for the *New York Tribune*, covered the harsh living conditions of immigrants in the city's ghettos in the late nineteenth century. His photographic documentation of the tenements was not published in the newspaper but appeared instead in Riis's book *How the Other Half Lives* (1890). Yet news photography drew on journalistic conventions for its agenda as topics were selected and defined as newsworthy: accidents and disasters, political and military conflicts, the living and working conditions of the poor, and public figures and ceremonies.

Since the 1850s inventors had experimented with ways of breaking the continuous tones of the photograph into a pattern of dots that could be transferred directly to a printing plate. U.S. photographer Stephen H. Horgan was the first to publish a halftone, as the screened photographic print was called, in a newspaper. Taken by H. J. Newton, the photograph, *Shantytown*, of a squatters' camp in uptown New York, appeared in the *New York Daily Graphic* in 1880. Munich printer Georg Meisenbach published a halftone in the *Leipziger Illustrierte* in 1883. Despite these successes newspapers resisted the costly reorganization of production and hiring of outside printers to screen photographs. Their investment in engravers also satisfied standards of visual art and supplied more lively images than the slow photographic technology was capable of at the time. The first British picture newspaper, the *Daily Graphic*, used photographs primarily as models for woodcuts.

Publisher JOSEPH PULITZER's *New York World* was a leader in illustrated journalism by 1885, but the London *Daily Mirror* was the first newspaper illustrated exclusively with photographs.

Competition for exclusive coverage of the Spanish-American War led to excesses of "yellow journalism" in the 1890s. With Pulitzer's *World* and WILLIAM RANDOLPH HEARST's *New York Journal* in the lead, newspapers' lavish use of pictures, including faked and inaccurately labeled photographs, contributed to the war fever and increased circulation. This link with the yellow press also influenced more conservative publications to avoid photojournalism.

Such caution was especially pronounced in illustrated magazines, in which photographs were considered artistically inferior to the work of sketch artists and engravers. Prestigious U.S. periodicals, including *Harper's*, *Century*, and *Scribner's*, relied on a blend of commentary, FICTION, POETRY, and line art to appeal to upper-class readers. In the 1890s European and U.S. magazines began the shift to rotogravure. This adaptation of photogravure to rotary cylinder presses allowed rapid printing of large editions and the setting of type and halftones on the same page. Simultaneously, journalistic content gained importance as magazines began publishing serious commentary on national and international events. The Spanish-American War also stimulated competition in this segment of the press, and photojournalism became a component. *Collier's*, a leading magazine, carried reports from Cuba by British staff photographer Jimmy Hare and reporter Frederick Palmer throughout 1898–1899, supplemented by war photographs from others.

Typical of turn-of-the-century U.S. magazines, *Collier's* continued to publish news photographs after



Figure 3. (Photojournalism) Tom Howard, *Execution of Ruth Snyder*. From the *Illustrated Daily News* (New York), vol. 9, no. 173, January 13, 1928. Newspaper Collection, The New York Public Library, Astor, Lenox and Tilden Foundations.

the war. Cropped to a variety of shapes, bearing the engraver's mark, and often with elaborate borders, the photographs appeared three to four weeks after an event. Thus magazines adhered to their conventions of artistic presentation while creating new patterns for photography as a news medium. By combining photographs and text and introducing credit lines and staff positions for photographers, magazines helped to establish photojournalism as a career.

By 1900 halftones were common in U.S. newspapers, and many dailies published weekly illustrated rotogravure supplements. The *New York Times* began its Sunday supplement after ADOLPH S. OCHS became publisher in 1896; it was soon followed by the *New York Tribune* and the *Chicago Tribune*. World War I produced a flood of news photographs that entered newspapers largely through supplements, such as the *New York Times*' *Midweek Pic-*

torial. Staff photographers covered routine events for their newspapers and occasionally produced a "scoop," such as William Warnecke's for the *New York World-Telegram* of the 1910 assassination attempt against Mayor William J. Gaynor. In 1919 New York's *Illustrated Daily News* became the first U.S. newspaper illustrated exclusively with photographs, following the tabloid format of the London *Mirror*. Competition was keen as other New York tabloids followed, including Hearst's *Daily Mirror* and Bernarr Macfadden's *Daily Graphic*, characterized by a sensationalistic coverage of crime and scandal. In 1928, when the *Illustrated Daily News* published a front-page photograph of convicted murderer Ruth Snyder's execution, its circulation was the highest of any U.S. daily newspaper.

International growth. Distribution of news photographs by agencies began in the 1890s, when several agencies in London and New York began

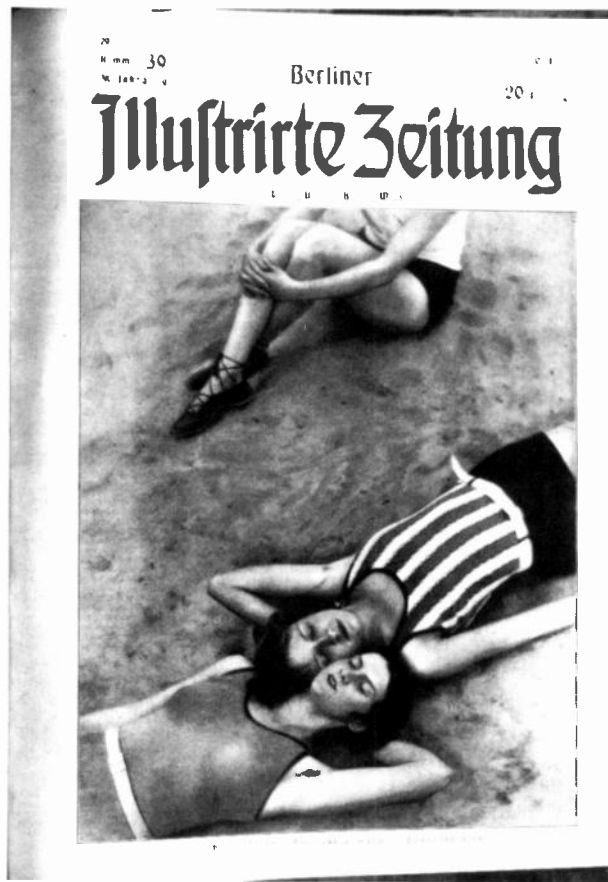


Figure 4. (Photojournalism) Martin Munkacsi, cover of the *Berliner illustrierte Zeitung*, September 29, 1929. Courtesy of Karin E. Becker.

supplying newspapers and magazines. However, the speed of distribution was limited by available methods of transportation until 1907, when the French weekly *L'illustration* installed a wire service with the *Mirror* in London, using a system invented by Arthur Korn in Munich. In 1924 American Telephone and Telegraph succeeded in linking Cleveland, Chicago, and New York for wire transmission of photographs from the national political conventions, and the Associated Press (AP) hired Bell Laboratories to develop its network. In 1935 AP's Wirephoto Service was established, serving approximately 40 of the agency's 1,340 member newspapers. Throughout the 1940s NEWS AGENCIES were a main source of photographs for newspapers without their own engraving shops. United Press International (UPI) became a major competitor in the 1950s as a result of its purchases of Hearst's International News Service (INS) and the ACME Photo Agency. That decade also saw radiophoto transmission increase international distribution as UPI established service to Latin America, Europe, and Asia. Intense competition in photographic technology continued between AP and UPI.

Relying primarily on staff photographers in their local bureaus, the two remained the largest news agencies transmitting photographs internationally. The greatest demand was for single, clear, graphic pictures of "spot" news events that included crime, accidents, and disasters. Regular coverage of public figures and ceremonies, including SPORTS subjects, was also important.

A decade after World War I Germany led a new style of photoreportage in popular magazines. Innovative editors, including Kurt Korff at the *Berliner illustrierte Zeitung* and Stefan Lorant at the *Münchener illustrierte Presse*, broke with earlier conventions of publishing single photographs or simple sequences and combined text and photographs in dynamically designed series or essays. The invention of the Ermanox and 35-mm Leica cameras with faster lenses enabled photojournalists to capture human movement for the first time without flash attachments. Stiff formal portraits quickly gave way to candid pictures of public figures and daily life by photographers such as Erich Salomon, Wolfgang Weber, Martin Munkacsi, Felix H. Man, and Alfred Eisenstaedt. Salomon's informal photographs of diplomatic meetings and Man's photo essay of Italian dictator Benito Mussolini at work remain classics of the style. In 1928 French editor Lucien Vogel created *Vu* (Paris) following a similar pattern. Photojournalists and editors were among those who began leaving Germany in 1933 to escape Nazi oppression. Lorant, for example, became founding editor of the *Picture Post*, the major British picture magazine, where he continued to publish photo essays by Man and others.

Issues and developments. The era of mass-circulation picture magazines in the United States dates from the first issue of *Life*, published by HENRY LUCE's Time, Inc., in 1936, and followed shortly by the Cowles magazine *Look*. *Life*'s staff included Margaret Bourke-White and Eisenstaedt. Adapting techniques and themes from German predecessors, the magazine established the photo essay as the most prestigious form of photojournalism. Stringers supplemented its growing staff of writers, editors, art directors, and photographers. Some *Life* photographers, including W. Eugene Smith, objected to lack of control over how their work was published, a problem intrinsic to the magazine's editorial structure. Specialization became more common at *Life*, as in the field as a whole. Munkacsi, for example, turned to fashion photography; Fritz Goro specialized in science. During World War II *Life* had a staff of sixty-seven hundred in nearly 360 offices worldwide and continued to dominate the national magazine ADVERTISING market. By the late 1960s television advertising and rising postal rates had eroded the profits of general-circulation magazines. With subscription sales and

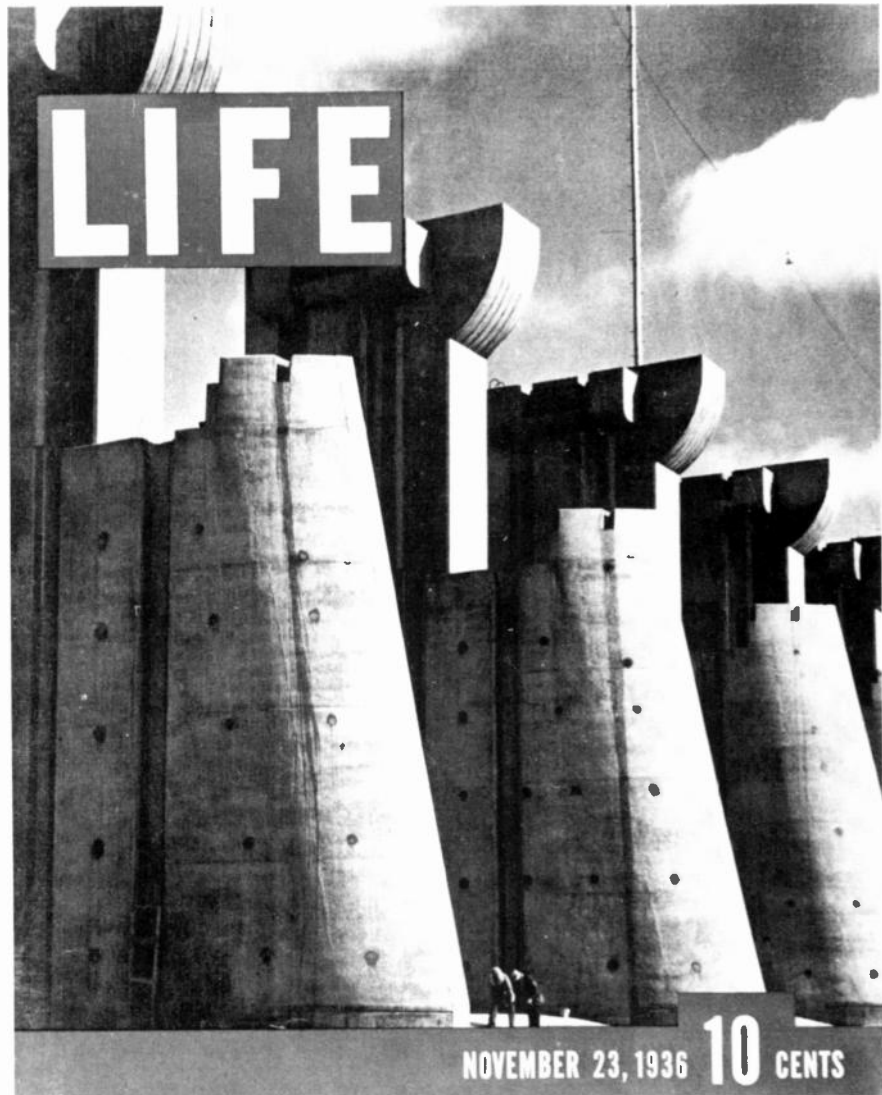
circulation at a near peak *Life* stopped weekly publication in 1972. When it resumed as a monthly in 1978, *Life* had no staff photographers, finding it more economical to hire free-lancers. As the number of specialty magazines continued to expand, free-lancing gained appeal as a career option for photojournalists.

Increasingly photojournalists work through agencies that sell their work to clients and are organized in various ways. Some hire photographers, then purchase their work outright; others pay photographers a commission on work sold. Dephot was a German agency producing important magazine work between the two world wars. Black Star, founded in New York in 1935, was a major source of photographs for *Life* magazine's early years. Magnum, led by Robert Capa, was organized as a cooperative of thirty photographers in Paris in 1936. By the early 1970s Magnum, Gamma, Sygma, and Contact were

among the top agencies specializing in international photojournalism, each with more than a million color and black-and-white photographs in its files.

Debates over appropriate ethical conduct and access to and treatment of sources persist within photojournalism. Spot news coverage frequently involves photographing people in distress, raising questions about photojournalism's role in recording human tragedy and its potential for invading PRIVACY. The view that news photographers focus on scandal and strife hangs over their work, fueled by the paparazzi practice of chasing celebrities for exclusive photographs. In contrast the history of photojournalistic access to U.S. courts is a case in which the self-monitoring of behavior, adoption of unobtrusive equipment, and research and lobbying by professional organizations gradually overcame the courts' expectation that camera coverage would necessarily be invasive and disruptive. In *Chandler v. Florida*

Figure 5. (*Photojournalism*)
Margaret Bourke-White, *Dam Being
Erected at Fort Peck, Montana*.
First cover of *Life*, November 23,
1936. Margaret Bourke-White,
Life Magazine © 1936 Time Inc.



Life comes with a tug
A mother's face tightens when
squeezed for childbirth, but face
relaxes as she makes the final
effort to deliver the child.

In the psychophysical method
of delivery such as the
Lamaze childbirth method, new
methods for the body for the
most comfortable for her, with
letting her spouse be hand
resting her to push down. It
is an alternative to the usual
method of delivery room procedure.

Tegata hospitals report a

growing number of Northeast
Lamaze parents are using the
new method. In the delivery
are trained in the latter five
months of pregnancy to develop
confidence, relaxation through
muscle relaxation and breathing
exercises to interrupt the pain
stimuli and thus reduce pain.
They learn what to expect at
each phase of delivery and how
to apply the breathing and relax-
ation techniques effectively.

Sturges-Vall and St. Francis
hospitals report the method is
growing in popularity with from

two to six mothers, including
some hospital personnel, each
week choosing it.
I was excited beyond belief. I
kind of forgot what to do. It was
a true high. I wanted him to tell
me what to do, she said.

I wouldn't do much more
there but she needed me, he
said.

"It was the most important
thing to not having him there.
I didn't believe the reserved
waiting room where he ended up
in a plastic medical chair. Her
roomed by Hoffman magazine
and monitoring delivery was
not the place to be at the moment
of childbirth.
It's his baby too.



While Lynda Caburn was in labor at St. Francis Hospital, her husband Jerry was right there with her ready to give both moral and physical support when ever needed.



Dressed in hospital garments, Jerry sat with his wife through-
out the delivery.

The Moment of Life An Experience Shared



During the final contractions Lynda strained every muscle in her body and then radiated joy upon arrival of their daughter.



Jessie Lynn Caburn was born to Mr. and Mrs. Jerry Lee Caburn
in St. Francis Hospital at 11:05 a.m. on Thursday the 27th day
of January, 1972.



"One minute your stomach is so big and
then in a second you have little feet, little
hands, and body on top of you. After...
it's overwhelming."

THE
MOVIE
THE
FAMILY

It was all over. Jerry walked
from the now empty delivery
room where moments earlier
he had helped to deliver his
daughter. "I didn't think it
would move me that much
but I was very surprised and
excited inside."

photos by BRIAN LANKER

◁ Figure 6. (*Photojournalism*) Photo essays became common in newspapers that emphasized photojournalism in the 1960s. Brian Lanker's 1972 series on natural childbirth for the Topeka (Kansas) *Capital Journal* won the Pulitzer Prize for feature photography, a recent innovation in the thirty-year history of giving Pulitzers to news photographers. From Clifton C. Edom, *Photojournalism*, Dubuque, Iowa: Wm. C. Brown Company, Publishers, 1976, p. 144.



Figure 7. (*Photojournalism*) President Richard Nixon and news photographers, Washington, D.C., 1973. Motor-drive attachments capable of taking four frames per second and zoom lenses were standard tools of photojournalism by the 1970s. UPI/Bettmann Newsphotos.

Figure 8. (*Photojournalism*) Susan Meiselas, Manimbo woman carrying her dead husband home to be buried in their backyard. From *Nicaragua: June 1978–July 1979*. © Susan Meiselas/Magnum Photos, Inc., New York.



(1981) the U.S. Supreme Court held that states may allow camera coverage of trial proceedings, and most states moved to allow some form of access.

See also ETHICS, MEDIA; TELEVISION NEWS; VISUAL IMAGE.

Bibliography. Gisèle Freund, *Photography and Society*, Boston, 1980; Tim N. Gidal, *Modern Photojournalism: Origin and Evolution, 1910–1933*, New York, 1973; Rune Hassner, *Bilder för miljoner* (Pictures for the Millions), Stockholm, 1977; Wilson Hicks, *Words and Pictures: An Introduction to Photojournalism*, New York, 1952, reprint 1973; Sheryle Leekley and John Leekley, *Moments: The Pulitzer Prize Photographs*, New York, 1978; Arthur Rothstein, *Photojournalism: Pictures for Magazines and Newspapers*, 4th ed., Stoneham, Mass., 1983; Time-Life Books, Inc., *Photojournalism*, rev. ed., New York, 1983.

KARIN E. BECKER

PIAGET, JEAN (1896–1980)

Swiss psychologist, best known for his theory of child development. Born in Neuchâtel, Jean Piaget obtained a doctorate in biology in 1918. His philosophical interest in biological adaptation and the history of science led him to study precursors of adult logical thinking in the actions and explanations of CHILDREN. This developmental research was to occupy his whole life. From 1925 on, Piaget was a professor of psychology at the University of Geneva, and in 1951 he founded an interdisciplinary institute of genetic epistemology. His research, an empirically based reformulation of Immanuel Kant's epistemology, was published in more than one hundred books. Rejecting both sides of the nature/nurture issue, Piaget proposed a constructivist theory of knowledge development. Widely recognized as a theory of stages, Piaget's work is controversial and easily misunderstood. It has potential application within and beyond psychology to all disciplines dealing with human knowledge. Piaget's theory deals with concepts relevant to communication from a developmental basis.

For Piaget human knowledge at all levels is not something that exists objectively as a fact but something psychological that occurs within and between individuals, beginning with infants in their everyday actions. Sensorimotor knowledge is an integral component within the actions. It is conceptualized as the coordination, or the structure, of the action, through which infants relate to objects of action (an interesting event, another person or thing). The action as I/other relation is primary: there is not yet, strictly speaking, a separate I or a separate other. Action/object separation is clearly experienced for the first time around age two with the construction of what Piaget calls the "permanent object." There is a developmental-stage transition from sensorimotor ob-

jects of *action* to action-separated objects of *knowledge*. Children, who in the first two years have advanced in the sensorimotor logic of actions, have to reconstruct a logic appropriate to object knowledge. This second developmental series, beginning after age two as "preoperations," is completed at a first stage around ages six to ten in the form of what Piaget calls "concrete operations," followed in adolescence by "formal operations," the logic of adults. With the attainment of object knowledge (as distinguished from action knowledge), information as potential communication, apart from the intended action, becomes available. It is the difference between recognizing a traveled route and using a map. This difference involves symbolic information.

For Piaget the ability to construct symbols is a logical consequence of object formation. In symbolic play children make present (i.e., re-present) an absent event by assimilating past accommodations (e.g., gestures of attention to an airplane) to their present object knowledge (e.g., of airplanes). In turn, the internalization of symbolic gestures leads to the formation of internal representation—mental images, fantasy, imagination, dreams. In sum, for Piaget symbols are external or internal actions (gestures) that refer to the object knowledge of the symbol user.

PLAY and fantasy differ from a third symbol type that directly intends interpersonal relations and communication. Piaget recognized this difference by limiting the adjective "symbolic" to the first two and referring to the third type as "semiotic"; however, his theory of symbol formation pertains to all three types. Societal LANGUAGE is the most prominent semiotic system, but other conventional systems (e.g., MATHEMATICS, maps, traffic signs) are here included (see SEMIOTICS; SIGN; SIGN SYSTEM; SIGNAGE). Language has an "objective," factual existence and seems to be learned through imitation of an outside model. Nonetheless, in Piaget's theory its acquisition has two prerequisites: object knowledge and the general ability to form symbols. This sequence explains why language is acquired at a certain age—but not earlier—and within a relatively short period. The MEANING of words is found in object knowledge. Consider the sentence "This is not a bird; it's an airplane." Comprehension of this sentence requires mental reference to a contrast of subordinate classes that as such has to do not with language but with object knowledge and understanding. In short, for Piaget (as for U.S. linguist Noam Chomsky) LANGUAGE ACQUISITION is not just the taking in of (accommodation to) objective information. It primarily requires assimilation of that information to knowledge structures, which implies subjective construction. This construction is observable in childish speech errors, such as "goed" and "unsick"; but the most telling

evidence is the situation of profoundly deaf children born into hearing families. Even without any special educational efforts many young deaf children, deprived of an outside model, spontaneously begin to use manual and visual gestures in a manner strictly analogous to verbal language. In other words, as they communicate within their family they literally invent or coconstruct a new language.

This last example illustrates forcefully that on the question of the language-thinking relation clear distinctions are in order regarding logical thinking, symbols, communication, and societal language. Without the first three, there can be neither language nor personal development. With these three as a basis, natural language is assimilated as the children are exposed to it. Thus in Piaget's theory language cannot be considered the source or the determining instrument of human logic, symbols, or communication; it is the other way around. This position is frequently misunderstood, as if development for Piaget were private and solitary, untouched by language or society. But for Piaget human knowledge, by itself, is a social relation (as indicated above), and communication through action is already implied in sensorimotor development. With object formation around age two, symbolic communication becomes possible, and positive social relations remain the necessary occasions to motivate children away from their original egocentric position to a mature, socialized perspective. Piaget's operations (beginning around age six) in fact provide the minimum logical constraints through which children's thinking becomes socialized and open to free and responsible cooperation. In short, logical thinking is for Piaget an implicit form of interpersonal relating, and the potential contribution of societal language is precisely to bring this implicit communicative power to fruition.

See also COGNITION; EDUCATION; LOCKE, JOHN; VYGOTSKY, L.V.

Bibliography. Hans G. Furth, *Knowledge as Desire: An Essay on Freud and Piaget*, New York, 1987; Howard E. Gruber and J. Jacques Vonèche, eds., *The Essential Piaget*, New York, 1977; Jean Piaget, *Play, Dreams and Imitation in Childhood* (La formation du symbole chez l'enfant), trans. by C. Gattegno and F. M. Hodgson, New York and London, 1962.

HANS G. FURTH

PLATO (ca. 428–348/347 B.C.E.)

Greek philosopher. As one of the seminal thinkers of the Western intellectual tradition, Plato made fundamental contributions to concepts of human communication, both in his own development of dialectic and in his important theoretical statements on EDUCATION, POETRY, RHETORIC, and WRITING. In his

Republic he offers one of the first UTOPIAS. Plato also contributed through his own literary example; his philosophical fame tends to obscure the fact that he was the greatest PROSE writer of classical antiquity.

Born in the glorious days of Periclean Athens, Plato witnessed the downfall of Athens in the Peloponnesian War and the trial and death of his friend and mentor, Socrates (399 B.C.E.). His aristocratic background prepared him for a political career, but he finally gave up hope of political reform in Athens and turned to philosophy and political theory instead. His three longest works (*Gorgias*, *Republic*, and *Laws*) deal with the themes of moral, social, and legal reform. He twice accepted invitations to serve as adviser to Dionysius II, tyrant of Syracuse, but his efforts to influence public affairs in Sicily came to naught. He returned to Athens, where his philosophical school in the Academy gathered a distinguished group of mathematicians, astronomers, and philosophers—among them the young ARISTOTLE, who spent twenty years at the Academy. Plato's school remained a center of philosophical study for centuries.

All of Plato's written work is in dialogue form except for the *Apology* (a courtroom speech in defense of Socrates) and a few letters whose authenticity is contested. Other followers of Socrates also composed Socratic dialogues, but Plato transformed the GENRE into a literary instrument of unique power and versatility. At least three of these dialogues (*Protagoras*, *Symposium*, and *Phaedo*) are among the masterpieces of world literature. The earlier dialogues depict Socrates discussing questions of ethics and education and exposing inconsistencies in his interlocutors' reasoning. Scholars disagree on the historical reliability of these works. Some regard them as a faithful portrait of Socrates; others believe that, although the personal character traits of Socrates may be reliably portrayed, the philosophical thought of the dialogues was, from the beginning, developed by Plato in his own way. That is certainly true for the great "middle" dialogues (*Symposium*, *Phaedo*, *Republic*, and *Phaedrus*), in which Plato's metaphysical doctrine of Forms or Ideas is expounded. A third group of later dialogues, beginning with the *Parmenides*, is quite different. The doctrine of Forms is subjected to criticism (in *Parmenides* and *Sophist*), the dramatic form becomes more mechanical, and the figure of Socrates fades into the background. Among the late dialogues the most influential has been the *Timaeus*, which presents a grandiose cosmology in the form of a creation myth; it incorporates much of the earlier tradition of Greek natural philosophy and much contemporary astronomy, MATHEMATICS, and biology, all reinterpreted within the framework of the creation of the world by a demiurge or craftsman god, who looks to the Pla-

tonic Forms as his model for producing order in the world of nature.

As a writer Plato is a master of characterization, including brilliant imitations of different rhetorical styles. His own style is extraordinarily versatile, ranging from informal CONVERSATION to the solemn diction of myth (*see* STYLE, LITERARY); the tone varies from light COMEDY to intense DRAMA and (in the death scene of the *Phaedo*) outright TRAGEDY. The most highly developed literary form of their day, Plato's dialogues took the place occupied by the great Attic tragedies of the preceding age.

Plato presents his literary work to rival the poets on the one hand and the rhetoricians on the other. His chief competitor in Athens was Isocrates with his school of ORATORY. Plato deals with oratory at length in the *Gorgias* and *Phaedrus*. In the *Gorgias* he attacks professional rhetoric as a spurious imitation of moral and political philosophy. In the *Phaedrus* he presents an alternative vision of ideal rhetoric as the instrument of philosophy: the language of PERSUASION to be put in the service of truth. But the same dialogue expresses grave doubts about the capacity of any written words to communicate important ideas with accuracy; the BOOK is like a statue, which seems to be alive but cannot answer questions. Dialectic, the power to clarify thought by question and answer, is the only method for philosophy, but it requires a living exchange between teacher and pupil. As a second best to the spoken word, Plato chose to write dialogues.

As a political thinker Plato was opposed to what he considered the degenerate democracy of Athens, but he regarded the arbitrary rule of a tyrant as even worse. In the *Republic* he offers the rule of philosopher-kings as a salvation for humankind, with abolition of the FAMILY and of private property for the ruling class. In the *Laws*, written in his old age after the bitter experience of Syracuse, he settles instead for the rule of law in a moderate blend of democracy and aristocracy, with an enlightened reform of the law courts and a careful system of checks and balances among the magistrates. He was certainly no liberal in the modern sense, but the portrayal of him as a protofascist (by Austrian-British philosopher Karl Popper and others) is much overdrawn. The ideal state of his *Republic* is a unique blend of authoritarian government with revolutionary modern ideas, such as free public education (including mathematical science) and equal participation of women in public life.

As a metaphysician Plato presents the vision of a realm of unchanging, supersensible Being constituted by Forms, in contrast to the changing physical world of sensible Becoming. The world of nature derives its structure and reality by participation in the realm of Forms. According to the myth of recollection,

every human soul has had some prenatal contact with the Forms, and conceptual thought for the embodied soul thus consists in "recollecting" the Forms. The study of mathematics is essential for training the soul to turn away from the empirical pseudoreality of the world of change and become able to grasp the intelligible Being of the eternal Forms.

The influence of Plato's thought has remained great throughout Western intellectual history. In the form of Neoplatonism it dominated late antiquity and provided Augustine and other Christian theologians with their metaphysical framework. The creation story of the *Timaeus* was assimilated to that of Genesis, and the Forms became Ideas in the mind of God. The theory of recollection was reformulated in the seventeenth century as the doctrine of innate ideas, a doctrine reflected in our own time in U.S. linguist Noam Chomsky's theory of innate linguistic structure.

Bibliography. Paul Friedländer, *Plato* (in German), trans. by Hans Meyerhoff, 3 vols., New York, 1958–1969; W. K. C. Guthrie, *A History of Greek Philosophy*, Vols. 4 and 5, Cambridge, 1975, 1978; A. E. Taylor, *Plato: The Man and His Work* (1926), 7th ed., London, 1960, reprint 1966.

CHARLES H. KAHN

PLAY

Behavior with a genetic basis that is voluntary and pleasurable and that results in an altered state of consciousness while leaving one in control of one's actions. Play can be realized only in contrast to nonplay behaviors. The experience of the play state may be sufficient motivation for engaging in play behavior.

This definition implies that one ought to distinguish between the experience of play (as a state of being) and play behaviors as they may be observed in play events. Anthropologists Victor Turner and Helen Schwartzman also have noted that the major difficulty in defining and studying play is distinguishing the act from the experience. For example, urban Zulu males engaged in a soccer match or Dani CHILDREN playing flip-the-stick may be said to be participants in play events. However, while an observer may assume they are experiencing play, it is unlikely that this assumption can be verified.

Mihaly Csikszentmihalyi has stated that play is a state of subjective experience because its existence is contingent on there being an awareness of alternatives: "[W]e play when we know we are playing. . . . If we could not conceive of acting by a set of rules that are different from those to which we

have learned to adapt, we could not play." He also has developed the concept of *flow*, which is related to playfulness. While flow is a process of involvement in a given reality and playfulness refers to one's attitude toward the reality in which one is involved, these two processes tend to evoke each other. Csikszentmihalyi is clear, however, that neither flow nor playfulness should be confused with play forms or play behavior.

Inherent in virtually all of the literature on play and communication is the assumption that both phenomena are social. Even the play of a child alone is often interpreted as play with a fictionalized character or a make-believe playmate.

Whether considering the play of a single child chasing butterflies or that of scores of Choctaw Indians involved in a stickball contest, one needs to be mindful of the seemingly simultaneous use—either actual or potential—of the sensory organs of the player. A variety of stimuli may be received and treated as parts of a single integrated message by an actor in a play event. That is, TOUCH, SMELL, vision, hearing, even taste, may be used along with myriad internal psychophysiological cues in formulating a play message. Such a message may be to oneself or to one or more others. However, the content of any play message—the symbols defining play and appropriate play behavior—is not only species specific but also culture specific.

Communication and Theories about Play

The work of GREGORY BATESON, summarized in *Steps to an Ecology of Mind* (1972), stimulated interest in the analysis of play and communication. Bateson's understanding of metacommunication, or the frame that tells individuals that behavior is not to be interpreted in its usual denotative sense, has had a significant impact on the study of play during past decades.

According to Bateson, while human communication operates at many contrasting levels of abstraction, there must be one level, implicit or explicit, that defines the subject; he called this the metalinguistic. The level of abstraction that defines the relationship between the communicators Bateson labeled the metacommunicative level. With regard to play this means that one individual must communicate, "This is play." For playful communication to ensue, another must respond, "OK, I'll play too."

The message "This is play" is not a single, static signal, however. In play events all behaviors are transformed in some way (e.g., exaggerated or repeated) and are marked continuously as play. As Schwartzman pointed out, "the message 'This is play' always acts as both a context and a text," and "the messages are not delivered sequentially but simultaneously." Schwartzman further stated that because

"play actions are never quite what they seem to be (e.g., 'This nip is not a bite'), metacommunicative messages must be contained in every action that is play. There can be no single signal."

A metacommunicative message serves as a frame or context, providing information on how another message should be interpreted. Such a frame defining a metacommunicative message may precede or follow the textual message. For example, a humorous frame can be established by beginning, "Have you heard the one about . . . ?"

Often overlooked is the fact that players engage in and disengage from play. This engagement process is an intrapersonal one since no one can be forced to play. One may be coerced into capitulation, but the metacommunicative response "OK, I'll play" is first and foremost an intrapersonal one.

U.S. anthropologist Anthony F. C. Wallace's work on communication and RITUAL seems to be relevant to the perspective on play presented here. Wallace concluded that social ritual was allo-communicative, while solitary ritual was auto-communicative, and that auto-communication occurs when individuals send messages to their own psychophysiological systems.

Applying Wallace's conclusions to play, it follows that an individual sends signals to his or her internal psychophysiological system, which produces particular responses necessary for the specific play behavior. However, once initiated these systems may respond with signals of their own. Not only does the player's intended message result in the desired behavior of running toward another in an effort to tag that person, but also the player's body produces messages that may result in laughter, euphoria, and a distorted sense of time (such that the player forgets to come home for supper at the parentally designated hour). These messages from the internal systems may be understood as an important part of the context of play—a context that is continuously open to new signals and changes in the character of the context.

Play, then, presents two messages. The first is the metacommunicative message or statement of intent: "This is play." The second is a statement of contextual reality. These two are integrally related and must be understood as a continuous experientially defined frame until superseded by a new and different metacommunicative message.

The contextual reality of play is not limited to the social texts that are communicated. There are also the messages to one's own psychophysiological systems. Moreover, once the individual's psychophysiological systems have received a play message, these systems respond, and such responses become part of the contextual reality that affects ongoing communications.

This view of play is congruent with those that

emphasize play as a biologically structured adaptive process. Steve Tipps has suggested that there are neurological bases for play's adaptive function. He has argued that play has a positive emotional quality that enhances experiential exploration and neural alertness to the environment, which results in neurological growth and provides structures for more complex play behaviors. The physical symbolic exploration associated with play leads to pattern making that enables individuals to manipulate abstract ideas and to behave creatively.

Charles Laughlin and John McManus also have argued that play is to be understood within a biological matrix. They have defined play as a subprocess of the empirical modification cycle, or EMC. The EMC is a biogenetic feedback and feedforward arrangement that allows the organism to develop an internal model (or cognized environment) of the external world (or operational environment). The cognized environment is not a pictorial representation of the operational environment but an adaptive mechanism. The cognized environment is so structured that it directs the production of behavior that proves adaptive for the organism within the operational environment.

Play, in the model proposed by Laughlin and McManus, is a subprocess of the EMC by means of which an organism intentionally "complexifies" its operational environment for the purpose of optimizing development of its cognized environment (or internal model of the external world). This is accomplished either by increasing the sensory information about the external world as previously modeled or by increasing the spatiotemporal range of the external world.

For Laughlin and McManus social play is not a fundamentally different process from other play, but it has a different object. Social play functions to establish or modify channels of neurophysiological transport necessary for optimal interorganismic coordination within and between social groups. What is important, then, is that during social play, organisms are measuring one another's rhythms.

Conclusions

The following points summarize the foregoing discussion on the play/communication relationship.

1. A player may be understood as both a transmitter and a receiver of messages.
2. Play may involve the simultaneous use of multiple sensory channels for transmission and reception. However, a number of different cues may make up the message "This is play."
3. Codes for play may be shared by many (but not necessarily all) members of a culture. Such codes, however, are usually culture specific.

4. Signs or symbols can have meaning as communicative cues only as members of sets, not as isolates. However, as U.S. anthropologist Ray Birdwhistell has noted, even context- or event-specific cues are subject to modification cues that signal the reliability of the cue by transmitting information about the context, the sender (i.e., the signature), and the intended receiver (i.e., the address).
5. Play is a continuous process from the point of engagement until the player disengages. In this sense a play occurrence can be regarded as the outcome of a binary mechanism since one is either at play or not at play. The triggering of a play state, however, may involve a complex of cues.

Whether play is defined as activity, experience, or biological process, the researcher is presented with certain conceptual and methodological problems. The activity approach ignores the obvious: play is intrinsic to the player and is not a set of easily classified, observable behavior patterns. However, those who would approach play as an affective state or a biologically structured process present empirical researchers with a significant dilemma. If no specific behavior can be equated with play, how can one determine when play is taking place? Perhaps by exploring the communication inherent in play, both the auto- and the allo-communicative aspects, some of the theoretical and methodological barriers to understanding play will be overcome.

See also ETHOLOGY; SPORTS.

Bibliography. Gregory Bateson, *Steps to an Ecology of Mind*. New York, 1972; Mihaly Csikszentmihalyi, "Some Paradoxes in the Definition of Play," in *Play as Context*, ed. by Alice Taylor Cheska, West Point, N.Y., 1981; Charles D. Laughlin, Jr., and John McManus, "The Biopsychological Determinants of Play and Games," in *Social Approaches to Sport*, ed. by Robert M. Pankin, East Brunswick, N.J., 1982; Edward Norbeck, "The Anthropological Study of Human Play," *Rice University Studies* 60, no. 3 (1974): 1-8; Jurgen Ruesch and Gregory Bateson, *Communication: The Social Matrix of Psychiatry*. New York, 1951; Helen B. Schwartzman, *Transformations: The Anthropology of Children's Play*. New York, 1978; Steve Tipps, "Play and the Brain: Relationships and Reciprocity," *Journal of Research and Development in Education* 14, no. 3 (1981): 19-29.

ANDREW W. MIRACLE

PLEBISCITE

A time-honored method of ascertaining the popular will. It conforms to an ancient Roman tradition of frequent and direct consultation on significant questions with as many citizens as possible. The earliest

plebiscites were by voice vote in assemblies, but the more recent ones have all been by secret ballot among eligible voters. Although political scientists today generally favor representative over plebiscitarian forms of democracy as better adapted to the requirements of modern complex society, the plebiscite still has its uses.

Derived from the Latin, *plebiscite* means quite literally the submission of any kind of question to a popular vote. It is in this respect the equivalent of a referendum, but the term has, over the years, acquired a more restricted meaning. One designates as plebiscites only voting on matters of sovereignty or basic constitutional reform. Moreover, where the results of a referendum can be either legally binding or advisory, the outcome of a plebiscite is usually accepted as the expression of a sovereign popular will against which there is no recourse.

Uses in Europe. The plebiscite in this modern dress dates from the French Revolution, when the concept of self-determination first emerged and made the nation the focus of loyalty. On the premise that a change of sovereignty should take place only with the consent of the people concerned, the 1790–1791 Constituent Assembly held a plebiscite in the papal territory of Avignon and the Comtat-Venaissin and, later, in Savoy and Nice. Even though the voting took place under French military occupation, historians generally agree that these plebiscites were a genuine effort to ascertain popular preferences. They are less confident about subsequent plebiscites by which Napoléon gained the ratification of a new constitution and conferred upon himself first the title of life consul and later that of emperor. Some fifty years later his nephew had himself crowned by the same means.

Notwithstanding these early abuses, the idea behind the plebiscite gained ground with the advance of democracy and the resurgence of nationalism in the mid-nineteenth century as the appropriate way to implement these principles. In 1848 the leaders of the Italian Risorgimento were able to demonstrate with the results of referendums among the people of Lombardy, Venetia, Parma, Piacenza, Modena, and Reggio the existence of a strong desire for union with Sardinia into a single nation. Other plebiscites were held to settle the territorial reorganization of the Danubian principalities; the first, in 1856, was followed by a second ten years later and led to the establishment of Romania as a national state.

In considering the use of the plebiscite as an instrument to legitimize changes in territorial sovereignty, one has to concede that, at least until World War I theoretical discussion ran far ahead of practice, with favorable views voiced mostly by French and Italian writers; the main opposition came from Germans, while Americans seemed pretty well divided.

Those in favor argued that political units coincident with nationality would promote internal democracy, be conducive to tolerance, and ultimately find expression in greater international cooperation. Opponents believed that disregard of strategic considerations could allow the preference of a small population to play havoc with the balance-of-power system, which they saw as the cornerstone of international stability. That these views were to some extent reflections of national interest was demonstrated when Prussia, with its unilateral annexation of northern Schleswig in 1866, overrode the call for a plebiscite as it did again a few years later when it annexed Alsace-Lorraine. The two acts struck a shattering blow at the principle. The only bright spot in the picture until the end of World War I was Sweden, which was persuaded to grant Norway its independence as the result of a 1905 plebiscite to which it had reluctantly consented.

Types. Plebiscites can be informal and unilateral or formal and by agreement among the parties with an interest in the outcome. The earliest modern plebiscites were clearly of the informal variety, called by the victorious French in the obvious expectation that the people would want to affiliate with the nation whose armies promised liberty, equality, and fraternity. Over time plebiscites have more often been held under provision established in bilateral and multilateral treaties, as illustrated in the territorial changes effected through the Treaty of Versailles (1919), which incorporated the principle that people sharing a common language had a claim to common nationhood. When the negotiators attempted to redraw boundaries so as to maximize self-determination, they found that sometimes there was no obvious line of demarcation in national sentiment. For these situations a plebiscite proved a useful corrective. U.S. President Woodrow Wilson, to cite one example, had believed that all of the previously German province of Upper Silesia should rightfully be ceded to Poland, yet when 60 percent of the inhabitants voted to remain German the province was partitioned along lines duplicating as closely as possible the actual ethnic frontiers.

The success of this kind of plebiscite is highly contingent on close supervision by an impartial authority to ensure that citizens are free to express their preference. But the problems do not end there. A plebiscite, even when the balloting is conducted fairly, tends to inflame national passions. Nor do the ballots always record permanent national preferences rather than momentary fears, prejudices, and economic interests as perceived in the specific circumstances. Studies of Japanese Americans who opted for repatriation in 1942, and of Québécois during more recent balloting on whether they wanted to remain part of Canada, have shown that expression of "na-

tional loyalty" or the apparent desire for "independence" can be affected by the administrative context in which the question is framed and by specific political and economic grievances.

Uses in the Third World. Although there has been continuing reliance on plebiscites to resolve issues relating to territoriality—such as those between Italy and Yugoslavia over Trieste and between Germany and France over the Saarland—the arena since World War II has shifted to the Third World, where the claims of former colonies for full sovereignty were as yet unmet (as in Algeria). The change in venue brought other changes. Whereas plebiscites in Europe had been over territories fervidly disputed by neighboring states, so that international authorities had merely to concern themselves with the impartial administration of the vote, most plebiscites in the Third World involved political entities with no common history other than previous colonial rule. Their supervision introduced new complexities. One was how to define the alternatives for a population in the absence of fully developed ways for articulating its interests; another was the delineation of the appropriate voting area where the only clear boundaries were those defined by a colonial administration. Efforts by the supervisory bodies of the United Nations to define these issues for these populations have led to charges of partial disenfranchisement.

This is in contrast to most of the West, where constitutional government has long been in place. Here the questions (or propositions) that people vote on are usually defined within the framework of an already existing consensus. Since they are, quite legitimately, called referendums, the term *plebiscite* in its original meaning has fallen into partial disuse. However, the fundamental issue of the plebiscite as a valid measure of the public will is the same as for the referendum. With all its shortcomings, one is hard put to argue for a better and more effective institutional means of direct consultation with the public at large.

See also ELECTION; POLITICAL COMMUNICATION—HISTORY.

Bibliography. István Bibó, *The Paralysis of International Institutions and the Remedies*, New York, 1976; Friedrich Otto Hertz, *Nationality in History and Politics*, London, 1944, reprint 1966; Michla Pomerance, *Self-Determination in Law and Practice: The New Doctrine in the United Nations*, The Hague, 1982; A. Rigo Sureda, *The Evolution of the Right to Self-Determination: A Study of United Nations Practice*, Leiden, 1973; Oji Umzurike, *Self-Determination in International Law*, Hamden, Conn., 1972; Sarah Wambaugh, ed., *Plebiscites since the World War*, 2 vols., Washington, D.C., 1933; idem, *The Saar Plebiscite*, Cambridge, Mass., 1940.

GLADYS ENGEL LANG

POETICS

The study of literature in its characteristic, specific properties. Poetics consists of a theoretical and an analytical branch. Theoretical poetics inquires into general, universal properties of literature and literary categories—genres (see GENRE), structures, historical formations. Analytical poetics studies the specific properties of particular literary works, of individual writers' oeuvres, of literary styles (see STYLE, LITERARY), and so on.

Poetics and criticism. Poetics has often been confused with, or subsumed under, LITERARY CRITICISM. However, a sharp contrast between the activity of the critic and that of the poetician can be postulated in theory and observed in history. Criticism is an axiological, value-assigning activity that integrates and reintegrates literary works into the historically changing hierarchy of a cultural system. Poetics is a cognitive activity that gathers knowledge about literature and integrates it into the store of knowledge acquired by the human and social sciences and into the macrotheoretical frameworks established by AESTHETICS, SEMIOTICS, communication theory (see COMMUNICATION, PHILOSOPHIES OF), and so on. The discourse of criticism is based on evaluative judgments, the discourse of poetics on descriptive (observational and theoretical) statements.

The confusion between criticism and poetics has been heightened by the standard practices of literary study, in which the most popular and most frequently discussed documents, beginning with ARISTOTLE'S *Poetics*, are "mixed" texts blending evaluation and description (see LITERARY CANON). To discriminate between the critical and cognitive aspects of such texts does not decrease their intellectual value; rather, it means that not only criticism but also poetics can claim for its pantheon such classics of literary thought as those by Aristotle, Johann Wolfgang von Goethe, or Samuel Taylor Coleridge. Modern poetics, however, owes its establishment and development to hundreds of scholars whose work has been undeservedly neglected by the literary establishment. Contemporary literary thought is dominated by the contribution of scholars who have dealt with literature as poeticians rather than as critics: FERDINAND DE SAUSSURE, Boris Eikhenbaum, ROMAN JAKOBSON, Vladimir Propp, Jan Mukařovský, William K. Wimsatt, Jurij Lotman, ROLAND BARTHES, Paul Ricoeur. The expansion of poetics into a comprehensive theory of literature, postulated implicitly by Aristotle and explicitly by Boris Tomashevski, has become a reality.

Foundations of poetics. The cognitive activity of poetics is based on two fundamental assumptions: that literature is the art of LANGUAGE produced in a creative act of poiesis and that its study is governed

by the general requirements of scientific inquiry. On the first assumption is built the ontology of poetics, on the second its epistemology. These ontological and epistemological assumptions are bound together by logical necessity. A science of literature is possible only if literature is recognized as a specific artistic activity. If it is seen, on the contrary, as a branch of IDEOLOGY or morals, as a representation of individual or social consciousness, or as a set of historical or cultural documents, then there is no justification for developing an autonomous discipline of literary scholarship; literature would be properly studied within the framework of philosophy, ethics, psychology, sociology, political science, history, and anthropology.

Epistemologically the systematic study of literature requires historical continuity. Although the topical agenda of poetics is largely determined by cultural context, its epistemology does not follow patterns of cultural change. Rather, the history of poetics consists of a progressive expansion of its conceptual systems and methods of inquiry and a continual examination of the principles whereby its theories are formed, confirmed, or refuted. Being scientific, poetics can monitor and adopt advances in related sciences, as well as follow the continual probing into the foundations of scientific inquiry by philosophers of science.

From its inception poetics has been characterized by a structural, systemic tendency and occupied with developing mereological (parts and wholes) models in order to describe literary phenomena as complex and highly organized wholes made up of elements, constituents, or parts. The first such model of poetic structure, Aristotle's model of the TRAGEDY, is a logical one set out in accordance with the general postulates of his philosophy of science. By identifying six necessary and sufficient constituents of tragedy, Aristotle demonstrated the validity of the first principle of literary mereology: literary structures are decomposable into parts but cannot be reduced to the sum of those parts. His model is a representation of a generic structure (of a literary genre). It initiated an abstract poetics, a theory of universal structures that treats particular literary works only as examples.

In the second stage of its development, in romantic poetics, the scope of the mereological model was substantially expanded (see ROMANTICISM). It was now to represent not only a restricted repertoire of literary universals but also, and perhaps more important, the rich and inexhaustible variety of particular structures manifest in individual works. This expansion, typified by Wilhelm von Humboldt's 1799 study of Goethe's poem *Hermann und Dorothea*, was facilitated by the adoption by poetics of the organic model cultivated in natural science. Goethe's morphology of living nature and especially his con-

cept of metamorphosis provided poetics with the long-sought theoretical link between a universal Ur-structure and the structural variability of its particular manifestations. The fascination of this organic model for the study of poetic structures survived long after its nineteenth-century dominion over theoretical thinking crumbled. Modern narratology—a special branch of poetics concerned with the study of NARRATIVE structures—is founded on the work of Wilhelm Dibelius and Propp, both of whom were inspired by the organic model in general and by Goethe's morphology in particular.

In the meantime Saussure outlined a semiotic mereology of signifying systems totally free of the organic METAPHOR (see SIGN SYSTEM). When the representatives of Russian formalism in the 1920s and of the Linguistic Circle of Prague in the 1930s, following Saussure's inspiration, perceived literature as a system of signification, the history of the semiotic version of the mereological model began. Russian formalism laid the foundations of modern structural poetics. In pioneering studies of verse structures and narrative forms, the "algebra" of the mereological model was designed. Proceeding from this foundation the scholars of the Prague school (Mukařovský, Jakobson, Felix Vodička, and many others) advanced structural poetics by a meticulous examination of structural structures on all levels (phonic, grammatical, semantic, thematic) and in all genres (lyric POETRY, prose narrative, DRAMA). In Russian formalism and Prague STRUCTURALISM the potentials of a semiotic theory of literature were developed far beyond the mereology of "immanent" structures. Prague school poetics, formulated within the broader framework of semiotic aesthetics and ART theory, is the first systematic exposition of a semiotic theory of literary communication in all of its basic stages: production, reception, and transduction, or intertextual transmission (see INTERTEXTUALITY).

At the same time as the foundations of modern structural poetics were being laid in the Slavic countries, a radical reformulation of the principles and goals of literary criticism—pointing in a similar direction—was taking place in England and the United States. Several prominent poet-critics, from T. S. Eliot to John Crowe Ransom, challenged the traditions of Anglo-American criticism by perceiving poetry as a special kind of aesthetic experience and COGNITION rather than as an ideological tool or an expression of the poet's personality. At the same time I. A. RICHARDS, although postulating a sharp distinction between literature and science (based on an opposition between "emotive" and "referential" uses of language), endeavored to transform literary criticism into a science of literature. Stimulated by these initiatives, U.S. critics of the 1930s and 1940s (usually lumped together under the label New Criticism)

accomplished a dramatic conversion of criticism into literary theory. The representatives of the older generation (including, along with Ransom, Allen Tate, Cleanth Brooks, and R. P. Blackmur in particular) were hindered by a conservative "humanist" ideology, but the younger generation (Wimsatt, Monroe C. Beardsley, Northrop Frye, and others) proceeded confidently to establish a modern theory of literature in North America. This process was aided by an infusion of the results of interwar European poetics into the U.S. context, brought about by the immensely popular *Theory of Literature* (1948), by René Wellek and Austin Warren. The New Critics are especially close to the research project of structural poetics in emphasizing the autotelic and specific character of poetic utterance. They may lack a systematic model of poetic structure, but their particular concepts, such as irony, paradox, ambiguity, and texture, represent a significant enrichment of the mereology of poetics.

In French structuralism of the 1960s and 1970s the heritage of prewar central European structuralism was not cultivated, but a direct link to Russian formalism, especially to its abstract poetics, was established. Focusing primarily on universal structures, the French structuralists advanced theoretical poetics by developing formalized mereological models. By integrating modern LINGUISTICS (Émile Benveniste), structural anthropology (CLAUDE LÉVI-STRAUSS), social semiotics (A. J. Greimas), and poetics (Barthes, Julia Kristeva, Gérard Genette, Tzvetan Todorov, Claude Brémond), French structuralism became a powerful intellectual movement with worldwide influence.

The scope of theoretical poetics in the Moscow-Tartu school (flourishing in the 1960s and early 1970s) was as broad as that of the Prague school. The scholars of this group absorbed not only the abstract poetics of Russian formalism but also the postformalist project of a cultural semiotics (MIKHAIL BAKHTIN). The inspiration derived from generative linguistics, INFORMATION THEORY, and mathematical statistics made possible a high-level formalization of the mereological model of poetics. The main contribution of the Moscow-Tartu scholars (Lotman, V. V. Ivanov, A. N. Toporov, and others) consists in integrating literature into the system of systems of CULTURE. In the grand project of a semiotics of culture, theoretical poetics provided stimuli for theories of creative semiosis and of signifying practices in other arts, the mass media, RELIGION, philosophy, political ideology, and so on.

Literature and language. Because poetics conceives of literature as the "art of the word," it has to study systematically the relationship between literature and language. The concept of poetic language has thus become a crucial and controversial issue. The defi-

nition of poetic language requires a framework in which the oppositions between the language of literature and other uses of language can be identified. Aristotle differentiated firmly between the language of poetry and the language of ORATORY, a differentiation on which his division of poetics from RHETORIC rests. In subsequent centuries poetics and rhetoric jointly devised a detailed categorization of tropes and figures of speech, the rudimentary conceptual system for the study of poetic language (see SYMBOLISM). The romantics made a sharp distinction between poetic and prosaic language, although the interpretation of both poles of this opposition was a matter of controversy. In the romantic conception poetic language is characterized primarily by formal distinguishing features. A semantic theory of poetic language was proposed in 1892 by the German philosopher of language Gottlob Frege. According to Frege, sentences of ordinary language (including the language of science) have truth-values, that is, are either true or false; sentences of poetic language, however, are exempt from truth-valuation, being neither true nor false. Frege's SEMANTICS is compatible with an influential contemporary semantics derived from Saussure, according to which poetic language is freed from referentiality and able therefore to focus on radical manipulations of the sound (*significant*) and MEANING (*signifié*) nexuses. The Russian formalists put the problem of poetic language at the core of modern poetics, characterizing it, in contrast to practical language, by a lack of communicational utility. This contrast was superseded when the Prague school replaced formal and semantic distinctions with a functional differentiation. In Mukařovský's system (outlined in 1938) an aesthetic function of language appears in contrast to other, communicative functions of language (referential, emotive, and appellative). Jakobson's influential model, proposed in 1960 under the influence of communication theory, defines a "poetic function" in contrast to five communicative functions: referential, emotive, conative, phatic, and metalingual.

Literature and "reality." Poetics has often been criticized for treating literary works exclusively in terms of their "immanent" properties and textual devices. In fact, its efforts to reveal the specific features of verbal art have necessarily been accompanied by a simultaneous probing of the relationship between literature and the world ("reality"). One of the most enduring formulations of this relationship, the theory of mimesis, entered the history of Western thought primarily through Aristotle's *Poetics* (although the first formulation of the idea that art imitates existing things can be attributed to Socrates). Associating mimesis with the productive activity of poiesis, Aristotle counterbalanced PLATO's radical conception of art works as imitations twice removed

from essential reality. During the RENAISSANCE the idea of mimesis reentered Western aesthetics and poetics in the Aristotelian version, which allowed emphasis on the participation in the mimetic process of the poet's individuality and of the poet's particular perception of reality.

In neoclassicism the idea of mimesis was transformed into a norm requiring poetry to correspond to "nature" (see CLASSICISM). In the eighteenth century, however, the idea of mimesis was seriously questioned and an alternative theory ultimately formulated, inspired by German philosopher Gottfried Wilhelm Leibniz's doctrine of possible worlds. The Swiss poetics J. J. Breitinger and J. J. Bodmer and the German aesthetician A. G. Baumgarten assigned to poetry the power of creating imaginary (fictional) worlds as possible alternatives to the actual world. In nineteenth-century REALISM and naturalism the idea of mimesis reemerged in a different formulation, that of literature as an inquiry into human nature and the nature of society, parallel and analogous to scientific analysis. In contrast, the poetics of modernism and the AVANT-GARDE have perceived literature as a purely verbal structure and so deemphasized its relationship to reality. More recently a new version of possible-worlds poetics has emerged whereby literature is perceived as the construction of fictional worlds whose relationship to reality is a variable one, ranging from similitude to absolute contrast. By thus asserting the potential infinity of the poetic universe, poetics reaffirms its alliance with the anticonventional, totally open practice of contemporary poesis.

Bibliography. M. H. Abrams, *The Mirror and the Lamp: Romantic Theory and the Critical Tradition*, New York, 1953; Sture Allén, ed., *Possible Worlds in Arts and Sciences* (Proceedings of Nobel Symposium 65), Stockholm, 1987; Jan M. Broekman, *Strukturalismus: Moskau-Prag-Paris*, Munich, 1971; Lubomir Doležel, *Occidental Poetics: Chapters from a Research Tradition*, forthcoming; Victor Erlich, *Russian Formalism: History and Doctrine*, 3d ed., The Hague, 1969, reprint New Haven, Conn., 1981; D. W. Fokkema and Elrud Kunne-Ibsch, *Theories of Literature in the Twentieth Century*, London, 1977; Tzvetan Todorov, *Introduction to Poetics* (Poétique), trans. by Richard Howard, Minneapolis, Minn., 1984; Boris Tomashevski, *Tzoriâ literaturny: Poetika*, 4th ed., Moscow, 1928.

LUBOMIR DOLEŽEL

POETRY

Poetry and definitions of poetry are cultural products; both vary according to prevailing social structures and habits of mind. Perhaps the only definition of poetry that covers all the phenomena usually understood by the term is that it is an ART form

characterized by a distinctive structuring of LANGUAGE. Such a definition leaves imprecise two difficult questions: the nature of art and the nature of poetic as contrasted with other kinds of language. Thus the term *poetry* can refer either to a small class of texts that are indefinable in purely formal terms and are held to embody special human values, or to all texts that exhibit certain formal properties, in which case the distinction between "poetry" and "verse" tends to disappear. These two aspects of poetry—its function as an art form and its distinctiveness as a MODE of linguistic organization—can be emphasized and related to each other in different ways.

Origins and Functions

The origins of poetry cannot be separated from those of music; rhythmically patterned language, joined with rhythmic and melodic SOUND, vocal or instrumental, is associated in preliterate societies with activities such as the marking of important events in family and political life, the memorializing of a community's history and religious traditions, the public assertion of authority, preparation for military activity, communal work, prayer, and RITUAL (see MUSIC, FOLK AND TRADITIONAL; RELIGION). These verbal artifacts (see ARTIFACT) are like poetry in the modern sense in being distinguished from quotidian uses of language by a higher degree of formal organization, by the capacity to undergo repetition without loss of efficacy, and by unusual emotional effects; but they are more utilitarian in their social function than would be allowed for in many modern accounts of poetry.

The Western tradition of written poetry (and literature) began in Greece with the Iliad and the Odyssey of Homer, probably composed out of traditional oral materials in the eighth century B.C.E. and perhaps at first transmitted orally (see ORAL POETRY). Although they are vast and entertaining narratives, these epic poems were also regarded as sources of moral and religious authority throughout antiquity, and the other early Greek epic poet, Hesiod, was explicitly didactic. Lyric poetry, in the most general sense, first emerged clearly in the seventh century, dealing with personal feeling rather than NARRATIVE or instruction; it was closely associated with music and was related to the more public utterances of hymns and encomia. Greek DRAMA grew out of the choral lyric and reached its height in the fifth century B.C.E. Other prominent genres, not clearly separable from one another, included satire, short narratives such as the fable and the epyllion (minor epic), and the pastoral; the brief epigram was also popular (see GENRE).

Thus Greek poetry, in its diversity of forms and

functions, laid the foundations for the Western poetic tradition, which continued in classical and medieval Latin CULTURE and duly passed to the modern European languages. The fifteenth and sixteenth centuries in particular saw a growth of vernacular literatures as part of the nationalistic trend of RENAISSANCE culture and politics, but the influence of classical forms increased in this period, to remain strong (though constantly reinterpreted) through the following two centuries (see CLASSICISM). Toward the end of the eighteenth century the shift of emphasis from the formal and rhetorical to the emotional and expressive became pronounced, and ROMANTICISM, though still indebted to the writings of antiquity, gave rise to assumptions about the nature of poetry that were to remain influential throughout the nineteenth and twentieth centuries despite the challenges of modernism and postmodernism (see AVANTGARDE).

Poetry can be traced further back in other cultural traditions: to Sumerian CUNEIFORM writings and EGYPTIAN HIEROGLYPHS of the third millennium B.C.E. and to Hittite, Babylonian, Indian, and Hebrew texts of the second millennium B.C.E. (and if we could decipher the early Minoan language known as Linear A we might include Cretan writing). Chinese and Persian poetry go back at least to the first millennium B.C.E. (see EAST ASIA, ANCIENT; SOUTH ASIA, ANCIENT). This early poetry shows the same close relationship between music and verse as its European counterpart, and a similar range of religious and political functions.

Poetry as Effective Art

Changes in poetry throughout history have been accompanied by changes in its INTERPRETATION and evaluation. As a form of language that makes a particularly strong and lasting impression on the hearer or reader, poetry serves a number of ends related to the more general understanding of art of the time. It can be seen, for instance, as primarily concerned with the evocation of emotion. PLATO, indeed, banished poets from his ideal republic partly because of this power of verse (and its accompanying music); ARISTOTLE, in reply, pointed to the healthy psychic effects of aroused and discharged emotion. The treatise *On the Sublime*, attributed to Longinus in the first century C.E., continues to find readers in whom its emphasis on the emotional effect of poetry strikes an immediate chord, and many modern accounts of poetry stress this aspect with varying degrees of psychological sophistication. Whatever the specific emotions aroused, poetry must always produce pleasure, and this capacity has often been proposed as a defining characteristic. Poetry is thus set in opposition to other kinds of language, which are

seen as concerned largely with the communication of MEANING, with PERSUASION, or with rational argument. Hence the repeatability of a poem: if its *raison d'être* is a highly particular and fundamentally emotional experience, the reader cannot carry away some extractable nugget or summary and discard the poem.

Such an account of poetry aligns it closely with the nonverbal arts to the extent that they are regarded as affective rather than cognitive, and like many accounts of poetry it leaves PROSE literature in an uncertain region somewhere between indubitably poetic and indubitably nonpoetic uses of language. Poetry is taken to be the purest form of literature, and lyric as the purest form of poetry, because they are the least contaminated by the rational and instrumental modes of ordinary language. This view springs from an aesthetic tradition in which the example of romantic poetry and Immanuel Kant's theory of the "disinterestedness" of the response to beauty—its freedom from any motive or purpose beyond itself—have played an important part (see AESTHETICS).

It is sometimes argued that the emotion experienced by the reader is or should be identical to that experienced by the poet; the poem is in this view a vehicle of affective communication. The appeal of this simple theory is evident, but the history of poetic creation and poetic response shows it to be far from universally applicable. Its popularity springs no doubt from the quality of the response evoked by some poetry—a vivid sense of the feelings of another individual. If the poem is in dramatic form, however, those feelings may belong to an invented character and may have little to do with the emotions of the writer. Any poem, however autobiographical, will allow a reading that distinguishes between the persona it creates and the poet who created it. See AUTHORSHIP; READING THEORY.

Another inheritance from romantic literature and Kantian aesthetics is the centrality of the concept of imagination to many discussions of poetry. The poem is seen as the most imaginative, or freely and fully creative, use of language, and this is related to its emotional power and its distance from the rational and the practical. The term resists definition but reflects a quality of poetic language that has been felt by many writers and readers. Some would emphasize poetry's mimetic power, seeing it as the most accurate means of imitating the internal and external worlds of human experience, and others would regard the ambiguity of poetic language as a defining feature.

A complementary and sometimes contradictory emphasis frequently has been given to the special moral or social value of poetry, and many poems have been written out of a desire to teach or improve

as well as to express or communicate. The particular emotional and imaginative forcefulness of poetry becomes the servant of a larger aim. We could include here the overtly presented moral and religious values of the early epics, the religious purpose of much medieval verse (see MIDDLE AGES), the Renaissance view of poetry as the vivid depiction of virtue and vice, the romantic insistence on poetry's power to enhance imaginative sensitivity, and the political function of poetry written in revolutionary situations.

These interrelated views of poetry—all of them significant in the history of poetry itself—imply that the term has an evaluative dimension; a text that bears formal similarities to poetry or is presented as poetry but that does not have the aesthetic, emotional, or moral effects demanded of poetry cannot be a poem. One result of this is that the category of poetry is highly unstable, varying from period to period, place to place, and individual to individual. Some stability is provided by the social and economic systems in which poetry is produced and evaluated—notably the PUBLISHING and mass media industries and various educational institutions—as well as by the relatively limited sector of the population for whom it is of any importance (see TASTE CULTURES). Thus many verbal artifacts that appear to have the intrinsic properties characteristic of poetry, such as pop and rock songs, sporting chants, and jokes and conversational routines, are judged to fall outside its domain (see ETHNOPOETICS).

Poetry as Organized Language

A different approach, which emphasizes not the effects of poetry as a mode of art but its relation to other kinds of language, has been of equal importance in the history of poetry. This approach grows out of the tradition of RHETORIC initiated in antiquity and central to the writing and reception of poetry until the romantic period, a tradition that laid great emphasis on the formal features of language and was buttressed by an emphasis on such matters as prosody and stanza form. Although with romanticism the mechanics of form began to be regarded with some suspicion as a possible hindrance to creativity, these questions could not fail to be of importance to anyone engaged in the writing of poetry, until the rise of free verse in the twentieth century made it possible—although still not very usual—for a poet to write without a strong consciousness of the formal choices involved.

Most attempts to determine the difference between poetic and other uses of language emphasize one or both of two kinds of deviance: an unusual degree of patterning, and a departure from accepted linguistic rules. Patterning of rhythm is most characteristic of

poetry. How this is achieved depends on the exact nature of SPEECH in a particular language. Pitch, duration, volume, and timbre or voice quality all coexist in speech but with interrelations that vary widely from language to language. In poetry these elements are organized in a more regular way than is usually the case. A poetic tradition makes certain basic forms or meters familiar to readers, enabling them to associate a given poem with a whole group of poems and to respond to small variations from the norm.

For example, in English the most salient features of speech rhythm are the succession of syllables and the different degrees of stress on them. The predominant tradition in the history of English literary meters is that of accentual-syllabic verse, in which both the placing of stressed syllables and the number of syllables is controlled. Another tradition, older and more characteristic of popular verse, controls only the main stressed syllables. Sequences of stressed and unstressed syllables are grouped into units, with two main types predominating: four beat and five beat. The four-beat sequence is almost universal in popular verse and SONG and is used in much literary verse as well; it is manifested in a variety of line lengths and stanza forms (all versions of a fundamental four-beat structure) and is usually associated with rhyme. Five-beat verse is largely limited to the literary tradition and has been used for some of the major poetry in English, including William Shakespeare's plays and JOHN MILTON's epics. It is employed much more strictly than four-beat verse, almost invariably in a duple accentual-syllabic meter (alternating stressed and unstressed syllables, with certain allowable variations) and in a ten-syllable line; it can be rhymed or unrhymed. The underlying metrical patterns of English verse are clearly related to those of other languages; in particular the four-beat structure is widespread across cultures.

Other elements also may be patterned: vowels and consonants, to produce different kinds of rhyme (including alliteration and assonance) or more complex patterns such as those of Celtic prosody; numbers of syllables or words (as in Japanese and Chinese poetry, respectively); individual words (as in the villanelle and the sestina); or syntactic structures (to produce a metrics of parallelism, such as that of most ancient Near Eastern poetry). Poems may be visually patterned, and all written poetry has a visual dimension; some forms of "concrete" poetry exist primarily as graphic structures. Patterning of any of these elements can be regular, as in rhyming or alliterative verse, or unsystematic. The minimal degree of patterning is division into lines. Even if no other verbal organization is present, sentences divided up on the page are read—in the twentieth century, at least—as a poem, with the enhanced attention that this implies.

When line division is not used, doubt arises about CLASSIFICATION; hence the category of the prose poem, which became firmly established in the nineteenth century after the example of French poet Charles Baudelaire, although there are a number of less self-conscious precedents.

The breaking up of continuous prose into segments could also be regarded as a minimal instance of the other kind of deviation that characterizes poetry—the infringement of rules. Here what is ignored is the rule of layout, which specifies that lines should reach the right-hand margin except at the end of a paragraph (and possibly the associated rule governing the insertion of pauses in delivery, although practice in the reading of verse varies widely). Other types of infringement include various kinds of figurative language (see METAPHOR), ellipses, changes in parts of speech and other syntactic irregularities, unusual collocations (e.g., of adjective and noun), and shifts in register, as well as the employment in some periods of a distinctive vocabulary and style that are not found outside poetry (poetic diction).

These devices of patterning and deviation are often seen as the instruments whereby the special effects of poetry are achieved by increasing the richness and specificity of the language and by focusing the reader's attention on the meanings of the words; but they are as often seen as focusing attention on the language and form of the poem itself. This apparent contradiction runs through many descriptions of poetry and also typifies the paradoxes of the creative process. Whereas successful prose could be described as that in which the language becomes transparent in order to present the content as vividly as possible, successful poetry seems to heighten awareness of the medium and the subject matter at the same time. By the same token the poet tends to be more conscious than the prose writer of the medium that is being shaped into meaningful sequences.

The way in which poetic language draws attention to itself was a particular concern of the Russian formalists in the second and third decades of the twentieth century. They valued this phenomenon as a revitalization of both language and the world it represents. But the project of distinguishing between poetry and prose in formal terms is rendered difficult if not impossible by the fact that apart from regular patterning most of the features adduced as defining characteristics of poetry can also be found in non-poetic language; the distinction therefore tends to collapse back into a mechanical distinction between verse and prose. Out of this work grew a theory of linguistic functions, most influentially propounded by ROMAN JAKOBSON. The poetic function is one of several, and although it is dominant in poetry it exists in a subordinate role in other uses of language. It is defined as the focusing of attention on the linguistic

text itself, but there remains some uncertainty regarding whether this is brought about by the distinctive characteristics of poetic language or by the habits of readers confronting something already defined as poetry. See POETICS.

The adequacy of this or any characterization of poetry is not open to wholly objective scrutiny, given the embeddedness of literature within the cultural forms that also govern the way we describe it. The term *poetry* and the range of phenomena to which it refers remain elusive and shifting, although the activity of exploiting the multiple resources of language to produce pleasure and profit, to move and to improve, remains a feature of all human cultures.

Bibliography. Derek Attridge, *The Rhythms of English Poetry*, London and New York, 1982; Ruth Finnegan, *Oral Poetry: Its Nature, Significance, and Social Context*, Cambridge, 1977; Paul L. Garvin, ed. and trans., *A Prague School Reader on Esthetics, Literary Structure, and Style*, Washington, D.C., 1964; Geoffrey N. Leech, *A Linguistic Guide to English Poetry*, London, 1969; Winifred Nowotny, *The Language Poets Use*, London, 1962; Alex Preminger, ed., *Princeton Encyclopedia of Poetry and Poetics*, enl. ed., Princeton, N.J., 1974; Thomas A. Sebeok, ed., *Style in Language* (Conference on Style, Indiana University, 1958), Cambridge, Mass., 1960; W. K. Wimsatt, Jr., ed., *Versification: Major Language Types*, New York, 1972.

DEREK ATTRIDGE

POLITICAL COMMUNICATION

This topic is discussed in three sections:

1. History
2. Impact of New Media
3. Broadcast Debates

1. HISTORY

Any transmission of messages that has or is intended to have an effect on the distribution or use of power in society can be considered political communication. The term is generally applied to messages concerning power in nation-states but can also refer to communication in a church, SCHOOL, FAMILY, or any other setting in which power is at stake. Indeed, with the expansion of state power all over the globe in the past century, private life has been increasingly politicized, subject more and more to state policy. Defining the limits of the political has grown correspondingly more difficult.

We may picture the world divided into spheres of the governors and the governed. Sometimes the governors communicate among themselves (elite communication), sometimes they address the governed (hegemonic communication), sometimes the governed address the governors (petitionary communica-

tion), and sometimes the governed communicate among themselves (associational communication). This schema is overly simple, but it facilitates defining the field of discussion and clarifying historic trends.

Early Modern Europe

With the invention of the printing press and the spread of print shops throughout Europe in the late fifteenth and sixteenth centuries, a technical possibility emerged for expanding political communication that was not exclusively elite communication (see PRINTING—HISTORY OF PRINTING). But printed news and political opinion remained largely within the realm of elite communication until the mid-1700s—later in many countries. Church and state supervision of printers and CENSORSHIP of printing tried to keep pace with the spread of the new technology.

Only when representative government became institutionalized did political communication move from predominantly elite communication to the hegemonic and petitionary forms of communication that link governors and governed. Representative government developed in England and in the American colonies in the 1600s, but even there it took another century to establish the principle that the voting public had a right to know what the legislature was doing.

In 1726 James Franklin (Benjamin's older brother) became the first person on either side of the Atlantic to record in the public press the votes of individual lawmakers on a bill before the legislature. This became standard practice only in the 1770s in England; the English press did not gain full rights to listen to parliamentary debates until after 1800. The tradition of SECRECY and privilege was persistent. The U.S. Senate acted completely in secret for its first four years. While the eighteenth-century press was by no means muzzled in the English-speaking world, most newspaper political writing and pamphleteering did not report information about what politics was so much as express (often very freely) opinions about what it should be (see NEWSPAPER: HISTORY).

The PAMPHLET and the broadside developed as important forms of communication in eighteenth-century Europe and in colonial America. Perhaps the most famous pamphlet of that time was Thomas Paine's *Common Sense*. It went through twenty-five editions and gained thousands of readers in 1776 alone. It helped pioneer a new style of political writing. Earlier pamphleteers in America were lawyers, merchants, planters, or ministers, who typically wrote to others of their peer group in a florid style full of classical references. Paine's style of writing was as republican as his politics: "As it is my design to make those that can scarcely read understand, I shall therefore avoid every literary ornament and put

it in language as plain as the alphabet." Paine was original in this rejection of the elite political language of the past. The move away from elite communication as the exclusive domain for political messages was under way.

The pamphlet, like the newspaper, had roots in the seventeenth century but was still a break from more traditional means of expressing or shaping PUBLIC OPINION. In the eighteenth century, in the American colonies, without written constitutions or school texts on government (or many schools), people learned about politics by participating—usually in a subordinate and deferential role—in rituals of authority. People learned about government by attending courthouse sessions or public executions. Voting itself was as much an act of hegemonic communication as of petitionary communication. In the state of Virginia, for instance, it was typically an act of deference since there was no secret ballot. The sheriff would ask the voter whom he favored in the presence of the candidates. The fortunate candidate would then thank the voter. Candidates "treated" voters to rum, not so much to buy votes as to express the paternalism of the gentry toward the lower orders. Politics was not so much a separate sphere of activity as it was just one more expression of the etiquette of a deferential society in which inequality was taken for granted.

In contrast, New England's political culture made more room for petitionary political expression. Town meetings voiced objection to the Stamp Act of 1765 (a British law requiring publications in its American colonies to bear a tax stamp) by written instructions to their representatives in the colonial assembly. The instructions were typically printed in newspapers, spreading the ideas of resistance (see Figure 1). Political writing in the colonies was directed to the legislature, not to the public, until at least the 1720s. Political expression in print was at first elite communication. But by the 1750s pamphlets and newspapers were directed to voters and might be printed in several thousand copies and read aloud at the polls. Elites were not happy with this inclusion of a larger (although still narrow by modern standards) public, but parties out of office sought to broaden their political base by such means to unseat incumbents. This intralite rivalry led even social conservatives to appeal to a wider public. Colonial elites did not want to democratize society, but their hesitation in encouraging mob violence directed at British imperial officers lessened over the years.

The riot may have been the archetypal form of petitionary communication in the eighteenth century. In England and France so-called food riots were generally an assertion of the local community's right to consume available food at a fair price. These often tumultuous but only occasionally violent gatherings

◁ Figure 1. (*Political Communication—History*) The “Tombstone Edition” of *The Pennsylvania Journal and Weekly Advertiser*, October 31, 1765. This satire appeared the day before the Stamp Act was to be enforced. The Historical Society of Pennsylvania, Philadelphia.

threatened hoarders and profiteers and led to searches of storehouses and private homes for hoarded grain and seizure of food shipments. In London riots were often directed toward Parliament and in this respect were the most directly political. In the American colonies riots also became expressly political as local issues became assimilated to the single theme of opposition to British rule. The eighteenth-century mobs were a kind of halfway house of political consciousness: in part concerned only with local economic issues, in part developing a sense of political rights, in part a tool of the gentry that organized or incited the riots, in part an emerging separation from the traditions of deference. The eighteenth-century riot typically resisted the encroachment of state power; it was a reactionary form of collective violence and died out by the mid-nineteenth century in England, France, and the United States, to be replaced by more organized violence based on social or political associations and directed toward a broad political program. See DEMONSTRATION.

Political communication also took place through the calendar of the year’s activities. In Boston, March 5 was celebrated in the 1770s as the anniversary of the Boston Massacre. Public orations were an important part of the commemoration, and they served, in Sam Adams’s view, “to preserve in the Minds of the People a lively Sense of the Danger of standing Armies.” The mobilization of opinion through holidays and celebrations greatly accelerated with the French Revolution. Jacobin revolutionary leaders established republicanism as a pseudoreligion. Jacobin clubs throughout France employed revolutionary catechisms, prayers, hymns, communal feasts, civic altars, and Trees of Liberty (a symbol borrowed from the American Revolution) to encourage republican sentiment. Indeed, the French Revolution provided the first self-conscious, directed, and total effort at political indoctrination in history. Where earlier rulers had sought compliance or loyalty, the French leaders wanted commitment. They believed with other Enlightenment thinkers that human beings could be fundamentally changed and that “men could be led to practise social virtues if moral lessons were constantly associated with pleasant sensations.” Hence music, festivals, spectacles, and dramas were all drawn into the service of political education (see POLITICAL SOCIALIZATION). With the French Revolution the interest of the state in hegemonic political communication began to encompass control over the private

life and passions of individuals, not just their public behavior (see Figure 2).

Political Parties and Newspapers

The nineteenth century saw two significant developments in political communication in western Europe and North America. First, the political party emerged as the central institution of opinion formation and articulation. Second, the newspaper grew substantially as an avenue of political communication.

The political party is, as Benjamin Disraeli put it, “organized opinion.” It is even more important than this suggests. French political scientist Maurice Duverger wrote that “parties create public opinion as much as they express it; they form it rather than distort it; there is dialogue rather than echo.” Like political communication generally, parties began as intralite institutions and only later became a link between rulers and citizens. The modern political party, the mass-based party, developed in the United States and western Europe in the nineteenth century. In England a Parliamentary party moved toward a mass party system as the Reform Bills of 1832, 1867, and 1884 broadened the electorate. In the United States the mass party developed in the Jacksonian period, from 1828 to 1840. Other European party



Figure 2. (*Political Communication—History*) *Feast in Honor of the Supreme Being*, June 8, 1794. “The true priest of the Supreme Being is Nature, her Temple the Universe, her Religion Truth, her services the joy of a great People assembled to tighten the bonds of Fraternity, and Swear the death of Tyrants.” Bibliothèque Nationale, Paris. Giraudon/Art Resource, New York.

systems emerged in the middle to late nineteenth century.

The rise of the party in England was connected with the extension of the franchise to the working class. This is a vital story in itself, for the vote is the primary expression of petitionary communication in democratic societies. The growth of the franchise concerns not only who is eligible to vote but how voting is conducted. The working class in some countries had the franchise before they were able to exercise it freely. Not until 1872 in Great Britain, the 1890s in the United States, 1901 in Denmark, 1918 in Prussia, and the 1930s in Hungary was a secret ballot a protection within the electoral process.

Many of the developments in political communication in the nineteenth century accompanied working-class (and later feminist) agitation for the vote. In Great Britain this included popular lecture series, workingmen's educational institutes, indoor and outdoor mass political meetings, union organizing, demonstrations that spurred the Chartist and other reform movements, and a tradition of banners that accompanied the demonstrations and outdoor meetings. In the United States similar kinds of activities developed with the emergence of the mass-based political party. In ELECTION campaigns from at least 1840 on, banners, torches (for nighttime parades), campaign buttons, handkerchiefs, and other paraphernalia became part of popular political culture. The election, from the mid-nineteenth century on, has been the chief institution of dramatized IDEOLOGY and legitimating political RITUAL.

The idea that party opposition to the governing party is legitimate developed and became institutionalized in the nineteenth century. In the United States the Federalists and Republicans did not at first see themselves as alternatives in a two-party system; each side hoped to eliminate the other. Eighteenth-century political thinkers took party loyalty to be an insidious substitute for loyalty to the public good. Edmund Burke, in 1770, was probably the first to state effectively the case for party competition as a legitimate structure within representative government. But it was the United States that first developed the legitimacy of party opposition early in the nineteenth century, and also the United States that first incorporated a large electorate and the machinery of mass-based political parties. In Great Britain the idea of an organized opposition had roots in the seventeenth and eighteenth centuries but did not develop into a genuinely organized and led opposition until the late nineteenth century.

As parties became the main institutional locus of political expression, newspapers became the major medium. The French Revolution stimulated a POLITICIZATION of the news media in Europe. In Scotland the editorial voice of the newspaper (the leading

article, or leader) acquired importance for the first time in the early nineteenth century. The eighteenth-century Scottish newspaper had been an advertising medium without political influence. The *Edinburgh Review* certainly exaggerated when it claimed in 1860 that journalists were no longer hack writers but were "men of fixed opinions, consummate knowledge, and deliberate purpose," but it recognized that the press had become an established political institution.

At the same time, the French Revolution led to a reaction and increased censorship of the press in many parts of Europe. In Great Britain a key distinction emerged between the "respectable press" and the "pauper press." Radical journalists in the early 1800s ran papers of much greater circulation than even the leading newspaper of the age, the *Times* of London. But while political expression in the latter was tolerated, the readership being "safe," government's fears of the working class led to efforts to limit the reach of the radical journals. A newspaper tax and an advertisement tax, which the bourgeois papers were wealthy enough to pay, could not be paid by the working-class press. Hence these "unstamped" papers were denied access to the mails, and a paper like William Cobbett's famous *Political Register* had to be sold and distributed by its own readers (Figure 3).

The British stamp tax was ended in 1836 and the advertisement duty in 1853, opening the way to a newspaper press of vastly increased circulation and influence. The social and economic basis of the new popular press was an improvement in the production and distribution of newspapers, connected with improved technology in printing and paper making and the growth of the railroads in the mid-nineteenth century. (In France and England, bookstalls at the railroad stations were a major marketplace for reading matter.) The success of newspapers was as much a result as a cause of political communication: the drive for a wider franchise and the gaining of the franchise gave more people a stake in political life and reason to want to inform themselves about it.

In France a daily newspaper press at prices that a growing middle-class readership could afford was inaugurated in the 1830s. Stimulated by the freedom of expression that the French Revolution unleashed, hundreds of papers sprang up (and expired) in France in the first decades of the nineteenth century. The press became closely allied with politics. In 1830 and again in 1848 journalists played central roles in overthrowing governments, and freedom of the press was a burning issue. A close accommodation between government and the press developed after 1848. During much of the nineteenth century the French press deposited "caution money" with the government as an advance against fines. The size of this deposit and

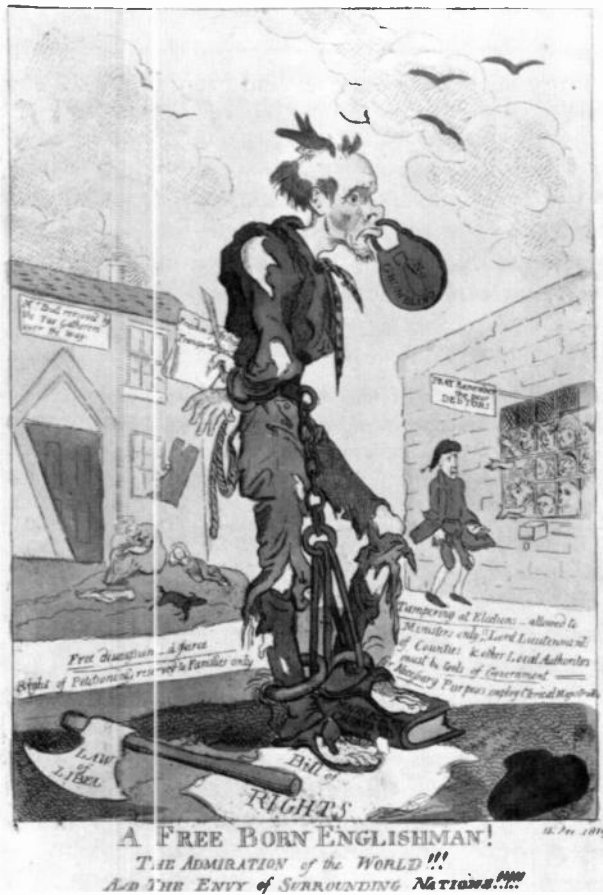


Figure 3. (*Political Communication—History*) *A Free Born Englishman!* Satirical cartoon published after the passing of the Six Acts, which raised taxes on all newspapers and established penalties for seditious libel, 1819. Reproduced by courtesy of the Trustees of The British Museum.

the nature of the fines limited the growth of the press and led to a press more venal than that in England or the United States. In the late nineteenth century the French commercial press was notoriously corrupt. The Russian government paid millions of francs to the French press from 1889 to 1905 to help raise loans in France; respected journalists took bribes to write favorably about Russia. As for the French government, it operated on a similar system of secret funds, subsidies, and bribes to attract favorable press publicity.

In the United States an active party press in the early 1800s gave way to a self-consciously “independent” commercial press, the “penny press,” that arose in New York, Philadelphia, Boston, and Baltimore in the 1830s. These papers were distinctive in that they were cheap, were sold on the street by newsboys rather than solely by subscription, attended to local news (early U.S. newspapers had copied most of their news items from London papers), and paid greater attention to areas on the border between public and

private life—the social life of elites and the police and court reports. While the penny papers were not all affiliated with political parties and were the first papers to seek commercial success without government printing contracts (a major source of income for the earlier press), they remained engaged in the political field of battle. Indeed, nineteenth-century newspapers frequently grew up (and died) with specific parties and movements. The press was an instrument of political and cultural association and was often more an institution of associational than of elite or hegemonic communication. See BENNETT, JAMES GORDON; DAY, BENJAMIN H.; GREELEY, HORACE; HEARST, WILLIAM RANDOLPH; PULITZER, JOSEPH.

In countries without the institutions of democracy political communication was very different. In Russia, as late as 1703, all foreign and domestic news was regarded as a state secret. Only at the end of the eighteenth century did literature emerge from patrimonial subservience as an independent field. Catherine II (r. 1762–1796) encouraged a new level of free expression. In the nineteenth century several institutions among the privileged developed as centers of critical discussion: the salon, the universities, and the periodicals. From the 1860s on, a student movement became a constant feature of Russian life. With the reforms of Alexander II (r. 1855–1881) freeing the serfs and establishing limited local self-government, opportunities for political expression grew. While censorship, including the requirement of a prepublication government stamp, existed throughout the nineteenth century, it was not strictly enforced. A secret police provided a strong system of social control, but the severity of the repressive apparatus generated its opposite number in the dramatic terrorist activities of the czar’s opposition. Further, dissidents used the privileged place of literature as a political field of expression. One of the most influential political documents in history was Nikolai Chernyshevsky’s novel *What Is to Be Done?* (1863). This utopian novel describes a revolutionary “new people” who dedicate themselves to liberation through selfless struggle. It was the Bible of Russian radicals and deeply influenced V. I. Lenin himself, who wrote a revolutionary pamphlet with the same title (1902).

Twentieth-Century Developments

The mass-based party and the newspaper were the great inventions of nineteenth-century political communication. The twentieth century’s contributions have been the Leninist party and the rise of what might be called the PUBLIC RELATIONS state.

USSR and China. Lenin created the new-model political party, not as part of a multiparty system

within constitutional government but as a revolutionary army and instrument of mobilization. Today, about one adult person in ten in the Soviet Union is a Communist party member, recruited through youth organizations and obligated to study political doctrine, attend meetings, and often serve as a leader of youth groups and an administrator of party institutions.

The Bolshevik Revolution (1917) and the first years of Soviet rule established, besides the party, another major institution of political communication, “agit-prop”—organized agitation (promoting a few, simple ideas to masses of people) and PROPAGANDA (promoting many and complex ideas to a literate elite) on behalf of building the new Soviet citizen. Agitational events directed by the state have included the massive annual FESTIVAL on May Day and on the anniversary of the October Revolution, the erection of heroic statues, and the development of a cult surrounding the person of Lenin (even before his death). During World War I a newsprint shortage limited the value of this conventional source of propaganda, and the Bolsheviks substituted with “agit-trains” and “agit-ships.” The “Lenin Train” was covered with frescoes depicting workers and soldiers; it carried books, leaflets, posters, films, and trained agitators themselves to the front.

Agitators operate extensively in the Soviet Union. There is a vast system of mass oral media. More

than 15 million lectures are given annually (figures for the 1970s). Because of the vastness of the system it is difficult to monitor and operates to a large extent outside the critique and control of party officials, although most lecturers are party members. Related models have been adopted in other Communist states. In Cuba two mass organizations, the Committees for the Defense of the Revolution and the Central Organization of Cuban Trade Unions, organize people for mass demonstrations. In China, Mao Zedong’s “mass line” policy developed in the 1940s advocated that the party

take the ideas of the masses (scattered and unsystematic ideas) and concentrate them . . . then go to the masses and propagate and explain these ideas until the masses embrace them as their own, hold fast to them and translate them into action, and test the correctness of these ideas in such action. Then once again take them to the masses. . . .

This policy grew out of the efforts of the Communist army to organize the masses in the 1940s and continued as an instrument of hegemonic communication in China after 1949.

The People’s Republic of China, like the Soviet Union, relies heavily in its campaigns of mass indoctrination on INTERPERSONAL COMMUNICATION rather than on the mass media for its key efforts at hegemonic communication (see Figure 4). This is not to say that newspapers, RADIO, and television play no role in it. In the Soviet Union there are thousands of



Figure 4. (*Political Communication—History*) A mass calisthenics display at the opening ceremony of the Third Sports Meet of the Chinese People’s Liberation Army, May 11, 1975, Beijing. UPI/Bettmann Newsphotos.

newspapers that serve not only to report government views on political and economic affairs but also to act as a forum for complaint and criticism. Soviet papers publish hundreds of thousands of letters to the editor. These letters often complain of bureaucratic mismanagement, and many of the letters lead to government remedies. The letters columns are a form of quality control of party and government officials and also serve as a means of legitimating the political system as a whole while criticizing some of its machinery. In China, as in the Soviet Union, the electronic media have developed more slowly, but they are also becoming important media for hegemonic communication.

Electronic media and public relations. The image of all-powerful electronic media in political communication comes not from the Communist countries but from the development of propaganda and public relations in the West during and after World War I (1914–1918). The fear that governments could manipulate the masses at will was greatly stimulated by Adolf Hitler's spellbinding abilities as an orator, not only in front of large crowds but as transmitted around the world by radio broadcast. Hitler was very interested in how the media could be used to solidify his leadership (see GOEBBELS, JOSEPH). The actual Nazi media policy involved much more than skillful exhortation, however; during the 1930s a combination of concentrated social pressure, economic strangulation, arbitrary use of police power, and physical terror eliminated opposition parties, the opposition press, and public expression of dissident opinion.

Radio and television broadcasting (see TELEVISION HISTORY) emerged in the twentieth century around the world as government-controlled or government-regulated media of communication. Government control of broadcasting ranges widely: from the U.S. system, where broadcasting is primarily in private commercial hands, to the British "arm's-length" system of a government-appointed broadcasting authority that operates with a high degree of autonomy, to more tightly state-directed systems like the French, to systems where broadcasting is explicitly conceived as an instrument of government policy making, like the Soviet (see GOVERNMENT REGULATION).

Perhaps the most striking and original use of the electronic media for political communication to date was the Ayatollah Khomeini's use of TELEPHONE and tape recorder in engineering the Iranian revolution of 1979. In Paris, in exile, Khomeini had better communication (by telephone) to his followers in Iran than he did when in Iran. And his voice (distributed by audiocassette) reached more people than he could have reached face to face from within the country.

In liberal societies in the twentieth century elections have remained the central institution for both



Figure 5. (*Political Communication—History*) Austrian electoral campaign billboard, 1980. Photograph by Lee Ann Draud.

hegemonic and petitionary communication, but the character of elections has changed. The authority of the political party has declined notably in the United States and, to a lesser degree, in European countries. Candidacy for office is now less dependent on grooming by party service and more reliant on candidates' abilities to gather around them organizations personally loyal to them and to reach directly to the voters through the mass media. Campaigning has increasingly been run not by party loyalists but by professionals in public opinion, public relations, and ADVERTISING (Figure 5). The vast reach of the media, especially television, has provided a more direct link between national candidates and the public, much less mediated by party leaders. In the United States this gives the president and presidential candidates at least the illusion that an election is a personal PLEBISCITE. Democratic reforms have led to a vast increase in the importance of primary elections, and the United States has moved closer to plebiscitary democracy (Figure 6).

Apart from electoral communication, the field on which hegemonic and petitionary communication meet, a major change in twentieth-century political communication has been the institutionalization of the hegemonic function as part of standard government operations. Propaganda or public relations has become a major governmental function. Government agencies in the United States began hiring press relations specialists in the 1920s, and this has been a key government function ever since. From World War II on, foreign policy has become a more impor-



Figure 6. (*Political Communication—History*) The 1980 Republican Convention, Detroit, Michigan. UPI/Bettmann Newsphotos.

tant aspect of U.S. government functions, national security has become a more central concern, and secrecy has been more often invoked as a barrier between government and the press. While the U.S. government remains more open in its information policies than France, Britain, or most other liberal democracies, the government is nonetheless increasingly self-conscious about using the mass media as a forum for PERSUASION. Whether one calls it news management or public relations or image building, it is a sophisticated derivative of the propaganda that became part of the property of governments, both autocratic and democratic, from World War I on.

In many parts of the world, of course, governments have come to use a much wider array of tools of information control than would be accepted as legitimate in North America or western Europe. In some of the more liberal nations of Latin America, for instance, direct press censorship is rare, but many other measures effectively limit political debate. In Mexico, Argentina, and Brazil suspension of publication of offending newspapers has been widely prac-

ticed. In Mexico the state controls newsprint and has withheld it from dissident publications, and the state has used its control of the banks to exert economic leverage on the press. The Latin American press, like an earlier U.S. or European press, is generally much more effective at publishing dissenting opinion than at publishing potentially embarrassing news (*see* NEWSPAPER: TRENDS—TRENDS IN LATIN AMERICA). This, of course, is true not only of Latin America. In France there is a tolerance of government secrecy and a relatively modest demand for information about government compared to the Anglo-American tradition. France's liberal legal framework for political expression is not realized in actual political information because of toleration of a rather secretive administrative bureaucracy.

Overview

Political communication as discussed here is a much smaller realm than politics as such. This is true in two respects. First, where people do not have the civil rights of political participation, access to political voice, or enough education and wealth to feel a sense of efficacy in the political sphere, the opportunity for political expression is absent or reduced. Second, where key decisions are removed from public view, where the key decision to be made is less "How shall I stand on a public issue?" than "What issue will be treated publicly?"—questions, in short, of AGENDA-SETTING—the vast majority of people with little or no access to the agenda-setting corridors of power are left out of politics. Even in representative democracies with relative freedom of association and freedom of speech and the press, most political communication concerning the actions of nation-states remains elite communication.

See also DIPLOMACY.

For further information about political communication in different parts of the world before the seventeenth century, *see* EAST ASIA, ANCIENT; HELLENIC WORLD; ISLAM, CLASSICAL AND MEDIEVAL ERAS; MIDDLE AGES; ROMAN EMPIRE.

For further information about political communication in regions of the world during the twentieth century, *see* AFRICA, TWENTIETH CENTURY; ASIA, TWENTIETH CENTURY; AUSTRALASIA, TWENTIETH CENTURY; ISLAMIC WORLD, TWENTIETH CENTURY; LATIN AMERICA, TWENTIETH CENTURY.

Bibliography. Karl Deutsch, *The Nerves of Government*, New York, 1963; Eric Foner, *Tom Paine and Revolutionary America*, New York, 1976; James A. Leith, *Media and Revolution*, Toronto, 1968; George Rude, *Ideology and Popular Protest*, New York, 1980; Michael Schudson, *Discovering the News: A Social History of American Newspapers*, New York, 1978; Anthony Smith, *The News-*

paper: An International History, London, 1979; Charles Tilly, "Collective Action in England and America, 1765–1775," in *Tradition, Conflict, and Modernization: Perspectives on the American Revolution*, ed. by Richard Maxwell Brown and Don E. Fehrenbacher, New York, 1977; Raymond Williams, *The Long Revolution*, London, 1961, reprint: New York, 1975; idem, "The Press and Popular Culture: An Historical Perspective," in *Newspaper History from the Seventeenth Century to the Present Day*, ed. by George Boyce, James Curran, and Pauline Wingate, Beverly Hills, Calif., 1978.

MICHAEL SCHUDSON

2. IMPACT OF NEW MEDIA

The new media of any age can contribute to change or stability in political institutions and processes. Historians have linked the rise of print media to such developments as the expanse of empires and have tied the rise of electronic media to major changes in political campaigning. Since the 1970s scholars have grappled with the implications of newer media taking shape through advances in the computer and telecommunications, accelerated by developments in MICROELECTRONICS, microwave RADIO relays, satellites (*see* SATELLITE), and FIBER OPTICS. In doing so, they have addressed classic political questions: Who controls these media? Whose interests are served by changing technologies? How might the new media be organized to enhance democratic institutions and processes?

Media Control

Control is a central issue because communications technology is likely to serve the interests of those who control its use. At least four competing perspectives have emerged from discussions of control. The first is a democratic marketplace view, which sees technology ultimately controlled by public (consumer) needs and preferences, operating through normal marketplace processes within the context of democratic institutions. This perspective is characteristic of the scholars most optimistic about the impact of the new media.

A second, more technocratic perspective is characteristic of critics of the media. These have argued that new media are driven more by military and industrial applications than by public communication needs, that public preferences are controlled through marketing techniques, and that the new media increase the likelihood that communications will be controlled by a technological elite, experts who are primarily responsive and accountable to the economic elite of a society.

A third perspective can be called a pluralist view of the new media. Pluralists argue that technology is

shaped by the pulling and hauling of competing groups of elites. The new media are thus controlled by a pluralistic process of conflict and cooperation among a variety of actors with different resources and stakes in the political process. Pluralists view technocrats as among the influential actors but consider public officials, economic elites, and the public to be important actors as well.

A fourth perspective, reinforcement politics, views communication technologies as malleable resources that can be controlled by the dominant coalition of interests within an organization or society. Technologies enhance the power of already powerful groups and thereby reinforce the prevailing power structure of a political system rather than affecting any particular configuration of power.

Interests Served

Are the new technologies neutral, or are they inherently biased toward serving certain groups and interests and therefore potentially able to create power shifts? Again, four competing perspectives have emerged, variously viewing the technological changes as (1) neutral, (2) democratic, (3) elitist, and (4) dual in their political effects.

View 1: neutrality. A prevalent view is that the media are politically neutral, if not apolitical. Many in the television industry, for example, have argued that the nature of the content, not the technology, shapes the effects of a medium. In contrast, some prominent media scholars have maintained that media exert a bias in political communications that is independent of their content. Comparing oral and written traditions, HAROLD INNIS argued that the political organization of societies is dominated by a written tradition because written communications, particularly in printed forms, can be more permanent, less constrained by distance, and more centrally controlled. Other scholars, following Innis, have pointed to attributes of radio and television, as well as newer technologies, that differentiate them from earlier media in their impact on political communication systems.

View 2: democratic bias. A dominant perspective within communications institutions sees in the new media an overall democratic impact. According to Edwin Parker, the newer media provide the public with more information packaged in more ways, less controlled in contents and timing, with more processing capacity and improved feedback. Harlan Cleveland has echoed this thesis, claiming not only that the new electronic media can spread information far and wide but that they will inevitably do so and thus accelerate the erosion of hierarchies and power monopolies while promoting the development of more open, less secret, and more participative decision

making. Ithiel de Sola Pool, referring especially to the development of INTERACTIVE MEDIA, has labeled them “technologies of freedom,” leading to more varied choice for the public. Others have offered images of the new media breaking down communication barriers between nations and classes, as in MARSHALL MCLUHAN’s “global village.”

View 3: elitist bias. A third line of speculation argues that the media exert a nondemocratic, elitist bias in political communication by creating bottlenecks, with powerful entities in a gatekeeper role in communication systems. Many have suggested that the complexity of high technology further distances elites from a public that is increasingly uninformed and uninformed about the decisions of large public and private institutions in society. They have pointed to the expense and complexity of high technology as factors that exacerbate knowledge gaps among individuals and organizations, which in turn accentuate economic and political inequalities. Kenneth Laudon has noted that the interactivity of such new media as two-way cable systems masks the degree to which they simply erect more efficient vertical communication networks between elites and masses rather than create horizontal networks among the public and groups. He argues that they are more likely to facilitate manipulation of the public than to foster greater democratic participation.

View 4: conflicting influences. A fourth view is that the implications of communication technologies are inherently countervailing if not often contradictory. Pool developed such a dual effects theme in discussing the social implications of the TELEPHONE, but examples can be found in discussions of a variety of new media. The telephone, Pool and others found, can erode as well as provide PRIVACY; it can reinforce as well as circumvent an organizational hierarchy, and it can facilitate centralization and decentralization simultaneously.

Given these four competing views on whose interests the new media serve, most students of political communication recognize that the implications of media derive only in part from their various technical features. They are more or less malleable technologies, whose functions are also shaped by the extent to which they are used for different purposes within particular institutional arenas. From this perspective the bias of the new media is an outcome of a political process that determines who will control the media in specific settings.

Political Uses of Media

Empirical research in the 1980s focused on how different actors and groups shape the purposes for which the new media are employed. Wide speculation as well as empirical research addressed such questions, with an ample amount of both utopian

and dystopian conclusions. The entry of new media into four institutional settings has been the focus of both empirical and speculative inquiries: (1) political campaigns, (2) governmental communications, (3) the public communication arena, and (4) international communications.

Political campaigns. Campaign communications concerns the diverse media used in political campaigns and elections (see ELECTION). Particularly in the United States, new technology has increased the sophistication and use of direct mail in campaigns by permitting a greater volume of more personalized and targeted correspondence. Computer-assisted telephone dialing and interviewing systems, interactive cable and VIDEOTEX applications, and other developments in opinion polling have increased the speed and sophistication of the candidate POLL in ways that can dramatically enhance a campaign’s effectiveness in marketing its candidate or cause. Computing also extends the potential for matching data in different mailing lists, PUBLIC OPINION polls, voter registration records, housing data, censuses, and other data bases to compile more detailed data banks about the individuals who compose the voting public (see DATA BASE). Techniques of profiling can be used in conjunction with these data banks to predict the likely supporters of a candidate or cause so that mailings and other contacts can be more precisely targeted (see CONSUMER RESEARCH). Video conferencing has permitted candidates to develop their own closed-circuit television campaigns, independent of the broadcast networks. Together the new media offer channels of communication between candidates and voters that can do more than complement the mass media. They can provide a different set of messages from those conveyed over the mass media, yielding different agendas and different effects on public opinion and voting behavior (see AGENDA-SETTING).

New technologies have been used extensively in campaign planning and administration. Desktop computers have brought budgeting, accounting, and payroll applications along with specially designed campaign management software within the reach of even modestly financed campaign organizations. Electronic mail and conferencing systems have also been used in managing communications among campaign personnel and coordinating the work of geographically dispersed speech writers, media consultants, and field staff.

This increasing centrality of computing and telecommunications raises several issues. These new media bring new skills and actors into the political fray, bolstering the role of new kinds of campaign consultants. Their rise may undercut the value of other consultants but also diminish the role of unskilled volunteers, whose jobs can be increasingly taken over by the media specialists.

The application of the new media to campaigns and elections may have dual effects, both centralizing and decentralizing. On the one hand, the electronic media permit candidates to bypass the traditional mediating institutions of parties and interest groups, as well as journalists, and reach their audience directly via mailings and teleconferences. In this respect the media might weaken parties, facilitate the development of more single-issue interest groups, and lessen the influence of media gatekeepers, thereby decentralizing control over campaigns. On the other hand, greater reliance on electronic communications media may lessen the role of distance and travel on interest group formation and decision making. Such an outcome could erode local political organizations and enhance regional and national organizations. Furthermore, by permitting groups to appeal to a national audience, the new media might centralize control of the campaign in national organizations, parties, and interest groups that can marshal the economies of scale, resources, and specialists necessary to conduct a high-technology campaign.

The utilization of newer media may also have redistributive effects, altering the relative influence of different socioeconomic groups in society. Differential access to electronic media by various socioeconomic groups could translate into disparities in access to other political resources. More affluent members of the public have greater access to computing resources such as electronic bulletin boards, word processing, high-speed printers, and campaign management software. Thus the new media may increase inequities rather than level the influence of groups.

Governmental communications. Here the focus is on the values of computing and telecommunications for more effective and responsible government. Modern reformers and futurists have often viewed new communication technology as a path to more democratic participation in government and greater governmental responsiveness to public opinion. They have seen its potential as "citizen technology." Yet this same technology can be used for manipulating public opinion. Whether the media will ultimately erode or enhance democratic institutions and processes are questions that have received increasing attention since the 1970s. Three issues have dominated such inquiries: whether the technologies can be used to (1) further communication between citizens and government, (2) facilitate responsible decision making, and (3) improve the functioning of bureaucracies.

The first issue, revolving around the use of the media as a citizen technology, raises perhaps the most dramatic and controversial questions. Proponents of the idea argue that the new media eliminate the major physical barriers to more direct democratic participation in government. They see interactive

communication systems such as cable and videotex providing means for the public to be better informed and more frequently polled on public issues. Those who doubt such democratic results see a greater risk of unrestrained majorities and of an apathetic and uninformed public. They point out that since the 1950s government applications of computing and telecommunications have seldom involved the public in ways that even remotely approach utopian images of citizen technology. For the most part computing has been used to automate administrative functions and the routine processing of large-volume record-keeping and record-searching operations. The information applications adopted by governments at various levels, such as cablecasts of local council meetings or of national legislative proceedings or government reports in VIDEO format, have generally used one-way channels.

With developments in teleconferencing, videotex, and personal computing, old images of citizen technology have been resurrected. Like the telephone, these technologies could facilitate horizontal communication among citizens and thereby enhance the development of groups within a pluralist society. However, the new media have rarely been effectively applied to such purposes.

Studies relating to the second issue, the role of the new media in decision making, have likewise led to mixed conclusions. The computer revolution generated images of large computer and TELECOMMUNICATIONS NETWORKS serving as an information utility to provide both the public and decision makers with essential information at all levels of government, so that decisions could be based more solidly on the merits of each case. Empirical studies have tempered these expectations, finding computer-based information systems used more often to legitimate decisions made on other grounds. Nevertheless, the existence of numerous decision-support systems does often play a positive, albeit political, role in the policy process.

As for the third issue, the impact of the media on the functioning of bureaucracies, findings have likewise been ambiguous. The new media are often used with the intention of affecting power relationships. However, the routine use of computing and telecommunications by public agencies might also have indirect and often unintended political implications. Relations between citizens and institutions may have been altered by the migration of more information from the individual into the automated files of private and public organizations. The consequence of this drift could be an alteration of the relative power of individuals in relation to institutions, both public and private.

Relationships between public and private institutions, as well as among governmental institutions, may also be affected by the application of the

new media in public bureaucracies. The most common hypothesis is that the accumulation of power in national agencies and bureaucracies will be reinforced by their relatively greater utilization of computing and telecommunication resources when compared to their local counterparts. Research has supported the generalization that national governments have adopted communication technologies earlier and more extensively than local governments (see *COMPUTER: HISTORY*). However, power shifts are not always straightforward. For example, national computing resources such as those created by law enforcement systems have sometimes tended to reinforce the effectiveness of state and local agencies, since local enforcement agencies can obtain access to much of the same data and information resources that are available to national agencies.

Relations among the executive, judicial, and legislative branches of government may also be affected by changing technology. The rise of television has often been cited as one factor contributing to the increasing influence of chief executives (see *TELEVISION HISTORY*). The greater use of new communications technologies within executive agencies and bureaucracies may have enhanced their decisional effectiveness relative to other branches of government. But the technological advances of large federal agencies may also have outstripped the ability of the executive to monitor and lead the bureaucracy.

Public communications arena. Public communications concerns the array of communications facilities available to government, business, and the public. Since the 1960s developments in computing and telecommunications (such as interactive cable communication systems) have made it possible to think of changing the basic infrastructure of public communications. In the United States during the late 1960s the electronics industry and a high-level presidential commission saw social and political opportunities in a nationwide broadband communications network to provide an "electronic highway" into every home and business to carry all kinds of information and services. Similar initiatives were proposed in Japan and western Europe at about the same time. The potential for integrating broadcast, cable, data, and telephone communications networks generated both utopian and dystopian visions of a "wired nation." Ralph Lee Smith, Peter Goldmark, and others in the 1970s presented positive visions of a wired nation in which private cable operators could build this electronic highway much as the telephone network was constructed. A more integrated network held the promise of providing more channels of communication, a greater diversity of programming, a more equitable distribution of services, and an opportunity for new constituencies to become involved in broadcasting. Instead of television being an elite medium

of communication between the few and the many, it could become a more democratic medium of social exchange and public services as well as entertainment.

In the United States visions of the wired society faded with the growing recognition of the limitations of interactive cable, the economic problems of the cable industry, and the rise of a host of newer media that competed with CABLE TELEVISION services. In the 1980s competition among media generated a new vision of an emerging marketplace of electronic networks and services. It was hoped that marketplace competition among telephone, cable, newspaper, television, videotex, and videocassette media would create a pluralistic array of communication channels and services leading to more democratic patterns of public communications.

Critics of these utopian visions have argued that the wiring of communities, along with an increasing array of new media, have actually lessened the diversity of communications, increased concentration within the media industry and the cost of communication services, driven out commercially unprofitable services, threatened personal privacy, and widened the gap between the information poor and rich in societies.

International communications. International communications concerns the array of facilities available for communications across national boundaries. Advancements in video recording systems, fiber optics, microwave relays, and satellite communications have expanded the multiplicity, capacity, and reach of worldwide telecommunications networks. The development of these systems has lessened technological limitations on international communications and correspondingly focused attention on economic, cultural, and political factors that promote and impede communications across national borders. As with domestic public communications, issues of who controls and whose interests are served loom large in discussions of this arena. See *INTERNATIONAL ORGANIZATIONS*.

Some students of the new media have argued that technological change has fundamentally undercut the ability of nations to control the international flow of communications. The videocassette recorder, for example, limits a nation's ability to control the importation of foreign programming through traditional means. Likewise, prospects for the widespread use of direct broadcast satellites have raised questions of whether nations will continue to be able to control the character of broadcast offerings. Others have argued that the new media can be shaped in ways that will permit nations more control over international flows of communications. One aim of the French national cable plan, for example, was to provide a communications infrastructure that would

facilitate public efforts to provide a balance of programming, ensuring access to an ample array of French as well as other foreign and more commercial programming. Likewise, even if direct broadcast satellites became economically feasible, the use of satellite broadcasting could be effectively blocked by nations through a variety of technical measures.

However, the thesis that the new media will reinforce the economic, cultural, and political interest of those actors and nations that already control international communications has been widely accepted. International communication networks are complex and costly, two features that have buttressed the dominant role of the most economically and technologically advanced nations in creating and distributing news and television programming (see NEWS AGENCIES). The new media of computing and telecommunications are also high-technology products that may allow greater choice to consumers, as a videocassette recorder or personal computer does, but they do not allow control over the production or distribution of the technological infrastructure and its basic content. The interests served by advancements in international communication systems were perhaps the most controversial issue in the politics of communications during the 1980s, given their economic, cultural, and political implications.

Economically, if one acknowledges the trend of most advanced industrial societies toward increasingly information-based economies, then international communication infrastructures represent nothing less than new trade routes. Nations concerned with balancing international trade, and such organization; as multinational corporations requiring extensive and efficient communication systems, are naturally affected by the availability of international networks and services. Large developed nations, which have been the major exporters of communication products and services, have tended to support the development of international communication systems, whereas small developing nations, which are among the major importers of these products and services, have been more ambivalent in their support.

Culturally, many nations have raised concerns over the maintenance of their traditions and values in the face of mass media institutions that threaten to homogenize the public around commercial rather than public service broadcasting and foreign rather than domestic programming (see MASS MEDIA EFFECTS). This issue has surrounded radio and television broadcasting for decades. However, the newer media of cable, satellites, and video recording systems raise this issue anew because they challenge existing institutional mechanisms for ensuring national controls. For example, culturally defined standards for the handling of personal information are threatened by

the ease with which personal data files could be processed in so-called data havens, that is, other nations or territories with less restrictive data protection and privacy regulations (see GOVERNMENT REGULATION).

In the area of governance the new media raise such critical issues as national sovereignty. With regard to computer communications, for instance, Canadians have been among those who have voiced concerns over the amount of information vital to the Canadian economy that is processed on computers in the United States. To some this places Canada in a dependent situation, leading to a national campaign for independence from U.S. computers as a means for ensuring Canada's political sovereignty. See COMPUTER: IMPACT.

Future Focus

Changes in the technology of communications have raised new issues for students of political communications and have broadened traditional definitions of both the media and political communications. The new media have been portrayed as facilitators of democracy by some and as instruments of repression by others. The same technologies have been depicted as potentially able to inform or enslave a society, to create a more open or closed society, and to decentralize or centralize political control. Speculation rather than empirical research has dominated such inquiries. Clearly, a variety of research strategies will be needed to assess such speculations and to clarify the worldwide political implications of the rise of new communications technologies.

See also COMMUNICATIONS, STUDY OF; MINORITIES IN THE MEDIA; POLITICAL COMMUNICATION—HISTORY; PRESSURE GROUP; TELECOMMUNICATIONS POLICY.

Bibliography. Gerald Benjamin, ed., *The Communications Revolution in Politics*, New York, 1982; James N. Danzinger, William H. Dutton, Rob Kling, and Kenneth L. Kraemer, *Computers and Politics: High Technology in American Local Governments*, New York, 1982; William H. Dutton, Jay Blumler, and Kenneth L. Kraemer, eds., *Wired Cities: Shaping the Future of Communications*, White Plains, N.Y., 1986; Starr Roxanne Hiltz and Murray Tur-off, *The Network Nation: Human Communication via Computer*, Reading, Mass., 1978; Harold A. Innis, *Empire and Communications* (1950), rev. by Mary Q. Innis, foreword by Marshall McLuhan, Toronto, 1972; Erwin G. Krasow, Lawrence D. Longley, and Herbert A. Terry, *The Politics of Broadcast Regulation*, 3d ed., New York, 1982; Kenneth C. Laudon, *Communications Technology and Democratic Participation*, New York, 1977; Theodore J. Lowi, "The Political Impact of Information Technology," in *The Microelectronics Revolution*, ed. by Tom Forester, Oxford, 1980; Robert Meadow, ed., *New Communication*

Technologies in Politics, Washington, D.C., 1985; Vincent Mosco, *Pushbutton Fantasies: Critical Perspectives on Videotex and Information Technology*, Norwood, N.J., 1982; Edwin B. Parker, "Democracy and Information Processing," in *The Information Utility and Social Choice*, ed. by Harold Sackman and Norman Nie, Montvale, N.J., 1970; Ithiel de Sola Pool, *Technologies of Freedom: On Free Speech in an Electronic Age*, Cambridge, Mass., 1983; Herbert I. Schiller, *Who Knows: Information in the Age of the Fortune 500*, Norwood, N.J., 1981.

WILLIAM H. DUTTON

3. BROADCAST DEBATES

On-the-air debates between opposing candidates for high office, using debate procedures that have evolved since ancient times (see FORENSICS), have been an intermittent feature of U.S. television since 1960, when Richard M. Nixon and John F. Kennedy met in four confrontations publicized as the Great Debates. Planned for television, the debates were also carried by many RADIO stations. They were later thought to have helped Senator Kennedy—Democratic candidate for the U.S. presidency, less well known than his Republican rival, Vice-President Nixon—to win the presidency. Debates were regularly proposed in subsequent elections for offices at various levels, national and regional, but these required extensive negotiations that were not always successful in reaching agreement. Better-known candidates always risked more but could not afford to seem fearful of the challenge. Negotiations centered on debate procedures, choice of moderator and intermediaries to pose questions, limits on the range of topics, scheduling, locations, and ground rules of all sorts. In some instances judicial or legislative approval was required.

Such debates, on radio or television or both, have been tried elsewhere to a very limited extent (in France, for example, in 1981 and 1985) but have remained essentially a U.S. phenomenon for reasons closely related to its commercial broadcasting system. Early in the system's evolution, U.S. stations and networks began classifying political speeches as ADVERTISING and charging candidates (or parties) commercial rates for access to home audiences. Most European countries ban such sales. In most European democracies free time is proportionally allocated to opposing parties according to criteria such as the number of members in the legislature, votes in a previous election, or party membership statistics. The U.S. practice, because of its financial requirements, is seen as undemocratic—a criticism also voiced in the United States. Another objection to the existing system has come from U.S. broadcasters themselves. A political broadcast, especially in prime time, has

generally meant cancellation of a sponsored entertainment program and inevitably the loss of a portion of the audience to a competing program. To put on a debate was therefore a commercial hazard regardless of the outcome. The proposed solution was that the Great Debates be carried free of charge by all commercial networks. Although this would not end the sale of time for political appeals, broadcasters at least hoped to minimize it and to shunt it as much as possible toward spots instead of longer periods. Thus the U.S. system of political broadcasting has remained essentially a time-sale system, supplemented by free debates when agreement could be reached. See also TELEVISION HISTORY.

Research

Although televised political debates have taken many forms, explicit rules of procedure have always been a feature. In the Kennedy-Nixon debates each contestant was allowed an introductory statement that was not challenged. Rather than debate each other directly, contestants replied to questions put to them by journalists. The questions were not known to the candidates in advance but were within certain areas previously agreed on (e.g., foreign affairs, the economy). A moderator assigned speaking turns and kept track of time allotted for each response. Debates have most often followed this pattern, with minor variations, and have been broadcast in prime time.

Debates constitute a distinct form of political communication. Through them the electorate is given an opportunity to assess the candidates' competence and compare their stands on issues. Debates tend to be among the few occasions during a campaign when implications of policy statements can be explored in some detail. Furthermore, the debates represent severe tests of the candidates because the initiative is with the questioners and also because evasive or inconsistent replies—the politician's staple diet—are readily seized upon.

The impact on the electorate of the 1960 presidential debates, and to a lesser extent of subsequent debates, has been the subject of numerous studies, some of which assessed both initial impact and its erosion over time by interviewing the same people on several occasions. It soon became apparent, however, that debates cannot be meaningfully studied as isolated events but require an approach capable of accounting for multiple sources of influence and their interactions. Factors like party loyalty, habitual voting patterns, candidates' appearance and style, the press and broadcast media's coverage and commentary, as well as political discussions at home and at work all come into play during an election campaign.

The context surrounding the debates is also rele-

vant. Debates have become media events that take place with a great deal of advance publicity. They are treated by the electronic and print media as a great sporting contest. Commentaries before and after the debates tend to concentrate on who might win or who has won. Given the power of media to focus audience attention, such commentaries affect the public's perceptions of the debates. U.S. political scientist Thomas E. Patterson demonstrated this by using two matched samples: one interviewed immediately after the 1976 debate between Jimmy Carter and Gerald Ford (before subsequent commentaries were available) and the other interviewed twelve hours later. Patterson found that the majority of the first sample considered Ford the winner, but the majority of the second sample named Carter, echoing the choice of media commentators.

Even people who express little interest in politics attend to debates. Studies have shown that after a debate the politically uninterested were as well informed about candidates' positions on issues and their differences as people who said they took an interest in politics. Furthermore, people's descriptions of the candidates became more varied and less stereotyped after a debate and the subsequent commentaries, particularly with regard to the newcomers (e.g., Kennedy in 1960, Carter in 1976). All studies have reported some gain in knowledge and interest, but the degree has varied depending on the timing of the debates. Interest and knowledge gains were small when the presidential debates were held at a time when people's views had already crystallized and greater if they took place before an early primary (as was the case in the 1980 debates between George Bush and Ronald Reagan).

The influence that debates have over people's votes has generally been small. On the average only 3 percent of the voters admit being affected, a figure similar to that obtained in Britain when the electorate was asked about the influence of party political broadcasts on voting decisions. But in the future the influence of televised debates may increase because party loyalty is a declining influence in a number of countries, the percentage of undecided voters is on the increase, and more voters make up their minds late in a campaign. Given these trends—and the media's prominent role in election campaigns—televised debates may well play an increasing role among the diverse sources of influence on the voter's decision.

See also AGENDA-SETTING; POLITICIZATION.

Bibliography. Hilde T. Himmelweit, Patrick Humphrey, and Marianne Jaeger, *How Voters Decide*, London, 1985; Donald R. Kinder and David O. Sears, "Public Opinion and Political Action," in *Handbook of Social Psychology*,

Vol. 2, 3d ed., ed. by Gardner Lindzey and Elliot Aronson, New York, 1985; Sidney Kraus, ed., *The Great Debates*, Bloomington, Ind., 1962, reprint 1974; Thomas E. Patterson, *The Mass Media Election*, New York, 1980.

HILDE T. HIMMELWEIT

POLITICAL SOCIALIZATION

The process by which people acquire political orientations and patterns of behavior as they mature cognitively and affectively over the course of their lives. The study of political socialization has been developed as a factual inquiry into the content, causes, and consequences of such learning, involving a variety of social scientists including political scientists, psychologists, sociologists, educational researchers, and communication researchers.

When U.S. sociologist HERBERT H. HYMAN published *Political Socialization* (1959) few empirical studies existed that explored what people learn about politics and government or how they come to learn about such matters. But since that time an impressive volume of work has appeared exploring topics like childhood and adolescent patterns of political learning; differences among younger and older cohorts of individuals due to different generational experiences; how and what people learn about their own political systems and those of other nations; and differences in patterns of political learning based on socioeconomic status, gender, ethnic background, religious preference, and so on.

A great deal has been learned about how people adapt to the complex and shifting political environment in which they find themselves, a process that includes increased understanding of politics and government as well as the formation of emotional commitments that help in finding one's way through a wide variety of political objects and stimuli.

A recurrent theme in much of this research is that most people begin to acquire an extensive repertoire of political orientations and behaviors as early as the preschool years. Well before the time of formal schooling, people in complex societies begin to incorporate at least rudimentary images and practices of authority, national identity, and habits of learning that facilitate the gathering and internalization of more abstract, differentiated modes of relating themselves to politics and government.

Most political scientists approach these questions with a strong sense of the need to understand the political socialization phenomenon from the standpoint of its bearing on how people conduct themselves politically at later stages. Such political relevance involves both the political choices and the actions taken as individuals; as members of politically active

groups, strata, or geographical regions; and as members of the wider political system. Therefore, such scholars focus especially on those aspects of preadult political learning that seem to have direct consequences for adult political behavior—and thus effects on the structures, relationships, and processes of the political system in general.

However, political socialization involves much more than the individual and collective adaptation of people to the political world that surrounds them. Political socialization is also an important dimension of more general processes of social communication. People may to some extent learn about politics and government through personal observation and reflection, but for the most part they are forced to view and understand the political realm indirectly, through various modes of personal and impersonal POLITICAL COMMUNICATION. In technologically advanced societies political messages are carried out through a great variety of means: television, RADIO, newspaper, and NEWSMAGAZINE coverage of political happenings (see ELECTION). But movies, books, handbills, signs, intrafamily or peer-group discussion, videocassettes, computers, loudspeakers, SCHOOL curricular material, patriotic rituals and observances (see POLITICAL SYMBOLS), graffiti, popular songs, poetry, and CHILDREN'S literature may also yield examples of politically relevant content. It is not difficult to find many examples of the ways people communicate with one another about politics, thus helping to make sense of what would otherwise be a remote, confusing, and somewhat intractable set of entities. Much of this INTERPERSONAL COMMUNICATION about politics is carried on in a low-key, unofficial, indirect, sporadic, informal, and unselfconscious fashion. But the political system is an unavoidable feature of life, and even those least disposed to becoming politicized find exposure to some forms of political communication inevitable (see POLITICIZATION).

In the United States in the late 1950s empirical research by pioneers like Fred Greenstein, David Easton, and Gabriel Almond focused primarily on what is learned and how and when it is learned. Their work was particularly concerned with developing a better conceptual and observational handle on what people learned about politics from early childhood into adulthood. There was less attention to the sources of such learning or to the conditions that shaped those influences in the socialization process. During the 1960s more research analyzed the role of the contributing agencies of political socialization, especially FAMILY, school, and peer group. This work has shown that the presumed effects of such obvious interpersonal political sources were by no means as potent as it was supposed; in the United States only specific areas of content (e.g., political party identification) or specific categories of individ-

uals (e.g., black adolescents) were notably affected. Work in other countries has generally confirmed the limitations of interpersonal sources of political learning—whether family, school, or peers—even though there are several specific effects of each that may be found under certain conditions.

Media Influences in Political Socialization

Investigation of the complex relationships between mass media communication and political learning has become increasingly salient. What most people know or feel about the complex social aggregates and patterns of action identified as political events, processes, or systems is in a direct sense very limited. People can no longer rely—as they might have done in simpler, smaller, less differentiated political systems—on direct experience and observation for developing political thoughts and emotions. The mediated communications of greatest currency in a society are the ones with the highest political learning potential. Television, given its high levels of aggregate political communication exposure, seems under most circumstances to be the most significant of such influences.

Empirical studies have consistently reported that there are two basic types of media influence: (1) on political information and (2) on political values. These are relatively independent of each other. Available evidence suggests that political cognition—understanding, knowledge, beliefs, perceptions, and definitions of political reality—is pervasively affected. Television and the print media have the most important and sustained effects, particularly on what people grasp about the main structures, events, personnel, and principles of politics and government (see AGENDA-SETTING).

More difficult to establish but nonetheless evident in a variety of circumstances are PERSUASION effects. The influence of the mass media on political preferences, identifications, images, emotions, commitments, motivations, and values—either positively or negatively—is demonstrably present. But such effects are not as consistent across different intervening conditions as they are in the area of political knowledge. Intentionally persuasive communication through the media affects only certain groups of readers, listeners, and viewers.

The content of media-stimulated political knowledge from preadolescence through young adulthood takes many forms, although only a few of these have been well studied. They include such matters as learning one's own national symbols and other political community identifications and the equivalents for foreign peoples; the identity and functions of chief political actors, particularly those in positions of authority; the major institutions of politics and gov-

ernment; politically relevant identifications such as political party affiliation or social class membership; major political events and activities, such as wars and elections; issues and problems of public policy; the connections among various sectors of society and the government; features of the legal system, including police and the courts; and general value and belief systems.

Even those who are very young but who have exposure to these matters through the media are likely to begin forming relevant orientations to politics that begin to shape patterns of future political behavior. At first such content may come mostly via the entertainment uses that children make of television. With early adolescence, the patterns of media exposure and attention, and thus of influence, are likely to shift. As people approach adulthood, public affairs programming on television is more attended to, and print media become increasingly important sources of political information. During later adolescence and early adulthood this pattern is extended, so that higher proportions of hard news provided by the print media are utilized to form political images and bases of knowledge. However, some of the earlier media-use patterns persist, even for individuals whose motivations lead them to the highest levels of political information seeking.

Patterns of media consumption at different age levels are more difficult to associate with affective or persuasive effects. Yet it is possible to find evidence suggesting that there are both direct and indirect effects traceable to exposure to particular media or to specific media content in preadult life. For example, CONTENT ANALYSIS studies of television programming have shown that portrayals of political leaders and of politics in general might be related to people's level of trust in the political system, its efficacy, and its fairness.

There are also a number of suspected indirect media effects on political orientations (e.g., in anti-social behavior such as approval or use of VIOLENCE) as a possible consequence of heavy viewing of crime and police shows on television. The implicit approval of the use of aggressive means to resolve disputes (e.g., by police authorities) may lead some viewers to a greater propensity to focus heavily on the use of military force to address international disputes or to condone a lack of official observance of the rights of criminally accused persons or of those who dissent politically. Equally, media reinforcement of GENDER or racial stereotypes may well slow progress in eradicating patterns of discrimination in society. Thus what are often taken to be relatively innocuous entertainment presentations of violence or social stereotypes may indeed have important, if not yet fully unraveled, political consequences (see CULTURAL INDICATORS; MINORITIES IN THE MEDIA).

Some Unanswered Questions

Most of the work on political socialization thus far has strongly suggested that media influences, especially when supported by interpersonal influences, can be very powerful teachers about politics. But we still do not know the extent to which the mass media depend on interpersonal support and reinterpretation for their effects, nor do we understand well the interactions among socialization institutions such as the family, the school, and the mass media.

Despite these and other unanswered questions, the influence of the mass media on processes of political socialization appears to be already substantial and growing, especially in industrialized nations that rely extensively on the more technologically advanced and persuasively used media. Such effects are likely to be important not only for how the young are brought up to think about political matters but also for the continuing process of resocialization of adults as they seek to cope with an increasingly complex political environment.

Bibliography. Steven H. Chaffee, ed., *Political Communication: Issues and Strategies for Research*, Beverly Hills, Calif., 1975; Jack Dennis, ed., *Socialization to Politics*, New York, 1973; David Easton and Jack Dennis, *Children in the Political System*, New York, 1969, reprint Chicago, 1980; Sidney Kraus and Dennis Davis, *The Effects of Mass Communication on Political Behavior*, University Park, Pa., 1976; Dan D. Nimmo and Keith R. Sanders, eds., *Handbook of Political Communication*, Beverly Hills, Calif., 1981; Stanley A. Renshon, ed., *Handbook of Political Socialization*, New York, 1977.

JACK DENNIS

POLITICAL SYMBOLS

Any word, image, object, act, or event that evokes loyalty, encourages obedience, asserts or justifies a claim, or promises salvation in this world or in any other, functions, whether by design or not, as a political symbol. On the most general level these symbols give concrete and often visible expression to something intangible. Strongest in their appeal to the eye are emblems such as the flag, the badge, the seal, the totem, or other insignia, and even modes of dress that a group adopts or inherits and through which its members signify their status as well as their belongingness. But even simple visual symbols can stand for something more complex. Thus the scepter is the visible sign of royal authority, the cross of Christianity and its associated beliefs, the hammer and sickle of communism as a political movement, the swastika of the racist IDEOLOGY of the short-lived German Third Reich, the spinning wheel of MOHANDAS GANDHI's campaign for resistance to British rule.



Figure 1. (*Political Symbols*) Some flags of member states in front of the United Nations, New York. United Nations photo 150,480/Yutaka Nagata.

Important as these kinds of iconic representations may be, the overwhelming number of political symbols consist of words that are found in texts. LANGUAGE influences the nature of politics as much as it does ordinary discourse. Through symbols, brute force is converted into legitimate authority, and many political acts consist largely of words: a proclamation, the issuance of an order, or the change in the wording of some law.

Myths. As a first step in any analysis of this symbolic environment, the political master symbols with a consistent bearing on social structure and the exercise of power must be distinguished from the more ephemeral and polemical RHETORIC that marks a particular conflict. The social constructions that incorporate the fundamental assumptions regarding the pattern of authority within a society form what HAROLD D. LASSWELL designated the political myth.

One of the main constituents of the myth is a doctrine of beliefs about liberty, or manifest destiny, or some set of ethical principles to provide the rational underpinnings of constituted authority. These doctrinal assumptions find expression mostly in sacred pronouncements and philosophical tracts, but they also find their way into the more popular media. They still must be enunciated and made to apply to everyday life through the political formula embodied in the basic laws and regulations by which a society is governed. But no rule is secure unless

bolstered by the appropriate sentiments. Hence attention needs to be paid not only to what people believe but also to the things they admire, such as the heroes represented in statues, monuments, and history books as well as the shrines at which the past is worshiped and events are commemorated with all the pageantry and ceremony—like the singing of anthems, the salute to the flag, and the required pledge of allegiance—through which the identifications and sentiments appropriate to the achievement of political goals are kept alive and reinforced.

It should be clear that political symbols are not a special type of sign with distinctive characteristics. Rather, what makes them political is the way they are used in the political process to establish, consolidate, or alter power relationships. It is through their common allegiance to symbols—of creed, class, guild, generation, dynasty, nationality, and so forth—that collectivities are internally unified and self-consciously differentiate themselves from others. A place name that is purely descriptive for a geographer may constitute a meaningful identity once it becomes the focal point for the crystallization of sentiment.

Symbolic acts can be used not only to maintain but also to challenge the existing order. A demand formulated strictly in terms of self-interest will have less political clout than the same demand made in the name of a larger social entity, such as a class, all the oppressed, or even all of humanity, while re-

course to an accepted principle invests it with some legitimacy. The more inclusive the group and the more widely accepted the principle, the greater the potential appeal.

Importance of language. The bearing of language on potential political effectiveness underlines the extent to which political conflict is in fact a battle over words and gives rise to questions about their relation to "real" interests (see LANGUAGE IDEOLOGY). Conflict over issues that are largely symbolic, in which the concerns are less material than moral, is hardly an epiphenomenon. It takes an idea of justice to convert a condition like the lack of power or wealth into a sense of deprivation, to formulate it as the violation of some right, which is then related to some meaningful identity. But people will argue about whether or not a right applies; therefore, the moral force behind any claim depends on the support it has from PUBLIC OPINION, although public opinion can also be manipulated by those in power or by skillful propagandists who play on people's fears (see PROPAGANDA).

The use of these and other propagandistic devices to influence public opinion is a fact of political life. Subject to analysis is the extent to which symbolic appeals facilitate rational judgments or whether they

are mere slogans, accepted not because of what they overtly state but because of their latent meanings. The themes used by some agitators deliberately play on the impulsivity of their following. They mobilize by providing a conventionally acceptable political rationale for displays of hostility and aggression against villains and members of accursed groups with assumedly great power to do evil. Despite the evident psychopathological strains in some kinds of politics, not all radicalism is essentially irrational and without social roots (see TERRORISM).

Sometimes symbolic crusades against infidels and supposedly dissolute members of society often mask a very real threat. In the United States the insistence of whites in the South after the Civil War (1861–1865) that blacks be kept segregated was intended to reduce economic competition and defend a preferred life-style, which whites saw undermined in numerous other ways. Similar arguments, more vehement in their racism, are offered by the white South African minority in support of that country's apartheid system, in which race remains the dominant symbol of identification for both the advocates of change and those who continue to block the progress of the black majority toward full political, social, and economic equality.

Developments following the overthrow of Moḥammad Reza Shah Pahlavi of Iran in 1979 illustrate how religious symbols can be used to consolidate power. The shah had been the chief proponent of his country's rapid modernization program against substantial popular opposition, and he was eventually replaced by Ayatollah Ruholla Khomeini, who, by appealing to traditional Islam, managed to install a new regime based on the capability of the mullahs to rally people to his cause (see DEVELOPMENT COMMUNICATION; ISLAMIC WORLD, TWENTIETH CENTURY). Social strata and entire societies threatened with dislocation by the march of modernity have also sought to preserve their old ways of life by abandoning this-worldly pursuits in order to seek moral regeneration through collective adherence to some aesthetic ideal, cultivation of personal piety, or indulgence in some kind of purging of the soul.

Revolutionary movements differ in their preference for symbols associated with science, technology, and progress in social organization over traditions and versions of the past (see POLITICAL COMMUNICATION—HISTORY; REVOLUTION). The key symbols, whether of a movement or of a society, are important clues about how meanings are organized. One can, for example, trace changes in the associations with a term like *democracy* from the rule of the mob, a negative image, to the idea of representative government and, subsequently, to personal freedom. One can likewise gain an understanding about how a society views itself, its past achievements, its future,



Figure 2. (*Political Symbols*) The hammer and sickle on Communist party election posters, Rome, 1976. UPI/Bettmann Newsphotos.

and its relation to other societies and make further comparisons across polities. There is a language of democracy as well as a language of tyranny, a language of a newly liberated nation and a language of an old empire. They undoubtedly differ in both vocabulary and style. The confidence one can have in inferences from the symbolic output about a society depends on the adequacy and validity of propositions about the symbol producers and those to whom they appeal. Hence the analysis of symbols must be conducted in conjunction with an analysis of the situational context in which they are used.

Bibliography. Hugh Dalziel Duncan, *Communication and Social Order*, New York, 1962; Murray Edelman, *Politics as Symbolic Action*, Chicago, 1971; Jacques Ellul, *Propaganda: The Formation of Men's Attitudes* (in French), trans. by Konrad Kellen and Jean Lerner, New York, 1965; Joseph R. Gusfield, *Symbolic Crusade: Status Politics and the American Temperance Movement*, Urbana, Ill., 1963; Harold D. Lasswell and Abraham Kaplan, *Power and Society*, New Haven, Conn., 1950.

KURT LANG AND GLADYS ENGEL LANG

POLITICIZATION

The process by which an institution, person, event, or activity not considered political acquires political MEANING and relevance. Instead of being dealt with privately or in some other nonpolitical forum, the subject becomes an issue of political concern. Politicized issues may be featured in ELECTION campaigns, provide a source of disagreement among candidates, inspire differences among political parties, or be seen as falling under governmental responsibility and even as requiring government action. See POLITICAL COMMUNICATION.

Politicization is most common in societies in which government tends to intervene in the economy, social life, and services; is involved in EDUCATION and cultural activities; and often tries to enforce certain standards of morality. At the same time, because of urbanization, increases in the relative size of the politically conscious upper and middle classes, and the development of an elaborate and extensive mass media system, people are—or have the opportunity to be—politically informed, aware, efficacious, and active. As a result, both the size of the political realm and the level of political conflict expand.

Role of the mass media. The mass media are central to the politicization process. Depending on what they report, how often and in what way they portray it, and the perspectives they provide, they can variously create, have no effects on, hinder, or even prevent politicization (see MASS MEDIA EFFECTS).

Much depends on the determinants of news. Relevant here are the backgrounds, values, and socialization of journalists; their definitions of news; their reliance on public officials as sources; and the ways they present news. Editing material, presenting it in brief segments on TELEVISION NEWS programs or in limited spaces in newspapers, encapsulating it for RADIO in a narrow frame of reference—all these requirements for presenting news have the effect of altering it or, at best, transmitting only a fragment of what has occurred.

The influence of the media can be seen, for example, when some economic issues are politicized but not others. During the 1980s U.S. media gave considerable publicity to claims and evidence that an abundance of imports from Asia was increasing U.S. unemployment and to concomitant calls for import quotas, tariffs on certain kinds of foreign goods, and subsidies for severely affected domestic industries. In contrast, and in part because of lack of media coverage, foreign investment in the United States was of little concern. In developing countries, however, foreign investment from the United States and other industrialized nations was a highly politicized matter (see DEVELOPMENT COMMUNICATION—ALTERNATIVE SYSTEMS).

Causes of Politicization

Although five of the most significant causes of politicization overlap, each is intimately linked to its coverage and presentation by the mass media. These overlapping causes are (1) social trends, (2) particular events, (3) activities of interest groups, (4) politicians' RHETORIC, and (5) governmental decisions.

Social trends. Social trends can bring to the fore ATTITUDES and behavior that raise concerns not currently thought of as politically relevant. But much depends on whether and how the media report these trends. Reporting is facilitated if the trends are palpable and can be personalized. For example, as the twentieth century progressed, people in the United States became increasingly aware of the forcibly imposed limits on the freedom and equality of blacks, especially those living in the South. Demands were made on government to respond, and the issue entered political discourse. Federal, state, and local governments eventually passed civil rights laws and created regulatory agencies designed to rectify, at least to some extent, the abuses. But it was the media that, by personalizing this trend and highlighting the moral dimensions of the conflict, brought the struggle for blacks' rights strongly to public attention, thus exacerbating the pressure on government to respond. Indeed, David J. Garrow argues that the Reverend Martin Luther King, Jr., and his associates devised a strategy to attract widespread and sympathetic media

coverage of their cause by provoking attacks from violence-prone white southern officials (see MINORITIES IN THE MEDIA).

Particular events. Particular events can inspire politicization, especially if they fulfill such news values as VIOLENCE, conflict, and destruction and if they can be taken to symbolize outstanding inequities (see POLITICAL SYMBOLS). When, on March 25, 1911, the Triangle Shirtwaist Company went up in flames in New York City, killing 146 workers, extensive press coverage and editorials sparked a nationwide crusade for safer working conditions. In New York, a newly created Factory Investigating Commission sent inspectors into the tenements, factories, and workshops. Appalled by their reports, the commission sponsored numerous laws requiring safer working conditions, fire escapes and multiple staircases, and shorter working hours for women and children. Similar alarms and appeals for governmental response were sounded during the 1980s following the massive international news coverage of the release of deadly chemicals from a Union Carbide plant in Bhopal, India. Television images and detailed accounts of the disaster in the Indian and world press provoked vigorous debate in the Indian Parliament for new environmental and occupational health laws.

Even more alarming (and thus politicizing) was the nuclear plant accident at Chernobyl in the Soviet Union in 1986, when radiation was released into the atmosphere and spread across much of the world. Western media in particular led with the story for several days, even though their extensive coverage was often more speculative than factual—a problem caused in part by the Soviet government's determination to control the flow of information. The disaster reignited antinuclear passions, especially in western Europe. Demonstrations in France, the Federal Republic of Germany, and other countries often resulted in confrontations with the police (see DEMONSTRATION).

Interest groups. Interest group leaders often encourage social trends and try to capitalize on particular events to instill their objectives in the political world and bring them to the attention of policymakers and the public (see also OPINION LEADER). The mass media can be indispensable aids. As an example, consider the success of the self-described public interest group Common Cause in using the *New York Times* during the 1970s as a conduit, even a publicity agent, for the organization's views. Common Cause received favorable coverage because it possessed legitimacy and credibility, reinforced by the number and social standing of its members. Its expressed purposes were widely viewed as desirable by journalists. Meanwhile, at Common Cause media-conscious staff were involved in creating events of interest to the media, giving them visibility, bringing

them to reporters' attention, emphasizing the events' newsworthy details, and organizing them into stories for the press. In part because of this favorable coverage from one of the most influential newspapers in the United States, Common Cause's objectives—public financing of presidential election campaigns, LOBBYING disclosure laws, conflict of interest laws, and financing disclosure laws—became items on the agenda of political debate in the United States and were enacted. See PRESSURE GROUP.

Politicians' rhetoric. Politicians, especially prominent public officials, possess the power to politicize because they are a major source of news for the media. Heads of state are conspicuously blessed in this regard because virtually anything they say is news. They are prone to politicize an issue particularly if they believe they can benefit from the results. Election campaigns offer expanded opportunities for politicization because candidates, particularly those seeking the presidency from major parties, can supplement (even replace) news coverage with campaign advertisements on television, in newspapers, and elsewhere. They often bring to the fore issues of public irritation, concern, discontent, or fear that previously lacked a pronounced political dimension. Chile offers a significant example. The issue of foreign investment became highly politicized in the 1964 presidential election between leading candidates Eduardo Frei and Salvador Allende. It was widely believed that many of Chile's economic and social problems were caused by uncontrolled foreign interests, especially U.S.-owned copper mines. Hence, many politicians, intellectuals, and activists felt that foreign investment should be used more for the benefit of the domestic economy than to maximize the profits of foreign corporations. The candidates' rhetoric in the election highlighted this concern. Frei, of the moderate Christian Democratic party, proposed the "Chileanization" of the copper industry through state purchase of majority ownership in the mines. The Marxist-oriented Allende proposed the more radical road of nationalization. Allende lost to Frei in 1964, but in 1970, as the candidate of the Popular Unity coalition—whose major policy thrust was nationalization—he won the presidency. The Chilean Congress, under Allende's guidance, nationalized the copper industry.

Governmental decisions. These can also have politicizing effects. When, in its 1973 decision of *Roe v. Wade*, the U.S. Supreme Court in effect legalized abortion, it politicized a subject that until then had been primarily personal and private. Henceforward, intense pressure would be brought on the legislative and executive branches of government for action by both those favoring and those opposing abortion. The mass media can be instrumental in such politicization. Many Supreme Court rulings receive little

if any media coverage, while others are widely reported. Given the media's fascination with some topics and disinterest in others, the amount and depth of coverage is not necessarily consonant with a case's significance.

Entertainment

There is more to media content than news coverage and campaign commercials. In commercial mass media systems there are also regular advertisements (*see* COMMERCIALS) and a wide variety of programming in radio (e.g., music, talk) and television (e.g., movies, SPORTS, soap operas, game shows, situation comedies, and so on; *see* QUIZ SHOW; SOAP OPERA). At first view media entertainment would appear to lack any politicizing potential; however, it is often saturated with political meaning. It identifies what topics are important and even how to think about them (*see* AGENDA-SETTING). Much of the material contains underlying values that in turn encourage politicization. Programming may propound the desirability of economic growth and the facilitating role of government. It may stress the centrality of fairness and distributive justice in society and thus the government's responsibility to ensure them. Conversely, individualism—people's personal responsibility for their fate—may be the value upheld and government considered unnecessary or irrelevant; this perspective discourages politicization. On the one hand, shows can highlight specific problems faced by women and minorities, portray general social and economic problems, and suggest that government action is called for. On the other hand, entertainment programs can ignore issues or, even if they raise them, indicate that *personal* (e.g., love, ambition, individualism, luck), not *political*, solutions are appropriate. *See* CULTURAL INDICATORS.

Differences among Systems

While some media content includes deliberate attempts at politicization, usually by public officials or political activists, much of it is devoid of conscious intent, and any politicization effects are inadvertent or accidental. One reason is that in predominantly democratic societies the media possess considerable autonomy and independence. In contrast, the media in autocratic societies are usually controlled by and operate at the behest of the people running the state (*see* GOVERNMENT-MEDIA RELATIONS).

In autocratic states many decisions affecting the media system are apt to be made by those holding party or government positions, while the public is usually denied a significant say. Diverse political parties rarely exist, vigorous opposition to the ruling elite is curtailed, and criticism of the authorities is

discouraged. State control of the media is consequently often used to depoliticize, to remove or prevent subjects from entering the restricted political arena (*see* CENSORSHIP; GOVERNMENT REGULATION). But there are exceptions. The media in autocratic states sometimes contribute to widespread politicization promoted directly by those in power, as was the case in China during the Cultural Revolution (1966–1969). During that period many kinds of personal behavior normally regarded as private were treated by rulers and media alike as having political meaning and implications (*see* ASIA, TWENTIETH CENTURY). At other times—for example, during a conflict among members of the ruling elite or the emergence of previously dormant opposition—the media in an autocratic state may obtain a much greater degree of freedom. Although this freedom may be brief, it often lasts long enough to release a torrent of information and ideas politicizing repressed or suppressed subjects that were previously confined to unofficial or underground press and publications.

When states move away from autocracy, the media's freedom usually increases concomitantly. Brazil in the 1970s is a notable example. As the military leaders jockeyed for power and political parties emerged, newspapers in particular became sources of information, centers of debate about public policies, and raisers of issues. Thus newspapers were central to the resurgence of political processes and the movement of topics and issues from private to public life.

Politicization is sometimes viewed as unnecessarily endowing private lives and problems with political elements, making them grist for ill-considered governmental intervention. But there is another, positive side: politicization as awakening.

See also POLITICAL SOCIALIZATION.

Bibliography. David J. Garrow, *Protest at Selma: Martin Luther King, Jr., and the Voting Rights Act of 1965*, New Haven, Conn., 1978; Claus Mueller, *The Politics of Communication*, New York, 1973; David L. Paletz, *Political Communication Research: Approaches, Studies, Assessments*, Norwood, N.J., 1986; David L. Paletz and Robert M. Entman, *Media Power Politics*, New York, 1981.

DAVID L. PALETZ

POLL

Polling is a special application of the sample survey method to the study of political behavior. (Other applications of this method—for example, for social science, marketing, and public policy research—are excluded from this definition of polling.) By surveying representative samples of the public, polls seek to measure and analyze the state of PUBLIC OPINION and how it responds to events and public debate

surrounding those events. In each poll questions are asked of a representative cross-section of the public concerning such matters as understanding and knowledge of public issues, preferences regarding how those issues should be handled, evaluation of the nation's political leadership, and the public's hopes, aspirations, fears, and concerns. The aggregate survey results are reported as public opinion concerning the topics covered at the time the survey was conducted.

Polls contrast sharply with other sources of information about public opinion, such as grass-roots soundings by local political leaders, meetings with community and organization leaders, and CONTENT ANALYSIS of letters to news media or to elected representatives. Reliance on those other sources assumes that public opinion can best be determined by investigating its expression through formal channels of communication and by community and institutional leaders. In contrast, polls rely on quantitative methods intended to produce representative, objective measures of the opinion of all the people included in the universe from which the sample is drawn. Polls measure public opinion in terms of the total sampled population, all of whose opinions are treated as relevant and significant. Therefore, when polls measure public opinion they give substantial weight to the views of all sorts of people, regardless of how uninformed or uninformed about specific issues. On the other hand, such informal opinion is often overlooked by methods that, by focusing on formal leaders, are prone to emphasize established interests.

Origins

Modern public opinion polling has its roots in pre-election straw polls conducted by newspapers and magazines. Initially straw polls attempted to do little more than measure voting preferences, playing a minor role in news coverage of ELECTION campaigns. They were essentially journalistic stunts conducted because of their presumed value for increasing circulation. Sampling methods were primitive, and those polled were asked only to mark their voting preferences on paper ballots and return them either by mail or by personally putting them into ballot boxes. Despite the crudity of these methods, the results of the straw polls were often better predictors of election outcomes than were the forecasts based on canvassing, personal observation, and judgment made by politicians, journalists, and other "experts." By the 1930s some straw polls were treated as trustworthy measures of voting intentions and not merely as a journalistic curiosity.

In 1936 the most prestigious U.S. straw poll was the one conducted by the *Literary Digest*. On the

basis of 2 million mail ballots returned from a total of 10 million that had been mailed to telephone subscribers and automobile owners, the *Literary Digest* incorrectly forecast that the incumbent president, Franklin D. Roosevelt, would be defeated by the Republican challenger, Alfred M. Landon. This massive error demonstrated that sheer numbers were insufficient for accurate measures of voting intentions and set the stage for the emergence of polls based on small but carefully selected samples.

The growth of modern public opinion polling. In October 1935 GEORGE GALLUP founded the American Institute of Public Opinion (the Gallup Poll), a syndicated newspaper service based on frequent polls of representative national samples. The concept underlying this service is that the opinions of the general public on current issues are both newsworthy and politically significant. At virtually the same time, *Fortune* magazine engaged the services of ELMO ROPER to conduct periodic public opinion polls, which were published as the Fortune Poll. Shortly thereafter King Features contracted with Archibald Crossley to conduct public opinion polls that it syndicated to its newspaper clients. It is noteworthy that while all three of these polling ventures were sponsored by news media, Gallup, Roper, and Crossley themselves came from the world of ADVERTISING and marketing research. This alliance of news media and marketing research has continued to characterize much of public opinion polling.

Two important differences between straw polls and the methods used by Gallup, Roper, and Crossley were, first, the use of relatively small samples with preassigned quotas (i.e., specific numbers of women and men, people of different ages and income levels, etc.) and, second, the use of interviewers who collected the information in people's homes to avoid a self-selection bias in the sample. Gallup, Roper, and Crossley all correctly forecast a Roosevelt victory in 1936. The markedly superior performance of their polls to the *Literary Digest* poll established the credibility of their methods and marked the emergence of public opinion polling as a staple of political journalism.

Public opinion polling suffered a severe setback in 1948, when every poll incorrectly forecast that President Harry S. Truman's bid for reelection would be defeated by the Republican contender, Thomas E. Dewey. Illustrative of the severity of the credibility crisis that resulted is the fact that the Social Science Research Council funded an intensive study of the methodological sources of this error.

Acceptance of public opinion polls was partially restored during the 1950s, but it was not until the extremely close 1960 presidential election, when just about every poll forecast a victory for John F. Kennedy despite the narrowness of his lead over Richard

M. Nixon (50.1 percent), that their credibility was firmly reestablished. The following decade was characterized by considerable expansion in media-sponsored polling: television networks, newsmagazines, and individual newspapers began to conduct polls on a regular basis, (see *NEWSMAGAZINE*). By 1985 there were seven regularly conducted media-sponsored national polls in the United States, while state and local polls were being conducted by more than 150 newspapers and television and radio stations.

A major innovation introduced by the television networks in the late 1970s and early 1980s was to interview voters as they left their voting places. The results of these exit polls are used to develop early forecasts of voting returns and to analyze voting patterns.

Academic polling in the United States. Four academically based survey centers were established during the 1940s: HADLEY CANTRIL organized the Office of Public Opinion Research at Princeton (later dissolved); Harry Field, the National Opinion Research Center at Denver University (later moved to the University of Chicago); PAUL F. LAZARSFELD, the Bureau of Applied Social Research at Columbia University (later absorbed into the Center for the Social Sciences); and Rensis Likert, the Survey Research Center at the University of Michigan. These research centers increasingly directed their attention to studies of voting behavior, the measurement of social trends, and policy research rather than conducting public opinion polls as such. By the 1980s academic involvement in polling public opinion was most active at the state level, with some twenty-three academic survey research centers forming a Network of State Polls. Many of these centers regularly conduct public opinion polls.

International spread of polling. Interest in public opinion polling spread rapidly to Europe, with Gallup affiliates established in Great Britain in 1937 and in France in 1938. The outbreak of World War II halted growth temporarily, but there was a rapid expansion of polling throughout western Europe in the postwar years. In addition to the establishment of additional Gallup affiliates, International Research Associates was organized by Elmo Wilson with affiliates in most of western Europe. The following decades saw a further expansion to South America, Africa, and Asia. By 1985 Gallup International had affiliates in thirty-five countries, and International Research Associates in thirty. Independent polling organizations were formed in many of these countries to compete with the international networks.

Private polls. One of the most significant aspects of the rise of public opinion polls has been their use by political leaders and parties. In addition to the publicly reported polls sponsored by news media,

public opinion polls are conducted for politicians and political parties for their private, confidential use. A pioneer user of private opinion polls was Roosevelt, who in 1941 relied on them to gauge how successful he was in generating public support for his policy of providing military aid to Great Britain. During the 1950s Claude Robinson of Opinion Research Corporation conducted polls for the Republicans, while Louis Harris's polls for Kennedy figured prominently in the 1960 presidential election campaign.

By the end of the 1970s private polls had replaced local party units as the primary source of information about grass-roots public opinion. As precinct-level party organizations atrophied and mass media of communication proliferated, politicians increasingly turned to privately sponsored polls to identify public ATTITUDES toward themselves and their opponents, the issues of greatest salience to the public, and the effectiveness of their election campaigns. A new politics came into being, based on the interactive use of polls and mass media of communication to measure and influence public opinion.

The use of polls by special-interest groups. As the credibility of polls as a source of public information became established, special-interest groups began to use them to further their policies and positions. This use of polls by special-interest groups has taken three forms: advocacy, PUBLIC RELATIONS, and communications planning.

Advocacy polls are conducted specifically to develop "proof" that the public endorses the position advocated by the sponsoring organization. Such polls have been used to support LOBBYING efforts by industry and labor groups and also by citizen action groups. They have covered a wide range of topics, including taxation, environmental protection, abortion, and military spending (see *AGENDA-SETTING*). On occasion, conflicting special-interest groups have sponsored their own polls, with contradictory results. In such circumstances the polls themselves have become matters of controversy.

Public relations polls are conducted in the expectation that the public release of their results will enhance the public standing of the sponsoring organization. For example, a special-interest group will sponsor a poll on some topic of current general interest—changing patterns of family life, fear of crime, the role of religion, the changing status of women in modern society—even though the topic has no apparent relation to the group's specific interests. The poll results are publicized as a public service in the expectation that the public's attitude toward the sponsoring group will be improved.

Special-interest groups also sponsor polls for their private use when planning public communications campaigns. This use is directly analogous to the use

of polls by politicians. The poll results are used primarily as information about public opinion that can contribute to the development of effective public communications. Selected results are sometimes released as part of the campaign.

Issues in Polling

The history of public opinion polling is characterized by high expectations regarding its power as a source of information about public opinion, questions about the accuracy and meaningfulness of poll results, and concerns about the effects that polling has on the political process. The interaction among these issues has on occasion resulted in bitter controversy.

Preelection polls. An evaluation of polls methodology sponsored by the Social Science Research Council to analyze why polls failed to forecast Truman's reelection in 1948 identified the major limitations of preelection poll methodology then in use. These included the reliance on quota sampling instead of probability sampling, the lack of an adequate method for differentiating likely voters from nonvoters, the failure to conduct last-minute polls to detect late shifts in candidate strength, and the lack of a satisfactory method for allocating undecided voters.

Since 1948 methods used for preelection polls have undergone considerable change. Most polls now use sample designs that employ probability procedures at most stages of selection. Progress has been made in developing techniques for identifying likely voters and for treating undecided voters. Of particular importance, poll results are now reported as measurements of candidate strength as of the time the polls are taken rather than as predictions in the strict sense of the word.

As a result of these changes some polling organizations have achieved very accurate records in their preelection polls. This has created another problem in its turn. Experience with preelection polls that correctly pointed to the winner in very close elections—such as in the 1960 and 1968 U.S. presidential elections—created unrealistically high expectations of poll accuracy. As a result, preelection polls that are within expected sampling error of election results but have the wrong candidate ahead are often cited by the uninformed as evidence of the unreliability of polls.

Problems in accuracy persist, especially with respect to primary elections. Periodic failures to forecast elections correctly continue to occur, as happened in Australia in 1984 and in the United States in 1980. These failures indicate that room for improvement in preelection poll methodology remains. Nonetheless, news media and politicians continue to rely on polls as their main source of information about voting intentions.

Conflicting polls. On occasion polls conducted by different organizations report apparently conflicting results. For example, the measurements of public approval of the incumbent president by the Gallup and Harris polls differ occasionally from each other to a degree greater than would be expected because of random sampling error. Conflicts have also occurred regarding public opinion on such issues as abortion, disarmament, and nuclear freeze, and whether treaties such as SALT II and the return of the Panama Canal to Panama (1979) should be ratified.

Critics point to conflicts between polls as evidence that poll results cannot be relied on as valid measures of public opinion. Pollsters have answered these criticisms by noting that conflicting results are to be expected when interviewing dates differ and when question wording differs. When major events intervene between interviewing dates, and especially when public opinion is in flux, differences between polls are to be expected. With respect to question wording, a considerable body of evidence attests that apparently minor variations in wording can sometimes lead to significant differences in responses. It is often the case that purportedly conflicting results are based on questions that differ appreciably from one another. Another possible source of variation is the position of questions in an interview, since question order may also significantly affect how a question is answered.

More generally, conflicting polls underscore the dangers of simplistic interpretations of poll results, which assume that there is "a public opinion" that can be validly summarized in the answers to a single question. Public opinion is a dynamic, often inconsistent quality of the body politic that cannot be fully comprehended by any one or two questions.

Effects on the electoral process. The possibility that preelection polls have BANDWAGON EFFECTS (the assumed propensity of voters to vote for a candidate primarily because they believe he or she will win) is a perennial issue. The probability of a candidate's winning is an important consideration to politicians when deciding whom to support. Consequently, preelection polls are an important influence on the nominating process within political parties and on the decisions of major financial contributors. However, there is no empirical evidence that bandwagon effects occur to any appreciable degree among rank-and-file voters.

In addition to influencing who is nominated, polls play a central role in the planning and evaluation of political campaigns. Some feel this has contributed to democratic government in that polls sensitize politicians to the public's concerns and desires and, therefore, make them more responsive to their constituencies. Others disagree, noting that the result

has been to induce politicians to abdicate their leadership function and to follow the polls in their efforts to get elected.

Polls make it possible for politicians to reach out directly to the public, bypassing traditional institutional channels of communication. To some this represents a democratization of politics, weakening the ability of power elites to control the political process. An opposing view is that this bypassing has brought about the disintegration of organized political activity, leading to declining voter turnout and enhancing the ability of well-financed aspirants to political office (with little prior political experience) to manipulate the political process and achieve high office. See POLITICAL COMMUNICATION—HISTORY.

Regulating Polls

Concern over the possible undesirable effects of polls on the electoral process has created pressure to regulate polls. In Western-style democracies those advocating regulation have focused their attention on assumed bandwagon effects among the general electorate, although those effects have never been clearly demonstrated. Thus, in the Federal Republic of Germany, preelection poll results cannot be published during the final days preceding an election. Efforts to enact comparable legislation in the United States have been unsuccessful, primarily because restricting publication has been viewed as a form of CENSORSHIP. Some states in the western United States have tried to circumvent this objection with respect to exit polls by prohibiting interviewing within the immediate vicinity of the voting places.

Regulation has also been an issue in nations with authoritarian governments. In such nations the freedom to conduct polls without government interference is subject to infringement. In response to this possibility the World Association for Public Opinion Research has included in its professional code a provision asserting the freedom to poll independent of a government.

Public opinion polling has become a major commercial venture as well as a critical link between people and their governments. Its importance is widely recognized, and concern over the possible social and political consequences resulting from it is likely to continue into the twenty-first century.

Bibliography. Leo Bogart, *Silent Politics: Polls and the Awareness of Public Opinion*, New York, 1972; Jerome S. Bruner, *Mandate from the People*, New York, 1944; Albert H. Cantril, ed., *Polling on the Issues*, Cabin John, Md., 1980; Hadley Cantril, *Gauging Public Opinion*, Princeton, N.J., 1944, reprint Port Washington, N.Y., 1972; idem, *The Human Dimension*, New Brunswick, N.J., 1967; George Gallup and Saul F. Rae, *The Pulse of Democracy*,

New York, 1940; Norman C. Meier and Harold W. Saunders, eds., *The Polls and Public Opinion*, New York, 1949; Harold Mendelsohn and Irving Crespi, *Polls, Television, and the New Politics*, Scranton, Pa., 1970; Frederick Mosteller, Herbert Hyman, Philip J. McCarthy, Eli S. Marks, and David B. Truman, *The Pre-election Polls of 1948*, New York, 1949; Claude E. Robinson, *Straw Votes*, New York, 1932, reprint 1979; John P. Robinson and Robert Meadow, *Polls Apart*, Cabin John, Md., 1982; Charles W. Roll, Jr., and Albert H. Cantril, *Polls: Their Use and Misuse in Politics*, New York, 1972.

IRVING CRESPI

POLO, MARCO (1254–1324)

Venetian known for his account of travels during twenty-five years (1271–1295) in eastern regions of Asia. The extraordinary observations Marco Polo related, particularly about the Chinese court of Mongol emperor Kublai Khan, were received by many Europeans as fantasy, but in the course of time much of what he wrote was confirmed. His observations became for generations the main source of European information and imaginings about eastern Asia. His account was read with special interest by cartographers and explorers and had an influence on Christopher Columbus, whose geographical calculations were guided to some extent by what Marco Polo had written, particularly in what he reported having heard about Cipangu (Japan).

Marco Polo's merchant family had traded throughout the Middle East for generations. About 1260, during a time of comparative tranquility in central Asia, his father (Niccolò) and uncle (Maffeo) extended the range of their travels eastward to the Mongol Empire with a journey of nine years. Marco was about fifteen when his father and uncle returned, and when they set out again in 1271 he went with them. They reached their destination, the court of Kublai Khan, about four years later. The Polos appear to have been employed in some official role during their stay at the court. Marco was sent on investigative and administrative missions to many parts of the Mongol Empire.

The Polos ended their eastern sojourn after some twenty years to accompany a Mongol princess and her retinue by sea to her wedding in Persia. They continued onward to Venice. Soon thereafter Marco was captured in a sea battle with the Genoese and taken to a Genoese prison, where he spent about a year before he was able to return to Venice to live out the rest of his life.

The book on which his fame rests was dictated to a fellow prisoner in Genoa named Rusticiano or Rustichello. The amanuensis, a writer of romantic tales, is thought to have added a few embellishments of his own. Where the work rests on Marco Polo's



Figure 1. (*Polo, Marco*) Marco Polo as portrayed in a German edition of his book, 1477. The surrounding caption reads: "The noble knight [sic] Marco Polo of Venice, the great traveler who describes for us the grand wonders of the world that he himself has seen, from the rising to the setting sun, of a sort not previously known." The Bettmann Archive, Inc.

direct observations (as opposed to what he related having heard) the account has proved remarkably accurate. On his deathbed, asked to recant his Asian stories, Polo responded that he had told only half of the marvels he had seen. *Il milione* (translated in English as *The Travels of Marco Polo*) remains an informative glimpse of an early bridge between East and West.

See also CARTOGRAPHY; EAST ASIA, ANCIENT; EXPLORATION; MILK ROAD.

Bibliography. Luigi Foscolo Benedetto, ed., *Il milione, prima edizione integrale*, Venice, 1928; Henry H. Hart, *Venetian Adventurer*, Stanford, Calif., 1942, reprint (*Marco Polo, Venetian Adventurer*) Norman, Okla., 1967; Leonardo Olschki, *Marco Polo's Asia* (L'Asia di Marco Polo), trans. by John A. Scott, Berkeley, Calif., 1960; Marco Polo, *The Travels of Marco Polo* (in Italian), trans. by Ronald Latham, Harmondsworth, Eng., 1958; Milton Rugoff, *Marco Polo's Adventures in China*, New York, 1964.

POPULAR CULTURE. See CULTURE; LITERATURE, POPULAR; MUSIC, POPULAR; TASTE CULTURES.

PORNOGRAPHY

A MODE of discourse, a way of thinking, talking about, and depicting sexual practices that is generally seen as differentiating sex from any spiritual or sentimental meaning on the one hand and from procreative functions on the other. Pornography defines erotic desire by isolating it from the contexts of medicine and scientific rationality as well as from aesthetic analysis; thus it slips through the categories of thought that we use to organize our knowledge and CULTURE. And yet it has become, at least in Western countries, part of the public agenda, a matter for commissions and government inquiries, confirming the observation once made by the French social historian MICHEL FOUCAULT that we are the only civilization in which officials are paid to listen to people talk about sex.

Despite the public attention given to pornography and the strong views held about it, there is little consensus on how to define, operationalize, or recognize it. Some persons refer to content (e.g., frontal nudity of female figures); others refer to style and presentation, an "auteur theory" that looks at camera angles or the painter's perspective on the nude; and still others define pornography by the responses it induces among its viewers (e.g., sexual arousal or voyeurism). The arbitrary nature of these definitions reflects the fact that *pornography* is a legal term and not one ordinarily used by art historians or literary critics. Yet there is a discernible pattern to the diverse texts that legal codes have labeled pornographic, a common structure that makes it possible to speak of pornography as a distinctive GENRE.

First, pornography violates societal norms because it presents forms of sexual behavior held unacceptable in themselves, or because it presents publicly acts that are judged acceptable only when they occur in private, or both. By transgressing the norms governing "appropriate" sexual behavior or appropriate depictions of sexuality, pornography is always controversial and is generally accused of profaning society in a way that is expected to evoke shame or disgust. In most societies this disgust is expressed through legal restraints and CENSORSHIP. Pornography may also be a parody of the social structure. Sixteenth-century pornography, for example, was often about clergy who disregarded their sacred vows of chastity, whereas much eighteenth-century pornography was about the court and the moral turpitude of the nobility. In the nineteenth century the central character of the anonymous sexual AUTOBIOGRAPHY *My Secret Life* was a gentleman who conducted his adventures with the spirit of an entrepreneur. Por-

nography's second layer of social satire adds a sense of political decadence to its deeper mockery of a system of values.

Second, the violation of sexual norms in pornography is presented as if it were a natural part of everyday life, fully permitted and widely practiced. It is this nonjudgmental attitude toward proscribed behavior that creates the shock and embarrassment we experience and may even contribute to the pleasure, for pornography that does not shock fails as ENTERTAINMENT (although it still may fulfill its function of sexual arousal).

Finally, the characters in pornography are nearly always one-dimensional figures with no past, no inner life, no emotion, no sense of self-discipline or constraint. Male or female, they have no identity or capacity to resist any sort of external stimuli. Their relationships exist only for purposes of sexual gratification and are terminated should any other sentiment intrude. These unreal characters reside in a world in which the ordinary consequences of behavior are canceled. They do not fear pregnancy, and there is no risk of sexually transmitted disease. Means and ends follow a pleasure principle rather than the logic of society or biology.

Within the broad category of pornography is a subset of sadomasochistic texts based on the theme of bondage. Bondage, or a master-slave relationship, is seen as created through and subsequently demonstrated by administering or receiving pain. VIOLENCE may be the mediating factor between pain as a physical sensation and bondage as a social relationship. What is often overlooked, as some contemporary feminist theorists have noted, is the key aspect of sadomasochism as playing with power and power roles, the acting out or manipulation of relationships in sexual form that remain hidden, implicit, and usually unchallengeable in other contexts.

Sadomasochism touches a sensitive social nerve by linking pleasure and pain, yet its presumed effects on behavior and ATTITUDES are the cause of most controversy. Many feminists, for example, are concerned with the functions of sadomasochistic pornography in which women and children are portrayed as desiring or freely consenting in violent acts of male sadism (*see* FEMINIST THEORIES OF COMMUNICATION).

It is frequently alleged that the volume of pornography has increased in recent decades and that contemporary pornography is qualitatively different—both more realistic and more violent—from older forms. Although such claims are difficult to investigate, certainly pornography is more readily available than ever before as the result of new media and distribution technologies such as VIDEO and CABLE TELEVISION. The use of PHOTOGRAPHY and CINEMATOGRAPHY has also raised concern over the po-

tential exploitation of real-life participants in pornography. As long as the production of pornography is not a legitimate form of enterprise, there is no system of accountability and no way of protecting the interests of the work force. Many law-enforcement officials believe there is a business connection between the production and sale of pornography and organized crime, but there is little evidence to show this and no way to prevent it.

Social scientists have attempted to account for pornography as a phenomenon and to explain its attraction. Although their theories differ, they represent a larger liberal point of view that itself reflects the rapid changes characterizing sexual norms and attitudes in all Western industrialized societies since World War I. In general the theories support a more permissive and less restrictive approach to sexual attitudes and practices, a greater appreciation of the normality and therapeutic values of sexual fantasy, and a distrust of the motives behind conservative forces.

The oldest and best known is the psychoanalytic theory, which understands pornography as a form of wish-fulfillment fantasy, the consequence of necessary sexual sublimation (*see* PSYCHOANALYSIS). As with dreams and other forms of fantasy, pornography is here viewed as being essentially harmless, perhaps even contributing to mental health by lowering psychological tension and restoring psychic equilibrium through catharsis. Pornography is thus seen as both a diagnostic of civilization and a safety valve.

An unhealthy aspect of pornography, in this view, is the motivation of the censor or of those who crusade for decency and the restoration of traditional morality. What underlies such obsessional behavior, Freudians suggested, is a pathological denial of the powerful attraction felt for illicit sex and guilt at having these indecent, improper feelings. By publicly condemning evil, the censors display to themselves and others what they know privately to be untrue—the purity of their own thought.

A second, more sociological theory locates sexual frustration, particularly that of men, in the constraints imposed by monogamous marriage. The view suggests that as long as this institution is held to be socially desirable and productive, men will be forced to find gratification for their residual sexual energies outside marriage through prostitution. According to this theory prostitution is the price to be paid for the nuclear monogamous family. Pornography is seen as the functional equivalent of prostitution, and as an activity that, like prostitution, should be recognized and brought out from the shadows of illegal behavior.

If either of these theories—psychoanalytic or sociological—were valid, one would expect pornogra-

phy to have declined significantly with the advent of certain social changes. The first theory, for example, predicts that as we become less inhibited about our sexual activity and better informed about sexuality there will be less need for pornography. The second predicts that as marriage systems become more flexible, as the reality of both premarital and extramarital sex is recognized, and as divorce is more easily available, the need for pornography will decrease. Yet modern Western society has undergone these changes without an accompanying decline in the production of pornography.

A third, more reasonable hypothesis is based on humanistic psychology and proceeds from the assumption that sexual behavior is primarily learned and can be performed either in an instrumental and technically proficient way or in a creative and expressive way. Pornography is seen as falling into the second category by creating a mood and contributing to an atmosphere that may help people to experiment with sex.

Pornography in this view is a minor and enhancing part of a life-style. According to a major U.S. study, men and women of all backgrounds and socioeconomic levels used pornography. No evidence from user behavior or personality profiles indicated that those who enjoyed pornography were abnormal in any way. Furthermore, more literate and culturally sophisticated audiences demanded a better quality of pornography, something less vulgar than the usual tabloid or adult film.

In the 1960s criticism of the theories about pornography was part of a larger critique of earlier liberalism. Conservative thinkers took the permissive morality that trivialized pornography as symptomatic of a breakdown in civilization in which all values had become relative and all ethics pragmatic. Pornography was merely the tip of this iceberg and could not be redeemed by claims of artistic merit or the tastes of cultural elites.

To leftists pornography was similarly regarded as an expression of a sick society, the malaise of a bourgeois capitalism that dehumanized all relationships and converted sexuality into a commodity. The radical power of eros to humanize relationships was, according to this view, co-opted by the system and had become part of a counterrevolution. Casual recreational sex was a pseudoliberalism representing freedom from the legacy of Victorian attitudes but effecting no corresponding transformation in interpersonal relations or the power structure. Whether pornography was used as a stimulant or as a form of entertainment, it was an expression of modern alienation and its consumption a form of conformity.

One prominent feminist position, too, starts from a critical analysis of the social structure as exploitative, alienating, and coercive. But the distinctive fea-

ture of the social structure for women is its patriarchal character—that is, a system of male privilege, authority, and power that keeps women dependent on men in the home, segmented in the labor force, and marginal in political life (see *SEXISM*). This pattern of sexual inequality could not exist without a symbolic system to legitimate it. All forms of culture—literature, RELIGION, science, social theory, ADVERTISING, and popular culture—reinforce the system; pornography is merely the extreme, the most misogynist form of a pervasive androcentric culture. From this perspective, sadomasochistic pornography that depicts women as freely cooperating in their own humiliation and physical pain is a self-serving male myth. Men who sincerely claim that they do not approve of pornography and abhor any form of sadomasochistic fantasy reap its benefits anyway, for pornography's long-term consequences are the intimidation of women and the strengthening of male control.

Feminist criticism of pornography falls into three categories, each centered on one aspect of the issue: the values pornography is seen to embody, pornography as a social problem, and pornography as POLITICIZATION. In the first view, pornography is said to degrade women apart from any consequences it may have; it is frequently compared with "hate" literature, although the two are thematically different. Hate literature has a strong paranoid appeal, whereas pornography appeals to male narcissism, but both treat a class of persons as objects.

The social-problem view is less concerned with values or the intrinsic nature of pornography and more with its possible extrinsic effects on male audiences. These hypothesized effects include rape and other overt forms of sexual aggression, the justification of violence against women or the belief that it was invited, and desensitization with respect to acts of sexual cruelty. Thus feminist critics have maintained that there are specific behavioral outcomes, attitudinal changes, and moral deteriorations that may result from even minimal exposure to any form of pornography, although the consequences are most obvious in the case of sadomasochistic pornography.

The third perspective examines the impact of pornography on women, how it might shape women's understanding of their own sexuality (e.g., making the clitoris the site of sexual pleasure as if it were a penis) and contribute to their passivity and depolitization. Pornography and popular romances (see *ROMANCE, THE*) are viewed as simply different sides of the same coin. Both devalue women in a way that leads to material disadvantage.

Implicit in both critical theory and this strain of feminism is a rejection of an earlier view of pornography as having no deleterious social effects and as best left unregulated. In the new frameworks, partic-

ularly that of feminism, pornography constitutes a violation of human rights. Recent empirical research has challenged the older, benign view and has been used by both conservatives and liberals attempting to mandate censorship. This research, which is mainly experimental and based on psychological behavioral theory, shows that the catharsis process, the vicarious discharge of aggressions or antisocial impulses, is not consistently demonstrated. On the contrary, according to the studies, people tend to be incited by certain material and may imitate what they see, especially if they see it often. Communication scholars generally resist any simplistic model of media causation (see MODELS OF COMMUNICATION), particularly one based largely on generalizations from a few experimental studies, but tend to regard persistently repeated patterns of communication as potentially strong influences (see CULTIVATION ANALYSIS).

Feminists themselves are divided on the subject of censorship and regulation. Many believe it is possible to seek the elimination of violence against women and to achieve structural equality while still supporting freedom of expression. Some are skeptical of legalistic solutions to political and social problems. Moreover, they argue, censorship and other forms of regulation have their own unanticipated consequences—"a chilling effect"—on the political culture. They recall that Margaret Sanger and many of the early advocates of family planning were prosecuted under existing antiobscenity laws. Other feminists are convinced that priority must be given to structural equality as measured by equal pay, day care, control of reproductive functions, the Equal Rights Amendment, and other indicators; when these are achieved, any undesirable social effects of pornography will be defused. And still others view censorship as obstructing research and the kind of open dialogue on sexuality from a feminist perspective that is essential for reconstructing our knowledge of sexuality. In short, there are many objections to censorship that fully recognize the misogynist values in pornography.

The current research agenda on pornography appears to offer a choice between the classic psychoanalytic theory of catharsis and behavioral modification. Many investigators are dissatisfied with both and seek a different paradigm for understanding the effects of pornography on individuals as well as on the quality of life. Some scholars have begun to study pornography as a text, an iconic system that can be understood as revealing fundamental messages about the nature of erotic pleasure and desire. There is a question, too, of whether pornography is a code term for something else, a concrete example of a universal archetype of the profane arising out of the imperatives of social organization. Thus all human societies have a dual culture, the sacred and the profane

existing in a reciprocal relationship. Sexuality may be the most enduring form of this dialectical tension, but it is not the only one.

Pornography symbolizes the profane through sexual scenarios. It insults and subverts the established code of sexual morality without repudiating it or offering a radical alternative. The psychological discomfort pornography engenders stems from the juxtaposition of tabooed behavior and a value-free attitude toward it. Sociologically, pornography reflects the ever-shifting boundaries of sexual norms; politically, it tests the state's concern in maintaining those boundaries. Yet pornography may have less to do with sex and the social psychology of prurience than with a dilemma of the modern mind, becoming a way of measuring the cultural and intellectual tolerance of a society and the emotional maturity of the individual faced with ambiguity.

Bibliography. Harry M. Clor, *Obscenity and Public Morality*, Chicago, 1969; Kate Ellis, Nan Hunter, Beth Jaker, Barbara O'Dair, and Abby Tallmer, eds., *Caught Looking: Feminism, Pornography, and Censorship*, New York, 1986; Michel Foucault, *The History of Sexuality* (in French), trans. by Robert Hurley, New York, 1978; A. Nicholas Groth, with H. Jean Birnbaum, *Men Who Rape: The Psychology of the Offender*, New York, 1979; H. Montgomery Hyde, *A History of Pornography*, London, 1964; Walter Kendrick, *The Secret Museum: Pornography in Modern Culture*, New York, 1987; Laura Lederer, ed., *Take Back the Night: Women on Pornography*, New York, 1980; Steven Marcus, *The Other Victorians*, New York, 1966; Ann Snitow, Christine Stansell, and Sharon Thompson, eds., *Powers of Desire: The Politics of Sexuality*, New York, 1983; Carole S. Vance, ed., *Pleasure and Danger: Exploring Female Sexuality*, Boston, 1984; Robert Paul Wolff, Barrington Moore, Jr., and Herbert Marcuse, *A Critique of Pure Tolerance*, Boston, 1969.

THELMA MCCORMACK

PORTRAITURE

Although it is not possible to define the term *portrait* to everyone's satisfaction, it may be described as a recognizable likeness of an individual. The GENRE is not universal but is associated with the West in particular, first in classical antiquity and again from the RENAISSANCE to the present. Even in Western CULTURE the genre has been far from constant: the kinds of people portrayed, the social functions of the portrait, its visual conventions, and the messages conveyed by this "silent language" have all been subject to continuous change.

A *world survey*. There is an obvious danger of circularity and ethnocentrism in defining the portrait in Western terms and then discovering that it is essentially a Western genre. However, some repre-

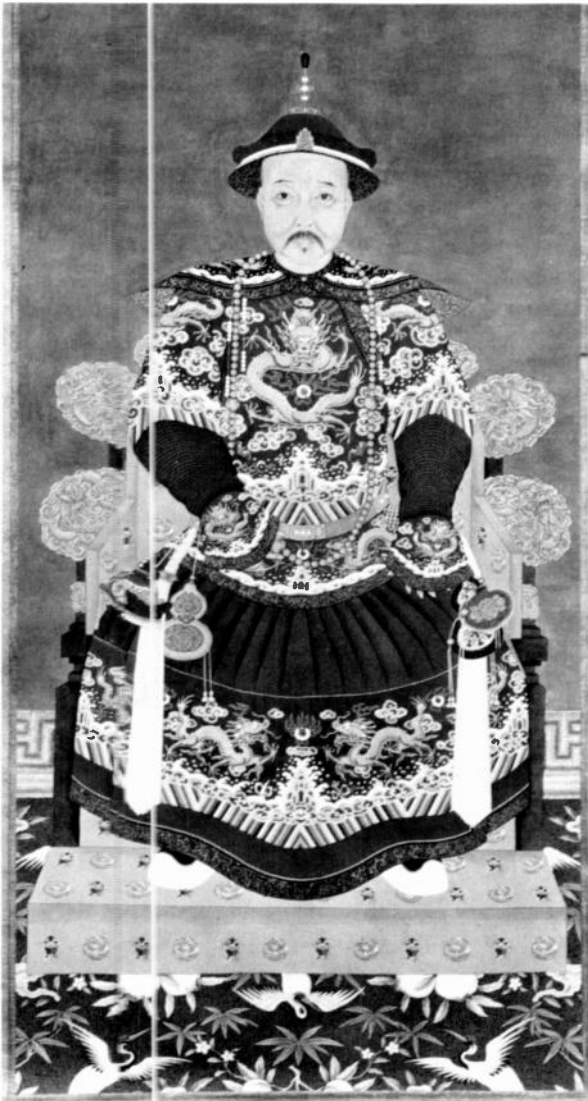


Figure 1. (*Portraiture*) Unidentified artist, *The Emperor Kang Hsi* (1662–1722), Chinese, nineteenth century. Colors on silk. The Bettmann Archive, Inc.

sentations of heads or whole figures that seem to modern Western eyes to be individualized have survived from a variety of regions and periods. Well-known examples include the funerary statues of ancient Egyptian pharaohs, the Mochica “portrait jars” (Peru, ca. 500–800 C.E.), the brass heads of Ife (Nigeria, fifteenth century C.E.), and the paintings of Chinese mandarins, Japanese shoguns, and Mogul emperors.

For lack of evidence, little can be said about the Peruvian and West African examples. We do not know what kinds of individuals were portrayed (assuming that these heads were indeed individual likenesses), and the functions of these objects are also uncertain. In the case of ancient Egypt it is at least

clear who is being portrayed (rulers and their households) and where the images were displayed (in tombs). The Chinese portraits of emperors and officials, often life-size, seem to have been intended for public viewing (Figure 1), while the miniatures of Mogul rulers, like those of the shahs of Iran and the Ottoman sultans, were a private form of ART—indeed, a secret one, since the Islamic tradition was hostile to images of living beings. In Japan, monks and poets as well as political leaders were not infrequently portrayed. In all these cultures images of women are rare; among the best known of the exceptions are the Egyptian queen Nefertiti (fourteenth century B.C.E.; Figure 2) and the court beauties and courtesans portrayed in Japanese picture scrolls and prints (if these are recognizable likenesses of individuals—an uncertainty). Despite these examples, it would appear from a comparative point of view that a strong concern with portraiture is one of the many peculiarities of Western culture.

The Western tradition: functions. The Western concern with portraiture cannot be explained without placing it in context and surveying the social functions of the portrait, whether religious, political, or private. The religious (including the magical) function seems to be both the oldest and the most widespread, deriving from the cult of skulls in prehistoric



Figure 2. (*Portraiture*) Queen Nefertiti, Egyptian, ca. 1360 B.C.E. Painted limestone. Ägyptisches Museum, West Berlin. The Bettmann Archive, Inc.

times. Here the portrait is seen as a means of survival after death. In Egypt, in the first centuries after Christ, portraits of the deceased were painted on their coffins. In ancient Rome portraits modeled in wax or carved in marble (Figure 3) were carried at funerals and were associated with the cult of the ancestors (like photographs among some Chinese today). In the later MIDDLE AGES, death masks were employed in funeral ceremonies (*see* MASK), while the faithful sometimes offered wax images of themselves to saints or had themselves represented in the religious paintings they commissioned (Figure 4). In early modern times there was a vogue for “memorial portraits,” painted shortly after the death of the “sitter.” Portraits might also be commissioned by the living to remind themselves of the process of aging



Figure 3. (*Portraiture*) Patrician carrying busts of his ancestors, Roman republican period, ca. 50 B.C.E.–15 C.E. Marble. Palazzo Barberini, Rome. Alinari/Art Resource, New York.



Figure 4. (*Portraiture*) Tomb effigy of Edward III, 1386. Gilt bronze. Westminster Abbey, London. By courtesy of the Dean and Chapter of Westminster.

and the inevitability of death. *See also* ART, FUNERARY.

The political function of the portrait—PROPAGANDA, the pictorial eulogy of rulers—also goes back a long way. In ancient Greece and Rome, as in the ancient Near East, portraits of rulers—Alexander the Great, Augustus—were displayed in public places. The “state portraits” of the Holy Roman Emperor Charles V, Louis XIV of France, and others served similar functions. The multiplication of portraits of Queen Elizabeth I of England and Maurice of Nassau both revealed and encouraged the popularity of their respective dynasties. In our own day the huge photographs of political leaders displayed in public places carry on the tradition, their colossal scale reminiscent of Assyria or the late ROMAN EMPIRE. Related to the ruler portrait is the official portrait, glorifying the office rather than its holder and sometimes displayed, as in eighteenth-century Venice, as part of the ritual of inauguration. Dutch group portraits of the seventeenth century are among the best-known examples of this type, which still persists in the portraits of company heads or the presidents of universities. These pictorial eulogies are balanced by pictorial criticisms, from the defamatory paintings of the later Middle Ages to the cartoons that have been part of

Western political life since the seventeenth century.

Besides these public functions, portraits have a variety of private uses. The sixteenth-century Italian bishop Paolo Giovio had a gallery in his house at Como filled with the portraits of famous men, and his example was widely imitated. The surviving busts of ancient Greek and Roman poets and philosophers were presumably destined for similar settings. From the Renaissance on, it became customary for artists to paint their own portraits and for collectors to buy portraits by artists they admired even if the sitter was unknown to them. In the early modern period, the houses of the nobility (and, following their lead, the bourgeoisie) were filled with portraits of family members—a private form of propaganda, a secularized version of ancestor worship, a status symbol. Double portraits commemorated weddings, while miniatures were exchanged between lovers and friends. PHOTOGRAPHY has allowed these practices to spread down the social scale, and photograph albums have replaced the albums of portraits owned by Renaissance princes and Mogul emperors. Over the long term, the gradual democratization of the portrait has

been accompanied by the diversification of its functions.

The Western tradition: conventions. Despite the apparent timelessness and photographic realism of many Western portraits, the genre needs to be interpreted as a system of signs, a CODE of conventions that has gradually been elaborated and transformed. Images of individuals, for example, were not always expected to be recognizable likenesses. Contracts for late-medieval English tomb SCULPTURE reveal that what was required was “a man in armor” or “a lady”—in other words, a record of social status rather than individual personality. This tradition may explain why so many sixteenth-century portraits now look alike (though it may be the case that we are unable to see significant variations of detail).

Artists have long been expected to proceed with tact as well as—or rather than—accuracy. The Renaissance painter Piero della Francesca represented the Duke of Urbino in profile to hide the fact that the duke was blind in one eye (Figure 5). The ancient Greek painter Apelles was said to have used the same expedient. Although Oliver Cromwell is supposed to

Figure 5. (*Portraiture*) Portrait of Federico di Montefeltro from *The Urbino Diptych*, by Piero della Francesca, 1465. Uffizi, Florence. Alinari/Art Resource, New York.



have told Peter Lely to paint “pimples, warts and everything as you see me,” flattery has persisted into the age of the photograph.

In the system of signs known as the portrait there are two main elements: posture and properties. Like the body itself, representations of the body speak a silent language (see KINESICS). There is a repertoire of hand gestures (see GESTURE) that has been considered appropriate in various periods for different social types, including the imperious gestures of rulers: the hand on the heart, protesting sincerity; the hand on the hip, signifying self-confidence; and the hand supporting the head of a philosophical or mel-

ancholy sitter. The Napoleonic gesture of the hand tucked into the waistcoat, apparently neutral before his time, has since come to symbolize power—an example of the importance of association in the ascription of meaning. Even the position of the sitter’s legs may communicate a message. The eighteenth-century English painter Thomas Gainsborough liked to portray men with crossed legs, a pose of aristocratic nonchalance, but when he represented Mrs. Thicknesse in this posture he offended the proprieties of the time (Figure 6). The frozen rigidity of many sixteenth-century portraits should probably be read as an expression of aristocratic hauteur. As for



Figure 6. (*Portraiture*) Thomas Gainsborough, *Portrait of Mrs. Philip Thicknesse*, 1760. Oil on canvas. Cincinnati Art Museum. Bequest of Mary M. Emery.

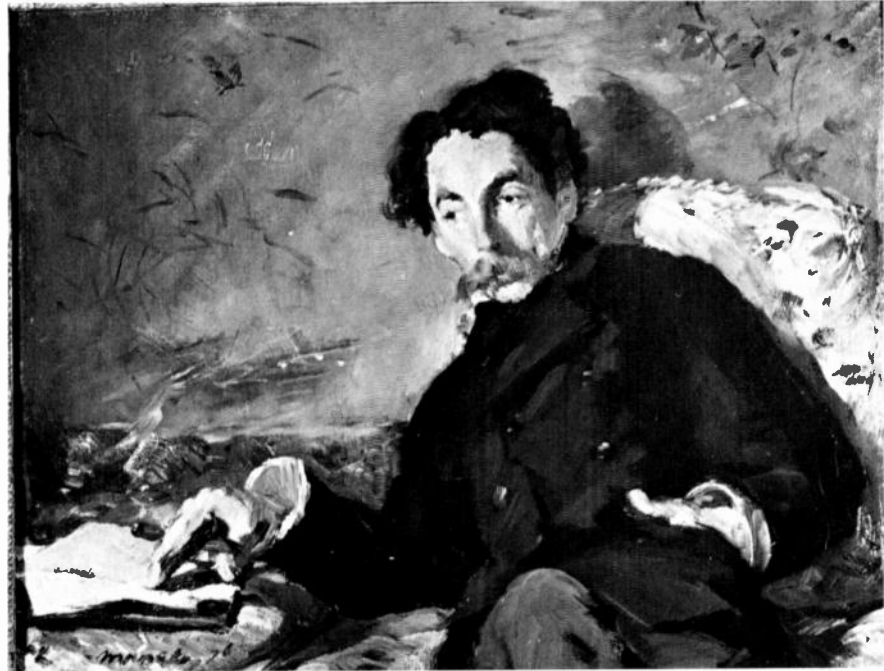


Figure 7. (*Portraiture*) Édouard Manet, *Por'rait of Stéphane Mallarmé*, 1876. Oil. Louvre, Paris. Giraudon/Art Resource, New York.

contemporary male portraits that show the sitter slumped in a chair or standing (more exactly, slouching) with hands in pockets, these should be interpreted as cases of formalized informality, additions to the repertoire of posture rather than a rejection of it (Figures 7 and 8). Today it is not slouching but posing that offends the proprieties.

In a similar manner, messages about sitters, more especially about their social status and roles, have long been conveyed by representations of CLOTHING and a whole arsenal of accessories. Rulers who never took part in battles were careful to have their portraits painted in armor. Eighteenth-century ladies were often represented in costumes with "the general air of the antique," because modern clothes, according to the doyen of British portrait painters, Sir Joshua Reynolds, would "destroy all dignity." The properties surrounding sitters have long been contrived to support what sociologists ROBERT PARK and ERVING GOFFMAN have called social "front." Among the most important of these symbols of power and status and indicators of taste are the classical column (often combined with the velvet curtain); the throne-like chair; the classical bust; and dogs, horses, and servants, which can all be managed so as to give the sitter an air of dominance. Statesmen have their official papers, scholars their books, gentlemen of leisure their hunting gear, and eighteenth-century ladies of fashion their teacups, fans, and oriental screens. For the past century or so, the cigar, pipe, or cigarette has contributed to the visual rhetoric of relaxation and informality (the sitter's customary cigar was omitted from Graham Sutherland's portrait



Figure 8. (*Portraiture*) Alice Neel, *Portrait of Henry Geldzahler*, 1967. Oil on canvas. The Metropolitan Museum of Art, New York. Anonymous Gift, 1981. (1981. 407)



Figure 9. (Portraiture) Gustav Klimt, *Portrait of Emilie Flöge*, 1902. Oil on canvas. Historisches Museum der Stadt Wien, Vienna.

of Winston Churchill precisely because the portrait was an official one).

Clear enough in essential outline, the property system, like the posture system, is blurred by individual variation and by change over time. In a sixteenth-century portrait of a lady, a dog was probably intended to signify fidelity (that of the sitter to her "master," not that of the dog to the sitter); in a nineteenth-century portrait it may imply only that she loves animals. The CLOCK, once an intimation of mortality like the hourglass, was transformed into a status symbol, or even, in the case of Jacques-Louis David's *Napoléon* (1812), into a piece of propaganda ("at night I work for the welfare of my subjects"). Meanings cannot be read mechanically from gestures or accessories; the observer needs to bear in mind the fact that each portrait represents a transaction between two individuals: the sitter and the artist. In the long history of such transactions, the balance of power has gradually shifted in the artist's favor. Photographs now satisfy the demand for both realism and flattery, while painted portraits (apart from those of royalty, still tenaciously traditional) have come to communicate what the artist wants.

Two basic tendencies are discernible in twentieth-century portraiture: the decorative and the expressionist. Both can be found in milder form before the late nineteenth century, but they have since become much stronger. The decorative tendency subordinates the sitter to the general design, as in the case of the



Figure 10. (Portraiture) Francis Bacon, *Portrait of Isabel Rawsthorne*, 1966. Oil. The Tate Gallery, London.

Austrian art nouveau painter Gustav Klimt (Figure 9) or of the U.S. painter James Whistler, who underlined the point by giving his portraits titles such as *Arrangement in Grey and Black* (1872). There is little room here for the portrayal of character. In the case of the expressionist tendency, the artist is much concerned with character—so much so, in fact, as to produce caricatures, which sacrifice outward appearance to inner truth (see *CARICATURE*). An outstanding example of this trend is the work of the Austrian painter Oskar Kokoschka, and it has been carried to an extreme by the Irishman Francis Bacon (Figure 10). Sitters are now often shocked by their portraits, as Churchill was by Sutherland's—or at best ambivalent.

Bibliography. James D. Breckenridge, *Likeness*, Evanston, Ill., 1968; Marianna Jenkins, *The State Portrait: Its Origin and Evolution*, New York, 1947; John Pope-Hennessy, *The Portrait in the Renaissance*, New York, 1966; "Portrait," *Encyclopedia of World Art*, Vol. 11, New York, 1966; David R. Smith, *Masks of Wedlock: Seventeenth-Century Dutch Marriage Portraiture*, Ann Arbor, Mich., 1982; Roy Strong, *The English Icon*, London, 1969; Malcolm Warner, *Portrait Painting*, Oxford, 1979.

PETER BURKE

POSTAL SERVICE

In praise of the Persian couriers the Greek historian Herodotus (484?–425? B.C.E.) wrote the famous motto:

Neither snow, nor rain, nor gloom of night stays these couriers from the swift completion of their appointed rounds.

Despite its renown, the Persian postal system was neither the earliest nor the largest in the ancient world. References survive to the exchange of messengers and verbal messages between rulers, or between rulers and their people, even before the age of WRITING (see *ORAL CULTURE*). The custom of sending oral news by courier continued even after writing was invented, but the advent of writing made it possible for messengers to ride or run their routes carrying CLAY TOKENS, notes, and letters written on bamboo (in China) or papyrus (in Egypt), and prompted the regularization and scheduling of such services. See *EAST ASIA, ANCIENT*; *EGYPTIAN HIEROGLYPHS*; *HELLENIC WORLD*; *LETTER*.

Early History

Message services operated in China at least by the time of the Chou dynasty (ca. 1027–256 B.C.E.) and probably earlier. Private mail, however, was not admitted to the Chinese system until 1402 C.E. Before

that time the messengers carried only official messages. CONFUCIUS paid perhaps unintentional tribute to the efficiency of the system when he wrote, "The influence of the righteous travels faster than a royal edict by post-station service." When MARCO POLO returned to Venice from his trip to China he was able to tell Europeans just how elaborate the Chinese postal system had become by the time of the Yuan dynasty (1260–1368), founded by the Mongol Genghis Khan: five routes with sixteen hundred post stations were staffed by seventy thousand men and forty thousand horses. Postal couriers were reported to cover as much as 250 miles a day over favorable terrain.

The Assyrians in Asia Minor, the Egyptians in North Africa, and the Greeks in Europe all had messenger systems, but none of them was as developed as the Persian. The Persian monarchs, particularly Darius I (r. 521–486 B.C.E.), quickly grasped the principle that control of government and control of communication are inseparable. The system they built ranged from the Persian Gulf to Asia Minor and had strings of stations at fourteen-mile intervals stocked with horses to bear royal messengers from post to post. The Persians even had "secret mail," achieved by shaving the heads of messengers and writing messages on their scalps. When the hair grew enough to conceal the writing, the couriers (who were usually slaves) were sent on their routes. At the destination, their heads were reshaved to reveal the message.

The Bible contains several references to messenger and post systems in ancient times. In the Book of Job the prophet complains, "My days are swifter than a post; they flee away." The Book of Esther makes reference to the variety of animals used to carry messengers through deserts and mountains when it speaks of "posts that rode upon mules and camels."

The Roman postal system. The Roman emperor Augustus (r. 27 B.C.E.–14 C.E.) is credited with establishing the *cursus publicus*, an official postal system like those of China and Persia, used to bind together the growing empire and contribute to solving the political and commercial problems that grew along with it (see *ROMAN EMPIRE*). This system was not only designed to transmit messages by couriers but was also intended to provide accommodations in the posts for officials on special missions or individuals granted special permit to use it. Five main trunk lines originated in Rome, with end points in Carthage, Asia, Macedonia, Spain, and northern Europe (Germany, Britain, and Gaul). Couriers rode horses or guided chariots pulled by two or four horses over paved roads that helped the system achieve a degree of speed and efficiency not to be matched in Europe until after the MIDDLE AGES.



Figure 1. (*Postal Service*) A post rider bearing the news of the Peace of Münster, 1648, which ended the Thirty Years War. The Bettmann Archive, Inc.

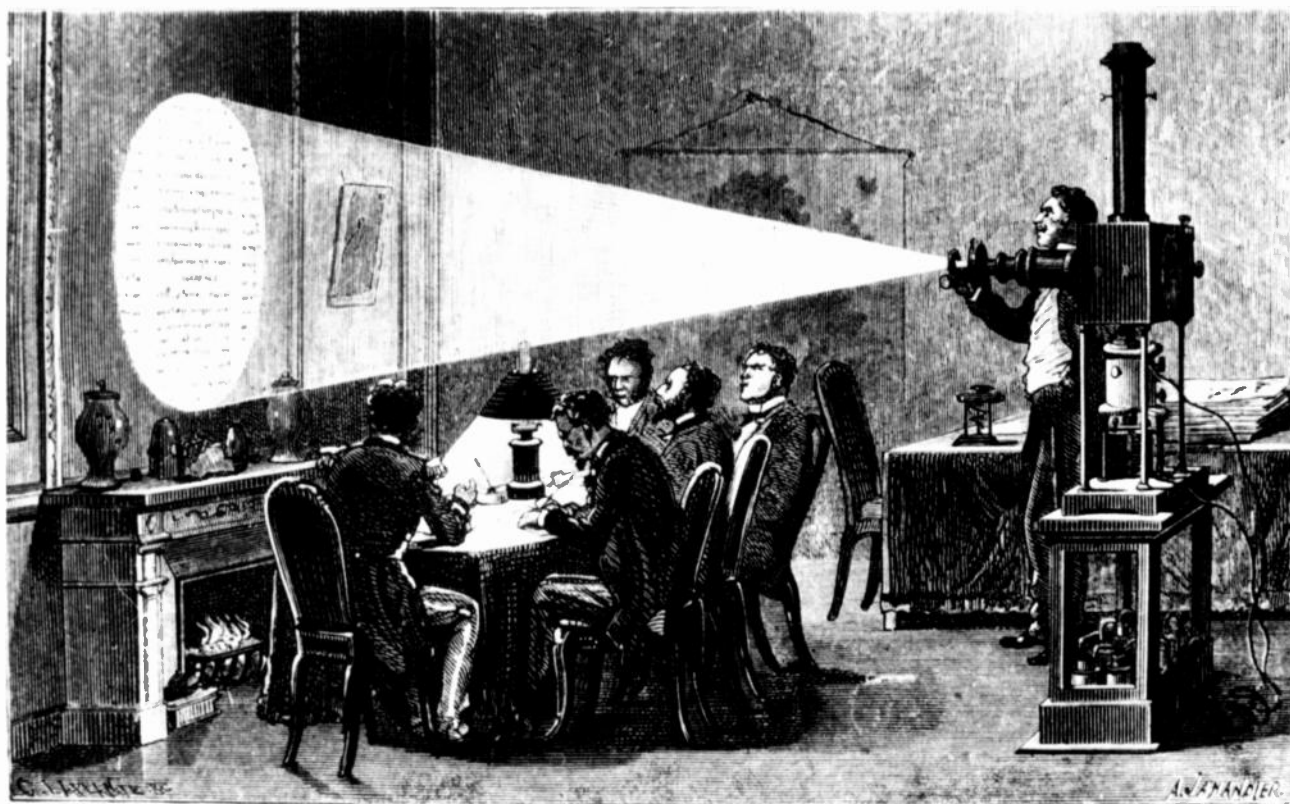


FIG. 58

(Page 11)

ENLARGING MICROSCOPICAL DESPATCHES DURING THE SIEGE OF PARIS.

Figure 2. (*Postal Service*) Clerks enlarging and copying microscopic pigeon-post messages during the Siege of Paris, 1870–1877. Gernsheim Collection, Harry Ransom Humanities Research Center, The University of Texas at Austin.

The decline of the Roman Empire meant the dismantling of the *cursus publicus*. The eastern parts of the road system were absorbed by Muslim states, which under the rule of Caliph Mu'āwiyah had created their own postal system. The Arabic system had its center in Baghdad, from where six main roads originated (see ISLAM, CLASSICAL AND MEDIEVAL ERAS). In Europe only small parts of the system were kept in operation by smaller kingdoms, and it was only when Charlemagne created the Holy Roman Empire in 800 that a serious attempt was made to re-create the equivalent of the *cursus publicus*—without much success.

Middle Ages. During the Middle Ages monasteries and universities created their own messenger services, for whatever official systems existed either were not open to the public or did not have the range these two institutions required (see UNIVERSITY). Monasteries needed to maintain contact with one another throughout Europe and with the headquarters of their religious orders. As universities began to attract students from afar, the need for a means to maintain contact with their families evolved into an elaborate (and eventually quite profitable) system of messengers. The university and monastery systems, along with other commercial systems emerging in medieval Europe, provided the most efficient means of exchanging letters or correspondence of all types to parties other than governments, which began to feel threatened by the possibility of widespread conspiracy if opponents that were "safe" when apart were

brought together by the posts. The efforts to bring postal systems under official control thus date from those early days, though the beneficiaries were not very willing to give them up and often received large amounts of money as compensation for their troubles.

In other parts of the world elaborate systems were also in operation. In Peru the Incas had a corps of foot messengers who delivered verbal messages as well as messages encoded in *quipus*, cords of different lengths that purveyed meaning in themselves and also in the knots tied in them. The Mayas, centered in what is now southeastern Mexico and Guatemala, also maintained a large system of roads and messengers (see AMERICAS, PRE-COLUMBIAN). The countries of Europe, of course, knew nothing about postal developments in the Americas until European explorers found their way across the Atlantic (see EXPLORATION). At the other end of the world Indian rulers had established messenger systems perhaps as early as the first century C.E. By the sixteenth century the Mogul emperor Akbar (r. 1556–1605) had runners said to cover as much as eighty or ninety miles a day.

Europe after the Middle Ages

At the beginning of the fourteenth century extensive private postal services started to appear in Europe. In Switzerland several cantons (provinces) established their own postal systems. In Austria the Paar

Figure 3. (*Postal Service*) A commemorative postcard carried by the first airplane mail, Allahabad, India, 1911, bearing the signature of the pilot, H. Pequet. The Bettmann Archive, Inc.

FIRST "AERIAL POST," ALLAHABAD, FEBRUARY 18, 1911.



H. Pequet

family built up a national post service. However, the most widely successful of these private enterprises was established by the Taxis (originally Tassis) family, which came from northern Italy and settled in Germany. Roger de Tour et Tassis (as the name is found before it was germanized into Thurn and Taxis) organized an extensive postal system for Holy Roman Emperor Frederick III (r. 1440–1493), who granted the family special favors. In turn, the Thurn and Taxis family developed a system that was a model of efficiency and speed, operating on regular and reliable schedules. Prompt delivery was a goal. The lead riders wore a small yellow post horn embroidered on the front and back of their jackets, which evolved over time as an accepted symbol of national postal services and the hobby of philately. The Taxis postal system lasted through political and commercial difficulties for more than five hundred years, but the French Revolution and the increasing tendency of governments to seize the lucrative postal systems were mortal blows to it. The family's remaining commercial assets were purchased by Prussia in 1867.

Modern Transportation

The introduction of modern systems of transportation was an important step toward significant improvements in postal systems. From the time animals were first used for postal transport until about 1830, the best that could be expected of a postal system was approximately fifteen hundred miles in seven days. The most efficient stagecoach services in Europe and the United States reached a speed of approximately nine miles an hour. With continentwide and intercontinental demand for faster service, a transportation breakthrough was imperative.

Railroads. The railroads made it possible for the first time to carry mail faster than could be done on horseback or in a stagecoach. Better roads meant that stagecoaches could often deliver mail the next morning in cities as far as 120 miles from London; but railroads could provide the same level of service as far as 400 miles away. This was due not only to the speed of the trains but also to the development of "railway post offices," special coaches in which mail was sorted for distribution along the route. The railway thus became the heart of a complex system of sorting and distribution of mail. Furthermore, the extension of railways across continents immensely speeded up delivery of the mail. In the United States, Omaha was linked to San Francisco in 1869. In Russia, the Trans-Siberian Railway Service was in full operation by 1904. The transcontinental railroads and their related postal services were credited with opening up the American West, while the Trans-

Siberian rails reduced by at least one-half the time it took to carry letters between Europe and eastern Siberia and northern China.

Shipping. By water the steam engine also speeded up postal delivery. The steamship made intercontinental mail service much swifter and more dependable. Long shipping routes were considerably shortened with the digging of important canals like the Suez (1869) and the Panama (1914). Mail service between Europe and East Asia no longer had to be routed around the Cape of Good Hope, and steamships going from the Pacific Ocean to Europe no longer had to go around Cape Horn. Shipping also contributed to the efficiency of the post by using the great canal and river systems, which made it possible to deliver to and from points not always served by mail trains.

Other systems. Throughout history several other types of services were tried in efforts to bypass or resolve specific problems. For example, pigeons have been used for message delivery in many places and times. When NEWS AGENCIES began to appear in the nineteenth century, they occasionally used pigeons to transmit news items. During the Napoleonic wars the Montgolfier brothers in France carried mail in their invention, the balloon, which was also used to carry letters out of Paris during the Prussian siege in 1870. Another experiment was rocket mail, but the results were dubious. One of the most promising variations on these pre-airmail experiments was mail service by German zeppelin. By 1932 these dirigibles had made 590 regularly scheduled flights to points around the world (including 172 transatlantic crossings). The system came to a tragic end with the crash of the zeppelin *Hindenburg* at Lakehurst, New Jersey, in May of 1937.

The automobile and the airplane. The first real difference in postal transportation since the railroads came with the automobile and the airplane. As the railways had taken over the responsibility of carrying the mail long distances, so the automobile took over the short ones—between collection points to central post offices, between post offices and mail trains, between nearby towns, rural mail delivery, and so on. But the real change in long-distance delivery came with airmail.

Until the end of World War II airmail was a special event. The first contract flight carried mail between New York and Washington, D.C., in 1918, while the first international service delivered mail between London and Paris in 1919. For a time airmail was limited to short distances and at higher rates than other mail. It was clear, however, that airmail could make its greatest contribution over long routes. The first transcontinental flight in the United States took place in 1920. By 1923 mail planes were flying on a



Figure 4. (*Postal Service*) A view of the general mail facility, Washington, D.C., 1986, showing two of the three optical character readers that sort thirty thousand to forty thousand letters per hour. Courtesy of the United States Postal Service.

twenty-four-hour schedule in most Western countries, and by the late 1920s the vast distances between Europe and Asia were covered by airmail routes. Transoceanic airmail started in the 1930s.

Modern transportation and postal systems were reciprocally influenced. The need to carry mail provided an incentive to extend and speed up transportation, and the income earned by carrying mail furnished a subsidy to each new transportation system during the years when support was most needed. Thus it may be argued that the postal system helped support the courier routes, the stagecoaches, the building of good roads, the use of inland and ocean waterways for transportation, the railroads, and, to a certain extent, the introduction of the automobile and the airplane.

Modern System Organization

A basic postal system includes the collection, sorting, and delivery of mail. Before systems were opened to public use collection was less of a problem, since the governments that owned and operated the system or the private concerns that maintained their own delivery systems also provided the messages to be carried. When mail service was opened to the public many new problems arose.

Post offices were very scarce at first, which made it difficult to send and receive mail. Service within cities was not available until after 1653, when the *petite poste* ("local post") was created in Paris; many other cities soon followed the example. Collection boxes at street corners and home delivery did not come about until the nineteenth century, after several failed attempts (children, for example, would stuff

the first mailboxes in Paris with unsavory contents). These and other developments made apparent certain organizational problems, like the need for reliable timetables for collection and distribution as well as for prompt local delivery. In London a civilian named William Dockwra set up a private "penny post," in which letters could be prepaid, stamped with time of posting, and delivered almost hourly within the city. This scheme was so successful that it was closed down in 1685, after only five years, because it infringed on the government MONOPOLY. But the public missed it, and the system was later reinstated under government control.

Also in England, but in the nineteenth century, postal reform became the main preoccupation of Rowland Hill, who in 1837 published a pamphlet, *Post Office Reform: Its Importance and Practicability*, that perhaps did more than anything else to reform the postal system. He demonstrated that the cost of transporting the mail was an insignificant part of the total cost. Most of the expense came from the time it took postal clerks to figure out the charges, based on distance, to keep the accounts, and to make reports. Furthermore, it was expensive to collect part of the charge from the recipients of letters, as was then common. Hill suggested establishing a uniform postal fee—based on weight—to be paid only by the sender, who would affix an adhesive stamp that could be bought in advance. Much of the cost and delay involved in handling mail would thus be eliminated. The first STAMPS, depicting Queen Victoria, were sold in England in 1840, and the new methods for handling the post were soon adopted throughout the world.

Improvements in efficiency meant that the postal

system could be used for other services, such as rural delivery of mail (beginning in France in 1829), parcel post (to carry packages at fixed rates for weight and distance), money orders, distributing benefits from government, and collecting some taxes. In many countries post offices also became telegraph offices, with these services linked in one administration.

COLONIZATION during the nineteenth century fostered the introduction of European-style postal systems in many parts of the world. The need for fast and safe mail delivery between nations resulted in an international postal conference meeting in Bern, Switzerland, in 1874. An international treaty for cooperation in handling mail was drafted, approved, and signed by twenty out of twenty-one countries attending (France signed almost one year later). The General (later called Universal) Postal Union set forth rules and procedures for exchanging mail and other postal services between countries, and its membership increased rapidly (see INTERNATIONAL ORGANIZATIONS).

Contemporary Developments

During the twentieth century further advances in transportation and TELECOMMUNICATIONS NETWORKS have resulted in faster and more efficient mail services. The widespread availability of computers (see COMPUTER: IMPACT), coupled with SATELLITE and other telecommunications systems, has made possible electronic message services sent through complex computer-based networks. This virtually instantaneous form of communication is likely to increase in importance over time.

Specialized delivery services represent another area of competition to postal systems. Emulating private courier systems of several hundred years ago, companies have appeared in several countries that, for substantial fees, will deliver letters or packages overnight or in considerably less time than through regular post. Whether the government-owned and -operated postal systems will continue to grow and provide efficient services will depend in large measure on how well they stand up to these and other future challenges.

Bibliography. Alvin F. Harlow, *Old Post Bags: The Story of the Sending of a Letter in Ancient and Modern Times*, New York and London, 1928; Max Piendl, *Thurn und Taxis 1517–1867: Zur Geschichte des fürstlichen Hauses und der Thurn und taxisschen Post*, Frankfurt am Main, 1967; Zaven M. Seron, *From the Winged Heels of Mercury*, Redwood City, Calif., 1984; Lauren Zilliacus, *Mail for the World: From the Courier to the Universal Postal Union*, New York, 1953.

MAX R. KENWORTHY

POSTER

A technological extension of the historical use of walls or other public space to convey messages. As a concise combination of word and image intended for easy and instant comprehension, the poster was the result of the invention of lithography (see GRAPHIC REPRODUCTION), a PRINTING process making possible the distribution of multiple identical copies. It is usually studied more with respect to its functions as PROPAGANDA and ADVERTISING than as a VISUAL IMAGE; yet besides translating the visual ART movements of the twentieth century into a consumer medium, the poster's impact and methods have sometimes influenced the form and direction of art.

The one figure most responsible for the development of the poster was French artist Jules Chéret, who in the 1860s began to produce color lithographic posters from his own press in Paris. Through his use of the traditions of the European MURAL, as in the work of Italian painter Giovanni Battista Tiepolo, Chéret was able to combine the GENRE of the circus advertisement with that of the decorative fresco. His works enlivened the new ARCHITECTURE of Paris and gained recognition for posters as the "gallery of the street." Chéret's style also influenced many artists, most notably Henri de Toulouse-Lautrec.

Table 1. Art Nouveau Schools

<i>Art Nouveau</i> <i>(United States)</i>	<i>Art Nouveau</i> <i>(Great Britain)</i>
Will Bradley Maxfield Parrish Edward Penfield	Aubrey Beardsley The Beggarstaff Brothers (James Pryde and William Nicholson)
<i>Jugendstil</i> <i>(Germany)</i>	Dudley Hardy John Hassall
Peter Behrens Julius Engelhard Thomas Theodor Heine Walter Schnackenberg Franz von Stuck Olaf Gulbransson	<i>Secession</i> <i>(Austria)</i>
	Gustav Klimt Julius Klinger Koloman Moser
	<i>Stile liberty</i> <i>(Italy)</i>
<i>Le style moderne</i> <i>(France)</i>	Marcello Dudovich Adolpho Hohenstein Giovanni Mataloni Leopoldo Metlicovitz
Eugène Grasset Henri Meunier Leonetto Cappiello Henri Ibels Adolphe Willette Alphonse Mucha Jean de Paléologue	<i>Modernista</i> <i>(Spain)</i>
	Alexandre de Riquer Miguel Utrillo



Figure 1. (Poster) Jules Chéret, *Les Girard*, 1879. Lithograph, 22 $\frac{3}{8}$ by 17 in. Collection, The Museum of Modern Art, New York. Acquired by exchange.

Toulouse-Lautrec gave a greater emphasis to the element of CARICATURE and also reduced his designs to flat patterns, often satirical in nature.

Both Chéret and Toulouse-Lautrec can be identified with art nouveau, a movement in art and DESIGN deriving much of its style from Japanese art and depicting in ornamental and decorative terms new social developments, new technology, and new expressions of the spirit. The worldwide influence of art nouveau was such that the poster, as perhaps its principal representative, was within twenty-five years of its introduction established as an international art form (see Table 1).

Posters reflected the addition of twentieth-century developments such as cubism, constructivism, and

the Bauhaus to the vocabulary of pictorial language. In the Soviet Union constructivism found expression in the work of Gustav Klutsis, El Lissitzky, Aleksandr Rodchenko, and the brothers Vladimir and Georgij Stenberg, among others. In Germany the ideas of the Bauhaus were translated into poster designs by artists such as Oskar Schlemmer and Joost Schmidt. Edward McKnight Kauffer in England and Cassandre (Adolphe-Jean-Marie Mouron) in France took the new elegance of the formal styles into the popular field of poster design in the 1920s and 1930s. Throughout the twentieth century major painters



Figure 2. (Poster) Joost Schmidt, *Staatliches Bauhaus Ausstellung*, 1923. Lithograph, 26 $\frac{1}{4}$ by 18 $\frac{3}{8}$ in. Collection, The Museum of Modern Art, New York. Gift of Walter Gropius.

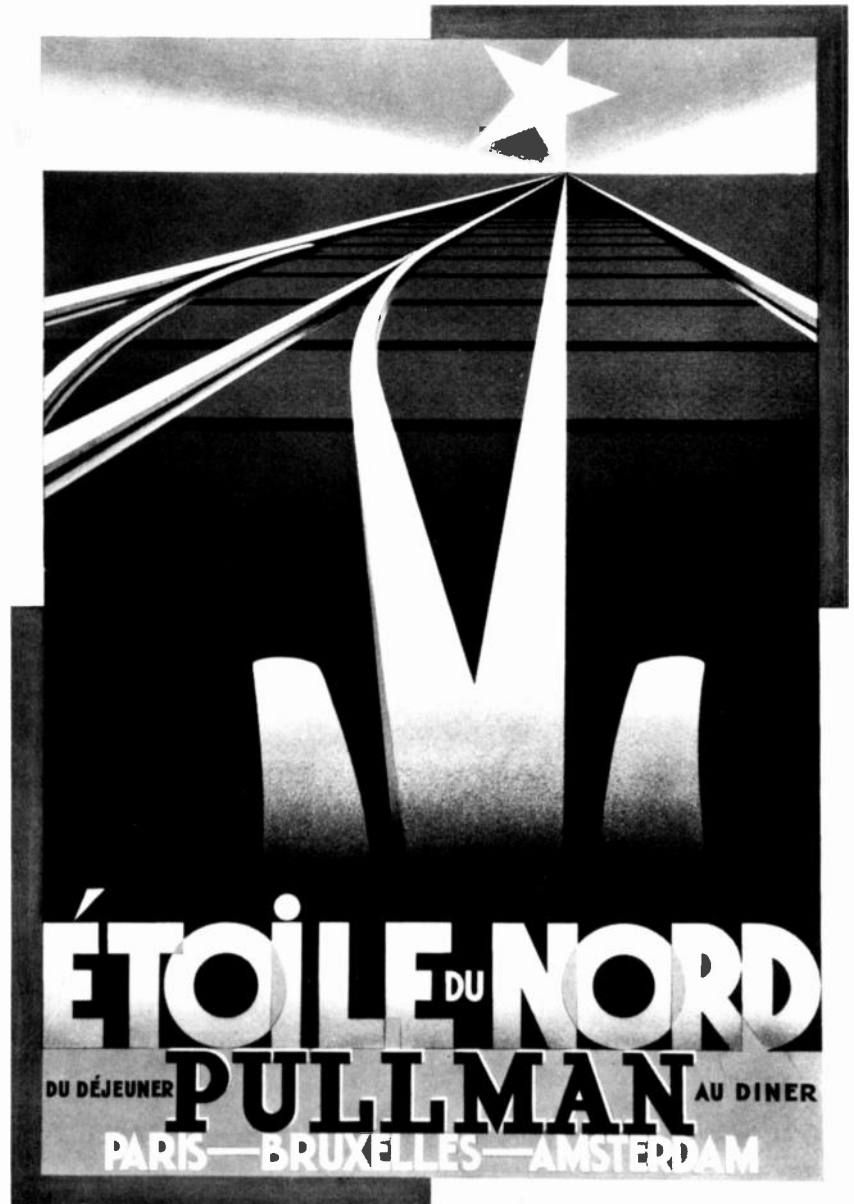


Figure 3. (Poster) Cassandre [Adolphe-Jean-Marie Mouron], *Étoile du nord*, 1927. Giraudon/Art Resource, New York.

such as Pablo Picasso, Henri Matisse, Oskar Koschka, Marc Chagall, and Joan Miró acknowledged the importance of the medium by contributing posters to their own exhibitions or creating original and influential designs.

An important development that paralleled the stylistic influence of art movements was the consolidation of the role of the professional graphic designer. Posters representing the spirit of the corporate product became a significant part of advertising display in the 1950s, spurred by the coordination of design in such firms as Olivetti in Italy, which set the pattern for industrial designers around the world. A classic example of complete design coordination is the Lon-

don Underground rail system, which in the 1930s was approached as a single design exercise that included the commissioning and display of posters as an intrinsic part of the scheme, thus continuing and indeed extending the notion of the public art gallery.

The rise of professional design consultants, agencies, and groups of studios and companies, along with the establishment of graphic design as a course of study, influenced the form of the poster itself, which was often the work of an industrial designer (or group of designers) involved in overall design policy rather than the creation of an independent artist. In the latter half of the twentieth century the field of commercial advertising through posters was

dominated increasingly by large Western advertising agencies such as the Push-Pin Studios in the United States or the Belier Agency in France.

Technical considerations also affected poster form and style. Developments in color PHOTOGRAPHY made possible the production of clear, high-quality images and contributed to the movement toward poster REALISM in the United States in the 1920s and 1930s (a movement also given commercial impetus by the effective photographic display of advertised products in distinct and accurate detail). The use of photography in posters must also take into account John Heartfield's influential photomontages of the 1930s, as well as the sophisticated work of the Atelier Yva in 1920s Berlin or of El Lissitzky in Moscow. Much AVANT-GARDE work in fact linked photography with other design elements such as TYPOGRAPHY to produce new and startling juxtapositions. In later decades similar effects were achieved by the creative photography of artists like Herbert Matter in Switzerland, George Tscherny in the United States, and Gan Hosoya in Japan.



Figure 4. (Poster) Poster for *Zemlya*, 1930, directed by Aleksandr Dovzhenko. National Film Archive, London.

In the 1960s psychedelic designs provided an alternative to the established tradition of simple, formal design exemplified in the "new objectivity" movement centered in Switzerland in the 1950s. Just as the new objectivity had its origins in earlier artistic developments such as the Bauhaus, psychedelic design can be traced to the exhibition of German *Jugendstil* posters in Berkeley, California, in 1965. Once again poster design was renewed from its own past, just as the ideas of earlier artists like Josef Witzel were reinterpreted in the work of, among others, Victor Moscoso in the United States and Michael English in Britain.

The poster as a tool of POLITICAL COMMUNICATION has an extensive history in the twentieth century. World War I saw the widespread use of the recruitment poster, and many countries used the form effectively to arouse patriotic fervor and to urge specific citizen actions. In the Soviet Union the poster was a principal means of proclaiming the ideals of the socialist state, at first through the revolutionary posters of Rodchenko and Klutskis and later through the work of artists such as Oleg Savostiuk and Nikolai Babin. Soviet posters are traditionally heroic in subject and in most cases naturalistic in style. The gigantic images in Red Square have their counterparts in the political murals of the People's Republic of China and even, to some extent, in the billboards of the West. Chinese poster art is frequently notable for its mix of traditional imagery and contemporary POLITICAL SYMBOLS and icons (see ICONOGRAPHY). Individual artists who have made original contributions to the ideological poster include Jan Lenica in Poland and Raúl Martínez in Cuba. An appropriate example of the poster's immediacy and vitality during politically turbulent times may be found in its own place of birth. In May 1968 the streets of Paris carried the revolutionary posters of the Atelier Populaire, a militant collective of students, artists, and workers. The art produced by this cooperative enterprise was at once crude and powerful, thus renewing the elements that characterize the poster of impact.

Historically, the poster has drawn upon various styles and traditions in art and the mass media. Effective imagery continues to borrow from such diverse areas as film ANIMATION, COMICS, PHOTOJOURNALISM, and cinematic techniques (see CINEMATOGRAPHY), including EXPRESSIONISM, SURREALISM, and AVANT-GARDE FILM, to convey its message most directly and simply.

See also GRAPHICS; REPRESENTATION, PICTORIAL AND PHOTOGRAPHIC.

Bibliography. Dawn Ades, *The 20th Century Poster: Design of the Avant-Garde*, ed. by Mildred Friedman, New York, 1984; John Barnicoat, *A Concise History of Posters: 1870–1970*, New York and London, 1972; Maurice Bau-



Figure 5. (Poster) Tadanori Yokoo, *The City and Design Isamu Kurita*, 1966. Silk screen, 41 by 29½ in. Collection, The Museum of Modern Art, New York. Gift of the designer.

wens, ed., *Les affiches étrangères illustrées*, Paris, 1897; Ernest Maindron, *Les affiches illustrées, 1886-1895*, Paris, 1896; Josef Mueller-Brockmann, *Geschichte des Plakates*, Zurich, 1971; Alain Weill, *The Poster: A Worldwide Survey and History*, Boston and Paris, 1984.

JOHN BARNICOAT

PRAGMATICS. See MEANING; SEMANTICS.

PRAYER. See RELIGION.

PREACHING. See HOMILETICS; PUBLIC SPEAKING.

PRESSURE GROUP

Until the 1960s the prevailing model of pressure-group activity in developed democracies focused on

relations between organizations representing the diverse interests of a pluralistic society and the agencies of government, in which news media publicity played little part. Direct and regular access to decision processes was the favored goal, and prime avenues of influence included formal and informal contacts with legislators and officials (*see* LOBBYING), membership on advisory committees, establishment of a right to be consulted over policy developments, a role in providing expert information and testimony in policy inquiries, representation in party platforms and machinery, and the occasional offering of financial contributions and other favors. This model featured a strong party system (into which group demands were channeled and within which interest-group coalitions were formed) and a spirit of compromise and

moderation to allow for the adoption of broadly acceptable interim solutions to policy problems. The intrusion of media-based communication into such a system could have been disruptive to the process of coalition building. Press publicity was mainly a way for newly formed and less established groups to gain notice.

Since the 1960s, however, because of the combined impact of several political, social, and communication transformations, a more "media-centric" model of pressure-group activity has come to the fore. Without displacing the more traditional patterns, this new model has often supplemented, bypassed, and penetrated them. According to this model, media attention is a vital source of potential influence and power, creating perceptions of public support that policymakers must heed. Groups must therefore give much higher priority to the publicity field, recognizing that it is a competitive arena in which many rivals are also seeking footholds and that it is dominated by the standards of journalism to which their own media materials must conform. This in turn generates pressure to develop self-conscious news-management strategies, influences the kinds of appeals and demands that will be ventilated, can provoke conflict inside groups over what is thought necessary to break into the news as distinct from what would be more true to an organization's purposes, and may redistribute overall power and status differentials among groups in society.

Media strategies. Many pressure-group needs may be served by effective press and publicity organization. One is the need to sustain relations with members, demonstrating the group's effectiveness, perhaps even informing members about activities (especially if the group's own internal communication channels are weak and underused). A second is to stake the group's claims with policymakers as the legitimate representative of its clients and holder of significant support in the citizenry at large or among relevant attentive publics. A third is to mobilize demands for action that policymakers might otherwise ignore. A fourth is to keep the group's priorities and definitions of key issues in the forefront. A fifth is to bring an issue into the open with different criteria from those that would apply if it were insulated from publicity. A sixth is to counter the occasional bouts of bad news that most groups can expect to experience. A seventh is to benefit from the "looking glass" function of media, striving to ensure a closer conformity of media portrayals to the group's own image of its purposes, values, and identity.

Publicity Problems and Techniques

The publicity organization and techniques of pressure groups may be regarded as responses to five

basic problems that they face in trying to optimize coverage:

1. A threefold uncertainty over whether their activities and statements will appear in the news, how they will be framed there, and whether they will have the intended influence on PUBLIC OPINION generally, on activists and members, and on policymakers. Planning and professionalization of the publicity function are devices to overcome such uncertainties.
2. Keen competition for attention in major media newsholes. There are many groups and typically only limited space left over after the activities of leading politicians have been covered. Alertness is required to "cash in" on stories already in the news, tying the group's cause to a prominent controversy, current crisis, or publicized scandal.
3. Sustaining a tolerably continuous presence amid the highly episodic flow of political stories. Relations with editors, producers, and specialist correspondents are cultivated to gain recognition as accredited witnesses in the established "news net."
4. Complications of tailoring publicity to the needs of different news outlets, varying by medium (television, radio, newspapers, magazines), scope (national, regional, local), level (quality, tabloid), and editorial leaning. To cope with these and other diversifying factors, specialists with insider knowledge are needed.
5. Journalistic norms of objectivity and neutrality, distancing reporters from groups' causes and priorities. Consequently stories must be imbued with *news* values, not *organizational* values; they must stress events rather than processes, action rather than meaning, and controversy rather than consensus.

At the most general level three broad approaches to the mass media—not mutually exclusive—may be distinguished. Groups may go in for (1) marketing and ADVERTISING, (2) complaints and criticism, and (3) news management. Advertising campaigns bypass journalists' selection mechanisms and give an organization full control of the message, but such campaigns can usually be afforded only by wealthier bodies and may start with several credibility counts against them. Complaints about unfair coverage, stereotyping, and negative portrayals of groups may reach the professional consciences of editors, journalists, and producers, but for full effectiveness they require sanctions in the background. These might include the likelihood of disruption, unwanted controversy, withdrawal of patronage, and boycotts of advertisers, as well as the imposition of more directly political penalties. In the United States numerous advocacy groups used such tactics in the 1960s and 1970s to wrest from the networks rights to be con-

sulted over program ideas and scripts, and secured identifiable changes in prime-time programming as a result. Most groups, however, need strategies for coping with—if not managing—the news, because this reaches virtually all citizens on a daily basis.

News-management techniques tend to draw on several elements. One is the alert opportunism that is quick to recognize hooks in news originating elsewhere onto which material favorable to a group's ideas and policies can be pegged. Another common feature may be labeled "adaptation," including the creation of media events attractive to reporters; the casting of verbal material into language that is terse, crisp, and arresting; releasing statements in the name of an already prominent leader or personality; and issuing controversial challenges that other leaders and officials must answer. In effect, groups may also offer journalists what Oscar Gandy has called "information subsidies," comprising all those devices that groups can adopt to reduce the costs to reporters of obtaining newsworthy material. These include press releases that tell the story as journalists would write it, arranging events and conferences at times optimal for news organizations' deadlines and routines, and providing a digest of new information that cannot be obtained elsewhere without effort. Such measures not only make a reporter's job easier and less costly; they also stand a chance of converting him or her into a vehicle of group PROPAGANDA.

Nevertheless, groups that cater to journalistic needs in such ways may pay a price for the publicity they gain. A "spurious amplification" may set in (e.g., inflammatory rhetoric and extravagant demands to make stories more arresting), distorting what the group stands for. Personalization may convert a group's policy concerns into the drama of a leader's individual fight for justice. The need to fashion media events may upstage a group's more long-term goals, trivialize its objectives, and open it to ridicule. Organizations are often under pressure to suppress or mask their normal processes of internal debate; outbreaks of conflict within the group can be exploited for negative news stories. There is also a "here today, gone tomorrow" quality about publicity successes. Even if symbolic and token concessions have been extracted from legislators and officials, the bulk of effective policy may remain intact after the publicity peak has receded.

Pressure Groups and Democracy

Models of pressure-group activity highlight severe difficulties in attaining democratic accountability through communication in modern conditions. The earlier approach was only thinly democratic and favored established interests through its emphasis on inter-elite accommodation. Although the media-centric model appears to give greater weight to mass pref-

erences, their grounding in informed choice cannot be guaranteed. The outcomes of complex processes of mutual adaptation among pressure groups, politicians, and the institutions of journalism may be faddish (sporadically responsive to short-term opinion shifts) and simplistic (responsive to demands encapsulable in slogans and one-liners). Such dangers are to some extent countered, however, by the employment of specialist correspondents equipped to deal with issues in depth in their spheres, by the centrality of quality newspapers in national press systems, and by the survival among leading journalists of analytical and interpretive notions concerning their role in POLITICAL COMMUNICATION.

More insidious perhaps is a threatened subjection of public communication to Machiavellian perspectives of realpolitik. Not fully articulated yet, such perspectives presume, first, that group actors should not leave opinion formation to chance; second, that they are involved in a competitive struggle not only with their political opponents but also with the press itself, in a battle over what version of political reality will be communicated to the public; and third, that sentimental notions such as a free marketplace of ideas, the social responsibility of the press, and the role of the informed citizen in decision making should be discarded as illusions. Should such perspectives gain further ground, the democratic legitimacy of the public opinion process might seem increasingly hollow.

See also AGENDA-SETTING; POLITICIZATION.

Bibliography. Jay G. Blumler, "Election Communication and the Democratic Political System," in *Political Communication Research: Approaches, Studies, Assessments*, ed. by David L. Paletz, Norwood, N.J., 1987; idem, "Political Communication: Democratic Theory and Broadcast Practice," in *Public Opinion and Social Change*, ed. by Horst Baier, Hans Mathias Kepplinger, and Kurt Reumann, Opladen, FRG, 1981; Roger W. Cobb and Charles D. Elder, "Communication and Public Policy," in *Handbook of Political Communication*, ed. by Dan D. Nimmo and Keith R. Sanders, Beverly Hills, Calif., 1981; Oscar H. Gandy, Jr., *Beyond Agenda Setting: Information Subsidies and Public Policy*, Norwood, N.J., 1982; Todd Gitlin, *The Whole World Is Watching: Mass Media in the Making and Unmaking of the New Left*, Berkeley, Calif., 1980; Martin Harrison, *TV News: Whose Bias?* Hermitage, Berkshire, Eng., 1985; Gladys Engel Lang and Kurt Lang, *The Battle for Public Opinion: The President, the Press, and the Polls during Watergate*, New York, 1983; David L. Paletz and Robert M. Entman, *Media Power Politics*, New York, 1981; Gaye Tuchman, "The Newspaper as a Social Movement's Resource," in *Hearth and Home: Images of Women in the Mass Media*, ed. by Gaye Tuchman, Arlene Kaplan Daniels, and James Benet, New York, 1978.

JAY G. BLUMLER

PRINT-AUDIENCE MEASUREMENT

Until the mid-1930s, magazines and newspapers described the delivery of their editorial and ADVERTISING content by the number of copies sold. At the time, the major competitor to print media in the United States was commercial RADIO. To quantify delivery, radio developed the concept of *audience*, the total number of people tuned in to a given program. Print media—particularly magazines—responded with a similar concept, also labeled audience.

World War II delayed further development of methods and concepts. After the war, research on the conceptual development of print-audience measurement was resumed, particularly in the United States and western Europe. The data from such studies have come to be a major element in selling advertising space and evaluating media schedules.

Definitions

Although advertisers desire measures of exposure of readers to their advertising, most of the work in this field has aimed to develop measures of exposure to the average issue of a publication. The definition of *exposure* has been the number of persons exposed to one or more pages. Operationally, two methods have been dominant: (1) a recognition method in which respondents in a survey are asked if they recognize a particular issue or not, and (2) a recall method in which respondents are asked whether they have seen any issue of a particular publication for the first time in the last publication period (i.e., within the preceding week for weekly publications or within the preceding month for monthly publications). Respondents are commonly selected through standard sampling methodologies. If the surveys are perfectly administered and if respondents have perfect memory, the recognition and recall methods should provide the same or nearly the same results, namely, audience estimates that vary only because of sampling error.

Recognition Methods

These methods are used regularly in North America, seldom elsewhere. In the United States and Canada hundreds of magazines have been studied by these methods. The usual procedure is the "through-the-book" or "editorial interest" technique. In an interview that may also seek the demographic characteristics of the respondent and information about his or her recent purchasing behavior, the respondent is first shown logotypes of MAGAZINE titles and then asked which have been read, looked into, or held in one's hand over a relatively long period such as the preceding year. The purpose of this "screen" or

"filter" is to reduce the number of titles about which the respondent is asked more detailed questions. Next, for each title not eliminated in the first phase, the respondent is given a copy of the magazine and asked to page through it. These copies are "aged": for weekly magazines, issues about six weeks old are used; for monthlies, copies that are two or three months old. It is believed that such aging provides a time period in which most of the readership will have accumulated, but not so old that respondents will have forgotten their prior experiences. In most cases the issues are not complete; they have been "stripped" of advertising and of regular features that might be confused from one issue to another.

Respondents are told to indicate which editorial items look interesting. After going through the entire issue, respondents are asked whether this is the first time they have seen the particular issue. Those indicating they have seen it before are labeled readers of that particular issue. Because such interviewing goes on over all or most of the year, the total number of readers is designated the Average Issue Audience.

Usually a second interview is administered, either during the same session as the first one or several weeks later. The format of the interview is much the same, except that different issues are shown to the respondents. As a result, each individual can be said to be a reader of 0 of the 2 issues, 1 of the 2 issues, or 2 of the 2 issues. These data, when aggregated across individuals, are used to extrapolate the behavior of a subpopulation to more than two issues in order to develop measures such as *reach* (the total number of persons exposed to one or more issues out of *n*) or *average frequency* (the average number of exposures among the persons reached).

Recall Methods

Recall methods are used internationally. They are used in more surveys than recognition methods, and with more variations. As in the recognition methods, they usually begin with a screening phase, which reduces the number of titles about which further questions are asked. Next, if the publication is a weekly, the respondent is usually asked, "Have you read or looked at any issue of this publication within the last seven days?" Alternatively, the respondent may be asked when the last reading occurred. In some cases the question focuses on whether any issue of the publication has been seen for the first time during the seven-day interval.

Another set of data, collected either before or after the readership question, relates to frequency of reading. Respondents are asked to estimate their usual frequency of reading or their most recent frequency of reading, using a scale that is either numerical or verbal, such as "How many of the last twelve issues

have you seen?" or "Do you see every issue, most of the issues, or . . . ?" These data are often used to assign readership probabilities to individuals. For all the persons claiming to see six of every twelve issues, one can compute the "readership" from the recall question.

A variant of the recall method is the "read yesterday" technique, a forebear of the more common recall techniques. Here one asks respondents to recall what magazines they have read or looked into the day before. The rationale for this method is that it reduces the time period over which the respondent must recall behavior. When weighted properly (i.e., multiplied by seven for weeklies and thirty for monthly publications), such data can provide estimates of the Average Issue Audience. However, the technique does not provide data for reach and frequency extrapolations without additional questions being added. Also, to conform completely to the conceptual model, a question should be asked about issues read for the first time the day before.

Characteristics of the Methods

In the United States, where both general methods have been used, it has been found that they provide very different results for the titles studied. A controlled experiment by the U.S. Advertising Research Foundation showed that weekly magazines were estimated to have audiences 25 percent larger by the recall method, and monthly magazines almost 100 percent larger. Further, there were insufficient regularities to enable the results of one method to be calibrated to the other.

Several studies have been done with both methods in which respondents were surreptitiously seen reading magazines in public places and were then questioned at an appropriate later time. Generally, the results showed that 50 percent of the observed reading was not recaptured by these techniques. Studies of subscribers showed, in spite of their having received a magazine by mail, a failure to recapture almost 10 percent of the readers. These are considered estimates of *underclaiming*.

Several studies of overclaiming have also been published. In one, copies of a number of women's monthly magazines not yet distributed were used as stimuli for the recognition technique. After discounting for claimed regular readership, it was found that from 2 to 5 percent of nonreaders claimed readership. This could lead to a very large absolute number because it must be applied to the vast majority of persons who are not, in truth, readers of a particular title. Another study used the recall method with nonexistent or foreign titles. In this study also a significant percentage of the respondents claimed readership of these titles, and more than 50 percent

of those included in the Average Issue Audience claimed readership of half or more of the recent issues of these nonexistent titles.

Such findings clearly throw doubt on the validity of widely used measurement techniques. Assessing validity is difficult, requiring an independent, objective measure of readership behavior. In the increasingly competitive media environment, with its sharp struggles for advertising support, the search for reliable measures of reading behavior is certain to continue.

See also CONSUMER RESEARCH; NEWSPAPER: HISTORY; RATING SYSTEMS: RADIO AND TELEVISION.

Bibliography. Harry Henry, ed., *Readership Research, Theory and Practice: Proceedings of the First International Symposium (New Orleans, 1981)*, London, 1982; idem, ed., *Readership Research: Proceedings of the Second International Symposium (Montreal, 1983)*, Amsterdam, 1984.

ROBERT J. SCHREIBER

PRINTING

This entry consists of the following articles:

1. History of Printing
2. Cultural Impact of Printing

1. HISTORY OF PRINTING

Printing is a blanket word that embraces three different but related concepts. (1) It is usually taken to mean the multiplication of documents consisting of words, pictures, or other signs by means of some controlling surface, image, or set of codes. And the assumption is that all the resulting copies are identical or very similar to one another. (2) It is also taken to mean the transfer of ink or some other substance by impressing one surface against another. Such an action relates to (1) above but does not necessarily lead to multiplication. (3) An essential stage in some but not all printing is the assembly of prefabricated or predetermined characters (letters, numbers, and other signs) that relate to a particular language or set of languages.

Many printed items involve multiplication, impression, and the assembly of prefabricated characters. However, none of the three is essential to printing.

The Invention of Printing

It is confusion over what is meant by the word *printing* that leads us into difficulties when trying to answer the question When was printing invented? If we take printing to mean either the multiplication of more or less identical images or the transfer of ink by impressing one surface against another, the pro-



Figure 1. (*Printing—History of Printing*) The “Diamond Sutra” (Chin-kang-ching), 868 C.E. By permission of the British Library.

cess is well over a thousand years old. Textiles were printed in Europe as early as the sixth century C.E., and religious documents in Japan and Korea by the eighth century. These items were printed from wood blocks, which had their nonprinting parts cut away so that they were lower than the parts that printed. Large numbers of documents, mainly Buddhist texts, were printed by such means in East Asia before the close of the ninth century (see Figure 1). The earliest datable printed text is held to be the *Dharani Sutra*, which was printed in Korea between 704 and 751. See EAST ASIA, ANCIENT.

In the West the technique of printing wood blocks on paper probably dates from the late fourteenth century, although the first such items it is possible to date come from the early fifteenth century (see Figure 2). In both the East and the West the multiplication of large numbers of documents depended on the availability of a cheap substrate; it was no accident



Figure 2. (*Printing—History of Printing*) *Biblia Pauperum*, fifteenth century. Colored woodcut. Marburg/Art Resource, New York.

that printing was developed after the invention of paper and, in the case of printing in the West, after paper began to be manufactured in Europe. See WRITING MATERIALS.

If we take printing to mean the assembly of prefabricated or predetermined characters rather than the multiplication of copies, we come up with different dates for its invention. Again, printing has to be considered an invention that belongs to East Asia. The Chinese were responsible for the assembly of prefabricated characters made of clay as early as the mid-eleventh century, and of wood from the beginning of the fourteenth century. Metal types, made by sand casting, were produced in Korea in the early thirteenth century and were in wide use there in the first half of the fifteenth century.

How is it, then, that we commonly refer to printing as an invention of the mid-fifteenth century in Europe? The answer lies not just in Western parochialism and not just in the fact that the invention of movable type in the East came up against difficulties posed by languages with thousands of different characters. It lies partly in the methods used for the production of the prefabricated characters.

The person who is now generally credited with the invention of printing with prefabricated characters, usually called printing from movable type, is JOHANNES GUTENBERG, who was active first in Strasbourg and then in Mainz between about 1436 and 1460. Gutenberg was a goldsmith by trade, and his main contribution was to discover a way of casting letters from adjustable molds. Though we do not know precisely what his mold was like, it allowed the dimensions of the types to be controlled so that they could be fitted together physically. It also accommodated letterforms of varying widths and ensured that all letters aligned perfectly with one another visually.

Gutenberg's method of manufacturing type allowed him to imitate with remarkable success the letters and combinations of letters used by scribes (see WRITING). It is supposed that he initiated the techniques used by later manufacturers of type, called typefounders. These techniques involved the following stages. A letter was cut in relief and in reverse on the end of a steel shaft, called a punch. The end of the punch was struck into soft copper, thereby producing an indented letter the right way around. This piece of copper was tidied up, in which form it is known as a matrix, and was placed in an adjustable mold. Molten metal, composed mainly of lead, was then poured into the mold with a ladle, and within seconds a single piece of type was produced, with its character standing in relief and in reverse. Such pieces of type were subsequently brought together and prepared so that they aligned and fitted together perfectly. Once they were properly finished, they could

be kept in a way that allowed them to be brought together to form lines of words.

We credit Gutenberg with the invention of printing, rather than anonymous artisans in East Asia or their rival European claimants such as Coster of Haarlem (who was for a long while regarded as a serious contender), because Gutenberg devised a convenient and accurate way of replica casting that allowed him to bring together letters to form an infinite number of different messages. His invention proved good enough to compete with the work of the scribe in terms of appearance, and yet allowed for the editing and correction of texts.

Gutenberg's invention ousted writing only because it was competitive economically. The apparatus and materials needed for type manufacture were expensive, and both typesetting and composition were slow. These initial costs could be justified only if numerous copies were printed from the type. The discovery of a way of multiplying documents was therefore central to Gutenberg's invention, and the manufacture of a press must, therefore, be seen as a second and important part of it. Presses were not new: they had been used in the Rhineland for wine-making since Roman times and had been used in more recent years by papermakers too. We know nothing about the first printing presses, but in order to adapt the paper press to taking copies of documents Gutenberg must have made substantial changes to it. He also needed to develop an ink that took to his metal types more easily than the ink used by woodcutters, and it is supposed that he took advantage of the improvements made by painters in the use of oil as a medium for binding pigments.

Gutenberg's invention was a synthesis of many elements, none of which was absolutely new. Though he failed to make the most of it commercially, he set standards that ensured its exploitation by others and established the value of the use of interchangeable characters in the composition of text. The production for which he is best known is the forty-two-line Bible (ca. 1452–1456), known as the Gutenberg Bible, one of the greatest achievements in printing and a landmark in the history of BOOK production (see Figure 3).

The Origination of the Image

The word *origination* is used here to describe the stage at which the marks that appear in a printed item are determined. It is intended to cover, on the one hand, words and pictures and, on the other, physical materials and electronically coded data. In addition, it has to include methods that involve the production of the printing surface, as well as others that do not.

The origination of verbal messages in printing is

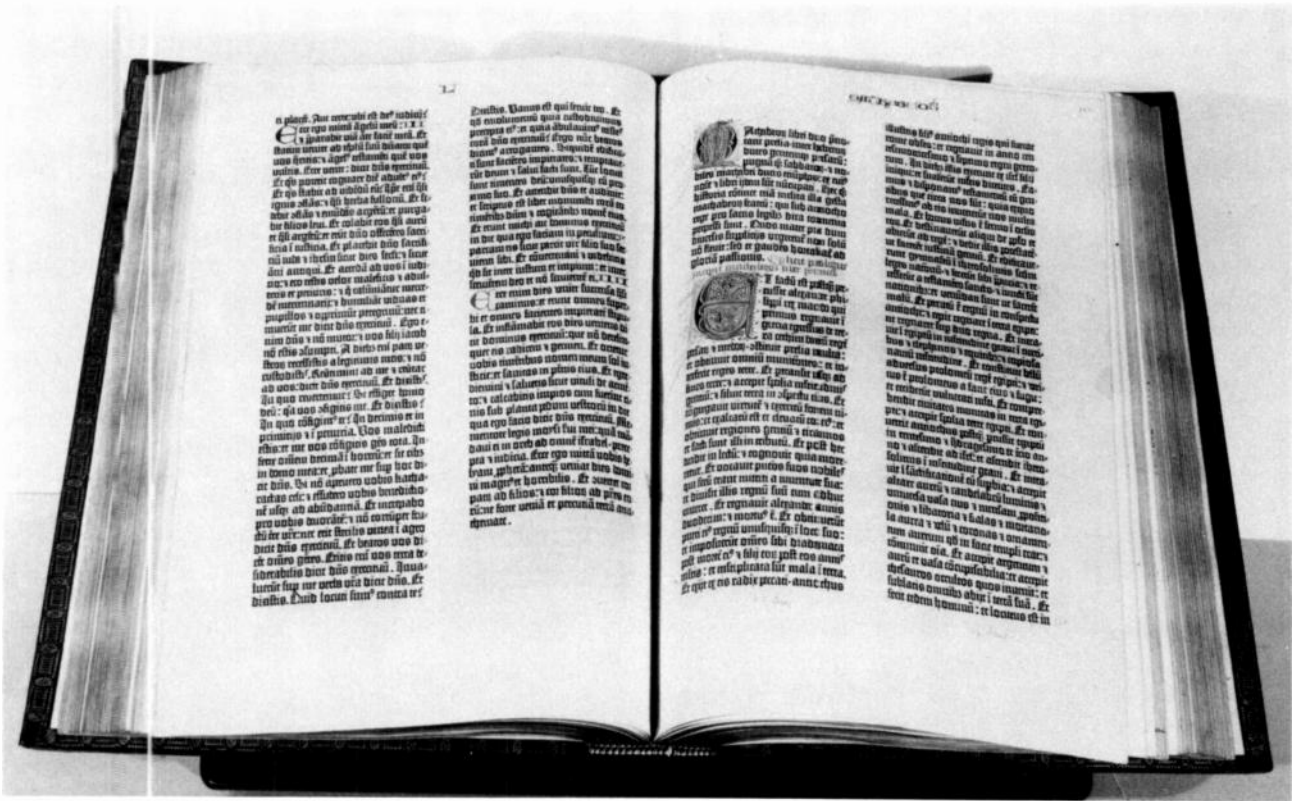


Figure 3. (*Printing—History of Printing*) Bible, Latin Vulgate. The Gutenberg Bible, Mainz, 1455(?), f.161v–162r. Rare Book Division, The New York Public Library. Astor, Lenox and Tilden Foundations.

known as typesetting, composition, or character assembly and involves the use of prefabricated or predetermined characters with standard spacing between them. Both the composition of characters into words and lines and their subsequent organization into larger groupings belong to the origination stage.

All type continued to be set by hand—in much the same way as it must have been set by Gutenberg—until the middle of the nineteenth century. And it was not until the end of the century that typesetting machines were widely adopted (Linotype, 1886; Monotype, 1897). These machines used a keyboard, which was an essential ingredient in streamlining the process of composition. Linotype and Monotype machines have largely been replaced by different kinds of composition systems, the most important of which is photocomposition, which had its roots in the late nineteenth century but was not adopted seriously until after World War II. With the growth of offset lithography, particularly from the 1970s, photocomposition quickly supplanted metal typesetting. The first generation of photocomposition machines made use of photographic negatives of characters, through which light passed to form images on paper or film. Later photocomposition machines stored the shapes of the characters as binary electronic codes. The

characters were given a material form by defining thousands of minute dots with a laser beam. All methods of photocomposition involve the exposure of characters on photosensitized paper or film, which can then be used to produce a printing surface.

The typewriter, which was first successfully marketed by E. Remington & Sons in 1874, can also be considered a means of composition. It appears to have been first used in connection with printing from the mid-1930s in the United States and the 1940s in Great Britain. With the introduction of electric typewriters, and particularly the IBM 72 Selectric composer in the mid-1960s, it was rapidly taken up as an alternative to metal composition and photocomposition.

In the early 1980s laser printing began to challenge photocomposition. As in most advanced photocomposition systems, laser-printed characters are defined digitally by electronic codes, but they are made visible by xerography. The process of laser printing involves the deposit of very fine black powder on paper in response to electrical charges determined by digital codes. The major conceptual difference between photocomposition and laser printing is that the first involves the origination of a controlling image, which is then used to produce a printing



Figure 4. (*Printing—History of Printing*) Albrecht Dürer, *Saint Augustin*, 1514. Engraving. Musée Condé, Chantilly. Giraudon/Art Resource, New York.

surface from which copies can be multiplied, whereas the second was designed to produce a series of separately generated documents and therefore combined origination, production of the printing surface, and multiplication. However, the images of the most advanced photocomposition machines have resolutions of over two thousand lines to the inch, whereas existing laser printers have resolutions of only three hundred to four hundred lines to the inch.

A disadvantage of all composition systems is that the user is limited to the particular characters available on the system. This ranges from eighty-eight on a standard typewriter to many thousands on the most flexible photocomposition systems. The only composition method that copes with all known characters in all languages is handwriting; for this as well as other reasons, handwriting has been used for the origination of the texts of some printed documents.

The origination of printed pictures was closely linked with the production of printing surfaces until the development of PHOTOGRAPHY. Consequently, printed images have reflected the limitations and possibilities of the various methods of production. One limitation printed pictures had in common for many centuries was that they were usually printed in monochrome—although many were hand-colored afterward. Isolated examples of color printing can be found from many periods, but commercial color printing in Europe can be said to have begun in earnest in the second half of the 1830s. The earliest printed pictures were simple outline images, which were intended to be colored by hand; but by the end of the fifteenth century, and principally through the contributions of Albrecht Dürer, methods of making marks were developed that allowed images to be printed in monochrome that did not require hand coloring. These methods involved cross-hatching and the use of swelling and tapering lines, and they became an essential part of the printmakers' repertoire for representing tone, form, and texture for almost four centuries (see Figure 4).

With the successful application of photography to printing processes in the second half of the nineteenth century, the artist was freed from the restrictions of print production methods. Consequently, any image an artist makes today can be reproduced tolerably well, whatever form it takes. The path to this achievement was opened up by the development of the halftone screen and three- and four-color process printing at the end of the nineteenth century (see Figure 5). Such methods have been supplemented by electronic techniques of scanning and digitally storing images, which allow them to be modified in innumerable ways without manual intervention.

The 1980s witnessed a converging of the techniques used for character assembly and picture origination. Electronic methods reduce all marks, however



Figure 5. (*Printing—History of Printing*) Jakob Husnik, screenprint, 1873. Gernsheim Collection, Harry Ransom Humanities Research Center, The University of Texas at Austin.

they are made, to a series of minute dots. The advantage of this technique was that, almost for the first time since the days of woodcut books, words and pictures could be originated and produced by exactly the same means. The bringing together of words and pictures in common technologies led to the use of the term *marking engine* to describe the means of originating marks, whatever their form.

The Printing Surface

Until the end of the eighteenth century there were two essentially different kinds of printing surfaces, relief and intaglio. In relief printing, ink was deposited on those parts of the printing surface that were higher than others. In intaglio printing, ink was forced into the hollows of a plate by inking its whole surface; the surface was then wiped clean, leaving the ink in the hollows.

Printing from type, woodcut, and wood engraving (a refined version of woodcut developed in the eighteenth century) all belong to the relief category. Copper engraving (often called line engraving), etching, aquatint, and mezzotint all belong to the intaglio category (see Figure 6). Copper engravings were made with a sharp tool, known as a burin, which cut grooves of varying depths into the surface of the

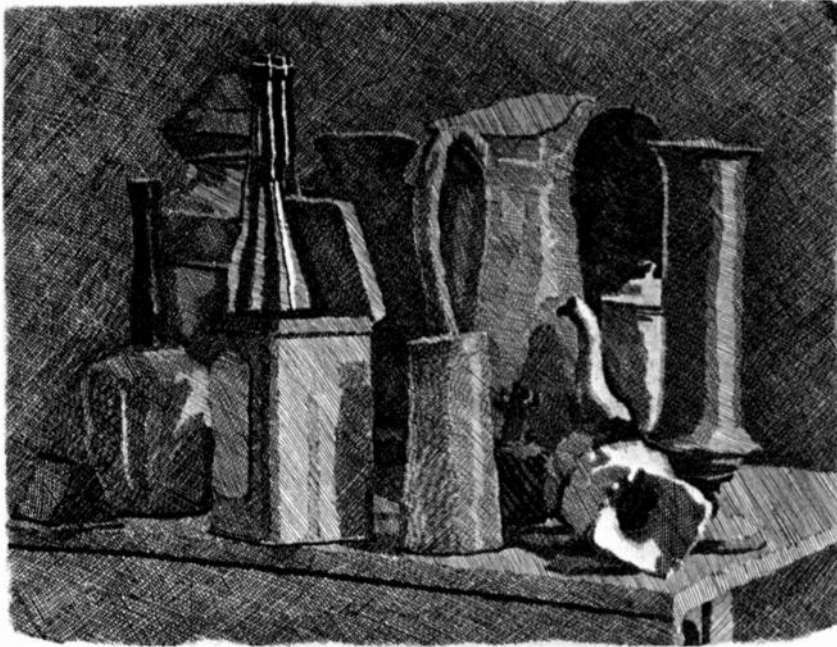


Figure 6. (*Printing—History of Printing*) Giorgio Morandi, *Still Life with Coffee Pot*, 1933. Etching, 11 11/16 by 15 3/8 in. Collection, The Museum of Modern Art, New York. Mrs. Bertram Smith Fund.

copper. Etching involved coating a copper plate with an acid-resistant ground, removing this ground where the image was to appear, and etching the exposed metal with acid. Both methods were developed in the fifteenth century. Mezzotint and aquatint were the tonal versions of copper engraving and etching and were developed in the seventeenth and eighteenth centuries, respectively.

This simple dual division of printing into relief and intaglio was shattered in the closing years of the eighteenth century when Aloys Senefelder, a Bavarian, invented lithography (see Figure 7). Lithography differs from the other processes discussed in that it does not depend on physical differences between printing and nonprinting areas, but on chemical (strictly speaking, electrical) differences. The process rests on the antipathy of grease and water and the attraction of these two substances to their like and to a common porous ground. The porous ground that was initially found most appropriate was limestone, hence the use of the word *lithography*. From the middle of the nineteenth century plates of aluminum and zinc were used increasingly instead of stone. In most branches of lithography the printing area is, to all intents and purposes, on the same level as the nonprinting area. For this reason lithography is regarded as the first example of the third main category of printing processes known as planographic.

The invention of lithography did more than introduce a new printing process. It was so versatile that it could imitate most of the existing processes tolerably well. What is more, it had as one of its major

branches the technique of transfer lithography; henceforth pictures and writing done on a specially prepared paper could be transferred to stone, and so too could prints produced by most of the other printing processes. This removed one of the greatest drawbacks of printing, and particularly of the printing of pictures. Hitherto, all printed images had to be made in reverse, so that they appeared the right way around when printed. The transfer process allowed an image to be drawn and written the right way around, since it was reversed when transferred to the stone.

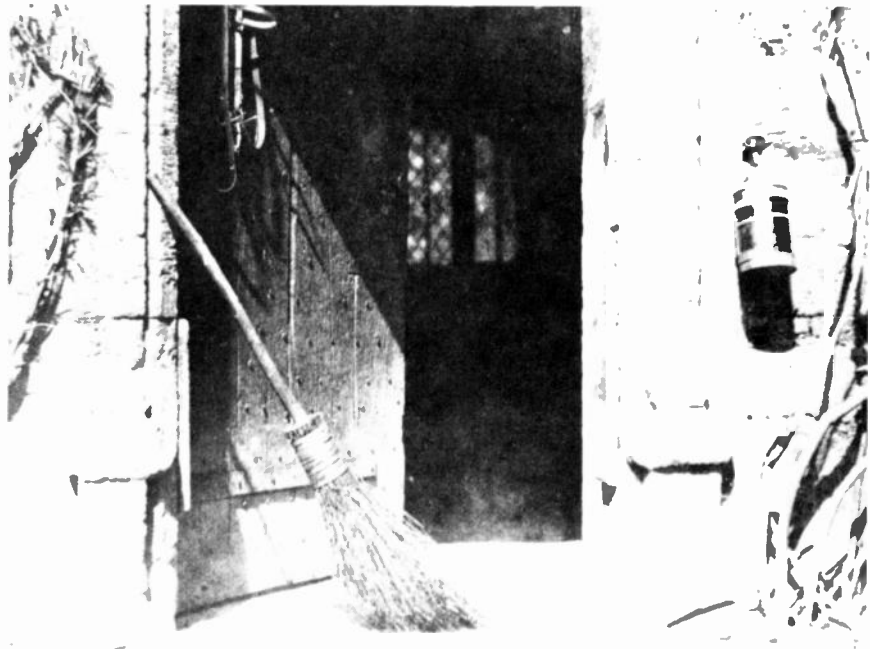
The ways in which printing surfaces could be made increased dramatically in the mid-nineteenth century, and one contemporary writer listed as many as 156 different ways of producing prints. In order to give longer runs in intaglio printing, steel came into use about 1820, and steel facing of copper plates about 1840. Wood engraving was refined and became the bread-and-butter method for producing pictures that needed to be printed with type, although copies usually were made by stereotyping (taking casts in lead) so that the original could be preserved and more than one press used at a time.

The greatest change in the manufacture of printing surfaces came with the application of the photographic process, which in the negative/positive version developed by William Henry Fox Talbot in 1839, can also be regarded as a kind of printing because it allowed for the multiplication of identical copies of an image (see Figure 8). Photography was applied to all the major printing processes before the close of the nineteenth century and began to be



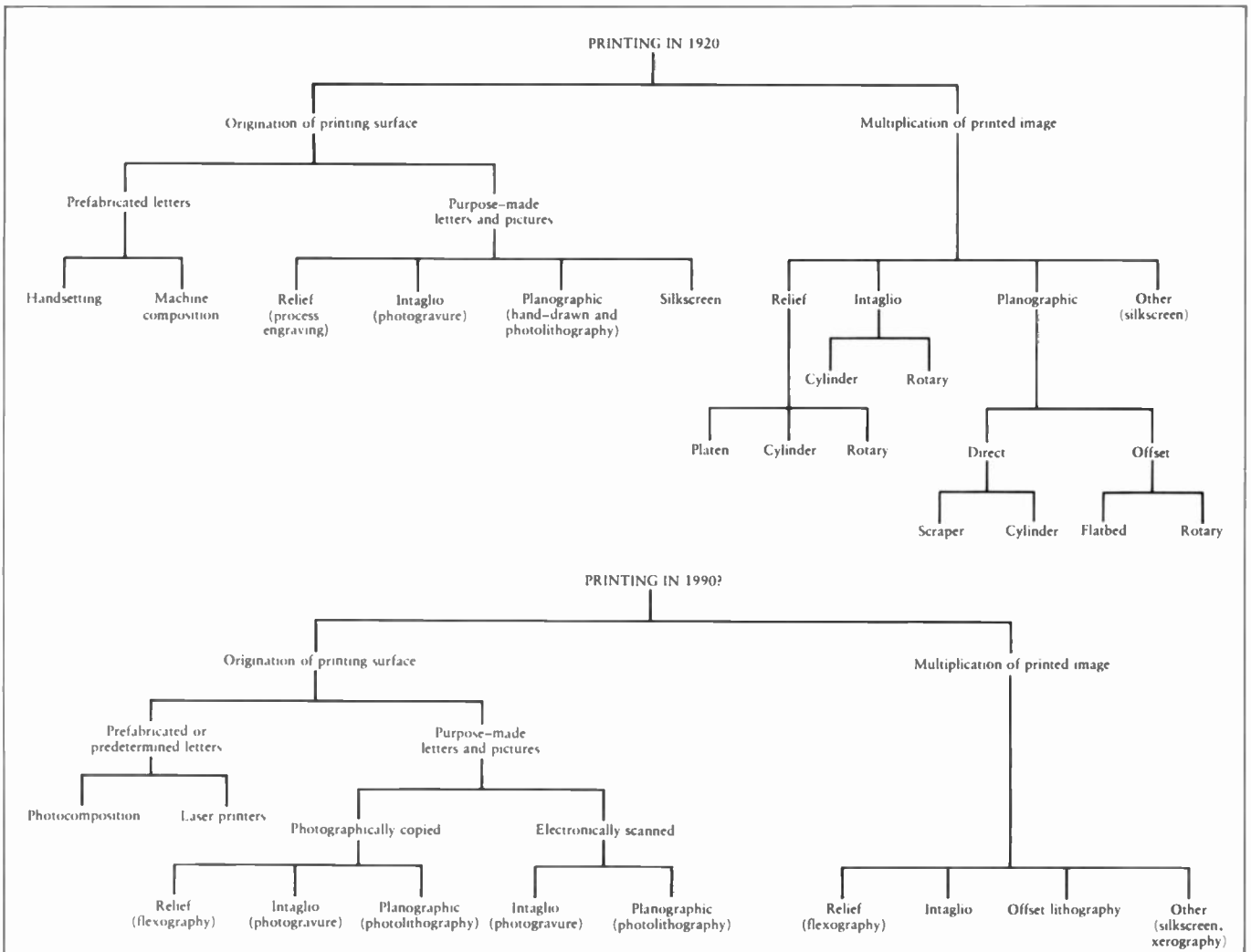
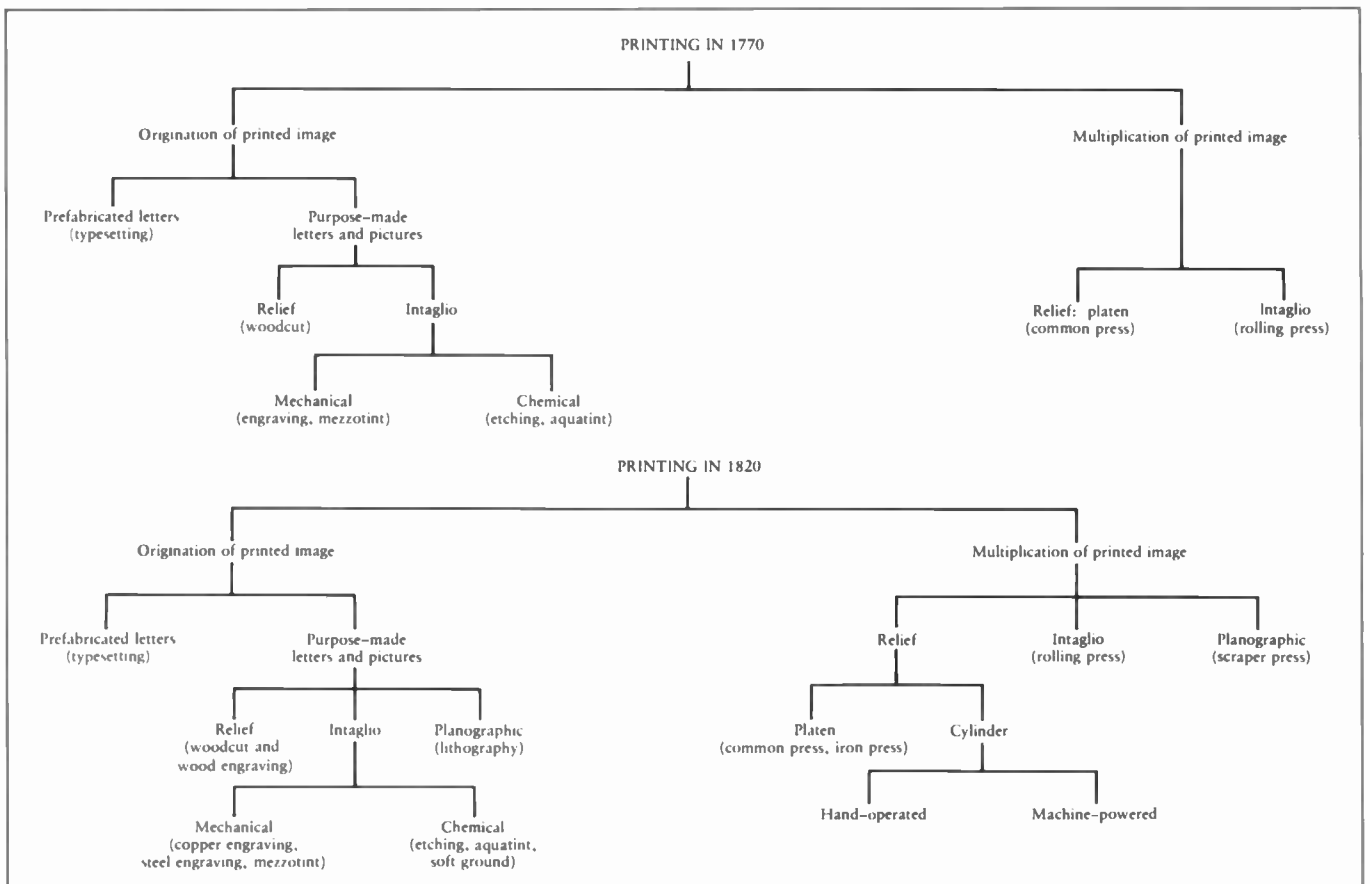
Figure 7. (*Printing—History of Printing*) Henri de Toulouse-Lautrec, *L'estampe originale*, 1893. Color lithograph: folio cover jacket. 17¼ by 23¼ in. The Metropolitan Museum of Art, New York, Rogers Fund, 1922. (22.82.1)

Figure 8. (*Printing—History of Printing*) William Henry Fox Talbot, *The Open Door*, 1843. Salt print from a paper negative. 5 7/16 by 7 3/8 in. Arnold H. Crane Collection, Chicago.



applied to lithography as early as 1850. The most important commercial application of photography to printing came with the manufacture of relief blocks, both line and halftone, by means of a combination of photography and chemical etching. Such blocks could be printed along with type and had effectively replaced wood engraving by the end of the nineteenth century.

In the twentieth century the most significant developments have been the commercial growth of screen printing, a stencil process that had its origins in the nineteenth century, and the extraordinary impact of xerography since World War II. Xerography was invented in the United States by Chester Carlson in 1938. It involves transferring a very fine black powder from an electrically charged surface to paper



and was used initially for office copying. It has developed rapidly in quality, and some machines enlarge and reduce and can produce images in color. Like photography and screen printing, xerography differs fundamentally from the traditional printing processes discussed above in that it does not depend on the pressure of one surface against another. Other printing methods have been developed, such as ink-jet printing, that likewise do not depend on pressure. They are described by the generic term *nonimpact printing*.

The Multiplication of Copies

Though the multiplication of copies is not an essential feature of what we call printing, the economic, social, and intellectual consequences of printing derive from its ability to produce identical copies of a document in large numbers. The ways in which printing can multiply copies may be considered in three categories: printing without presses, printing with the handpress, and printing with machines.

It seems likely that the earliest woodcuts were printed by pressing the block against the material on which it was to be printed or by placing it with the inked surface face up, laying the material on top, and rubbing the back of it all over. The invention of the printing press in the middle of the fifteenth century effectively did away with these methods, although the second of them continues to be used for proofing purposes in some crafts.

The oldest surviving printing presses probably date from no earlier than the seventeenth century. What we know about the earliest presses derives mainly from woodcut illustrations of the late fifteenth century. Such presses, known as common presses, were made of wood and were used mainly for printing pages from metal type (see Figure 9). The type was placed on the bed of the press and inked up with leather-covered inking balls. The paper to be printed was held in place with a tympan and frisket and was brought down above the type. The bed of the press was then positioned beneath a flat surface (the platen), which applied pressure to the type and paper by means of a worm screw and lever.

Common presses continued to be used into the middle of the nineteenth century, although by this time most had been replaced by iron presses. The first successful iron press was invented by Earl Stanhope and was in use in Great Britain by the first years of the nineteenth century. It was modeled on the common press in most respects, but allowed for larger areas to be printed with less effort with the help of a system of compound levers. It was followed



Figure 9. (*Printing—History of Printing*) An English printing office, 1619. The motto says, "In serving others, we are worn away." The Bettmann Archive/BBC Hulton.

by many other kinds of iron presses, the most popular being the Columbian (1817) and Albion (ca. 1822).

Such platen presses, which applied pressure across a broad area by forcing one flat surface against another, were appropriate for relief printing but not for intaglio or planographic printing. These other methods required greater pressure, and the simplest way of achieving this was to reduce the area over which pressure was applied. Intaglio printing solved the problem by laying the inked-up copper plate and paper on a plank and forcing them between two cylinders. The pressure was applied successively along a line and had to be great enough to force the ink out of the sunken lines onto the paper. Such presses are known as rolling presses; the first of them were made of wood, but from around 1830 they began to be made of iron.

The first successful lithographic presses also applied pressure successively, but by means of a wooden scraper. This was less rigid than a cylinder and was therefore less likely to break stones. Numerous kinds of scraper presses were manufactured in the first half of the nineteenth century. The ones that achieved greatest success were those that placed the lithographic stone on a bed, which was then pulled under pressure beneath a scraper. Most lithographic presses of this kind incorporated a tympan to protect the paper from the friction of the scraper and therefore owe something to both the platen press and the rolling press.

All the nineteenth-century handpresses discussed above continue to be used for craft purposes. They even continued to be used industrially for proofing purposes into the twentieth century, although long before this they had been replaced by powered machines when large runs were needed.

Steam power was first used in printing in 1810 when the German engineer Friedrich Koenig applied it to a platen press. However, Koenig's claim to fame as the inventor of the powered printing machine rests on his cylinder machine, which was first used to print *The Times* (London) on November 29, 1814. This machine had a moving bed on which the printing surface traveled successively under inking rollers and an impression cylinder, and this principle of working has formed the basis of a wide range of cylinder presses manufactured since. Successful powered machines were not developed for lithographic printing until shortly after the middle of the nineteenth century, and not for intaglio printing until almost the end of the century.

In the complicated history of powered machines two significant developments need to be highlighted: the rotary printing press and offset printing. In rotary presses the printing surface is cylindrical, and so too is the surface that applies the pressure. This means that it is possible to feed a continuous sheet of paper between the two cylinders, thereby doing away with the slow business of feeding individual sheets by hand. The rotary principle was first applied to calico

printing in the late eighteenth century. The first successful rotary machine for printing on paper relied on hand feeding and was used for printing parts of *The Times* (London) in 1848. But in the 1860s William Bullock in the United States and John Walter in Great Britain both manufactured reel-fed rotary machines. Presses of this kind printed something in the order of ten thousand copies an hour, compared with about two hundred sheets an hour (printed on one side of the sheet) on the handpresses of the early nineteenth century, and around one thousand sheets an hour on the first powered cylinder machines (see Figure 10).

The second major development, offset printing, was first explored commercially in connection with lithography. In offset printing an image is transferred from the printing surface to an intermediary (usually a rubber cylinder) and from there to the material that has to receive it. It was developed as a solution to the problem of printing on the insensitive surface of metal and was first practiced by the firm of Barclay and Fry in London in 1875. By about 1880 it was being used successfully for the printing of biscuit tins. Tin printers of this period used flat lithographic

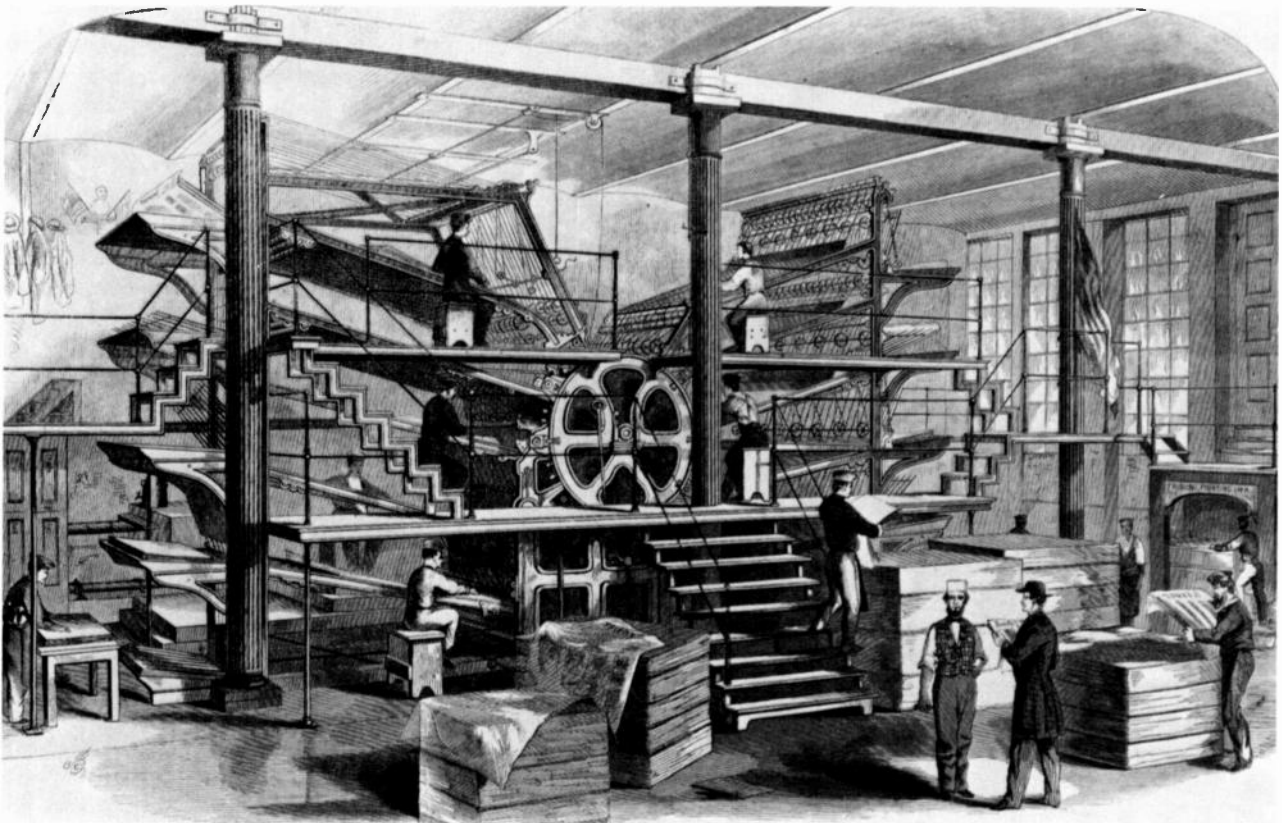


Figure 10. (*Printing—History of Printing*) The Hoe ten-feeder horizontal rotary printing machine. From a catalog of the firm R. Hoe and Co., 1867. Smithsonian Institution, Washington, D.C. Photo No. 73-5136.

stones; however, the real significance of the offset principle of printing was not felt until it was adapted to rotary printing and used for printing on paper. This was first proposed in the United States in 1903 by Ira W. Rubel, who seems to have stumbled on the offset idea quite independently as a result of accidentally offsetting a print from a rubber impression cylinder. Rubel developed his idea commercially, and within a few years offset presses were being manufactured in the United States and Great Britain. Though a latecomer in the history of printing, offset lithography accounts for the majority of the world's printing.

Apart from xerography, the twentieth century did not witness fundamental changes in the ways in which documents were multiplied. Improvements were made in such areas as the printing of two, four, or more colors at one pass through the press, in methods of drying, and in the computer control of inking, drying, and pressure.

Electronic Publishing

All advanced printing of the last quarter of the twentieth century involved computing at the composition stage, and most computers need a printer or other marking engine to produce marks on paper (*see* COMPUTER: IMPACT). But printing and computing began to converge in a more coherent way in an area called ELECTRONIC PUBLISHING. The term, which is not used very precisely, describes the electronic capture, storage, handling, and dissemination of information from credited sources, such as publishers, and also the much less formal electronic communication between individuals and groups of people. It is used when a large part of the communication is electronic, whether the material is presented on-screen, on paper, or in both forms. Only such communication on paper would normally be called printing, but it is becoming increasingly difficult to consider printing separately from other means of presenting information to users. In its fully developed form, electronic publishing may include the electronic capture, storage, handling, transmission, production, and dissemination of information, and even the involvement of the user in selecting what information is presented. But the activity would still be called electronic publishing even if some of these stages were omitted—for example, when the production is done by printing (photocomposition and offset lithography).

The origination of verbal messages, called data capture by computer scientists, is being done increasingly on microcomputers equipped with word-processing software or on dedicated word processors. Such devices have simple keyboards and are widely available and easy to use; this means that authors can do their own typing. However, this approach to

text origination means that codes have to be inserted, either on the microcomputer or at a later stage, if the material is ever to look like traditional printing. These codes are necessary to tell the typesetting system how to format the material and where to use such typographic variants as italic and boldface types. An alternative approach, if the material has already been cleanly typed or printed, involves the use of an optical character recognition (OCR) machine. Such "reading" machines began to be developed shortly after World War II, but they have not been taken up for text composition as quickly as was predicted. Speech input devices of a fairly rudimentary kind have also been developed, and it is possible that improved versions will provide yet another means of capturing straightforward data. Pictorial images used in electronic publishing are scanned and coded electronically so that they can be stored and, if necessary, manipulated in many ways. Since both pictorial and verbal images are reduced to binary codes, they can be brought together and handled in precisely the same way. This facility allows for the visual arrangement of pictures and words on computer-controlled page-make-up terminals.

The real advantages of electronic publishing lie not so much at the data-capture stage, but in what can be done with the data afterward. The storage and handling of data really belong to computer science; they are referred to here because, like Gutenberg's method of manufacturing type in relation to printing, they lie at the heart of electronic publishing. They will probably determine the degree of its economic success, and it seems likely that electronic publishing will succeed only if the data, once captured, can be used for a variety of purposes. For example, different selections of data might be made available for different readerships, or users may themselves choose the selection they want through an interactive terminal. Additionally, however, electronic publishing offers the advantage of storing vast quantities of data in a compact and relatively cheap form, such as the compact disc.

Developments in SATELLITE communications make it possible for information to be transmitted around the globe in coded form in a matter of seconds. Such data can be reconstructed as readable information where it is required. Techniques of this kind are regularly used for newspaper production, and similar "facsimile" methods of transmitting graphic messages are also available for office communication through public telephone networks. A transmission stage, which is foreign to traditional printing, is central to much electronic publishing; and some publishers provide users with a choice between reading information on-line to the computer and on a screen, or in a paper version. An equally important development is on-demand printing and publishing—that

is, the production of a document when you want it and, possibly, in the form that suits you best.

Developments in electronic publishing in the last quarter of the twentieth century have led to changes in communication far greater than those that came about with Gutenberg's invention of movable type in the mid-fifteenth century. They have brought pictures and words together and have opened the way for the combination of audio and visual messages. We are too close to the beginnings of electronic publishing to see how it is likely to develop, but it is already clear that it has complicated the relatively simple interpretations of printing outlined above. The use of predetermined characters is as central to most electronic publishing as it was to Gutenberg's invention, but printing has become part of a larger communication system and just one of a number of means of making available messages stored as binary codes.

See also PUBLISHING; TYPOGRAPHY.

Bibliography. W. Turner Berry and H. Edmund Poole, *Annals of Printing: A Chronological Encyclopaedia from the Earliest Times to 1950*, London, 1966; Harry Carter, *A View of Early Typography up to about 1600*, Oxford, 1969; Geoffrey Ashall Glaister, *Glaister's Glossary of the Book*, 2d ed., Berkeley, Calif., and London, 1979; William M. Ivins, *Prints and Visual Communication*, London, 1953, reprint Cambridge, Mass., 1969; Lucien Alphonse Legros and John Cameron Grant, *Typographical Printing-Surfaces: The Technology and Mechanism of Their Production*, London and New York, 1916; Joseph Moxon, *Mechanick Exercises on the Whole Art of Printing, 1683-4*, ed. by Herbert Davis and Harry Carter, 2d ed., London, 1962, reprint New York, 1978; Victor Scholderer, *Johann Gutenberg: The Inventor of Printing*, London, 1963; John W. Seybold, *The World of Digital Typesetting*, Media, Pa., 1984; Hans W. Singer and William Strang, *Etching, Engraving, and Other Methods of Printing Pictures*, London, 1897; Michael Twyman, *Printing 1770-1970: An Illustrated History of Its Development and Uses in England*, London, 1970.

MICHAEL TWYMAN

2. CULTURAL IMPACT OF PRINTING

Printing made its strongest initial cultural impact on the literate elites who had always been dependent on scribes (see section 1, above). The spread of LITERACY and the development of mass markets for the printed word followed much later. It is, therefore, the shift from one kind of literate culture to another that constitutes the greatest cultural significance of the typographical revolution—certainly in its early years. Some of the most important components of this shift include (1) the increased dissemination of ideas and

information, (2) increased opportunities for standardization, (3) the reorganization of contents and layout, (4) the potential for improved editions, and (5) preservation.

Increased dissemination. Patterns of BOOK consumption were significantly affected by increased production. While more copies of any given text were spread, different texts were also being brought together for the single reader to peruse. In some regions printers produced more scholarly texts than they could sell and flooded local markets. In all regions a given purchaser could buy more books at lower cost and bring them into the study or LIBRARY. In this way the printer, who duplicated a seemingly antiquated backlist, was still providing the scholar with a richer, more varied literary diet than had been provided by the scribe.

More abundantly stocked bookshelves obviously increased opportunities to consult and compare different texts. Some medieval coastal maps had long been more accurate than many ancient ones, but few eyes had seen either. Much as maps from different regions and epochs were brought into contact in the course of preparing editions of atlases, so too were technical texts brought together in certain physicians' and astronomers' libraries. Contradictions became more visible, divergent traditions more difficult to reconcile. Even while confidence in old theories was weakened, the enriched READING matter also encouraged the development of new intellectual combinations and permutations.

Cross-cultural interchange stimulated mental activities in contradictory ways. The first century of printing was marked above all by intellectual ferment and by a somewhat wide-angled, unfocused scholarship. Certain confusing cross-currents may be explained by noting that new links between disciplines were being forged before old ones had been severed. In the age of scribes, magical acts were not clearly distinguished from mechanical crafts; mathematical formulas were easily confused with cabalistic charms. When technology went to press, so too did a vast backlog of occult lore, and few readers could discriminate between the two. Hieroglyphs were set in type more than three centuries before their decipherment, and these sacred carved letters were imbued with significant MEANING by readers who could not read them. They were also used simply as ornamental motifs by architects and engravers. Given baroque decoration on the one hand and complicated interpretations by scholars, Rosicrucians, or Freemasons on the other, the duplication of Egyptian picture WRITING throughout the Age of Reason presents modern scholars with puzzles that can never be solved. By the end of the Enlightenment the still undeciphered hieroglyphs had come to stand for everything that was secret and everything that was known (see

EGYPTIAN HIEROGLYPHS). Thus one should not think only about new forms of enlightenment when considering the effects of printing on scholarship. New forms of mystification were encouraged as well.

In this light it seems necessary to qualify the assumption, expressed by the historian Myron Gilmore, that the first half-century of printing gave "a great impetus to wide dissemination of accurate knowledge of the Western sources of thought, both classical and Christian." The duplication of the Hermetic writings, the Sybilline prophecies, the hieroglyphs of "Horapollo," and many other seemingly authoritative, actually fraudulent esoteric writings, worked in the opposite direction, spreading inaccurate knowledge.

Primers, ABC books, catechisms, calendars, and devotional works were widely disseminated by early printers. Increased output of such materials, however, was not necessarily conducive either to the advancement of scholarship or to cross-cultural exchange. Catechisms, religious tracts, and Bibles filled some bookshelves to the exclusion of all other reading matter. The new wide-angled, unfocused scholarship went together with a new single-minded, narrowly focused piety. At the same time practical manuals also became more abundant, making it easier to lay plans for getting ahead in this world—possibly diverting attention from uncertain futures in the next one. It would be a mistake to press this last point too far, however. During the first centuries of printing the output of conflicting astronomical theories and tables offered very uncertain guidance. Devotional manuals and spiritual guidebooks provided clear-cut advice. Readers who were helped by access to road maps, phrase books, conversion tables, and other aids were also likely to place confidence in guides to the soul's journey after death. The fixing of precise dates for the Creation or for the Second Coming occupied the very same talents that developed new astronomical tables and MAP PROJECTION techniques.

As these comments suggest, during the first century of printing many dissimilar effects came relatively simultaneously. Both religiosity and secularism intensified. In addition to disseminating new works and ideas, printing increased the circulation of traditional materials—a fact often overlooked by modern scholars attempting to identify new trends in the era of early printing. Many medieval world-pictures were duplicated and distributed more rapidly during the first century of printing than they had been during the so-called MIDDLE AGES; they became more visible to poets and playwrights of the sixteenth century than they had been to minstrels and mummers of the thirteenth century. Furthermore, given the use of woodcuts and engravings to depict medieval cosmologies, these older world-pictures were not merely

being preserved but were being rendered in new visual forms. In view of such considerations, how printing changed patterns of cultural DIFFUSION deserves much more study than it has yet received. Some scholars have emphasized the standardizing effects of printing. But individual access to diverse texts is a different matter from bringing many minds to bear on a single text; the former issue is apt to be neglected by too exclusive an emphasis on standardization.

Opportunities for standardization. Although it has to be considered in conjunction with many other issues, standardization certainly does deserve closer study. While the books produced by the early printing presses did not achieve the degree of standardization that became possible later, copies were sufficiently uniform for scholars in different regions to correspond with one another about the same citation and for the same emendations and errors to be spotted by many eyes.

The implications of standardization go beyond textual emendations and errors. They are also relevant to calendars, dictionaries, and other reference guides and especially to maps, charts, diagrams, and other visual aids. The capacity to produce uniform spatiotemporal images is often credited to the invention of writing without considering how difficult it is to produce many identical copies of such images by hand. The same point applies to systems of notation, whether musical or mathematical. Indeed, the standardization of mathematical tables, diagrams, and maps helps to explain why the exact sciences (such as astronomy) advanced so rapidly during the age of the handpress.

Standardization also entered into every operation associated with TYPOGRAPHY, from the replica casting of precisely measured pieces of type to the subliminal impact upon scattered readers of encounters with identical type styles, printers' devices, and title page ornamentation. Calligraphy itself was affected. Sixteenth-century specimen books stripped diverse scribal hands of personal idiosyncrasies. They did for handwriting what pattern books did for dress-making, furniture, and architectural motifs or ground plans and what style books did for typography itself.

Reorganization of contents and layout. Concern with surface appearance necessarily governed the handwork of the scribe, who was fully preoccupied trying to shape and space uniform letters in a pleasing, symmetrical design. An altogether different procedure was required to give directions to compositors; every scribal text that came into the printer's hands had to be reviewed in a new way. Within a generation the results of this review were being aimed in a new direction—away from fidelity to scribal conventions and toward serving the convenience of the readers. The resulting innovations began to appear in the era

of the incunabula; they made texts more lucid and intelligible. Competition between printers encouraged the relatively rapid adoption of any innovation that won favor with the purchasers. In short, providing built-in aids to the reader became for the first time both feasible and desirable.

The tasks faced by early printers led to the invention of new tools, production methods, and symbols. Scholars concerned with modernization or rationalization might profitably think more about the new kind of brainwork fostered by the silent scanning of maps, tables, charts, diagrams, dictionaries, and grammars. They also need to look more closely at the routines pursued by those who compiled and produced such reference guides. These routines were conducive to a new *esprit de système*. In the preface to his pioneering atlas, Abraham Ortelius likened his *Theatrum* to a "well furnished shoppe" that was so arranged that readers could easily find whatever instruments they might want to obtain.

The use of arabic numbers for pagination suggests how the most inconspicuous innovation could have weighty consequences—in this case, more accurate indexing, annotation, and cross-referencing. Most studies of printing have quite rightly singled out the increasing frequency of title pages as the most important of all the changes in format. How the title page contributed to the cataloging of books and the bibliographer's craft scarcely needs to be spelled out. More attention needs to be addressed to the contribution of this innovation to new conventions of placing and dating in general.

Improved editions. When turning out successive editions of a given reference work or set of maps, printers did not only compete with rivals and improve on their predecessors; they were also able to improve on their own performance. The sequence of editions turned out by a Bible printer (such as Robert Étienne) or an atlas maker (such as Ortelius) shows how the drift of scribal culture had been not merely arrested but actually reversed.

In making this point one is likely to run up against objections posed by scholars who have learned to be skeptical about the claims made on behalf of early printers. Prefaces that repeatedly boast of improvements are belied by actual evidence of uncritical copying. Some comparisons of scribal with printed versions show how an age-old process of corruption could be aggravated and accelerated after print. But in the very course of accelerating a process of corruption, which had gone on in a much slower and more irregular fashion under the aegis of scribes, the new medium made this process more visible to scholars and for the first time offered a way of overcoming it. In the hands of ignorant printers trying to make quick profits, texts tended to get garbled at an ever more rapid pace. But under the guidance of techni-

cally proficient masters, the new technology also provided a way of transcending the limits that scribal procedures had imposed upon earlier masters. Under proper supervision, fresh observations could at long last be duplicated without being blurred or blotted out over the course of time.

Some sixteenth-century editors and publishers simply duplicated old compendiums. But others created vast networks of correspondents and solicited criticism of each edition, sometimes publicly promising to mention the names of readers who sent in new information or who spotted errors. The requests of publishers often encouraged readers to launch their own research projects and field trips, which resulted in additional publications. Further interchanges set off new investigations, the accumulation of more data making necessary more refined CLASSIFICATION, and so on. The sequence of improved editions and ever-expanding reference works was a sequence without limits—unlike the great library collections of the age of scribes.

Insofar as the change from a sequence of corrupted copies to a sequence of improved editions encompassed all scholarly and scientific fields, it probably affected the intellectual community as a whole. It seems likely that the invention of printing contributed to an increasing acceptance of the idea of progress and a fading away of the earlier "decay-of-nature" theme. A series of new and augmented editions made the future seem to hold more promise of enlightenment than the past.

The new process of data collection initiated by printing helps to explain why systems of charting the planets, mapping the earth, synchronizing chronologies, codifying laws, and compiling bibliographies were all revolutionized before the end of the sixteenth century. In each instance Hellenistic achievements were first reduplicated and then, in a remarkably short time, surpassed. In each instance the new schemes, once published, remained available for correction, development, and refinement. Successive generations could build on the work left by sixteenth-century polymaths instead of trying to retrieve scattered fragments of it. The intellectual revolutions of early modern times owed much to the features that have already been outlined. But the great tomes, charts, and maps that are now seen as milestones might have proved insubstantial had not the preservative powers of print also been called into play.

Preservation. Of all the new features introduced by the powers of print, preservation is possibly the most important. To appreciate its importance, we need to recall the conditions that prevailed before texts could be set in type. No manuscript, however useful as a reference guide, could be preserved for long without undergoing corruption by copyists, and even this sort of preservation rested precariously on

the shifting demands of local elites and a fluctuating incidence of trained scribal labor. Insofar as records were seen and used, they were vulnerable to wear and tear. Stored documents were vulnerable to moisture, vermin, theft, and fire. However they might be collected or guarded, their ultimate dispersal and loss was inevitable. Information that was transmitted by writing from one generation to the next had to be conveyed by drifting texts and vanishing manuscripts.

The incapacity of scribal culture to sustain a simultaneous advance on many fronts in different regions may be relevant to the problem of the RENAISSANCE. Italian humanist book hunters, patrons, and dealers tried to replenish a diminished supply of ancient texts that were being neglected by scribes serving medieval UNIVERSITY faculties. Their efforts have been heralded as bringing about a permanent recovery of ancient learning and letters. However, if one accepts the criteria of totality and permanence to distinguish prior revivals from the Renaissance, then probably the advent of the scholar-printer should be heralded instead. Once Greek type founts had been cut, not even the disruption of civil order in Italy, the conquest of Greek lands by Islam, or the transition into Latin of all major Greek texts were enough to cause the knowledge of Greek to wither again in the West. A cumulative process of textual purification and continuous recovery had been launched.

Typographical fixity also encouraged more explicit recognition of individual innovations and the staking of personal claims to specific discoveries and creations. Once the rights of an inventor could be legally fixed, profits from innovations could be achieved by open publicity, and individual initiative could be released from guild protection. It is no accident that printing was itself the first invention to become entangled in priority disputes. Rival national claims on behalf of the German JOHANNES GUTENBERG versus the Dutchman Laurens Coster and the Frenchman Nicolas Jenson set the pattern for many later arguments.

By 1500 laws were already being devised to accommodate the patenting of inventions and the assignment of literary properties. Competition over the right to publish a given text raised controversial issues involving MONOPOLY and piracy, and possessive individualism began to characterize the attitude of writers to their work (see COPYRIGHT). In the words of Michael B. Kline, the "terms of plagiarism and copyright did not exist for the minstrel. It was only after printing that they began to hold significance for the author."

The accumulation of fixed records also made it feasible for each new generation to begin where the prior one had left off. In the age of scribes distinction

between the recovery of a lost art and the discovery of a new one had been blurred. When unprecedented innovations had occurred, there was no sure way of recognizing them as such, for no one could ascertain precisely what had been known—either to prior generations within a given region or to contemporary inhabitants of other lands. "Steady advance," as George Sarton says, "implies exact determination of every previous step." In his view, printing made this determination "incomparably easier." He may have understated the case. Progressive refinement of certain arts and skills could and did occur in the age of scribes, but no sophisticated technique could be securely established, permanently recorded, and stored for subsequent referrals.

During the early years of printing map publishers began to produce new and improved editions of atlases and star maps, which showed that modern navigators and stargazers knew more things about the heavens and earth than did ancient sages. New editions of ancient texts began to accumulate, uncovering more schools of ancient philosophy than had been dreamed of before. Scattered attacks against one authority, by those who favored another, provided ammunition for a wholesale assault on all received opinion. Incompatible portions of inherited traditions could be sloughed off, partly because the task of preservation had become less urgent. Copying, memorizing, and transmitting absorbed fewer energies since reference books were no longer blotted out or blurred with the passage of time.

The preservative powers of print thus help to explain the victory of the moderns over the ancients as well as the increasing popularity of ideas of progress during the age of the handpress. On the other hand, five hundred years of printing and the concomitant accumulation of fixed records have brought about problems of overload that were unimaginable in the age of scribes. Each new generation of artists and writers has had to meet the unprecedented challenges posed by an ever-growing record of the past.

See also ARCHIVES; AUTHORSHIP; CARTOGRAPHY; PAMPHLET; PUBLISHING; WRITING MATERIALS.

Bibliography. Richard Altick, *The English Common Reader: A Social History of the Mass Reading Public*, Chicago, 1957; Curt Buhler, *The Fifteenth Century Book: The Scribes, the Printers, the Decorators*, Philadelphia, 1960; Elizabeth L. Eisenstein, *The Printing Press as an Agent of Change: Communications and Cultural Transformations in Early Modern Europe*, 2 vols., Cambridge and New York, 1979; Lucien Febvre and Henri-Jean Martin, *The Coming of the Book (L'apparition du livre)*, trans. by D. Gerard, London, 1976; Myron Gilmore, *The World of Humanism 1453–1517*, New York, 1952; Harvey J. Graff, ed., *Literacy and Social Development in the West: A Reader* (Cambridge Studies in Oral and Literate Culture, No. 3), Cambridge,

Mass., 1982; William M. Ivins, *Prints and Visual Communication*, London, 1953, reprint Cambridge, Mass., 1969; Michael B. Kline, *Rabelais and the Age of Printing* (Études Rabelaisiennes IV, Travaux d'humanisme et renaissance LX), Geneva, 1963; Martin Lowry, *The World of Aldus Manutius*, Ithaca, N.Y., 1979; Walter J. Ong, *Orality and Literacy: The Technologizing of the Word*, London and New York, 1982.

ELIZABETH L. EISENSTEIN

PRIVACY

Privacy as a social value and a legal right encompasses a variety of related claims to personal autonomy generally understood as "a right to be let alone." In the context of changing modes of communication between and about individuals, privacy also means the right to exercise control over information about oneself. These principles have a long history and have continued to evolve as new technologies pose increased threats to individual privacy.

Until the end of the nineteenth century the right of privacy was considered almost coextensive with private property and protection against trespass. The struggle in England over "general warrants" and the American colonists' battle against "writs of assistance" (used by the crown to enforce tax and tariff measures) led to a fundamental expression of this concept of privacy in the Fourth Amendment to the U.S. Constitution, which guarantees "the right of the people to be secure in their persons, houses, papers, and effects against unreasonable searches and seizures."

However, the communications revolution, with its increased threats to privacy, led to an expansion of the legal concept of privacy. The development of such mass media as newspapers, magazines, and television led to the development of a privacy right against intrusion into personal affairs and against unwanted publicity. New forms of communication such as the TELEPHONE led to laws protecting personal communications from unwarranted interception by government or individuals. And the advent of the computer and the computerized DATA BASE made it necessary to give individuals control over the collection, use, and dissemination of personal and public information held by government and business. New communications technologies continue to pose privacy issues that are yet to be resolved. See COMPUTER: HISTORY; MAGAZINE; NEWSPAPER: HISTORY; TELEVISION HISTORY.

The law of unwarranted intrusion. In the late nineteenth century, which witnessed the rapid rise of mass-circulation newspapers and magazines, two U.S. lawyers, Samuel D. Warren and Louis Brandeis (who later became a noted Supreme Court justice), pub-

lished an article in the *Harvard Law Review* in which they advocated that privacy law should protect the individual not only from unwarranted trespass as embodied in the Fourth Amendment but also from emotional distress caused by unwarranted intrusion into private affairs. Written in an era of yellow journalism, which relied on sensationalism and gossip to sell papers, the article suggested a new legal right that would later form the basis for even broader concepts of informational privacy.

As a result, laws in all Western countries recognize the right of private individuals to sue a newspaper or a television station for unwarranted invasion of privacy. Such rights generally extend to unauthorized use of one's name or likeness in ADVERTISING. They may also extend to fiction that is recognizably based on someone's private experience or to sensationalized journalistic "revelations" about individuals. In the United States such rights are severely limited by the First Amendment to the Constitution, which guarantees freedom of speech and of the press. The rights are especially limited in the case of "public persons," such as officeholders or others who have sought the limelight themselves. If information is at all newsworthy, broad latitude is granted to the press to publish it. In a number of countries some protection against unwarranted invasion of privacy is guaranteed by statutes that limit the information that public agencies or private entities such as banks and credit companies may make public. Other laws permit individuals to sue any person who invades their personal privacy.

Privacy in communications. The development of the telephone paved the way for another major expansion of the right of privacy. In *Olmstead v. United States* (1927) the U.S. Supreme Court had to decide whether government interception of a phone conversation by a wiretap was a search and seizure under the Fourth Amendment. The majority held that the interception was not a violation because nothing tangible was seized. Justice Brandeis, in a dissenting opinion, argued that the Fourth Amendment must be interpreted to protect "the right to be let alone—the most comprehensive of rights and the right most valued by civilized man," and that a wiretap was as intrusive if not more so than other searches and seizures. Four decades later, in 1967, the Court adopted the Brandeis view; it decided that citizens had a "reasonable expectation of privacy" in private telephone conversations and that the government must obtain a judicial warrant based on probable cause in order to intercept wire communications.

The standards regarding when and how the government could legally intercept private telephone conversations were established for the United States by the Safe Streets Act of 1968. The act prohibited the interception of aural communication—commu-

nication that can be overheard by the ear—unless the government first obtained a warrant and met standards aimed at minimizing intrusion. The legislators could not know at the time that the law would put electronic mail—which was still in the planning stage—in an uncertain position, for it is not aural communication. It travels over telephone lines and may substitute for a phone call, but it is technologically different, raising a new set of issues.

Computers and privacy. From the mid-1970s, the issue of protection of personal information revolved around the explosive growth of the computer and its ability to collect, search, compare, and merge private information about individuals. The “rise of the computer state,” as one author has described it, came about during the period when individuals were increasingly required to supply personal information to banks, credit bureaus, hospitals, and businesses in order to participate in a modern transactional society. As a result, people’s privacy can no longer be protected merely by laws or policies embodying “the right to be let alone.” Instead citizens in modern societies need laws that give them control over what information may be collected, maintained, and disseminated by third-party record holders.

In a number of Western countries codes of “fair information practices” have been developed to set forth principles for protecting information in third-party records. These codes are based on the principles that only relevant and necessary data should be collected, that the subject should know what data are being collected, that information collected for one purpose should not be used for another purpose, and that people should have a right to see and challenge collected data about themselves.

Canada, the Federal Republic of Germany, and some other Western countries formed national privacy protection agencies or commissions to ensure that fair information practices were respected by their governments and private enterprises. In the United States, after the Watergate scandal in the early 1970s had revealed abuses of government records by government officials, who used personal information in them to conduct surveillance and political harassment, public pressure resulted in the adoption of the Privacy Act of 1974, which embodied a code of fair information practices but did not establish any privacy or data protection agency. Passed at a time when public support for privacy protection was high, the act was later weakened by the government in its concern to detect fraud and abuse in government benefit programs. The concern led to moves to link the computers of different government agencies, field agents, and central data bases. For example, federal employee payrolls were compared with student loan records to detect loan defaulters, immigration records were compared with welfare rolls to detect

illegal aliens receiving benefits, and private bank records were compared with welfare rolls to detect concealed assets. Although many were sympathetic with the government’s desire to improve efficiency and reduce fraud, there was concern that widespread computer linkage would create a national data base with detailed information collected on each citizen and that privacy would be even harder to protect when all the information was linked. Other fears were raised about the integrity of such computer networks—whether the information would be safe from computer hackers and other intruders or from employees who ignored privacy protection procedures in performing their jobs.

There were a variety of views about what should be done. Some felt that third-party records should be protected by statutes that would clearly restrict the use and accessibility of the records. One such statute was the Cable Telecommunications Act of 1984 (see CABLE TELEVISION). With the development of interactive cable television systems permitting subscribers to order products, vote in polls, conduct banking from home, and select among different subjects to watch, it became clear that operators of such systems had access to information that could reveal a great deal about each subscriber’s habits, life-style, and even political beliefs. To protect this sensitive information, the act required cable companies to report to their subscribers what personal information about them is collected, used, and disseminated, and prohibited companies from releasing “personally identifiable information” without notice and consent. The government could not obtain such information without a court order, and subscribers could fight such government requests in court. Similar statutes in the United States protected bank and credit records. Other suggestions for improving the protection for third-party records included the creation of the National Data Protection Agency to oversee privacy protection in the United States.

In the 1980s such issues intensified as the amount of data flowing across international borders grew. A number of countries became concerned that inadequate protection for privacy in other countries would injure their citizens, and possible prohibitions on transnational computer links and information exchanges were debated. In response to these problems several European countries developed an international code of fair information practices. See INTERACTIVE MEDIA.

See also GOVERNMENT REGULATION; LIBEL; POLITICAL COMMUNICATION—IMPACT OF NEW MEDIA; SECRECY; TELECOMMUNICATIONS POLICY.

Bibliography. David Burnham, *The Rise of the Computer State*. New York, 1983; David Flaherty, ed., *Privacy and Data Protection: An International Bibliography*, White

Plains, N.Y., 1984; John Shattuck, *Rights of Privacy*, Skokie, Ill., 1977; Robert Ellis Smith, *Privacy: How to Protect What's Left of It*, Garden City, N.Y., 1979; United States Privacy Protection Study Commission, *Personal Privacy in an Information Society*, Washington, D.C., 1977; Alan Westin and Michael A. Baker, eds., *Databanks in a Free Society: Computers, Record-keeping, and Privacy*, New York, 1972.

JERRY J. BERMAN

PROFESSION

Professions are a special category of occupations. The attributes that make them special are not clearly defined, but in most societies medicine, dentistry, the law, the high clergy, ARCHITECTURE, and some specialties of engineering and accounting are considered professions. There is substantial agreement about the general dimensions of professional status. The cognitive dimension is always privileged. It centers on the body of knowledge and techniques that members of a recognized profession presumably apply in their work and on the training needed to acquire such knowledge and skills. Formal professional training is generally located at the postsecondary level of modern educational systems. Credentials conferred by them are not an indispensable or sufficient component of professional status, but they serve as a means to guarantee professional exclusiveness.

A second dimension stems from the professions' alleged service orientation and nonvenal or anticommmercial ethics, which justify the privilege of self-regulation professions claim—a privilege that is usually granted to the established ones. There is no empirical evidence to confirm that the behavior of individual professionals is more ethical, on the whole, than that of people in less honored occupations; however, this is undeniably an important part of the IDEOLOGY of organized professions and an aspect of their PUBLIC RELATIONS stance. It seems to be supported by the available evidence that in advanced societies professionals of both sexes are more likely than other workers to report commitment to their work and to find intrinsic satisfaction in it. This leads into a third dimension of profession, the evaluative one. It underscores professional autonomy and prestige, endorsing the widespread notion that professionals not only command more social respect and cultural authority than other specialized workers but are also entitled to higher material rewards. Established professions rank high on scales of occupational prestige, and professional status is coveted. However, this status, like income, is highly variable—both within and across the same profession's boundaries—and it is never irreversibly achieved.

In advanced industrial societies more people than

ever before in history have contacts with at least some professionals, mainly in the fields of health and EDUCATION. The modern idea of profession thus becomes part of the common lore, influenced and modulated by the mass media. Television SOAP OPERA and other forms of broadcast DRAMA, which are globally marketed commodities (see TELEVISION HISTORY), include among their dramatis personae a proportion of professional characters far in excess of their proportion in the world at large; they also reinforce vague notions of "professional-managerial" status or of "educated labor." But the boundaries of profession remain vague. They represent a phenomenon of social practice, without clear definition or internal homogeneity. Difficulties of definition are compounded if more than one profession, more than one historical period, more than one society are considered. To note that even the Anglo-American term *profession* has no exact counterpart in the French *profession libérale* or the German *freie Berufe* is tacitly to underscore that definitions cannot impose a sequence of compulsory steps toward professional status, inevitably modeled on the road followed by established professions. For instance, if a definitional or taxonomic approach to the new and burgeoning specialties is applied in a field such as broadcasting, there is as much risk of illustrating mere contingencies—which occupations were better able than others to organize their members into an association or which activities were easier to integrate into the existing university curricula—as there is of measuring the advance toward mature professionalism.

Nonetheless, if professionalization continues to play a role in the changing social division of labor, some parameters will have to be used to demarcate what can be considered, at least temporarily, professional. Features such as full-time involvement in a specialized area of the social division of labor, representative professional associations, formal training, examinations and credentials, state licenses, demands for market control, and the claim to speak with quasi-ultimate authority in a field that society deems important become yardsticks in the comparative study of different occupations that claim (or could claim) professional status. The recent revival of social science interest in the professions is distinguished by a deliberate emphasis on the theories of professionalization that always underlie the use of such yardsticks.

This revival is largely historically based, sensitive to the idiosyncratic and transient characteristics of the professional phenomenon in each society. It is quite compatible theoretically with the sociological approach of Everett C. Hughes, which considers even the most powerful profession as any other occupation, whose practices and striving for social power must be examined empirically without prejudging

the outcomes. In both the historical and the interactionist perspective the attainment of professional status and privileges is conceived as a continuous and reversible negotiation: at the individual level, between the expert practitioner and his or her client or employer; at the collective level, between the spokespersons for professional groups, who often present their claims as a movement for reform, and the relevant audiences to which such claims are presented. Ultimately the most significant audience is the state, from which professional leaders hope to obtain collectively a preferential treatment in support of individual entitlements.

Professionals and the state. The two major models of professionalization are essentially distinguished by the role assumed by the relevant state authorities in each. In one model the state takes the initiative in providing institutional mechanisms and supports, as is done in most eastern European countries for THEATER and MOTION PICTURES. The class of experts thus defined becomes "the best" or the only legitimate one. Whereas the state-driven model draws attention to the particular dependence of all modern states on the service of experts and to policies that implicitly connect backwardness to educational deficiencies of the labor force, its historical origins can be traced to the building of centralized administrations and systems of schooling by the absolutist European monarchies and their successors.

The starkest illustration is perhaps France, where, even in the seventeenth century, there existed royal *écoles* and *académies* and, after the Revolution, an educational hierarchy, capped by the *École Polytechnique*, the related schools of applied engineering, and, for the production of a professoriat, the *École Normale Supérieure*. State-driven professionalization does not necessarily create as clear-cut a professional elite as the French *polytechniciens*, who drew as much prestige from their service to the state as from their topflight scientific education. However, when the state sustains a hierarchy of prestige, profound effects on the social ranking of all practitioners are felt; it has a decisive influence on professional authority and success. Thus throughout the nineteenth century French architects struggled to obtain for the *École des Beaux-Arts* as close an association with the state as that enjoyed by the engineers of the *École des Ponts et Chaussées*. Obviously the advantages they sought were not only the prestige of the relationship but also the instant MONOPOLY of lucrative state commissions and state employment.

A further and more important consequence is attached to state-driven professionalization. The officials involved in professionalization policies intend to sponsor the emergence of adequate competence, superior to what the civil society had been able to spawn without help. Having defined the require-

ments and often financed the institutional supports of professional expertise, the state (or at least one sector or faction within the state) logically considers the discourse and practices of "its own" experts as truer, more significant, and more authoritative than those of competitors, heretofore defined as non-professional. When the state establishes a hierarchy of prestige it also contributes to creating hierarchies of people, facts, and ideas.

For French philosopher MICHEL FOUCAULT discourse, which perforce must be that of *some* experts, provides the reasons, the "regime of rationality," for specific systems of codified practices and prescriptions. Such are the programs that govern the organization of the prison, the clinic, the school, the factory. Discourse creates its own conditions, the codes of conduct that it justifies, and the domain wherein it becomes possible to produce intelligible truths and falsehoods. Discourse is a fundamental part of the "equipment of power," the power not merely to repress but to discipline, by determining both the needs and their satisfaction. If it is practically impossible in Foucault's work to distinguish the discourse of experts from the power of the state, indeed it must be because the basis of his reflection is the centralized French state, active in the production of those cadres who are going to be the authorized speakers for a superior rationality. Conceding a monopoly of reason, the state still reserves the power to reorganize the professional corps it has helped to create when this becomes politically necessary or, as in the example of French medicine, when institutionally entrenched clinical interests resisted for too long the scientific dominance of bacteriology. Too close an embrace obviously endangers the autonomy inherent in the monopolization of rational discourse. Beyond the limit we find German physicists under Adolf Hitler propounding "Aryan physics" or Trofim Lysenko reinventing genetics under Stalinist rule.

Professionals and the market. Even in the alternative market-driven model the modern state is still the ultimate guarantor of rationality. State-subsidized hierarchical systems of schooling serve to legitimate and standardize, by the very image of ordered ascension they project, the rationality of the discourses produced at the top. Free and compulsory education justifies not only the linkage between education and occupational rewards that is professionalization's goal but also the undisputable superiority of certain forms of knowledge, tacitly presented as accessible to all those with enough intelligence and motivation. What changes in the market-driven model is the initial locus of the drive toward professionalization. Particularly in the Anglo-American world, the professionalization movements of the late eighteenth and nineteenth centuries can be seen as the response of

professional leaders to both the expansion of market opportunities and the decline of traditional warrants of professional probity. To induce and guarantee an investment in training, markets of professional services can be neither so narrow that they exclude the competent nor so broad that they admit all competitors. And it is on the basis of a protected market, wherein organized professions attempt to control the supply of producers, that social status can be attached to learned and specialized work.

In England the movements of professional reform merged politically with the ascension of the industrial bourgeoisie and the middle classes, challenging the narrow aristocratic monopolies that existed by royal charter and the social exclusiveness of aristocratic education. But the reconstruction of professional monopoly was delayed, in part because of the permanence of aristocratic models of status, open largely to the bourgeoisie by Victorian educational reforms. In larger part the delay was caused by a neglect of technical and scientific education, which Great Britain could afford for a time because of its protected position as the world's pioneering industrial power. The professional associations, central agents of the reform movement, retain to this day unparalleled control over training, qualification, and policy.

In the United States professional monopolies based on social rank and education were formally eliminated in the Jacksonian era, retaining their informal functions in the exclusive urban circles in which upper-class clienteles tended to choose professionals from among "their own." Here the enormous diversity of the population, the possibilities of geographic mobility over an immense territory governed by multiple and overlapping political units, directly linked the fate of professionalization to the establishment of a disparate, heterogeneous, uneven, but nonetheless nationally recognized educational system. The diversity and openness of the latter to this day account for the accessibility of professional status to new occupations.

The inevitable restrictions of access that surround esoteric knowledge are socially and morally justified by the modern, state-sanctioned systems of education because their hierarchy has confirmed the merit of the knowers. They do more than that: epistemologically, the superiority of all forms of expert knowledge depends on their connection to systems of schooling in which science is taught. In this institutional matrix the epistemological superiority of science, publicly (and falsely) demonstrated by its technical applications, extends ideologically to all bodies of knowledge credentialed by official schools. Through the system of schools the modern state actively affirms the superiority of science over all other forms of knowledge. For professions that have no other immediate form of showing technical mastery, the state provides not only legal privilege, not

only power, but also an indirect connection with the only methodology of truth that is publicly recognized as legitimate in our society.

Bibliography. Alan D. Beyerchen, *Scientists under Hitler*, New Haven, Conn., 1977; Burton J. Bledstein, *The Culture of Professionalism*, New York, 1976; Michel Foucault, *Discipline and Punish: The Birth of the Prison* (Surveiller et punir), trans. by Alan Sheridan, New York, 1977; Eliot Freidson, *Professional Powers: A Study of the Institutionalization of Formal Knowledge*, Chicago, 1986; idem, *Profession of Medicine*, New York, 1970; Gerald L. Geison, ed., *Professions and the French State, 1700-1900*, Philadelphia, 1984; Thomas L. Haskell, ed., *The Authority of Experts*, Bloomington, Ind., 1984; Everett C. Hughes, *The Sociological Eye*, 2 vols., Chicago, 1971; Terence J. Johnson, *Professions and Power*, London, 1972; Magali Sarfatti Larson, *The Rise of Professionalism: A Sociological Analysis*, Berkeley, Calif., 1977.

MAGALI SARFATTI LARSON

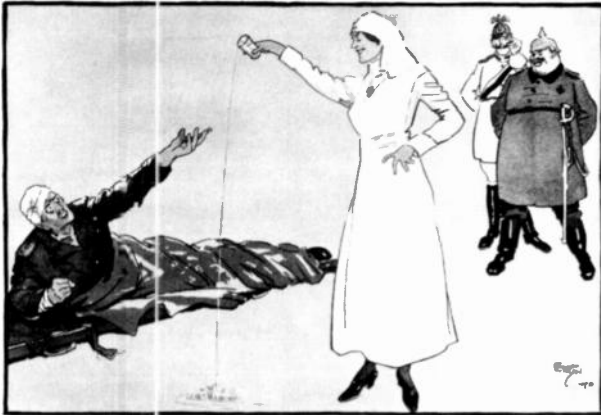
PROPAGANDA

Communication, verbal or nonverbal, that attempts to influence the motives, beliefs, ATTITUDES, or actions of one or more persons. From the Latin "to propagate" or "to sow," the word appears in many languages with only minor variations in spelling and pronunciation.

History. Use of the term, and the concept behind it, became common after the Vatican established in 1633 the Congregatio de Propaganda Fide (Congregation for Propagating the Faith), devoted to missionary work. In more recent times the word has acquired pejorative connotations in most countries, with notable exceptions: Nazi Germany, with its Ministry of Enlightenment and Propaganda; and the Soviet Union and the People's Republic of China, with their official agitation and propaganda ("agit-prop") services. Elsewhere at the present time, to call someone a propagandist is to discredit him or her as a source of communication.

Yet efforts to influence other persons include countless activities not regarded in this light, among them what is ordinarily called EDUCATION. The grade-school teacher, for example, is expected to influence pupils to become good citizens. To distinguish propaganda from such other, more accepted activities, popular definitions of propaganda generally make use of three subjective and seldom clear-cut criteria. First, the attempt to influence is described as *biased*. But this attribute raises difficulties. What is bias? Teachers consider the version of history they teach to be true and that taught in another country or by someone in a different tradition to be subject to distortion. Those who reject the propaganda desig-

RED CROSS OR IRON CROSS?



WOUNDED AND A PRISONER
OUR SOLDIER CRIES FOR WATER.

THE GERMAN "SISTER"
POURS IT ON THE GROUND BEFORE HIS EYES.

THERE IS NO WOMAN IN BRITAIN
WHO WOULD DO IT.

THERE IS NO WOMAN IN BRITAIN
WHO WILL FORGET IT.

Figure 1. (*Propaganda*) British poster from World War I: David Wilson, *Red Cross or Iron Cross?* Trustees of the Imperial War Museum, London.

nation adhere to a doctrine of truth acceptable to themselves or to others in a given society during a specific historical period.

Second, the attempt to influence is considered to be motivated by *personal gain*. This allows propaganda to include such prominent contemporary activities as ADVERTISING, PUBLIC RELATIONS, political campaigns, LOBBYING, even courtship. Any communicator, however, is likely to gain by the act of communicating, whether it be the salary paid, the boost to the ego, the admiration of peers, or the support rendered the IDEOLOGY or regime one admires. Thus the attribute of personal gain, like that of bias, has only limited usefulness.

Third, the attempt to influence is portrayed as *intentional*. The propagandist presumably desires a specific outcome: to boost sales, to improve the client's reputation, to win the ELECTION, to push the bill through a legislative body, to discredit and demoralize the enemy, possibly to marry the person courted. It is clear, however, that the motivations of many judgments and actions are not fully conscious and

the consequences not fully intended. The innocent person who praises a toothpaste, a candidate, or a philosophical doctrine is unaware of the bias but for that reason may be more influential than the deliberate professional. The attribute of intention, like the other two, contributes little by way of clarification.

Use of the attributes of bias, personal gain, and intention to refine the definition of propaganda raises issues that go beyond definition problems. It raises questions concerning the epistemological, ethical, sociological, and psychological foundations of behavior in society. Since these issues cannot be universally delineated for all times and for all cultures, a clear-cut definition of propaganda is neither possible nor desirable. And the word is so carelessly used—as a brand rather than a designation—that sociologists, social psychologists, political scientists, and others have grown to eschew the very word in their studies, calling instead on such respectable and more neutral labels as social change, PERSUASION, attitude change, or communication itself. Practitioners have likewise avoided the term; instead of propagandists they are public relations counsel, information specialists, or official spokespersons, who issue policy statements, news releases, reports, and white papers. But under whatever terminology, the growth of propaganda and propaganda organizations in the twentieth century has been exponential.

Twentieth century. Statistical evidence reflects, in all parts of the Western world, a vast increase in advertising, public relations, and lobbying activities, and also, everywhere on the planet, an increase in radio stations (and to a lesser degree in television stations) owned, sponsored, or clearly controlled by governments. In the 1980s, for example, there were more than four thousand shortwave radio stations seeking to reach foreign nationals; the Voice of America spoke in forty-two languages; the Soviet Union spoke in twenty-one languages to Europe, eleven to Africa, six to the Middle East, twenty to Southeast Asia, four to East Asia, three to Latin America, and one to North America (see RADIO, INTERNATIONAL). Attached to most embassies are so-called cultural attachés who transmit, via the mass media and through lectures and other forms of persuasion, their government's viewpoint to the people of the country where they are stationed and who facilitate contacts and exchanges toward the same end.

The phenomenal growth of propaganda organizations may be partly attributable to an increase in LITERACY almost everywhere, but it stems more particularly from the conflicts between and within almost all modern societies. Both hot and cold wars have been accompanied by attempts to fortify one's own countrymen and to weaken the enemy. Developing countries in Africa, Asia, and Latin America have been invaded or permeated by outside powers

who have quarreled with one another and who have sought to impose their own values or way of life on the indigenous populations. Regimes with new or authoritarian philosophies seek to resocialize their older citizens and to socialize their younger ones (*see* POLITICAL SOCIALIZATION). As commercial companies in Western countries have become more numerous, more diverse, and larger, competition for the support of consumers and clients has grown keener. Multinational corporations, when they have failed to become monopolies, compete with one another in order to increase profits and the capital available for research and development.

These conflicts have produced, and in turn have been facilitated by, noteworthy advances in technology, engineering, and the social sciences. During World War I direct communication with enemy forces was essayed by agents and through leaflets (including safe-conduct passes to soldiers tempted to surrender) dropped erratically from kites, balloons, and planes or shot across battle lines by special cannon. In World War II radio played a significant role, and leaflets were more accurately and diffusely targeted from planes. Since the late 1940s television has disseminated nationalist propaganda, and fading short-wave programs have been supplemented by clearly audible radio communications available from satellites in space (*see* SATELLITE; TELECOMMUNICATIONS NETWORKS). Television viewers and radio listeners are offered almost instantaneous, simplified versions of events so that they feel informed without the opportunity to review or reflect upon what they have seen or heard (*see* TELEVISION NEWS). Transistor radios have enabled even seminomads to be reached. Plays in professional and amateur theaters and MOTION PICTURES have propaganda objectives as well as artistic merit.

Social science has contributed the PUBLIC OPINION survey to contemporary propaganda. Within determinable margins of error it is possible through interviews with or questionnaires directed to carefully selected samples to ascertain the predispositions, intentions, and actions of a population in almost every conceivable respect. With a high yet imperfect degree of accuracy one can know in advance who will win an election or for what reasons consumers accept or reject a product. Public officials or those aspiring to be elected thus obtain insight into opinion patterns and tailor their propaganda accordingly. The mass media, especially U.S. radio and television, are dependent on survey data to avoid being too far ahead or behind their target audiences. Systematic polls and CONSUMER RESEARCH consequently tend to replace virtually everywhere the less reliable methods of intuition, projection, or chatting with the boys and girls down the street (*see* OPINION MEASUREMENT; POLL).

Channels and techniques. Propaganda employs the same devices as any other form of communication to reach and affect an audience. Consequently, the researcher addresses the challenges within the oft-cited and appropriate question posed by political scientist HAROLD D. LASSWELL: "Who/ says what/ in what channel/ to whom/ with what effect?" A verbal communication, or a nonverbal one such as an action or a physical object, is planned on the basis of experience, prejudice, shrewd or reckless guessing, or formal or informal research. It may (or may not) be pretested on a (not necessarily) representative sample of the intended audience. Eventually, either once or continually, it is transmitted by a medium of communication; for propaganda a mass medium is preferred. Then the transmitted message, action, or object is or is not perceived by an audience. The perception, when or if it occurs, may or may not accurately reflect the communicator's standpoint, and it may or may not affect the intended perceivers. The effect, whatever it is, may or may not eventually influence or determine their actions. Whatever changes in motives, beliefs, attitudes, or actions occur in turn may or may not determine the predispositions and behavior of the audience in the future.

Experiments with captive audiences in schools, universities, and laboratories, as well as empirical observations of real-life and historical situations, aim to determine the effectiveness of various propaganda or communication techniques. Each investigation usually has some value in its own right but is limited by the choice of persons serving as subjects and by the social-psychological or situational variable or variables being examined. No magic formula for success has emerged; the consequences of propaganda campaigns, therefore, are often surprising.

As a result of their role within and outside their own societies, propagandists tend to place greater emphasis on some techniques than on others. Unlike many educators, they intentionally bias their communications in a manner that supports their viewpoint largely unequivocally. They may realize, nevertheless, that their audience is suspicious, and so they attempt to bolster their own credibility whenever their identity cannot be concealed or disguised. In World War II, for example, the British Broadcasting Corporation (BBC) struggled to appear impartial even among Germans and other enemies by reporting, consonant with military security, not only favorable but also unfavorable news concerning Britain and its allies. The Voice of America sought to adhere to the same self-proclaimed "strategy of truth" by broadcasting "bad" news "for the record" on unimportant programs or by downplaying it.

Sometimes propagandists are able to conceal their bias and intention by not completely revealing their own identity. The communicator appears to be a



Figure 2. (*Propaganda*) First anniversary of the founding of the People's Republic of China, October 1, 1950. Workers carry hundreds of portraits of Mao Zedong in the National Day Parade. The Bettmann Archive, Inc.

disinterested peer when in reality he or she is an intentional or paid rumormonger whose efforts would be discounted if his or her objective in spreading innocent-sounding tales were known; or unintentionally he or she may be performing the same function after being told the tale by someone else and believing it (see RUMOR). Propaganda deeds, moreover, may achieve successes not intended fully or at all by the original communicators. The pyramids of ancient Egypt may have been erected primarily for funereal purposes and to honor the illustrious dead; they then may have strengthened citizens' respect for the ruling elite. Throughout the centuries they have served as reminders of their origin and are major tourist attractions. During a war a bombing raid may be planned to disrupt an enemy's logistical line; a secondary consequence may be a lowering of civilian morale or, under some circumstances, a stiffening of morale.

Propagandists, pursuing their own goals, are likely to realize that they generally must overcome resistance if their messages are to be perceived and learned. The resistance results from the audience's indifference or hostility to them or their aims. They try, therefore, most deliberately to bring those messages to people's attention. They bribe or persuade the controllers of the media to transmit them. Advertisements or announcements become almost unavoidable when they are on billboards or posters, when they appear next to inviting reading matter in printed media, or when they are inserted at strategic points in television and radio programs. Endorsements are obtained from public or respected figures. The issues or problems at stake are simplified so that they can

be easily grasped via slogans, clichés, epithets, and fashionable terminology. Then the action required of propagandees is either obvious ("Buy the product") or is suggested unsubtly ("Vote for me") or subtly ("Surrender, resistance is futile"). See COMMERCIALS.

Over time, since persons may become bored or may change, the content of propaganda is suitably varied, so that the audience is made to seek new or modified goals. An audience is created or retained when its members are attracted by the compelling quality of an advertisement, when they turn on their television sets to be entertained or informed by a particular program, when they attend a meeting ostensibly out of curiosity or for social or conventional reasons, when they view a monument or visit a museum—and thus they learn what the propagandist would have them learn. They may have insight into the fact that they are being seduced, yet they tolerate or enjoy the seduction without being fully aware of its consequences.

When propaganda is successful, most of the audience or its critical members subscribe to the propagandist's viewpoint, dismiss alternatives as false or misleading, or behave as the communicator would have them behave. They tend to believe that there is no better product or person, no other political viewpoint that can possibly be as satisfactory, no country worth supporting other than one's own, or no other theology that can bring everlasting salvation.

Countering propaganda. A sure-fire method to combat propaganda has not been discovered other than a complete immersion in the propaganda of one's own side or society, with a resulting immunity to the hostile viewpoint of actual or potential op-

ponents or enemies. Various devices, however, offer audiences partial protection. Newspapers in the United States sometimes add the label *advertisement* or its equivalent to paid printed matter that might not be immediately perceived as commercial propaganda. Similarly, television and radio stations may state that what will be or has been disseminated is a "paid political announcement." Candidates in a political campaign deliberately expose or refute their opponents and proclaim themselves to be oracles of truth. LIBEL and other laws as well as custom inhibit or prohibit the expression of some communications, including what is considered obscene, antisocial, in violation of national security, or leading too directly to "dangerous" consequences. Propagandists in democratic societies nevertheless enjoy considerable freedom of speech and assembly.

Shortly before World War II a U.S. Institute for Propaganda Analysis prepared and distributed materials for secondary schools and reports for the general public that sought to teach an analytic skill by explaining and applying to current propaganda seven catchy devices dubbed name calling, glittering generality, transfer, testimonial, plain folks, card stacking, and bandwagon. Speeches and publications by public officials and organizations could be dissected and labeled with these rhetorical modes. The same kind of skepticism is probably encouraged by a competent, scholarly CONTENT ANALYSIS of any communication or by a documented account of historical events; the techniques and trends of the past presumably presage the present and the future. Education, however defined, advocated, or practiced, can be supposed to include the objective of making students less vulnerable to "pernicious" or "immoral" propaganda. See BANDWAGON EFFECTS; RHETORIC.

Frontal attacks on what is arbitrarily or conventionally called propaganda are at best only a prelude to improving communication or liberating audiences from alleged machinations. The reactions of children, adolescents, and adults depend on the contents of what they perceive and on their own predispositions (see CHILDREN—MEDIA EFFECTS). It is insufficient merely to label a communication propaganda because it employs detectable rhetorical devices or because it is thought to originate from a biased source deliberately seeking personal gain. Knowledge of the devices and the use of propaganda as an epithet, however, alert audiences and analysts alike to the issues of truth and falsity or of goodness and badness that otherwise might be evaded.

See also POLITICAL COMMUNICATION—HISTORY; POLITICAL SYMBOLS.

Bibliography. Michael Balfour, *Propaganda in War, 1939–1945*, London and Boston, 1979; Leonard W. Doob, *Pub-*

lic Opinion and Propaganda, New York, 1948; Jacques Ellul, *Propaganda: The Formation of Men's Attitudes*, trans. by Konrad Kellen and Jean Lerner, New York, 1965; Carl I. Hovland, Irving L. Janis, and Harold H. Kelley, *Communication and Persuasion*, New Haven, Conn., 1953; Paul Kecskemeti, "Propaganda," in *Handbook of Communication*, ed. by Ithiel de Sola Pool, Frederick W. Frey, et al., Chicago, 1973; Harold D. Lasswell, Daniel Lerner, and Hans Speier, eds., *Propaganda and Communication in World History*, 3 vols., Honolulu, Hawaii, 1979–1980; Daniel Lerner, ed., *Propaganda in War and Crisis*, New York, 1951, reprint 1972; Charles E. Osgood, William H. May, and Murray S. Miron, *Cross-Cultural Universals of Affective Meaning*, Urbana, Ill., 1975; Ernest Richert, *Agitation und Propaganda*, Berlin, 1958.

LEONARD W. DOOB

PROSE

The category of linguistic communication that is not in a metrical or rhymed arrangement. This definition has resulted in a diverse application of the term, from broadly characterizing all ordinary LANGUAGE to more narrowly specifying certain classes of non-verse writings by virtue of qualities such as explicitness, argumentation, fictionality, expository stance, or eloquence. The broader application tends to devalue the discourse as unimaginative and commonplace (thus a prosaic world), and the narrower one tends to heighten its value, as in such discriminating expressions as the German *Kunstprosa* ("art-prose"). The puzzling thing about prose is that the narrower application can really do without the term at all; each of these kinds of writings—exposition, philosophy, the novel, belles lettres, and so forth—is itself a GENRE or set of genres that can be aligned alongside POETRY, whereas the broader application seems not to know when to stop. Witness the astonishment and also pride of Jean-Baptiste Molière's *bourgeois gentilhomme*, in the 1670 play of the same name, when he learns that since "all that is not verse is prose" he must have been speaking prose all his life.

A consideration of the changing status of the term *prose* requires an investigation of its origins. This has been done for poetry, of course, and although findings are still in healthy contention, strong hypotheses have been put forward, such as that poetry comes from the repeated utterances that were part of RITUAL (see ORAL POETRY). Not so for prose. To go back to the earliest recorded utterances, at least in the West, is to find prose practically nowhere (unless again it is just another name for everything) and certainly not to find it then used as a category. Sayings, lists, oaths, and inscriptions are articulated in particular ways, sometimes with traces of rhythmic arrangement, that do not lend themselves to the term

prose. Early utterance often bears clearly the marks of oral composition (see ORAL CULTURE), and, however loosely, such marks (e.g., repetition, formulas, figures of sound, parallelism, or epigrammatic style) suggest verse to us today. The more we see that transcribed oral utterances had these features, inspired to a great extent by the need to be remembered and to resonate, the less likely we are to see such utterances as "pure" prose. Further inquiry leads to the conclusion that although most definitions of prose—such as the one that begins this entry—do not limit it to WRITING, it is a term born of literate CULTURE (see LITERACY). This gives rise to many confusions, in which certain writings are characterized as prose just because they are not poetry, whereas they are more profitably dealt with if considered to be ORATORY, enumeration, dialogue, notation, or certain forms of NARRATIVE. (Some confusions are of course intentional, such as the prose poem.) In fact ethnographers see distortions resulting from the fact that transcriptions of unrhymed oral storytelling and histories (see ORAL HISTORY) are often categorized as prose as if they were to be read like nineteenth-century short stories.

Most strikingly, prose often comes into its own domain not as some outgrowth of natural language production such as SPEECH but generally at the point at which verse has to cede to nonverse much of its legacy in oral cultures. This explains the fact that although verse is usually considered to come after prose (and thereby to represent some kind of refined work on a raw, natural, and omnipresent prose flow), prose makes its appearance after verse in most Western cultures.

The ascension of prose is a slow process; prose is not "natural" in an oral society. Speech is articulated in all sorts of ways unaddressed by the poetry/prose distinction. Even the advent of writing does not bring forward prose in any specialized sense. Many ethnographers, such as Ron Scollon in speaking of the Athabaskan Indians, have observed that a tribe that has writing may still not have prose. Classicist Eric Havelock points out that in ancient Greece

while the last half of the fifth century begins to see the acceptance of prose as a viable means of publication, acceptance does not become complete until the fourth. This is three hundred years after the invention of the alphabet had rendered the monopoly exercised by poetry over the contrived word theoretically obsolete.

And Frank Byron Jevons, discussing in 1895 the earliest recorded Greek attempts to write prose, those of Pherecydes in 570 B.C.E., noted that

in everything but meter they are poetry, not prose; and whereas in poetry an author could compose artistic sentences of some complexity, in prose at this time he could only ejaculate short and simple expressions, in their baldness rather resembling a child's attempt at writing than a philosopher's.

In Greece verse and nonverse competed on the oratorical podium. The artful recitations of the poets were challenged by the Sophists Gorgias and Isocrates, who showed that true poetry (here, beauty) could be achieved in a richly styled and figured nonverse public speech. The need for a third alternative was felt by ARISTOTLE, who took to task both forms of grandiloquence when he said that the appropriate style for important issues argued at court was a "bare" though not dull one. Although this seems to be a debate about style (see STYLE, LITERARY) and not genre, it was actually a search for a means of communication closer to the Greek's evolving sense of fact or objectivity. But Aristotle could not give any principles of this bare, clear style, and the debate remained suspended between unrealistic extremes—the constraints of meter and sound versus total freedom from constraints, artful elaborateness versus dry and artless simplicity. See RHETORIC.

There was apparently no specific word for prose as such in Greek. The word Aristotle uses in opposition to verse, and that translators thus give us as *prose*, is *logos* ("thought," "reason," "discourse," or, especially in Athens, "speech," "oration") and sometimes *koine* ("common speech," the style of everyday talk). The prose histories of Herodotus and Thucydides relied for their material on the public speeches of the major historical figures. As Havelock has shown, the Greeks were brilliant in their ability to process ideas in a way uncharacteristic of oral culture and at the same time to discover or devise kinds of oral modes (see MODE) in which to do the processing, as in PLATO's dialogues. See HELLENIC WORLD.

Prose in Rome still looks like oratory, which shares its communicative framework with recited verse. There we see the appearance of the term's ancestor, *prorsus*, from the word meaning "straightforward," but the more general Latin expression (the one on CICERO's lips) is *oratio soluta*, "unfettered oration or speech." Translators also say *prose* when faced with certain uses of *sermo*, which, like *koine*, means "talk," "conversation," or "conversational style." The Romans pushed forward the interests of prose less in what they said about it than in what they did with writing. Writing, as Canadian scholar HAROLD INNIS has pointed out, is necessary to extend an empire's power through space. The extensive administrative use of writing was continued by the church, which in its particular forms of scriptural exegesis (see SCRIPTURE) initiated a good deal of writing *on* writing. See ROMAN EMPIRE.

The Bible made no distinction between poetry and prose, but hellenized Jews and early Christians took the Greco-Roman tradition and applied it retrospectively, finding as poetry those parts of the Bible that would be poetry in their world. St. Jerome went so

far as to find Greek meters in the Psalms, a finding that neither he nor anyone else has been able to demonstrate. Was the rest of the Bible then (only) prose? (There is continuing criticism of the King James version of 1611 because it writes the Bible *as* prose.) The distinction was so compelling that a basic stylistic figure such as biblical parallelism was looked upon in the so-called poetic books as an indicator of meter, whereas in the nonpoetic books it was considered only a rhetorical figure. The distinction challenged those who believed that as divine inspiration the Bible could appropriately be neither poetry nor prose.

The church brought its increasingly self-contained Latin literate tradition into the MIDDLE AGES, where it stood beside a rich oral tradition that was in the vernacular and in verse only. Medieval France is one of the richest places to catch prose in the making; what writing there is in French is, up to 1200, in verse only. Vernacular writing was an attempt to record, and was thus modeled on, oral PERFORMANCE. Verse was so emphatically considered the authoritative medium in the vernacular for historical truth that any Latin prose translated into French was translated into French verse. Then, relatively abruptly, verse was considered to "lie," and the nonrhymed was seen as more truthful. More than an attack on rhyme or meter, this was a move away from any writing that by virtue of being in verse bespoke the oral system of transmission (e.g., jongleur, minnesinger, scop) that had become unreliable. The rejection is in favor of a more impersonal and unchanging document as evidence in the modern sense, a kind of evidence that, being finally "unspoken," lacks the accompanying interpretation that a speaker or remembrancer would naturally provide in an oral culture but whose consequent rawness is not troubling to readers now who are ready to take on the burden of such interpretation armed with a changing set of critical faculties, a new kind of literacy. Such changes become clear as we watch prose evolve and as French court writers begin to derhyme already existing verse epics. What gains acceptance here is the idea that prose is the kind of discourse that can convey matter with a minimum of formal changes enacted upon it, which makes it closer to some conception of fact, so that facts are seen somehow to come in prose.

Once prose reaches this status, verse gravitates in other, more specialized, directions (e.g., toward lyric), and prose comes to be regarded as the language of knowledge. The founders of the English Royal Society (1662) pick up the Aristotelian distinctions and attack rhetoric and eloquence as affectations and corruptions of any utterance that aims to put forth objective truth. Clearly this is a battle to be waged on the now-established territory of prose, not verse, and it is prose that the Royal Society explicitly seeks to improve. It is as if prose is to fulfill its destiny by

becoming transparent. For founder Thomas Sprat the enemy here is unabashedly "the luxury and redundancy of *speech*" and the ideal a "return back to the primitive purity, and shortness, when men deliver'd so many *things*, almost in an equal numbers of *words* . . . bringing all things as near the Mathematical plainness as they can." Such intentions signify a pursuit of a kind of communication with a new epistemological stance, a writing seen to stand on its own at a distance from aspects of its uttering context. Prose is becoming a particular way of putting things forward. There are obvious consequences of this in terms of scientific communication (for which the Royal Society was in fact founded) and logical discourse. Canadian education researcher David Olson, for example, finds in literacy "techniques of examining an assertion to determine all of its implications," leading to what he calls "essayist technique" and to one aspect of expository prose. There are less obvious but nonetheless powerful consequences in terms of representation and FICTION, such as the subjectivity, apparent illogic, and unique kinds of worldview offered by the quintessentially prose genre of the modern novel.

Bibliography. Wlad Godzich and Jeffrey Kittay, *The Emergence of Prose*, Minneapolis, Minn., 1987; Eric Havelock, *Prologue to Greek Literacy*, Cincinnati, Ohio, 1971; James L. Kugel, *The Idea of Biblical Poetry*, New Haven, Conn., 1981; David R. Olson, "From Utterance to Text: The Bias of Language in Speech and Writing," *Harvard Educational Review* 47 (1977): 257-281.

JEFFREY KITTAY

PROVERB

A verbal GENRE of folklore also widely employed in literary contexts. The proverb is seldom more than one sentence long, and it usually expresses one main idea. The message of the proverb is formulated in a way that implies a summary of the wisdom of collective experience. This effect is often enhanced by the insertion of introductory formulas at the beginning (such as "It is said . . ." or "The old people say . . ."), the specific wording of the formula following the poetic conventions of the culture and the kind of authority upheld by its norms. Poetic language, rhyme, rhythm and/or meter, alliteration, assonance, repetition, and other devices associated with oral forms may be used. Like all genres of verbal FOLKLORE, the proverb has multiple uses and is performed in recurring situations. The folkloristic research of proverbs is usually called paremiology.

Many proverbs have an international distribution, and the genre as a whole, as well as specific proverbs, have frequently been studied in distributional and comparative perspective. Distribution has in some

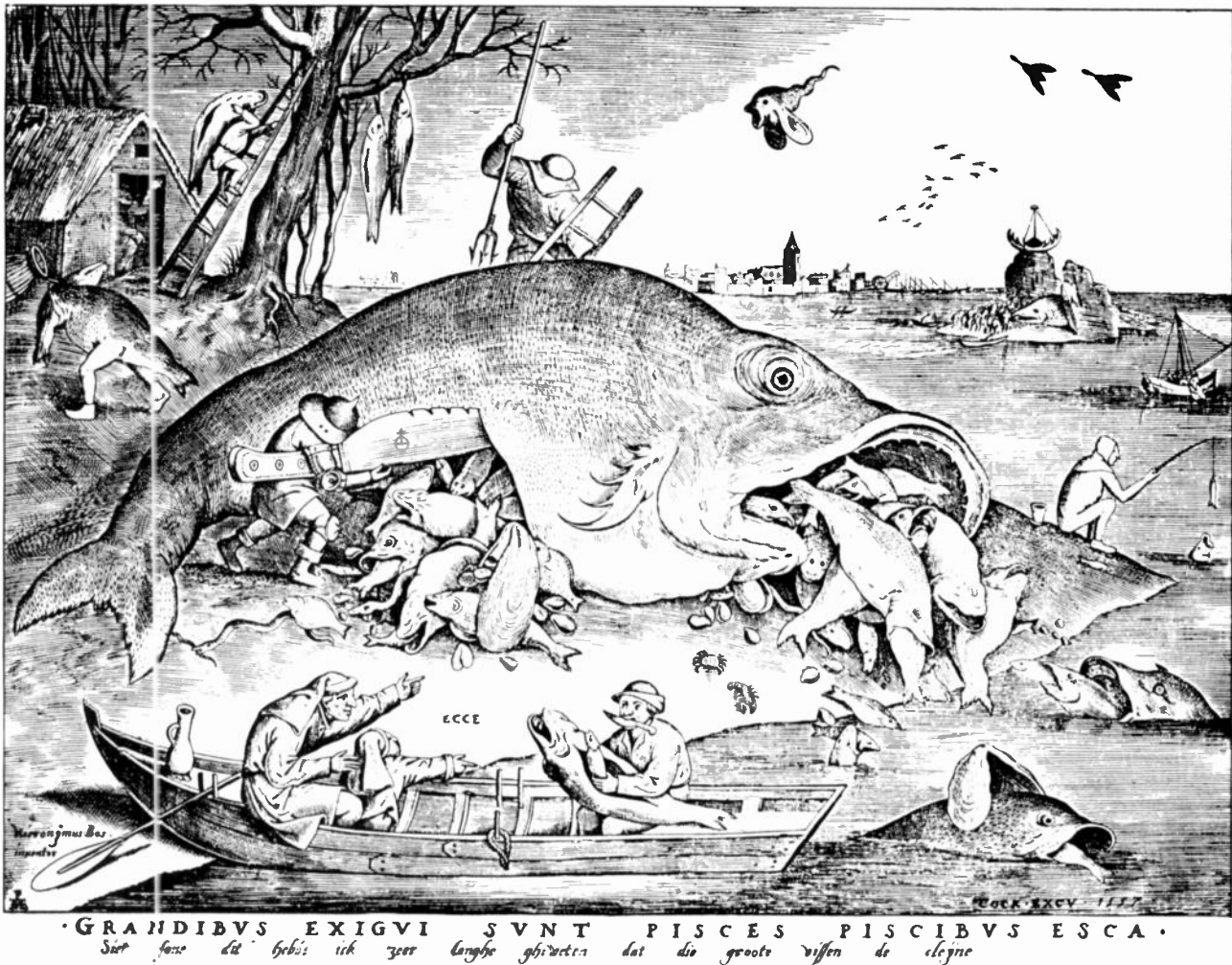


Figure 1. (Proverb) Pieter Bruegel the Elder, *Big Fish Eat Little Fish*. Engraving by van der Heyden, 1557. From H. Arthur Klein, ed., *Graphic Worlds of Peter Bruegel the Elder*. New York: Dover Publications, Inc., 1963, p. 139.

cases been explained as a result of cultural contact but is also ascribed to similarities of circumstance and experience.

The proverb is used by members of a cultural (ethnic, regional, professional, etc.) group to communicate an interpretation of a behavioral or interactional situation. The amount of proverb use and the skill with which proverbs are employed depend on an individual's competence in proverb lore, which usually is determined by such factors as memory, acquaintance with a proverb repertoire, and verbal-folkloristic creativity. Proverbs are usually applied in situations characterized by conflict, skepticism, or other kinds of oppositionally structured mental dispositions. Invoking the authority of a proverb in such contexts transfers the difficulty from a personal to a conceptual level, thereby restoring equilibrium to the specific occurrence that threatens the community's traditional values.

Use. Proverbs are used to emphasize and enhance the ritual aspects of any interactional behavior by

engaging its formal and traditional characteristics. The application of a proverb imbues the specific situation with cultural meaning by linking it to a chain of situations, all of which may be interpreted by the same proverb. Proverbs may also be conceived of as a repertoire of available, optional verbal strategies to be invoked in certain situations. Since proverbs reflect tensions in feelings and logic, they may as a cultural repertoire exhibit a rather conflicting and paradoxical worldview or collective psychology: "Look before you leap," but "He who hesitates is lost"; also "Absence makes the heart grow fonder," but "Weeds grow on the untrodden path."

Proverbs have a variety of relations to other genres of folk literature and to other parallel systems in literature, mass communications, and everyday speech. In folk literature proverbs may be linked to various NARRATIVE forms, both as narrative springboards and as formal headings, or as a logical conclusion to which the narrative leads. They may also summarize a narrative, appear in close proximity to it, or be-

come a point of reference to it by appearing separately. In both FICTION and nonfiction literature, proverbs may be invoked like quotations, a rhetorical genre to which they generally bear many similarities. The main difference is that the quotation is attributable to an identifiable individual source, whereas the proverb relies on a collective authority. In literature proverbs may also be used to stress a specific cultural coloring and identity and to create a more markedly folkloristic discourse.

An example of a genre of literature that utilized proverbs is the proverb play, developed in the eighteenth century in France by Louis Carmontelle (1717–1806). The title of the play is a proverb, and the action onstage illustrates the point of the proverb. An example of such a play is Alfred de Musset's *Il faut qu'une porte soit ouverte ou fermée* (A Door Must Be either Open or Shut, 1848).

Sources. There is sometimes a relatively direct connection between the oral and the written expression of proverbs. Written collections of popular short sayings may come to be quoted proverbially. Later, however, the connection between the spoken proverbs and their written source may be partially or totally forgotten. Thus the Old Testament books of Proverbs and Ecclesiastes, parabolic passages of the New Testament, and collections of wisdom lore of the humanistic period (notably Erasmus's *Adagia*) have become standard sources of proverb lore of Western culture.

Certain genres of certain cultures tend to dominate the proverb lore of those cultures and become sources for additional generation of proverbs, such as legal discourse in the Jewish Aramaic tradition of the Babylonian Talmud (ed. ca. 500–550), the *Schwank* anecdote genre in German (a short narrative ending in a punch line), and wisdom novellas in Arabic tradition or POETRY in Iranian tradition: "If you have one virtue and seventy defects, he who loves you will see nothing but that one virtue" (following a line of the thirteenth-century Shirazi poet Sa'di). Some cultures have proverbial subgenres that are not proverbs per se because they do not consist of a complete sentence or express a complete idea. In Finnish, for example, proverbial comparisons are a dominant form among proverbial subgenres: "The words drop as matches from the tail of a black cat" (said about especially slow speech); or the so-called Wellerism (named after a Charles Dickens character, Sam Weller, who often used this form) or dialogue proverb in Swedish, Danish, Norwegian, and Anglo-Saxon traditions, such as the Swedish "'You never get too much of God's word,' said the farmer as he hit his wife on the head with the Bible."

Collections. It is important to mention that these dominant genres are not the only ones found in the areas mentioned here. Any absolute comparison of

genres and geographical locations would be quite impossible because interest, motivation, and strategies in eliciting and collecting proverbs have been of varying focus and intensity in different eras and different places. It is not unusual, therefore, to find a Wellerism in the Kurdish tradition: "The ears resemble those of a rabbit," said the man who was compelled to eat donkey meat." Parallels can produce curious surprises. The Chinese equivalent of "penny wise, pound foolish" has been explained as "You go to bed to save the candle and you beget twins."

Proverbs as a folk literary genre began to be collected very early in history. Several ancient literatures show proverb compilations, notably the ancient Sumerian and the ancient Egyptian cultures. Well-known collections are the Egyptian Wisdom of Amenemope and the Neo-Babylonian Proverbs and Sayings of Aḥiqar (Aḥīkar). In modern cultures proverbs survive and are regenerated in numerous ways. For example, there have, generally speaking, been no major changes in most of the traditional ways of communication with proverbs: in everyday speech, especially in situations in which the mode of speech is prescriptive; in educational situations; in religious or ideological preaching; and in political contexts. Research has shown that politicians use proverbs in commenting on subjects about which there is special tension or controversy, for example, U.S. President Jimmy Carter's application of "God gives the cold weather but he also gives the coat" in a speech on the occasion of the signing of the Camp David peace agreement between Israel and Egypt. In 1959 Nikita Khrushchev promoted U.S.-Soviet detente with "Two mountains never meet, but two people can." Proverbial texts may also be used to communicate moral and political messages in printed form to enormous masses of people, as did the Little Red Book of Mao Zedong, distributed widely in many languages. Proverbs have been quoted in judicial proceedings in cultural contexts as varied as a tribal court in Nigeria, the Jewish courts of Babylonia (quoted in the Talmud), and the courts of the Spanish Inquisition that questioned heretics in the sixteenth century.

Modern uses. Modern mass media have made innovative uses of proverbs. Unchanged, slightly changed, or heavily parodied proverb structures may be found in headlines of newspapers all over the world. Proverb application here serves functions similar to those in traditional face-to-face interaction, namely, to enhance the authority of what has been said or done, to heighten the aesthetic quality of the text, and to achieve rhetorical effectiveness. Proverb use is a way to catch the ears and eyes of readers and media audiences in general and therefore also can be a device in the commercial promotion of media products. The most developed commercialized

use of proverbs, however, is their application in ADVERTISING. Jingles may consist of literal quotations of proverbs or slightly changed, easily identifiable proverbs, as well as traditional proverbs with a sophisticated twist. The use of proverbs in advertisements especially exploits the traditional association between proverbs and authority, thereby strengthening the validity of the communicated message. Many banks have made use of "A penny saved is a penny earned."

Modern urban culture has generated variations in proverb use that follow the changes in repertoire of the popular culture itself. In the past, chapbooks contained proverbs along with ballads, legends, and other folk literary material; the oral narrator, in the past as well as the present, inserts proverbs in the narrative performance. Pop music with catchy lyrics often includes genuine proverb texts or references of a more concealed character, in which case the traditional structure serves as a means to create something familiar and easily imprinted in the memory. In American black music, especially jazz, proverbs may become themes for variation and improvisation much as musical themes in the same sequence. See MUSIC, POPULAR.

Bibliography. Alan Dundes and Wolfgang Mieder, eds., *The Wisdom of Many: Essays on the Proverb*, New York, 1981; Galit Hasan-Rokem, *Proverbs in Israeli Folk Narratives*, Helsinki, 1982; Matti Kuusi, *Parömiologische Betrachtungen*, Folklore Fellows Communications no. 172, Helsinki, 1957; idem, *Towards an International Type-system of Proverbs*, trans. by R. Goebel, Folklore Fellows Communications no. 211, Helsinki, 1972; Wolfgang Mieder, ed., *Ergebnisse der Sprichwörterforschung*, Bern and Frankfurt am Main, 1978; idem, *International Proverb Scholarship: An Annotated Bibliography*, New York, 1982; Grigorii L'vovich Permiakov, *From Proverb to Folktale: Notes on the General Theory of Cliché* (in Russian), Moscow, 1979; Lutz Röhrich and Wolfgang Mieder, *Sprichwort*, Stuttgart, 1977; Archer Taylor, *The Proverb, and An Index to the Proverb*, Hatboro, Pa., 1962.

GALIT HASAN-ROKEM

PROXEMICS

Term coined in 1963 by the U.S. anthropologist Edward T. Hall for his studies of the cultural patterning of mutual sensory involvement of people in face-to-face encounters. His particular emphasis was on how this patterning is related to physical and interpersonal space. The study of significant sound contrasts in a spoken language is known as phonemics, so Hall called the study of the significant contrasts in spatial organization in interaction within a given culture *proxemics*. Since the mid-1970s the term has come to denote all types of studies of human

spatial behavior in social interactions. Such studies complement research in territoriality, crowding, and privacy and contribute to the body of data used by architects and environmental designers (see ARCHITECTURE; SPATIAL ORGANIZATION).

In the original conception of proxemics, physical settings (layouts of furniture, houses, streets, towns) together with the activities of people and their spatial perceptions form an intricate and dynamically balanced system in any given culture. The interactants' posture, orientation, eye contact, TOUCH, body heat, and SMELL, as well as style of speech and loudness of voice, vary according to their activity, relationship, feelings, and the type of spacing adopted for the duration of their encounter. See also BODY MOVEMENT; GESTURE.

According to Hall, members of Western societies regularly use four concentric *proxemic zones*, which he labeled, from smallest to largest, "intimate," "personal," "social-consultative," and "public" distances. Proxemic zones differ in terms of the quality and richness of the sensory input that those in them can obtain from one another through their EYES, ears, nostrils, and faculty of touch. At the intimate distance (e.g., mother-infant interaction) touching, heightened attention to body noises and smells, and the use of a narrowed field of vision play a crucial role. At the social-consultative (e.g., interview) or public (e.g., priest addressing a congregation) distances the information is gleaned through omnidirectional hearing and general 60- or 180-degree vision. There is a two-way relationship between the shifts in style of language used and the manner in which people orient their bodies, look at each other, and listen to each other. Thus, the head-on orientation, frequent and prolonged eye contact, and a semiformal manner of speech are both reasons for and consequences of the social-consultative distance.

The number of distinguishable proxemic zones, their size, and their relationship to behavior and layout of the setting are subject to people's perceptions and interpretations of space, and these, in turn, are structured by the culture in which the people have been reared. Members of different cultures could be thought to be living in different sensory worlds.

The study of proxemics involves intensive naturalistic observations, often using photographic, film, or VIDEO recordings, and also laboratory experiments, interviews, and analyses of literature, visual arts, and the language of a given community. Hall's work has been influenced by the views of linguists EDWARD SAPIR and BENJAMIN LEE WHORF on the interdependencies between culture and language. It has also been stimulated by research in KINESICS, paralinguage, INTERPERSONAL DISTANCE, and studies of spatial behavior in animals (see ANIMAL COMMUNICATION; ANIMAL SIGNALS).

See also INTERACTION, FACE-TO-FACE; NONVERBAL COMMUNICATION.

Bibliography. Edward T. Hall, *The Silent Language*, New York, 1959, reprint 1973; idem, *The Hidden Dimension*, New York, 1966; idem, *Handbook for Proxemic Research*, Washington, D.C., 1974.

T. MATTHEW CIOLEK

PSYCHOANALYSIS

In addressing the profound influences of psychoanalysis on ideas about human communication, the focus here will be on (1) major theoretical contributions of psychoanalysis to understanding communication, (2) clinical contributions of psychoanalysis to understanding obstacles to communication, and (3) implications of psychoanalysis for any theory of communication.

Psychoanalytic Theory

The contribution of psychoanalytic theory to the study of communication began with the first major work in psychoanalysis itself, SIGMUND FREUD's *The Interpretation of Dreams* (1900). The dream, which Freud described as "normal psychosis," serves as the model for communication in psychoanalytic theory. At the center of this theory is Freud's and his followers' accounts of the role of the unconscious in psychic life.

Freud's examination of dreams was meant to demonstrate how the mechanism of repression operates in relation to the unconscious. Simply stated, dreams communicate by a process of indirection unconscious wishes that otherwise remain unrecognized by the dreamer. It is the purpose of psychoanalytic interpretation to give a MEANING to dreams, in effect to reconcile two discrepant truths: what one dreams and what one's dreams mean.

Of course, the only MODE available to communicate what one dreams is some form of symbolic representation such as LANGUAGE OF ART (see SYMBOLISM). For the typical patient, talk is itself the manner in which dream-work is made available for interpretation. Psychoanalysis raises talk—any talk—to a level of importance unprecedented in the history of interpretation. The purpose of psychoanalytic theory and therapy is to match the truth of an interpretation with the truth of the dream itself. In this way a patient is able to discern not simply what has been repressed but also the elaborate means that have been taken by the mind to conceal its meanings and intentions.

The dream makes of everyone, as Freud said, a natural poet and thus raises everyone at least hypo-

thetically to the level of the most culturally esteemed of communicators. But the social esteem reserved for poets is, to this extent, parodied in the Freudian elevation of the natural talent of dreamers. Freud's discovery was that creativity had its predicates in the life of the unconscious. It is no coincidence that numerous artists and poets have been reluctant to undergo analysis, precisely because of its power to provide interpretations that would rationalize both motive and achievement.

In psychoanalytic theory the unconscious of each individual constantly communicates itself. In waking life these communications are symbolized in a broad range of behaviors: jokes (see HUMOR), SLIPS OF THE TONGUE, facial tics, compulsions—in short, in the extensive expressional life of human beings. By attempting to account theoretically for all actions and occurrences, psychoanalysis has claimed to show the organization of meaningfulness beneath the manifest surface of dreams and the random, seemingly insignificant aspects of waking life. Interpretation always threatens to become overinterpretation. Psychoanalytic theory has been criticized for its indeterminacy. But it is a retrospective rather than predictive science. What is communicated by way of analysis is thus imposed as interpretation rather than exposed as fact.

The method of free association, the recounting of dreams, and the interpretive questioning and offering of analytic constructions by the analyst are all intended to direct the patient to a limited range of unconscious predicates, including sex; death; and parental, sibling, and spousal relations. These predicates are themselves only representations of instinctual processes that are permitted entry into the mind through a series of distortions. The history of the psychoanalytic movement after Freud is in many respects a history of the relative weights attached to the influence of these predicates on psychic life.

The Clinical Setting

The clinical setting remains the locus for working out the aims of psychoanalytic technique. It is worth noting that the setting for psychoanalytic encounters calls for the patient to recline on a couch while the therapist is seated nearby. In other forms of therapy (e.g., psychotherapy, family therapy, group therapy) much greater emphasis is placed on face-to-face encounters (see INTERACTION, FACE-TO-FACE). From the standpoint of psychoanalysis the reclining patient, alone with his or her thoughts, is essential to the process of free association. The therapeutic setting is intended to encourage a form of communication that imitates the patient's dream state during sleep.

The emphasis that psychoanalytic treatment has placed on matters and relations pertaining to sex-

uality is so well known that a popular undermining of certain psychoanalytic insights has occurred. The patient's discovery of the Oedipus complex has therapeutic efficacy only to the extent that interpretations lead to resistances that in turn point the way back to a recognition of wishes (and, no doubt, events) that have been repressed. Freud was the first to admit that the analyst often fails to enable the patient to recollect what was repressed. But as long as the analyst can produce in the patient an "assured conviction" of the truth of a construction, the same therapeutic result will be achieved.

At stake in the production of assured convictions are the phenomena of transference and countertransference, two master terms in the vocabulary of communication in psychoanalysis. The concept of transference stipulates that through the patient's participation in analysis strong identifications with the analyst, both affectionate and hostile, develop. But the analyst is an "object" substituted for significant others in the patient's life. By clarifying in the course of analysis how these substitutions or displacements from the past operate, the analyst gives therapy. In this sense therapy is communication.

The significance of countertransference, both clinically and theoretically, has been a subject of considerable debate, and the function of language has figured prominently in this discussion. Psychoanalysts committed to a "drive model" explanation of neurosis view countertransference—those feelings and identifications that the analyst has for the patient—as fundamentally disruptive to the therapeutic aims of analysis. Countertransference points back to the analyst's unresolved neuroses and conflicts and thus interferes with the communication between analyst and patient.

On the other hand, a "relational" or "object relations" model incorporates the functions of transference and countertransference and treats them as essential components in the therapeutic process. This model concentrates on interpersonal and interactional dimensions in human development rather than on biological factors such as instincts, as is more characteristic of the drive model. In the drive model the obstacles to communication are viewed primarily as the result of imbalances in the psychic economy of the patient; an emphasis is placed on conflicts that arise from instinctual aggression and sexuality. In the relational model these obstacles are defined as conflicts that emerge from human relations themselves, including the relation between analyst and patient. The tension produced between competing explanatory models of human growth has been productive for the improvement of clinical psychoanalysis.

One example of a relational view of communication can be found in the work of British psychoan-

alyst Charles F. Rycroft, who has argued that the capacity for interpersonal relations depends on a person's ability not only to use objects to satisfy libidinal wishes but also to use language to maintain a continual separation of self from object, whether the object is present or not. SPEECH mediates between and connects the biological and the social. In psychoanalytic terms speech demonstrates that the id has been acted upon by external forces and in particular by the superego.

The debate among clinicians about the consequences of subscribing to one theoretical model or another is not likely to be resolved, in part because the relation between analyst and patient is neither separate from their biological existences nor grounded solely in their social and cultural milieus. At the same time, for therapeutic purposes theory is never divorced from the particular persons who participate in analysis and the circumstances in which the analysis takes place. HARRY STACK SULLIVAN once wrote that "communication is an exquisite triumph of trial and profit from shrewdly observed error." The authority of the analyst is established in the ability to communicate interpretive understandings of conditions that are both in and beyond the control of analyst and patient alike.

Implications

The contributions of psychoanalysis to theories of communication have been more preliminary than definitive. The writings of psychoanalyst Ernst Kris and psychologist David Rapaport, for example, contain provocative discussions of the importance of the psychoanalytic perspective for theories of mass communication.

Kris has noted that totalitarian and democratic forms of PROPAGANDA can be usefully distinguished in psychoanalytic terms. In the case of totalitarian propaganda the leader qua communicator is accepted as the audience's ego ideal. Identification in the superego alone produces a rigid CODE of emotional reaction in the audience and thus a submissive type of identification. This submissive reaction signifies a collective moment of regression in which intellectual and moral independence are renounced. On the other hand, democratic propaganda is said to produce two types of identification, one in the superego and the other in the ego. Kris linked ego identification in particular with what he described as the "birth of criticism," that is, a mode of identification in which members of an audience do not share the same reactions.

In following Kris's line of reasoning it is interesting to consider the implications for mass communications theory. A certain degree of "healthy" regression applies to all social orders, in which members may

share in the multiplicity of assured convictions that rituals of all kinds offer (*see* RITUAL). Freud's criticism of RELIGION as an illusion was similar to Kris's warning about regressive identification toward the state. But the similarity ends insofar as religion attempts to particularize the contents of experience in ways that separate persons from one another while binding them together in like faiths. Mass communications and modern propaganda are vehicles for universalizing the contents of experience in ways that unite persons while binding them to no faith in particular. The democratic and totalitarian orders have thus mastered the therapeutic utility of communication, appealing to and defining expectations with the assured conviction that no communication is infallible, especially when it is no longer useful.

Rapaport proposed exploring the structures of consciousness in which communication takes place, referring to them as "channels of communication." He cautioned that the generalizations made about identification and projection in clinical psychotherapy should not be simply transposed to group and mass phenomena. The danger implied suggests the central dilemma and responsibility of any elite, including the psychoanalytic, that would claim to educate. Rapaport concluded: "How to *indicate* without dishonestly *concealing* and without prematurely and destructively *revealing* the secret of one's life one cherishes or dreads, is the great enigma of communication."

Of all contemporary social movements, feminism has posed by far the most fundamental challenges to the organizing principles of psychoanalysis (*see* FEMINIST THEORIES OF COMMUNICATION; GENDER; SEXISM). In many respects these challenges turn precisely on the nature of human communication, between men and women, parents and children, even nation-states and their citizenry. The power dynamics inherent in these relations present one of the clearest expressions of the endless balancing between the biological and the cultural and between elites and masses. It is the natural function of elites to define the guiding principles of any CULTURE. As this function is assumed negatively in the form of criticism of prevailing balances, the therapeutic mode comes to take the place of earlier modes of communication.

The psychoanalytic framework has always presupposed the dyadic relation of analyst and patient. Treatment is administered on a one-to-one basis. The assimilation of psychoanalytic insight into social-scientific generalization may be limited to the extent that each intends to serve different aims. The humanities have been far more favorable toward the proposition that there can be no genuine creativity without criticism, for criticism—whether poststructuralist, deconstructionist, or otherwise—reveals the precedence of interpretation over what is interpreted (*see* AUTHORSHIP; STRUCTURALISM).

The priority of interpretation over what is interpreted parallels the analyst's position vis-à-vis the patient. Both relations are indubitably relations of authority. Psychoanalysis has shown the complexity inherent in these relations. It has sought to improve them. In so doing it has also exposed itself to the same relentless criticism that it seeks to communicate as a healthy state of mind. Its optimism is founded on discontents that can no more be frozen and resected than they can be once and for all times identified. Communication in psychoanalysis connotes a process. This triumph of the therapeutic comes, it may be expected, with its own discontents.

See also JUNG, CARL.

Bibliography. Merton M. Gill, ed., *The Collected Papers of David Rapaport*, New York, 1967; Jay R. Greenberg and Stephen A. Mitchell, *Object Relations in Psychoanalytic Theory*, Cambridge, Mass., 1983; Paul H. Hoch and Joseph Zubin, eds., *Psychopathology of Communication*, New York, 1958; Ernst Kris, *Selected Papers of Ernst Kris*, New Haven, Conn., 1975; Robert Langs, *Interactions: The Realm of Transference and Countertransference*, New York, 1980; Louis Paul, ed., *Psychoanalytic Clinical Interpretation*, New York, 1963; Philip Rieff, *Freud: The Mind of the Moralizer*, 3d ed., Chicago, 1979; Jürgen Ruesch, *Therapeutic Communication*, 2d ed., New York, 1973; Charles Rycroft, *Imagination and Reality*, New York and London, 1968.

JONATHAN B. IMBER

PUBLIC OPINION

Definitions of public opinion tend to fall into two categories, considering it either as a collection of individual opinions or a kind of social organization. The first school is represented by Albert Venn Dicey, a nineteenth-century legal scholar who described public opinion as "a general term for the beliefs held by a number of individual human beings." Those who define public opinion as what is found by attitude surveys follow a similar approach. *See* OPINION MEASUREMENT.

A different point of view was expressed by sociologist CHARLES HORTON COOLEY, who saw public opinion as "no mere aggregate of separate individual judgments, but an organization, a cooperative product of communication and reciprocal influence." Ferdinand Tönnies, a German sociologist, took a similar approach when he described public opinion as the unified opinion, or what passes for it, of a group of people, especially when it approves or disapproves. He notes that this is the sense in which the term is used in the German legal code of his time, which calls for appropriate punishment for anyone who "originates or disseminates information about another person that is designed to make this person

appear contemptible or to lower his standing in public opinion. . . .”

Another division is between those who use public opinion mainly or exclusively with reference to politics and those who apply the term to a broader range of phenomena. A frequently quoted definition advanced by Hans Speier describes public opinion as “opinions on matters of concern to the nation freely and publicly expressed by men outside the government who claim a right that their opinions should influence or determine the actions, personnel, or structure of their government.” Other social scientists see public opinion as also playing a role in economics, science, RELIGION, and many other domains. All usages at all times tend to assume that public opinion can exercise influence. Its power may be strong or weak, but the fact that it has the potential to exert force is one of the basic characteristics by which it is recognized.

History

Although the term *public opinion* was not generally used before the eighteenth century, earlier references to the phenomenon can be found. A letter from King Shamshi-Adad of Assyria (1815–1782 B.C.E.), for example, warns his viceroy against tampering with the land allotments of the inhabitants of the Euphrates region, since such action would surely provoke “loud public outcry.”

Austrian historian Wilhelm Bauer concludes that public opinion was an active force in the politics of classical Greece and Rome and had to be taken into account by the government, whether a dictatorship or a democracy. Indeed, the art of PERSUASION became so highly developed in ancient Athens that ARISTOTLE'S *Rhetoric* is still used as a text today. To illustrate the importance of public opinion to Roman politicians, Bauer quotes from a letter sent to CICERO by a friend when he was temporarily away from the capital: “If anything of greater importance of a political nature should occur, I will diligently describe to you its origin, the general opinion about it, and the prospects for future action that it opens up.”

Bauer and other historians who examine public opinion in previous centuries often treat the channels of communication as indicators, from whose nature and extent the existence and characteristics of public opinion can be inferred. Thus, during the medieval period in western Europe, when information channels extending beyond the village market were few, expensive, and often dangerous, public opinion played a relatively minor role. Currents of opinion did, however, have some importance in those locations that were better served by communications and where literate people congregated: Rome, other religious centers, and royal and ducal courts. But for the great

majority of the population, questions posed by daily life were usually settled by religion, custom, and the local authorities. See MIDDLE AGES.

As communication channels revived, the role of public opinion grew. The Italian city-states, which flourished from about 1200 to 1600, provided forums for lively debate on issues of all kinds among interested and concerned people, many of whom could read and write. Dante Alighieri (1265–1321) is labeled by Bauer as the first modern publicist, a social critic who used his pen and talent in mobilizing public opinion to oppose the abuses of his time. Tightly built urban centers, providing almost ideal conditions for the communication of ideas, developed north of the Alps also. Antwerp's stock exchange, the first institution of its kind, was founded in 1460 and rapidly became a world-class center for news and RUMOR.

The printing press, an even greater aid to communication than the city, spread rapidly throughout Europe following JOHANNES GUTENBERG'S first use of movable type in 1436 or 1437. It provided much of the fuel for the religious and national strife that enveloped Europe in the sixteenth and seventeenth centuries (see PRINTING). Regularly printed newspapers started to appear in several German principalities shortly after the year 1600. By the end of the century the major cities of Europe and some in other continents had newspapers, even though many were heavily censored or regulated. By the middle of the eighteenth century, when the French and American revolutions were brewing, substantial numbers of people in Europe and North America had become members of a group that political scientist Gabriel Almond has labeled the “attentive public.” These were literate people, mostly well-to-do, who took a continuous interest in political, social, and cultural affairs of the day. Typically, they lived in cities and read newspapers, many of which had by this time gained sufficient freedom to print news about controversial subjects and, as historian Stephen Koss notes, were regarded by the authorities as “vehicles of turbulence.”

When, at the end of the eighteenth century, the ancien régime in France was toppled and existing governments all over Europe were threatened, observers commonly blamed or praised public opinion for having played a major part in the upheaval. It became a subject that preoccupied politicians, political philosophers, and journalists. There was no doubt about its significance, although there was still some question about exactly what it was.

Formation of Public Opinion

For public opinion to form, three elements must be present: communication channels, issues, and pub-

lics. As historical surveys demonstrate, mass media are not necessary; more primitive channels are in some cases quite adequate, although a combination of mass media and interpersonal channels appears to be optimal. An *issue* may be defined as a question affecting a substantial number of people for which there is no generally accepted "right" answer, and which is therefore a likely subject for discussion. A *public* includes those people who give their attention to an issue; they must have at least some interest in it and must be able to learn something about it. Communication links issues with members of the public and may link members of the public with one another. The study of the formation of public opinion is essentially the study of the way these linkages are created.

A schematic description of the emergence of an organized body of opinion might identify the following stages. (1) An individual forms an attitude about an issue as a result of exposure to communications about it. If this attitude is then expressed in words, action, or gesture, it becomes an opinion. If it is never expressed, it does not become an opinion and plays no part in the public opinion process. Some individual ATTITUDES become part of public opinion on an issue only because they are expressed to a public opinion interviewer or in a voting booth. (2) Ordinarily, people voice their opinions about issues to members of one or more face-to-face groups to which they belong. If members of the FAMILY, neighborhood, or work group are in substantial agreement, a common opinion on the issue may develop. Opinions that meet strong opposition among a person's associates are likely to be changed, or the individual holding them may break with the group (see GROUP COMMUNICATION). (3) Through the mass media or interpersonal networks, people become aware of opinions among the larger public. If they find support for their own views, they tend to express these more often and more confidently; if they meet disapproval, they are more likely to remain silent. (4) When partisans become aware of others who share their opinions, a "we" feeling may come into existence. This body of opinion may grow by a snowball or spiral process until nearly everyone who is disposed to agree shares the "we" feeling.

In practice, public opinion on each issue follows a slightly different course. Not all stages can be identified in each case, and varying proportions of a public may be included in the body of opinion on an issue.

Whether person-to-person communications or the mass media are more important in the formation of an attitude on an issue depends on the individual's social environment and on the nature of the issue. People who have loose-knit networks of friends and acquaintances tend to rely more on the mass media for information about issues and for guidance in

forming their own attitudes; those belonging to intimate social groupings are more likely to acquire information and attitudes via word of mouth. Usually, mass media (including books and magazines) and personal sources complement and reinforce each other. A person may learn about an issue from a RADIO broadcast, talk about it with friends, and then go to a newspaper for further information (see NEWSPAPER: TRENDS). The resulting attitude is likely to be influenced strongly by a person's preexisting attitudes and values and by his or her social and economic situation.

Group pressures. Once attitudes are formed, and expressed as opinions, they often are modified so as to harmonize with the opinions expressed by others with whom one associates. Even if the attitudes themselves do not change, it is customary for them to be formulated in a way that does not do violence to the group consensus, if there is one. And the more closely group members are linked by a network of INTERPERSONAL COMMUNICATION, the more likely it is that a consensus will exist. The result of CONVERSATION about a subject within a group is ordinarily the formation of a common opinion, to which most members conform at least outwardly. Nonconformists are likely to remain silent or, if they differ strongly, to leave the group.

Dramatic examples of the power of neighborhood groups to enforce conformity could be found in the United States before the Civil War, when antislavery advocates living in the slave states of the South left those states by the thousands and settled in Ohio or in the Kansas-Nebraska territory. They could no longer live in communities with which they differed on such a vital issue. More mundane examples of group pressure can be seen prior to almost any ELECTION, when family, neighborhood, and work groups all tend to influence the voting intentions of their members.

When an issue is given attention by the mass media, the result is usually to encourage wider discussion and to promote the aggregation of opinions on the issue into one or more larger bodies of public opinion. Political scientist Bernard C. Cohen observed in connection with foreign policy questions that the media are not especially successful in telling us what to think, but are stunningly successful in telling us what to think *about*. Scholars later gave the name AGENDA-SETTING to this ability of the press to direct public attention to certain subjects.

Social movements. The opinion mobilization process is furthered also by the mass media's ability to stimulate group formation and even social movements. Tom Burns, a student of public opinion in eighteenth-century England, notes that the radical press, including pamphlets, was of great importance in "articulating and promoting opposition and protests" and that newspapers "could themselves

provide the occasion for regular, semiclandestine meetings, it being common practice for them to be read aloud in public houses and coffee houses throughout the country." Much the same process could be observed in the growth of the women's movement in the United States and other countries in the 1960s and 1970s.

Examination of the women's movement, or of any major social movement, shows the reciprocal relationship between social movements and public opinion. A movement may arise in response to popular sentiment or an issue, but then one of its principal objectives becomes to influence the public. The opinions of those concerned about air, water, and soil pollution stimulated several movements to protect the environment, and most of these movements then launched massive publicity campaigns.

Information media frequently make it possible for individuals who otherwise might feel that they are alone in holding their opinions or are members of a small minority to gain courage from the knowledge that others agree with them. Perception of others' opinions affects one's willingness to speak out. Some researchers have found that those who think the attitude they hold on an issue is gaining ground are more likely to express this attitude. A circular process develops: more people voice their opinion when they think it is gaining ground, and some who hear this opinion are emboldened to express themselves. At the same time, those who hold dissenting opinions are less and less likely to be heard from. Eventually, opinion on one side of the issue dominates the public channels of communication; opinion on the other side exists but is not heard. This phenomenon has been called by Elisabeth Noelle-Neumann "the spiral of silence."

The spiral process can lead to a variety of configurations of public opinion. Only rarely are all members of a public prevailed upon to accept a particular point of view; there are almost always some hold-outs. Even in regard to questions of fashion in CLOTHING or SPEECH, nonconformists often flout the preferences of an overwhelming majority. Or there may be several contending bodies of opinion, each of which has "spiraled up" to a point where it has absorbed all, or nearly all, of those amenable to its point of view on the issue in question. This is often the state of public opinion prior to elections in those democratic countries in which two major parties enjoy almost equal support.

Social Effects of Public Opinion

There are two major categories of social effects of public opinion, usually labeled *social control* and *decision making*. The idea that public opinion can play a role in social control—namely, in causing individuals and groups to conform to social norms

and standards of behavior prescribed by larger or superordinate societal units—is implicit in the way the term is frequently used. In a popular French novel from the late eighteenth century a young woman is warned against associating with a man of bad repute, since even if he should change his ways public opinion would remain against him. In *Henry IV* Shakespeare has the king urge his son to have more regard for opinion, and not be seen too often in bad company. Similar statements can be heard today.

Sociologists have noted the part played by public opinion in social control. Edward A. Ross, in the first volume of the *American Journal of Sociology* (1895), spoke of public opinion as "an instrument of discipline . . . the judgment the public pronounces on an act as to whether it is righteous or wicked, noble or ignoble." ROBERT PARK and Ernest W. Burgess, in their early and influential sociology text, *Introduction to the Science of Sociology* (1921), designate public opinion as the dominant form of social control in secondary groups and cities, where "fashion tends to take the place of custom." Tönnies went even further, attributing to public opinion much of the social control function that had in former times been exercised by religion.

To exercise such a function, the existence of public opinion must be known to the person or group whose behavior is to be controlled. GOSSIP cannot influence behavior if the victim never learns about it. The victim may go about his or her business, not comprehending the social snubs or economic discrimination he or she encounters. Politicians, corporations, and government agencies frequently subscribe to clipping services or commission private polls (*see POLL*) to learn about public reactions to their activities. If the "image" is bad, the offending behavior may be corrected, or, more commonly, a PUBLIC RELATIONS campaign may be undertaken. Those who, fearing public disapproval, attempt to keep secret their activities and sometimes their thoughts are implicitly paying tribute to the effectiveness of public opinion as a form of social control.

Related to social control is the decision-making function of public opinion in society. In social control a consensus forms and influences some behavior that deviates from a norm; in decision making, the consensus determines what the group as a whole should think or do.

The decision-making function of public opinion is most obvious when it is formalized in a constitution that calls for elections. Less obvious but more common is the case in which public opinion comes into play in problematic situations where no laws, customs, norms, or other rules apply, or where there is a dispute about their suitability.

Public discussion of an issue frequently leads to the establishment of norms of conduct or the passage of laws. Park saw some rules of behavior as "judg-

ments of public opinion in regard to issues that have been settled and forgotten." Prior to the mid-twentieth century, for example, it was accepted that a male passenger in a public conveyance should offer his seat to a female passenger if she had none. This norm of conduct came under question as the women's rights movement gained momentum. There was a period of discussion; dominant opinion came to hold that it was not required for the male passenger to stand. This judgment came to be embodied in a new norm.

Whether a law or some other kind of rule is or is not an outgrowth of the public opinion process, it cannot survive without public support. The statement of eighteenth-century Scottish philosopher David Hume that it is on opinion only that government is founded is regarded by some scholars as being extreme, but that it includes a large measure of truth is rarely disputed. Social scientists have found that any law, unless it is accepted by a substantial majority, is likely to become a dead letter. Similarly, public acceptance of a solution to a crisis, worked out by politicians, is often the outcome of a consensus built through publicity and wide discussion. Such a consensus was created, for example, during the Watergate affair in the United States and was one of the reasons the potentially divisive issue did so little damage to the country.

Change and Manipulation of Public Opinion

Communication channels, issues, and publics are the principal elements involved in the change of public opinion, just as they are involved in its formation. Issues change not only because of new developments but also because old problems are settled. When discussion of a question leads to the establishment of a new norm, the enactment of a law, or the election of a particular candidate to office, public opinion on that issue tends to disappear.

On occasion one issue is pushed off center stage by another issue. Only a few subjects can be prominent in interpersonal channels of communication on any one day. Gossip places a premium on novelty and freshness; issues wear out and are replaced. The mass media are similarly limited. We sometimes say that a subject is "forced off the front page" by more sensational news.

Changes in public opinion may also occur because publics change. People become interested in different things. The bitter religious wars of seventeenth-century Europe were stilled not so much because accommodation between the Protestant and Catholic forces had been reached but because attitudes toward religion changed. As the advancement of science and the industrial revolution brought new ideas and concerns, especially to those with more EDUCATION,

religious questions that previously had been disputed with vigor came to be seen as less important. Smaller publics continued to debate these questions, but much of the public for the religious issue had been lost.

Those who seek to influence or manipulate public opinion frequently make practical application of what is known about its formation and change. If they have the power, they control and regulate the channels of communication, emphasize some issues while ignoring others, and do their best to mobilize publics that will favor their policies.

Those who have power can often keep issues under control. A government can release or withhold a controversial report. Those who have less power may not be able to create or eliminate issues in this manner, but they can emphasize certain subjects and ignore others. It is customary for political candidates, with the help of their campaign advisers, to select and emphasize certain issues, hoping to direct public attention to them. Advertisers do the same thing. They may not be able to improve a product, but they can stress some of its characteristics and gloss over others. One reason diplomats at international conferences fence so fiercely over the agenda is that whatever is talked about is likely to influence public opinion one way or the other (*see* DIPLOMACY).

Equally common, or perhaps more so, are efforts by opinion manipulators to build publics and mobilize bodies of opinion. Jean Stoetzel notes that one of the most elegant techniques of PROPAGANDA is to build on scattered, private opinions, and to crystallize these into public opinion: "Vague hopes can be utilized" and "diffuse discontent can be merged into a revolutionary current." Those who are leaning toward a particular party or candidate, or are already exercised about an issue, can often be mobilized by campaign propaganda and incorporated into a body of supporting opinion.

Nearly everyone is concerned with the manipulation of public opinion. Even those who take no interest in public affairs are likely to try to influence the opinion that other people have of them. And most of us, at one time or another, engage in propaganda designed to mold opinion regarding issues that affect our community, organizations to which we belong, or our country as a whole.

See also NEWSPAPER: HISTORY; OPINION LEADER; POLITICAL COMMUNICATION—HISTORY.

Bibliography. Wilhelm Bauer, *Die öffentliche Meinung in der Weltgeschichte* (Public Opinion in World History), Potsdam, 1929; Bernard Berelson, Paul F. Lazarsfeld, and William McPhee, *Voting: A Study of Opinion Formation in a Presidential Campaign*, Chicago, 1954; Tom Burns, "The Organization of Public Opinion," in *Mass Communication and Society*, ed. by James Curran, Michael Gurevitch, and Janet Woolcott, London, 1977; Charles

Horton Cooley, *Social Organization: A Study of the Larger Mind*, New York, 1909, reprint New York, 1962; Albert Venn Dicey, *Lectures on the Relation between Law and Public Opinion in England during the Nineteenth Century*, London, 1905, reprint New York, 1978; C. Wendell King, *Social Movements in the United States*, New York, 1956; Gladys Engel Lang and Kurt Lang, *The Battle for Public Opinion: The President, the Press, and the Polls during Watergate*, New York, 1983; Harold D. Lasswell, Daniel Lerner, and Hans Speier, *Propaganda and Communication in World History*, 3 vols., Honolulu, Hawaii, 1979–1980; Dan D. Nimmo, *The Political Persuaders: The Techniques of Modern Election Campaigns*, Englewood Cliffs, N.J., 1970; Jean Stoetzel, *Esquisse d'une théorie des opinions* (Outline of a Theory of Opinions), Paris, 1943; Ferdinand Tönnies, *Kritik der öffentlichen Meinung* (Critique of Public Opinion), Berlin, 1922; David Weaver, "Media Agenda-Setting and Public Opinion: Is There a Link?" in *Communication Yearbook 8*, ed. by Robert N. Bostrom and Bruce H. Westley, Beverly Hills, Calif., 1984.

W. PHILLIPS DAVISON

PUBLIC RELATIONS

Information activities and policies by which corporations and other organizations seek to create ATTITUDES favorable to themselves and their work and to counter adverse attitudes. Public relations may be administered by an in-house department or by special public relations agencies or counselors engaged for the purpose. The term *public relations* is used at some corporations to cover all kinds of informational activities addressed to the public, including advertising; in more typical usage, it excludes advertising. This article discusses nonadvertising aspects. The two fields have developed separately, although in recent years a number of large advertising agencies have taken over the ownership of major public relations agencies. For the range of information services generally included in advertising, see ADVERTISING.

Genesis

In the early years of the twentieth century, public relations emerged as a distinct occupational pursuit in the United States to provide counsel and policy guidance to large business corporations. Often the managements of these companies found themselves the target of government, press, and public criticism for their allegedly insensitive or unethical business practices. Their leaders turned to early public relations counselors to help create greater public understanding and support for their operations.

Several of these pioneer counselors played significant roles in shaping the early practice of public relations. For example, Ivy Lee, a former newspaperman, served the Rockefeller family for many years,

and the prestige of that support gave an important endorsement to this field. Two senior executives of the American Telephone and Telegraph Company, Theodore N. Vail and Arthur W. Page, provided role models that influenced other large companies in structuring their public relations operations. Finally, in Edward L. Bernays, who described public relations as "the engineering of consent," the profession found a particularly articulate spokesman, able to exercise considerable influence on both corporate and academic audiences. After the era of these pioneers, the number of public relations practitioners increased considerably, but the profession did not produce leaders of comparable stature and importance.

Up to the post-World War II period, clients for these services were largely business corporations and their trade associations. Since then, however, other groups—including local and national governments and a host of not-for-profit institutions such as schools, hospitals, health care agencies, religious groups, and political parties—have made extensive use of public relations techniques, although different terminology may be used.

The Field

A past president of the Public Relations Society of America once suggested, half in jest, that the practice of public relations could be defined as "what public relations people do"; the suggestion has merit and some obvious limitations. The field encompasses many different activities depending on the needs and financial resources of the client and the particular climate of opinion that obtains when the client organization defines its problems. On a policy-making level, public relations professionals are expected to counsel top management with respect to the early identification of significant social, economic, and political issues that might adversely affect their operations. This emphasis on issue management contrasts with earlier concerns of public relations workers, who concentrated on the identification of particular hostile or uninformed audiences considered to be prime targets for a public relations information program. The issue-management approach, on the other hand, recognizes that people of diverse social, economic, and ideological backgrounds may find themselves on common ground with respect to their attitudes on controversial public issues.

Apart from counseling management, public relations professionals carry out a wide range of more routine tasks designed to ensure a continuous flow of information to key publics. These activities usually include the preparation of speeches and background briefing papers for major executives and a wide range of periodic reports to employees, customers, community groups, shareholders, and others interested

in the current and future plans and activities of the organization in question. In addition, public relations staff personnel are expected to cultivate ongoing and friendly relations with representatives of the media, with their employers' professional and trade associations, and with relevant government regulatory agencies and policy-making bodies.

Organizations that can afford to staff large public relations departments will often employ personnel with special communications skills. Some devote their talents to creating special exhibits for trade shows or for meetings of important OPINION LEADER groups. There is a long-term tradition for programs designed to reach students and teachers, with the intention of helping to shape the thinking of tomorrow's leaders. Booklets and speaker programs frequently are part of the effort to reach educators and other molders of community opinion such as religious leaders. In recent years growing attention has been given to recruiting public relations personnel with expertise in dealing with the concerns of consumer groups, environmental protection organizations, and diverse elements in the population with a special interest in affirmative action programs.

Among innumerable devices and approaches available to public relations practitioners, a favorite Bernays plan was to organize citizen committees dedicated to a public purpose, which would somehow dovetail with the purposes of a client. During a 1930s flu epidemic Bernays stirred up concern about unsanitary glassware in soda fountains and restaurants as channels of infection, and persuaded various health officials to serve on a Committee for the Study and Promotion of the Sanitary Dispensing of Foods and Drinks. Its pronouncements were prominently reported in the press and on radio. Its participants were largely unaware that the committee was designed to set the stage for a promotion campaign on behalf of Dixie paper cups, a Bernays client. In such situations it seemed best for the role of the public relations adviser to remain out of the limelight. Bernays once discovered during a lunch with Lee that both were public relations advisers to American Tobacco Company. Both had held these positions for some time, each totally unaware of the other's similar involvement. Bernays writes in his memoirs: "I never asked Ivy Lee what he did for American Tobacco. The result of his work wasn't noticeable to me, nor was my work noticeable to him. When my advice called for action, it was usually the company that carried it out." This penchant for behind-the-scenes counsel makes it difficult to chronicle fully or accurately the achievements of public relations.

Training and Professionalism

There are no legal constraints anywhere in the world to prevent anyone from claiming to be a public

relations expert. From time to time some public relations leaders have advocated licensing for their field, but most appear vehement in opposing such intrusion of government into their profession. Professional societies serving the public relations field exist in many countries of the world at both local and national levels. Their preoccupation with defining and enhancing ethical practices reflects their concern with the ambivalent image of the field within the intellectual community and the mass media, which perceive public relations as a manipulative and self-serving occupation available to a client for hire. Film, television drama, the press, and politicians reinforce this stereotype when they dismiss actions or statements by public figures as simply "public relations gestures." Related to this problem is the growing trend on the part of many organizations to use other names to describe the public relations function: public affairs, media relations, public information, and external relations, to name a few. This practice may reflect a hostility and suspicion encountered by public relations personnel within the organizations they serve. In contrast to a traditional-line department that can point to hard data to demonstrate its contributions to the growth and well-being of the organization, a public relations department almost never generates comparable data. Perhaps for this reason, public relations executives are rarely moved into top operating management positions of large organizations. More often, the public relations department is used to provide on-the-job sensitivity training to a high-potential executive who might benefit from a limited assignment to a department dealing with the "people problems" of business.

Despite its critics inside and outside the profession, public relations shows every indication of being a growth field in many countries. Clearly, many companies and institutions feel the need for this expertise in trying to reach audiences that are already saturated with an endless barrage of sophisticated messages from other sources. With the future characterized as an information society, many executives look to public relations for help in charting a reasonable course of action and policy in dealing with that future.

Bibliography. Robert O. Carlson, "Public Relations," *International Encyclopedia of Social Sciences*, Vol. 13, 1968 ed.; Scott M. Cutlip and Allen H. Center, *Effective Public Relations*, 6th ed., Englewood Cliffs, N.J., 1985; Philip Lesly, ed., *Lesly's Public Relations Handbook*, 3d ed., Englewood Cliffs, N.J., 1983.

ROBERT OSKAR CARLSON

PUBLIC SPEAKING

The role of public speaking can be traced as far back as the third century B.C.E. in Egypt and China. It has

had different roles in different societies. Western scholars have argued that only a political democracy will produce public speaking of high quality in both content and artistry. With the death of the Roman Republic "a hush fell upon eloquence," Tacitus said. The Western tradition has its roots in Greek thought, Roman law, and eighteenth-century rationalism. But public speaking has been important in societies without this tradition.

China. China especially appears to have had a richly developed tradition of public speaking. Perhaps public speaking developed more fully in China because of the role of the sovereign. Chinese rulers ruled "by the mandate of heaven," and when there was widespread disapproval of the ruler it was assumed that the mandate had been revoked and revolution became a duty. Therefore rulers had to convince the people that their decisions were correct and consider disagreements with their views.

Three kinds of speeches were identified in ancient China. The first was charges to armies before a battle; the second was instructions, which the ruler gave to ministers or ministers gave to the ruler; the third was announcements, the persuasive statements the king gave to the court or the people.

This third form can be illustrated by three speeches given by Pwan-Kang of the Yin Dynasty, who reigned from 1401 to 1374 B.C.E. and who moved the capital from the north to the south bank of the Yellow River for protection from floods and marauding tribes. To stem the restlessness of people forced to leave homes and the burial grounds of their ancestors, he gave three speeches. The first was to his court and the others to the general population. Each speech was adapted to the particular audience and offered a mixture of authority assertion, ancient sources of wisdom, and conciliation. These speeches make clear that even a ruler of that era had to be persuasive. They also reflect the Chinese value of harmony with the ancient past. Chinese speeches used examples and analogies from the ancient authorities (including the *Book of History*, which is mostly a collection of speeches dating from the twenty-third century B.C.E.). Further, the speeches were depersonalized in established and ritualistic ways: the speaker's purpose was to clarify community meaning rather than to argue for a change. Even modern Chinese communicators have tended to reconcile Marxism with the traditional public speaking assumptions of ancient China. See also EAST ASIA, ANCIENT.



Figure 1. (*Public Speaking*) Speaker in Hyde Park, London, 1933. The Bettmann Archive/BBC Hulton.

India. Principles of public speaking in India can be traced to the rhetorical traditions of Hinduism, as embedded in its ancient literature. The role of the speaker was to reveal hidden truths that were part of the basic nature of the universe, not to argue for a particular position or to try to refute counterpositions offered by others.

The idea of universal truths was questioned later by those who argued over who knew the real truth. In the century of the birth of Buddha, debating seems to have become a prominent feature of Indian intellectual life (see FORENSICS). Heads of families met in community halls to debate both legislative and judicial matters. Brahmins; priests of Jainism, Hinduism, and Buddhism; and wandering skeptics debated before large audiences. The rigid caste system limited participation to the Brahmins, who were originally created "from the mouth of Pursha," the creator of the world. Only they could memorize the sacred texts or even listen to them.

Buddha (ca. 563–ca. 483 B.C.E.), whose first recorded speech was the "Sermon in the Deer Park," seems to have been a compelling speaker. He felt that effective oral presentation was crucial for the spread of doctrine and stressed to his disciples the arts of delivery. He used parables, questions, and humor that would be relevant to his immediate listeners.

Native Americans. European explorers to the New World commented on the oratorical skill of the natives they encountered—among them Malinche, a Tarascan woman who spoke several American Indian languages and who served as a diplomat for Cortés. Another was the San Juan Indian Popé, who led the Pueblo rebellion of the 1680s in what is now the southwestern United States, proclaiming that the Great Father had told him the foreign invaders must be driven out.

For many tribes of North American Indians, the council fire meeting was the setting for much of the ORATORY. A tribe's best orator was not necessarily a warrior or chief, but one who knew tribal history and traditions and was also a persuasive speaker. The content of an orator's speech was drawn from tribal experience, in consultation with other wise men of the tribe. Like speakers in some oriental societies, they did not so much argue as explain, using analogies to nature's ways. The use of METAPHOR was common, and brevity was admired.

The last half of the eighteenth century is considered the golden age of American Indian oratory. Joseph Brant (Mohawk), Tarhe (Wyandot), Little Turtle (Miami), Logan (Cayuga), Red Jacket and Cornplanter (Senecas), and Farmer's Brother were among the most accomplished public speakers. In the nineteenth century Sitting Bull, Red Cloud, and Spotted Tail (Sioux), Chief Joseph (Nez Percé), and Little Crow III were outstanding. Even today public speak-

ing based on tribal history and nature is important to Native American life.

Ancient Greece. The distinguishing feature of the Western tradition of oratory (as opposed to the non-Western) was speeches that argued policy (see RHETORIC). The fourth century B.C.E., the golden age of Athens, produced great speakers like Lysurgus, Demosthenes, Hyperides, Aeschines, and Dinarchus, who all excelled in the debating of policy. Demosthenes' speeches against Philip of Macedon are models of Greek deliberative oratory. He was a master of both style and argument, and his delivery was called "thunder and lightning."

One of the most celebrated speakers of his day was Pericles, whose speech honoring warriors killed in the Peloponnesian War (431 B.C.E.) is recounted by Thucydides. It has served as a standard for commemorative orations, never equaled except perhaps by Abraham Lincoln's "Gettysburg Address." See also HELLENIC WORLD.

Ancient Rome. The period of Roman democracy produced many outstanding orators, but the greatest legal and deliberative speaker was Marcus Tullius CICERO (106–43 B.C.E.), who, in addition, was the author of several influential books on oratory. He was so impressive as a speaker that the Roman rhetorician Quintilian said, "Cicero is the name, not of a man, but of eloquence." He is best known for his combination of analytical argumentative skill and strong audience motivations. See also ROMAN EMPIRE.

The preaching tradition. When the Roman democracy ended, the significance and quality of deliberative and forensic speaking declined. But a new kind of public speaking—preaching—was to emerge from the Christianization of Europe. The two most important preachers in the New Testament were prime actors in that drama: Jesus and Paul.

A later period of great preaching came in the fourth and early fifth centuries, with Augustine, Tertullian, and Chrysostom. Although they considered the writings of ARISTOTLE and Cicero pagan documents, they drew heavily on classical rhetorical theory.

In the scholastic period from the eleventh to the fourteenth century such speakers as Peter the Hermit and Urban II were noted for their persuasive oratory on behalf of the Crusades (see CRUSADES, THE). The next two centuries are memorable for the preachers of the Reformation: Huldrych Zwingli, John Calvin, Hugh Latimer, and MARTIN LUTHER. Richard Baxter, who preached in the seventeenth century, is perhaps the most important name in English Puritanism. Puritan preaching is characterized by close attention to text and avoidance of excessive emotion. Perhaps the most significant Catholic orator of that time was Jacques-Bénigne Bossuet.

Methodist George Whitefield, who was influential

in both England and the United States, and Puritan Jonathan Edwards (United States) were dominant preachers of the eighteenth century. The circuit-riding preachers of the nineteenth century drew on the techniques of Edwards, ushering in a tradition of text-bound, free-will evangelism that can be traced through Charles Finney, Dwight L. Moody, Billy Sunday, Aimee Semple McPherson, and others to the radio and television evangelists of another day.

William Ellery Channing made the early nineteenth-century case for Unitarianism. Liberal Protestantism represented by the social gospel found its most important exponents in George Herron in the nineteenth century and Harry Emerson Fosdick in the twentieth. Bishop Fulton J. Sheen became the most important Catholic orator of the twentieth century through his humorous and stylistically elegant television sermons, which were viewed by millions. *See also* HOMILETICS; RELIGION; RELIGIOUS BROADCASTING.

England. The Glorious Revolution of 1688 inaugurated the British parliamentary tradition of debate, which has produced outstanding orators on a host of important issues such as taxation, empire, slavery, reform, and war. The late eighteenth century has been called the golden age of British political oratory. Its great speakers included William Pitt the elder and William Pitt the younger, Charles James Fox, Richard Sheridan, William Wilberforce, and Edmund Burke. Burke is of special note because his orations advocating conciliation with the American colonies served as student models of organization and argument for more than a century.

Thomas P. Macaulay, Benjamin Disraeli, and William Gladstone were the great parliamentary speakers of the nineteenth century. Probably the most widely heralded speaker of the twentieth century was Winston Churchill. As prime minister, rallying the British against Nazi Germany, he became famous for such phrases as "blood, sweat and tears." In the words of Edward R. Murrow, he "mobilized the English language and sent it into battle." His oratory was marked by an elegance of metaphor and rhythm. Nazi Germany, too, was spellbound by oratory, as Adolf Hitler used Germany's shame over the loss of World War I, the devastation of the Great Depression, and German racial myth to weave powerful appeals that combined scapegoating with master-race theories.

The United States. The most revered leaders of the young republic—George Washington, Thomas Jefferson, and Benjamin Franklin—are recognized for significant individual speeches such as Jefferson's "First Inaugural," which has been a model for subsequent presidents. However, the most famous orators of the revolution were people like James Otis, Samuel Adams, and Patrick Henry, who, despite the questionable authenticity of his "Give me liberty or give me death,"

was an acknowledged oratorical leader both of the revolution and of the debates over the Constitution.

What has been called the golden age of American oratory, the first half of the nineteenth century, was characterized by classical allusion and complex but balanced sentences. The most important speakers of the day were Daniel Webster, Henry Clay, and John C. Calhoun. Their debates on the slavery question, revolving around constitutional rather than moral grounds, culminated in the Compromise of 1850. Daniel Webster's fame as an orator rests not only on his role in Senate debates but also on his arguments before the U.S. Supreme Court and on ceremonial orations such as his "Bunker Hill Monument Address."

The early nineteenth century was also the period when professional lecturing first became organized and featured speakers like Ralph Waldo Emerson and Wendell Phillips. In 1826 Josiah Holbrook suggested community "lyceums" for the presentation of educational lectures. Professional lecturing was further developed by later movements such as Chautauqua. More moralistic in its tone, it featured such popular speeches as William Jennings Bryan's "Prince of Peace" and Russell Conwell's "Acres of Diamonds." Chautauqua lasted into the middle of the twentieth century.

Various nineteenth-century reform movements in the United States produced a host of celebrated public speakers. Many spoke for women's rights, including Lucretia Mott, Lucy Stone, Ernestine Rose, Elizabeth Cady Stanton, and especially Susan B. Anthony. These women exhibited a variety of styles, some quiet and reasoning, others condemnatory and abusive. Some argued that women were superior in conventional morality and would improve the conduct of political life; others argued for a radicalization of contemporary values by advocating such causes as free love. In the last half of the twentieth century the women's movement has dealt with a variety of issues, most notably the proposed Equal Rights Amendment.

The slavery issue and the Civil War produced notable speeches by William Lloyd Garrison, Wendell Phillips, and black orator Frederick Douglass. Unique among public speakers of the period was Lincoln, whose attempts to save the Union included careful reasoning, modest but precise style, and complex, even mystical thought. His "Cooper Union Address," the "Gettysburg Address," and his two inaugural addresses are considered masterpieces.

The role of black orators increased during the following century. They included Booker T. Washington, president of Tuskegee Institute, who stressed the need for education and meanwhile asked blacks to be patient, in contrast to the more militant W. E. B. Du Bois, who called for full social and economic equality and organized the movement that

became the National Association for the Advancement of Colored People. Meanwhile, Marcus Garvey led a Back to Africa movement, arguing that any attempt to assimilate with whites was futile. In later decades this nonassimilation position was held by powerful speakers of the Nation of Islam, most notably Malcolm X, who used mordant humor to ridicule white separatist policies.

Probably the most influential speaker of the civil rights movement in the 1960s was Martin Luther King, Jr., who won broad support among both blacks and whites. His speaking reflected his origins in the black church. It was characterized by value-intensive language, repetition, metaphor, and alliteration with minimal argumentation. His speech "I Have a Dream" is regarded as a modern classic.

With late-nineteenth-century industrialization came serious social problems and the amassing of huge fortunes. Socialism became a serious political force under the leadership of the carefully reasoned public addresses of Eugene V. Debs and, in the twentieth century, Norman A. Thomas. Existing industrial conditions were defended by Andrew Carnegie and other social Darwinists like William Graham Sumner. The Populist-Progressive movements countered, led by some of the most effective public speakers in U.S. history. William Jennings Bryan used Christian analogy and spoke the value language of the Midwest; his best-known speech is "The Cross of Gold." Albert Jeremiah Beveridge used elaborate appeals to patriotism, destiny, and racial superiority to spearhead the wave of enthusiasm for imperialism.

Perhaps the most effective speaker of the period was President Theodore Roosevelt, who, in speeches like "The Man with the Muckrake," was able to speak for the capitalist system and reform at the same time. The scholarly and puritanical Woodrow Wilson was a careful but moralistic speaker for reform. After World War I he campaigned widely for a greater U.S. role in international affairs via membership in the League of Nations, but he was defeated in the Senate by such orators as Henry Cabot Lodge.

In the following decades, with the rise of the broadcast media, new oratorical practices were added. The transition was epitomized by Franklin D. Roosevelt, who, in the midst of the Great Depression, began his term of office by telling a nationwide radio audience, "The only thing we have to fear is fear itself." His subsequent "fireside chats," delivered from a private room and heard by millions in their private homes, brought a new atmosphere of intimacy to a public function and has been used by every president and many other politicians since that time. The assembled crowd and the podium began to lose their central role. The age would still have orators, like Gamal Abdel Nasser of Egypt, Fidel Castro of Cuba, and many others, but even they were heard by most

of their people via broadcasts. With the ascendancy of television, national leaders throughout the world increasingly addressed their people in a conversational mode by means of the tube and microphone. Traditional oratory still flourished, but a new tradition of conversational public speaking was in the making.

Bibliography. William N. Brigance (Vols. 1 and 2) and Marie K. Hochmuth [Nichols] (Vol. 3), *A History and Criticism of American Public Address*, New York, 1943, 1955; Edwin C. Dargan, *A History of Preaching*, 2 vols., New York, 1905, 1912, reprint 1968; John F. Dobson, *The Greek Orators*, London, 1919; James L. Golden and Richard D. Rieke, *The Rhetoric of Black America*, Columbus, Ohio, 1971; Chauncey A. Goodrich, *Select British Eloquence*, New York, 1853; Richard C. Jebb, *The Attic Orators from Antiphon to Isaeas*, 2 vols., London, 1876, reprint New York, 1962; Louis T. Jones, *Aboriginal American Oratory*, Los Angeles, 1965; James H. McBath and Walter R. Fisher, eds., *British Public Addresses: 1828–1960*. Boston, 1971; Robert T. Oliver, *Communication and Culture in Ancient India and China*, Syracuse, N.Y., 1971; idem, *History of Public Speaking in America*, Boston, 1965.

MALCOLM O. SILLARS

PUBLISHING

This topic is discussed in two sections:

1. History of Publishing
2. Publishing Industry

1. HISTORY OF PUBLISHING

Broadly defined as the selection, reproduction, and circulation of written materials, publishing preceded the advent of PRINTING technology. However, as a discrete and specialized activity, it appeared only with the invention of printing and the beginnings of trade in the printed BOOK.

The introduction of movable type in Europe in fifteenth-century Germany and its spread to other countries made possible the publication of a wider range of works—among them scriptures, broadsides, pamphlets, maps, music, ballads, almanacs, newspapers, dictionaries, books, encyclopedias, periodicals, and "ephemera," including catalogs and posters. Each product, whether concerned with information or with recreation, has had its own history within a developing pattern of communications, shaped not only by technology but by economic, social, and political forces, of which the rise of LITERACY has been the most important. See CARTOGRAPHY; ENCYCLOPEDIA; NEWSPAPER: HISTORY; PAMPHLET; SCRIPTURE.

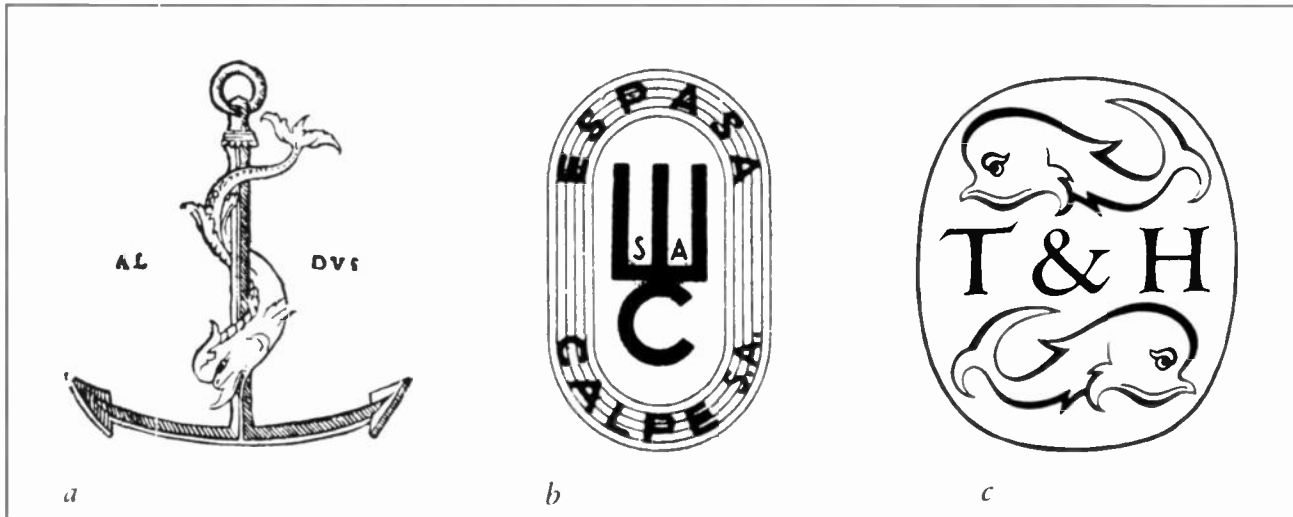


Figure 1. (*Publishing—History of Publishing*) Printers' marks. (a) Aldus Manutius, Italy, early sixteenth century, (b) Espasa-Calpe, S.A., Mexico, twentieth century, (c) Thames and Hudson, London, twentieth century.

The different units concerned with the preparation and distribution of printed publications have their own histories as well. They continue to represent a wide range in type and scale of operations and draw on traditional craft skills as well as on modern technology. Although there are now large integrated publishing concerns, some multinational, which publish different kinds of products (books, magazines, newspapers) and which through ELECTRONIC PUBLISHING have themselves become part of bigger media complexes, smaller specialized units continue to operate alongside them. In addition, there are traditional concerns, notably university presses, with a far longer continuous history than most other institutions in the field of communications.

While by its nature the whole activity of publishing involves an approach to the public or to specialized publics, some of the most interesting aspects of the history of publishing can be discovered only in still largely unexplored publishers' archives. The fact that more cataloging of archives is being carried out and that the whole subject of the history of the publishing industry (see section 2, below) is now being explored with increasing sophistication is in part a by-product of communications changes in the late twentieth century. The changing world of the book is being reexamined in the light of the history of film and television. Strictly bibliographical studies are now supplemented both by biographical and literary studies concerned with particular authors and by more general economic and sociological studies. The political dimension also is receiving more attention.

In the organizational history of the printed book, specialization in production preceded specialization in distribution, and it was not until the early nine-

teenth century that the distinctive role of the publisher was defined. Usually, according to the more recent definition, publishers were neither printers nor bookbinders. Nor were they general wholesale or retail booksellers. Their function was to arrange the production of books bearing their own imprints (usually at their own expense, though not necessarily of their own selection) and the subsequent distribution. Between the sixteenth and nineteenth centuries economic risks had passed from the printer to the bookseller and eventually from the bookseller to the publisher. There had also been a shift from control by authority to COPYRIGHT in the joint interests of publisher and author, although it was not until the nineteenth century that a system of payment to authors in the form of royalties on sales was established.

In most countries the chronology of change was not determined solely by market forces. The entrepreneurial role of the publisher took time to establish itself, and both patronage and control played a significant role in the handling of what was often considered to be a dangerous new mode of communication, whether old or new titles were being published. The authority of state, church, and university was enforced, although attempts were made to escape the CENSORSHIP of these institutions by means of guild organization and later through underground publishing.

Early history. In China, where printing from wooden blocks had been invented between the sixth and ninth centuries and from movable type during the eleventh century, the profit motive counted for little, and there was strong official initiative in determining what was printed and published. For this reason, the effects of

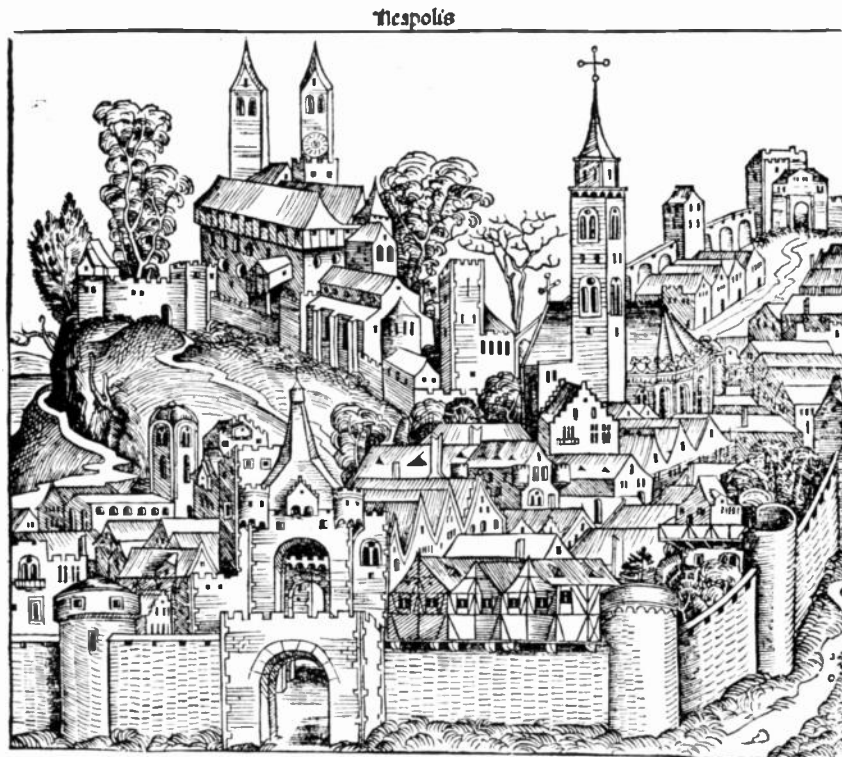


Figure 2. (*Publishing—History of Publishing*) “Neapolis”; a detail from Hartman Schedel’s *Liber chronicarum* (“The Nuremberg Chronicle”), published by Anton Koberger, 1493. Rare Books and Manuscripts Division, The New York Public Library. Astor, Lenox and Tilden Foundations.

printing on the scope and scale of publishing were severely restricted. In Europe, by contrast, the spread of printing encouraged commerce, sharpened religious and political controversy, favored the development of national languages, and played a key part in the scientific revolution of the seventeenth century. Yet there were controls there also. The Vatican decreed in 1543 that no book might be printed or sold without permission from the church, and the first list of banned books, the *Index*, was drawn up in 1559; while in Protestant England, where the Tudors feared subversive as well as heretical books, the chartered Stationers Company, founded in 1403, was given control of a licensing system that lasted almost continuously until 1694, when prepublication censorship was abolished. France instituted an even tighter system of control in 1618, the *Chambre des Syndicats*, which included two royal nominees. Control had interesting by-products, however. In England it influenced both the growth of copyright and the development of libraries; in 1610 the Stationers Company undertook to give Thomas Bodley’s eight-year-old library in Oxford a copy of every book printed in England, a privilege later extended to a number of other libraries by act of Parliament. See LIBRARY.

Before the rise of printing, books had been distributed in Europe by stationers, controlled by the universities. As a result, book copying, including the copying of secular texts, had become a sizable activ-

ity in a number of cities. With the invention of printing there was a huge increase in the number of titles and sales and a significant change in book format. Before 1500 there were at least thirty-five thousand book titles in western Europe, and 20 million copies had been printed, two-thirds of them in German cities, among which Frankfurt and Cologne were preeminent. Many of them made their way to readers in other countries. So, too, did printing and publishing techniques. The trade was innovative and competitive, and one entrepreneur, Johann Rynmann of Augsburg, who died in 1522, published nearly two hundred books without printing any of them.

From the start, publishers of printed books, like their readers, were concerned with the books’ appearance, design, and TYPOGRAPHY as well as with their content. Early printer-publishers, operating within the increasingly diverse cultures, included Anton Koberger of Nuremberg, whose books crossed many frontiers; the Estienne (Stephanus) family in France, who were to publish books—and dictionaries—without a break for five generations; Christophe Plantin, first of Paris and then of Antwerp; and later in the sixteenth century another Dutch publisher, Louis Elzevir, who like Plantin founded a flourishing family business. In Italy, where German printers had established themselves in the 1460s, book format was radically changed in 1501 when Aldus Manutius

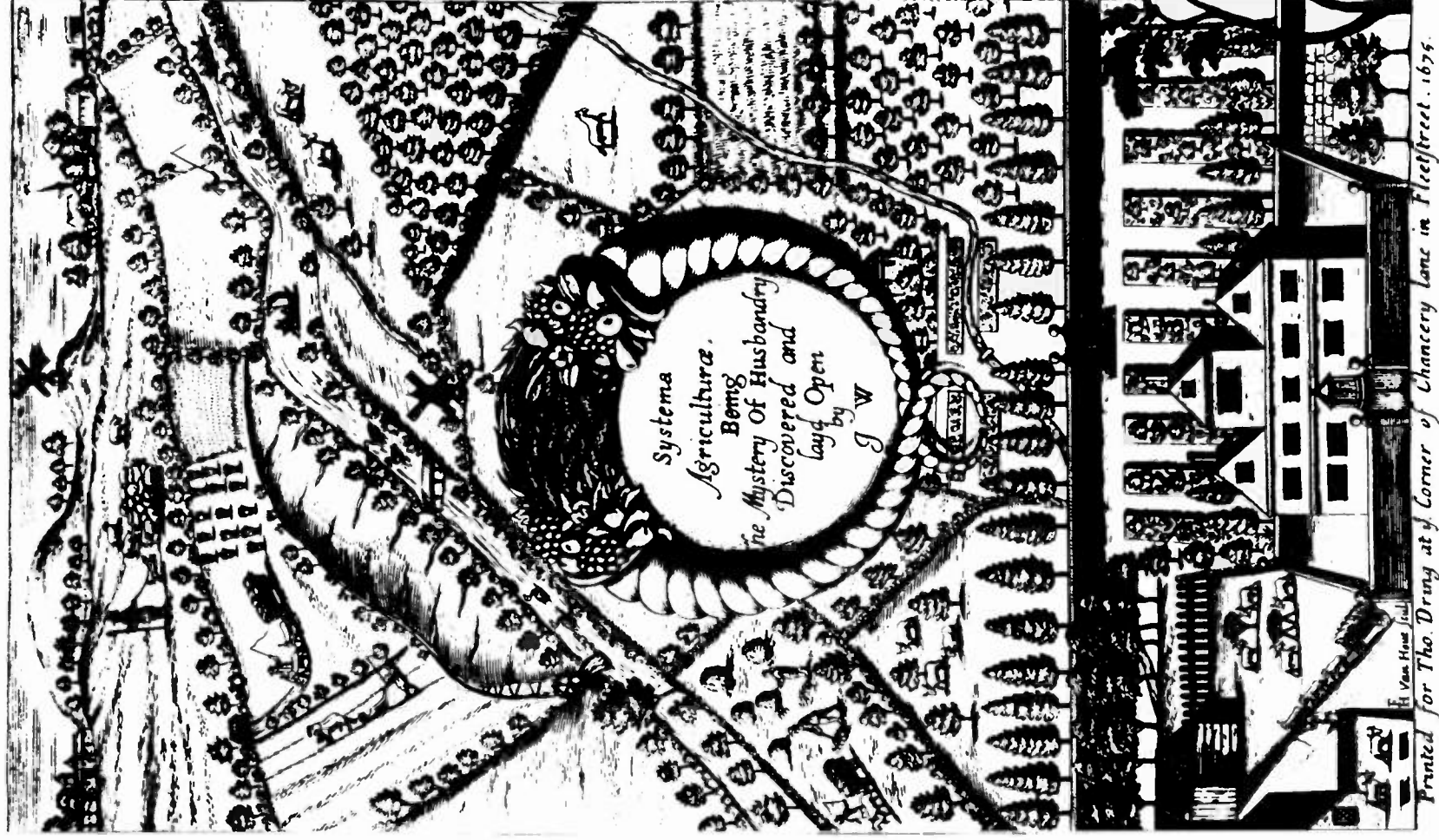


Figure 3. (*Publishing—History of Publishing*) Title page from a book on agriculture, 1675. Engraved by Frederik van Hove. From Alexander Nesbitt, ed., *200 Decorative Title Pages*, New York: Dover Publications Inc., 1964, plate 109.

designed books in manageable sizes, replacing huge, awkward codexes. The first book printed in the New World was produced in Mexico in 1538 and concerned Christian doctrine. Its printer, Juan Pablos, had been sent over by a printer-publisher of Seville, Juan Cromberger. Further north Stephen Daye and his sons produced their first book, a book of psalms, in Massachusetts in 1640.

Eighteenth century. In the eighteenth century, an age when the reading public, including a coffeehouse public and a circulating-library public, grew in size and sophistication, the novel developed as a literary form in a culture that from the beginning of the century had attached interest and prestige to belles lettres. There were financial consequences. Enterprising booksellers benefited from rising demand, and some of the publishing businesses founded then survived into the twentieth century, among them the Weidmann Company in Leipzig and the Longmans Company in England. One of the eighteenth-century Weidmann partners, Philipp Erasmus Reich, is said to have invented the net price agreement in the book trade and to have pioneered the idea of a booksellers' association. In England, where there were far-reaching commercial developments, the first copyright act in the world was passed in 1709. It was an attempt to limit both privilege and piracy in an effort to reconcile the interests of printers, publishers (depending financially on their MONOPOLY of their most profitable books), authors (increasingly conscious of their standing in society), and the public. It was the first in a long series of such enactments.

Before the royalty system of rewarding authors, one way of financing the publication of a book was to divide expenses among a number of booksellers who were styled partners; the system had first been introduced in fifteenth-century England. Another was to appeal to the public for subscriptions, a device also said to have been devised in the fifteenth century by the English printer WILLIAM CAXTON. The *Encyclopaedia Britannica* in 1768 was financed in this way. It was a characteristic product of its time, a compendium of knowledge to be set alongside the French *Encyclopédie* (see DIDEROT, DENIS), the circulation of which—and its influence in France and overseas—has been carefully plotted by Robert Darn-ton in a pioneering study of publishing as communication.

By the end of the eighteenth century a considerable measure of freedom to publish had been won in most countries. In England the licensing system was not revived after 1694, and while security of state was still treated as a paramount interest, the freedom of the press began to be decreed a bulwark of liberty. Even control in the name of security of state was difficult as the volume of published material increased; although in 1783 Lord Chief Justice Mans-

field observed in a case about seditious LIBEL that "the liberty of the press consists in printing without any previous license subject to consequences of the law," he added that "the licentiousness of the press is Pandora's box, the source of every evil." In the United States, where from the start there was no formal censorship, there were laws of libel, and Mansfield's complaint remained relevant in the twentieth century. In France, where until the Revolution a forceful publisher like Charles-Joseph Panckoucke had served the regime of censorship, the National Assembly of 1789 stated unequivocally that "the free communication of thought and opinion is one of the most precious rights of man: every citizen may therefore speak, write and print freely." Although freedom was short-lived, French publishing took on a new shape in the nineteenth century, when two great publishing firms—Hachette in 1826 and Larousse in 1851—were founded.

Nineteenth century. The biggest changes in the nineteenth century were technological, in the use of paper and illustrations as well as in printing and binding, and in commercial organization. Before the advent of electrical power there came the iron press and the age of steam. Coinciding with the development of mass literacy, made possible by public schooling, and the end of "taxes on knowledge," these changes raised output and lowered costs—dramatically in the case of paper. There were economic considerations independent of the new technology, however. For example, price regulation of books, foreshadowed in the eighteenth century, was established in Germany in 1887 under the auspices of a trade organization founded in 1825, and in Britain in 1901 under the auspices of a publishers' association founded in 1896. Copyright legislation, too, was extended after bitter experience of book piracy, particularly in the United States, where Harper, Scribner's, Dutton, and Little, Brown had entered the publishing business. The first international system of copyright was initiated by the Berne Convention of 1885. Some countries remain outside this agreement.

There have been variations in the speed of change in different countries, as there have been in the crucial relationships between publishers, authors, and readers as set out both in contracts and in advertisements. The development of the publishing pattern was part of a bigger communications pattern, including the coming of the railway and the telegraph, regular ocean transport, the daily newspaper, mass retailing, and the public library. There was a greater demand for both information and diversion. Some publishers tried to satisfy both; others specialized. "Railway literature" was designed for diversion. It included the novel as well as the MAGAZINE. Text-books provided one major source of information,

Flaubert
*L'éducation
sentimentale*

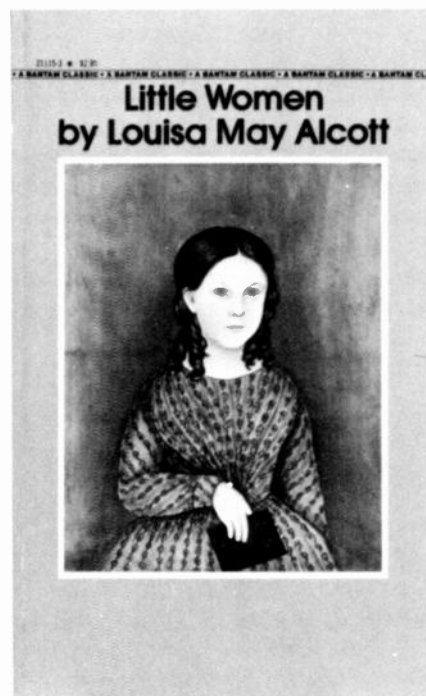
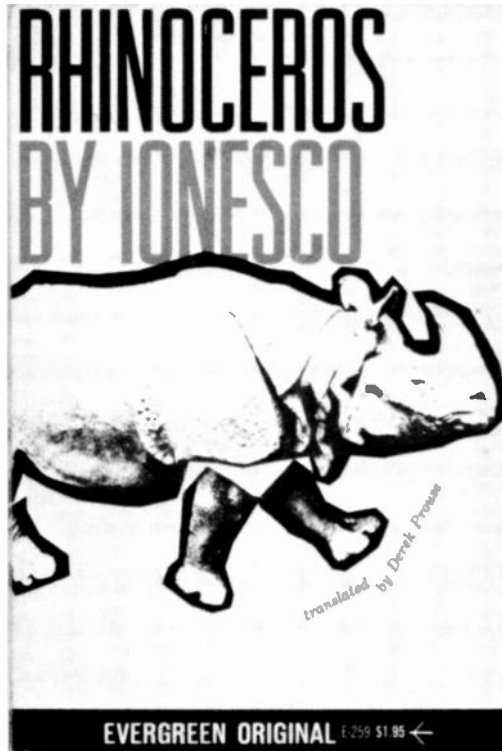


Figure 4. (*Publishing—History of Publishing*) Twentieth-century paperbacks. (*Top left*) Gustave Flaubert, *L'éducation sentimentale*, Paris: Gallimard, 1965; (*top right*) Eugène Ionesco, *Rhinoceros*, New York, 1960, courtesy of Grove Press, a division of Wheatland Corp.; (*bottom left*) H. A. Murena, *El nombre secreto*, Caracas, © Monte Avila Editores C.A., 1969; (*bottom right*) Louisa May Alcott, *Little Women*, New York: Bantam Books, Inc., 1983.

but many other kinds of informational materials were published as well. A number of authors began to employ literary agents from the 1870s onward, and some of them organized themselves in bodies like the British Authors' Society (1884) and the Authors League of America (1912). Meanwhile, a publishers' scouting system developed in the United States to discover manuscripts that might not otherwise have been noticed.

Twentieth century. Twentieth-century book publishing continued to reflect economic, social, political, technological, and cultural change, uneven though these changes were in different parts of the world. There were alternating booms and slumps in total sales in countries with private publishing businesses; competition, often fierce, between firms; changes in management styles; and the establishment of publishing consortia. The book club was a major social innovation with economic and cultural implications. The expansion of education, including higher education, at times greatly extended the market for all kinds of books. A paperback revolution, beginning in the 1930s but spreading through many countries in the 1950s and 1960s, led to a chain of developments in printing, photography, and computerization. It has sometimes been suggested that in an electronic age the book is dead, but what has happened rather is that books changed their appearance—and in some cases their uses. The largest modern publishing houses developed individual departments dealing with editing (an increasingly specialized function), manufacturing, accounting, and marketing—often by highly sophisticated promotion methods—as the rhythms of publishing became noticeably more hectic during the second half of the century.

See also ADVERTISING; AUTHORSHIP; GOVERNMENT REGULATION.

Bibliography. Richard D. Altick, *The English Common Reader: A Social History of the Mass Reading Public*, Chicago, 1957; James Barnes, *Free Trade in Books: A Study of the London Book Trade since 1800*, Oxford, 1964; Cyprian Blagden, *The Stationers' Company: A History, 1403–1599*, Cambridge, Mass., 1960, reprint Stanford, Calif., 1970; George Boyce, James Curran, and Pauline Wingate, eds., *Newspaper History from the Seventeenth Century to the Present Day*, London, 1978; G. A. Cranfield, *The Press and Society: From Caxton to Northcliffe*, New York, 1978; Robert Darnton, *The Business of Enlightenment: A Publishing History of the Encyclopédie, 1775–1800*, Cambridge, Mass., 1979; Robert Escarpit, *Le littéraire et le social: Elements pour une sociologie de la littérature*, Paris, 1970; Lucien Febvre and Henri-Jean Martin, *L'apparition du livre* (The Coming of the Book), Paris, 1958; idem, *Livre et société dans la France du XVIIIe siècle*, 2 vols., Paris, 1965, 1970 (Vol.

1 ed. by G. Bolleme, J. Ehrard, F. Furet, and D. Roche); John Lough, *Writer and Public in France from the Middle Ages to the Present Day*, Oxford, 1978; Martin Lowry, *The World of Aldus Manutius*, Ithaca, N.Y., 1979; Henri-Jean Martin, *Livre, pouvoirs et société à Paris au XVIIIe siècle*, 2 vols., Geneva, 1969; Robin Myers and Michael Harris, eds., *Development of the English Book Trade, 1700–1899*, Oxford, 1981; Lucy Maynard Salmon, *The Newspaper and the Historian*, New York, 1923, reprint 1976; Anthony Smith, *The Newspaper: An International History*, London, 1979; Susan R. Suleiman and Inge Crosman, *The Reader in the Text*, Princeton, N.J., 1980; Suzanne Tucoo-Chala, *Charles-Joseph Panckoucke et la Librairie Française, 1736–1798*, Paris, 1977.

ASA BRIGGS

2. PUBLISHING INDUSTRY

A network of organizations that interact regularly in the selection, production, and distribution of printed material. Particularly prominent are the newspaper (see NEWSPAPER: HISTORY), MAGAZINE, and BOOK publishing industries. Another important publishing sector in many countries is the direct mail industry (see DIRECT RESPONSE MARKETING). Also significant has been the development of ELECTRONIC PUBLISHING, in some ways an industry unto itself but with strong connections to the others.

The roots of publishing as an industrial activity predate even JOHANNES GUTENBERG's invention of the PRINTING press. Still, publishing remained almost a handicraft activity until about the nineteenth century; that is, one organization was often the publisher, printer, and seller of the reading matter, and that organization often comprised only a few people. Only in nineteenth-century Western society did the book publisher become distinct from the printer and the distributor. Moreover, each of these roles involved in getting material from the writer to a growing number of readers began to require the efforts of large and complex organizations. See section 1, above.

Structure

The structure of an industry typically refers to the pattern of interdependent behaviors—the roles—that characterize organizations making up the industry (see ORGANIZATIONAL COMMUNICATION). For example, a particular book publishing industry's structure might be found in the activities that printing firms, publishing firms, law firms, authors' guilds, wholesalers, retailers, libraries (see LIBRARY), and other entities carry out with one another.

The influences on the organizations that make up a publishing industry inevitably relate to the provision of resources to those organizations. People, sup-

plies, permissions, information, services, money—these are the material and symbolic resources that organizations involved in publishing must continually obtain from their environment (the other organizations in the industry and the society at large) if they are to survive. But the need for scarce resources faces all industries in any society. Decisions must be made about the amount and nature of resources that ought to go to publishing as opposed to other sectors. The activities of the people who constitute the organizations must be directed toward ensuring that they have the resources they need to carry out their work. That involves trying to adapt to the demands of their environment as well as trying to shape the demands of the environment to fit their needs.

A broad spectrum of resource-related considerations influences the structure of a publishing industry and, along with it, the amount and nature of published materials available in a society. One obvious prerequisite for a publishing industry is authors whose work can be selected for publication (see AUTHORSHIP) and a READING public that can support them (see LITERACY). Another is a set of spoken and unspoken values within the society about the benefits and drawbacks of certain approaches to the public dissemination of knowledge. A third is paper and the machines on which the selected material can be prepared, produced, and reproduced. A fourth prerequisite is the presence of distribution networks that can allow the producers to disseminate material efficiently to appropriate markets.

Illiteracy as a barrier to publishing is relatively unimportant in the developed world though still very much a concern in developing countries (see Figure 1). But illiteracy is usually only part of a wide complex of difficulties that publishers meet in Africa, Australasia (Oceania), and much of Asia and Latin America. The result is a startling disparity between the publishing output of the world's nations (see Table 1). The situation of the book industry in Africa is indicative. Potential book publishers on that continent typically confront strong oral traditions (see ORAL CULTURE) that militate against literacy and the desire to read, hundreds of different languages and dialects that have no written counterparts (see AFRICA, PRECOLONIAL), scarcity of skilled book-industry personnel, and a shortage of well-equipped modern printing establishments. They also find that elite African writers and readers have become dependent on the European languages for EDUCATION, commerce, administration, and intellectual communication. These elites tend to import most of their books and even turn to large transnational book publishers when they want to write books. See AFRICA, TWENTIETH CENTURY; DEVELOPMENT COMMUNICATION.

The amount and extent of indigenous publishing

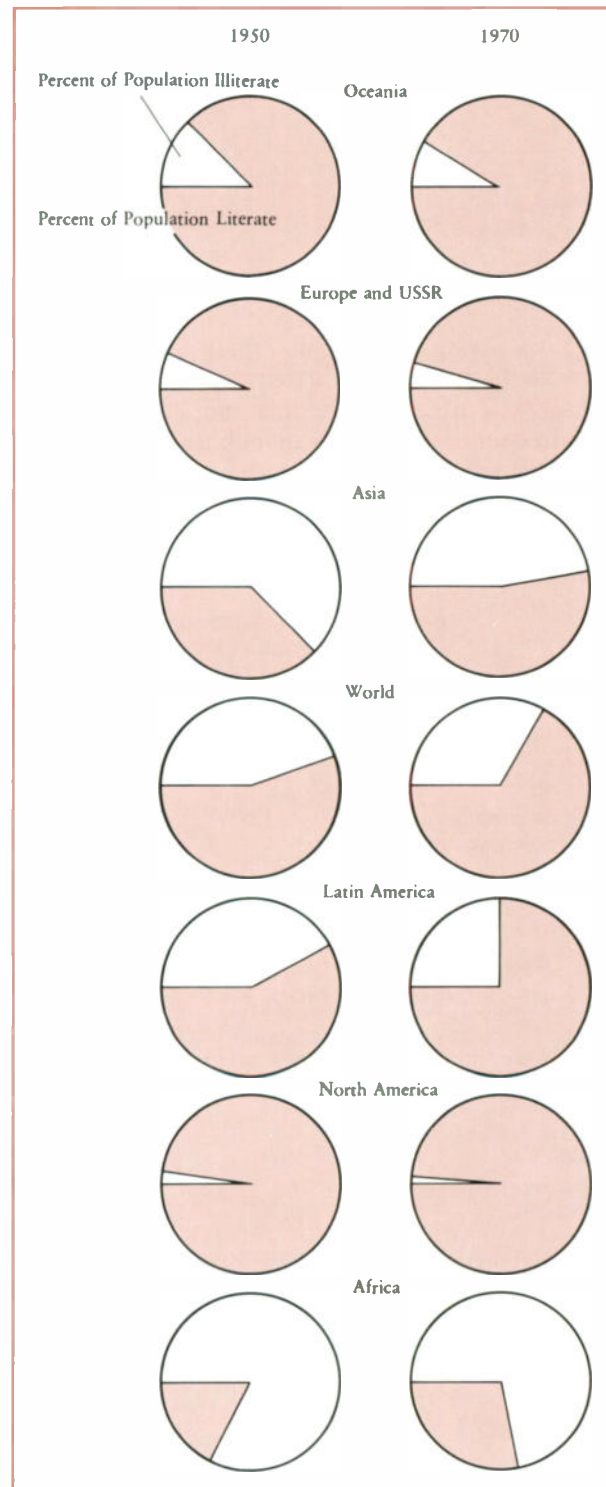


Figure 1. (*Publishing—Publishing Industry*) Changes in world illiteracy, 1950–1970. Redrawn after United Nations, *World Statistics in Brief*, 1978.

Table 1. Publishing around the World

<i>Percentage Distribution of Population</i>				
	1955	1965	1975	1982
Africa	10.8	12.2	13.1	10.9
North America	8.8	8.4	7.7	5.5
Latin America	9.0	9.8	10.6	8.3
Asia	41.1	42.2	44.2	58.3
Europe (incl. USSR)	29.5	26.7	23.7	16.5
Oceania	0.7	0.7	0.7	0.5
<i>Percentage Distribution of Book Production</i>				
	1955	1965	1975	1982
Africa	1.1	1.6	1.9	1.8
North America	5.2	13.6	16.2	15.3
Latin America	4.1	4.5	5.1	5.9
Asia	20.1	14.3	15.3	20.4
Europe (incl. USSR)	69.1	64.7	60.0	55.1
Oceania	0.4	1.2	1.6	1.5
<i>Number and Circulation of Daily Newspapers (1982)</i>				
	Number	Circulation (in millions)	Circulation (per 1,000 inhab.)	
Africa	160	9	18	
North America	1,830	68	269	
Latin America	1,200	33	86	
Asia	2,500	164	61	
Europe (incl. USSR)	2,420	235	311	
Oceania	110	6	264	
<i>Production and Consumption of Newsprint (1982, in metric tons)</i>				
	Production	Consumption		
Africa	0.3	0.3		
North America	12.7	11.3		
Latin America	0.5	1.7		
Asia	4.3	5.4		
Europe (incl. USSR)	7.2	7.4		
Oceania	0.7	0.8		
<i>Production and Consumption of Other Printing and Writing Paper (1982, in metric tons)</i>				
	Production	Consumption		
Africa	0.3	0.6		
North America	15.4	15.3		
Latin America	1.8	1.9		
Asia	8.2	8.4		
Europe (incl. USSR)	16.1	14.6		
Oceania	0.3	0.3		

Source: Adapted from *Statistical Yearbook, 1984* (Paris, UNESCO). For caveats and fullest interpretation of data, see source.

that takes place in developing countries with such problems can be modified somewhat by several factors: government policies on state educational publishing, the development of local library services and purchasing power, and government policies toward capitalist, state-run, and foreign publishing. When the state decides to enter book publishing, it nearly always assumes a MONOPOLY on primary textbooks (see TEXTBOOK), often for ideological reasons. When state publishing is not emphasized, schoolbook production often goes to transnational textbook companies. During the past several years government ministries of education in large developing countries have forced those companies to make their books conform to specific national guidelines. Still, the strong hold by the transnationals on textbooks and technical volumes has meant that indigenous firms have had to mine other domains—for example, popular and light local FICTION, advice books, and study guides.

Governments control key resources: permission to publish, protection from foreign competition, tax benefits that might improve cash flow, employment laws affecting the availability of personnel, and laws encouraging or discouraging monopolies or other trade restraints. Government laws that grant permission to publish can be said to operate on three levels: structural, technical, and content. See GOVERNMENT REGULATION.

The structural level involves rulings that dictate actual organizational processes and relationships in a publishing industry. An example was the 1945 decision by the U.S. Supreme Court striking down an Associated Press bylaw that permitted the wire service to grant exclusive service to a newspaper for a particular area. At a technical level rulings relate to standards of a mechanical, electronic, or otherwise scientific nature that organizations in a publishing industry must uphold. Postal edicts relating to weight, size, and construction represent technical regulations that affect the operations of book, newspaper, and magazine publishers as well as mail-order advertisers (see POSTAL SERVICE). The third level of regulation, the content level, involves specific messages and message policies. These may range from direct prohibitions on certain kinds of ideas to broader rulings on subjects such as COPYRIGHT, obscenity, PORNOGRAPHY, and deceptive ADVERTISING. Government regulations in these areas often spark societal controversies. See CENSORSHIP.

Government policies are among the factors that encourage or discourage certain niches in publishing. The concept of a niche refers to a distinct combination of resources that organizational leaders find capable of supporting their organization in specific goals and activities. So, for example, in Western capitalist countries some publishers find that they

can make money turning out religious books; others turn a profit creating elementary and high school textbooks; others do it by emphasizing reference books. Each area is a different niche. Generally, when one publishing firm perceives a niche, attempts to exploit it, and thrives, other firms enter to compete in the niche until no additional organizations find entry profitable.

A publisher may exploit only one niche or may try to mine other market segments as well. In the United States and Europe the years since World War II have seen the growth of huge media conglomerates such as Bertelsmann (based in the Federal Republic of Germany), Rizzoli (based in Italy), Pearson and Thomson (based in England), and Gulf and Western, Time Inc., and CBS (based in the United States). These companies are involved in a wide variety of print and nonprint media.

Some critics charge that their activities have had an unhealthy influence on publishing. In the book industry, for example, the contention is that conglomerate takeovers of the major trade firms have led to unrealistically high profit expectations and, as a result, to the concentration by these firms on the most popular authors to the detriment of talented but lesser-known writers. Further, the critics contend that these activities are leading to a lack of diversity in mainstream publishing and to a subordination of print to other media. Publishing companies are said to judge book material as part of a larger project involving lucrative subsidiary rights—a theatrical film, a television movie, a magazine or newspaper series, a videocassette, and the like. Other observers argue that book publishing is highly diversified despite the growth of conglomerates and cross-media projects.

The specific way in which a publishing organization approaches its niche depends on three major factors: the firm's tradition, its executives' conceptions of their audience, and the needs of the major patron organizations with which they interact. Patron organizations make purchases of published materials before those products reach the public. As such, they provide publishing firms with the cash flow that is most directly responsible for their survival. In the case of U.S. newspapers and magazines, the major patrons are advertisers; they purchase space in the hope that readers will buy their products. In the book industry patrons vary widely depending on the kind of book. The trade book segment's patrons are general bookstores that purchase the publishers' titles with the aim of retailing them profitably. Elementary-school text companies, on the other hand, may look to school boards as their patrons, and college text companies may look to universities and UNIVERSITY bookstores.

Selection activities. The relationship between publisher and patron often greatly influences the material

to be selected. Evidence suggests that it helps set the boundaries on the kinds of people who are the targets of the material, the frequency at which the publisher releases the material to the public, and the amount it costs to produce and release the material. In book publishing, for example, a trade publisher's interactions with bookstores will likely influence the number of titles it puts out each season (the length of its list) as well as the kinds of titles it puts out (the nature of its list). In the magazine, newspaper, and direct mail industries, as in other advertiser-driven industries, the producer-patron dealings have given rise to a market research industry (*see* CONSUMER RESEARCH) that feeds both parties data with which to negotiate their relationship.

Once the executives of a publishing organization have a conception of the mandates in their niche, they must search for material with which to find success in that area. Different kinds of publishing operations search in different ways depending on the executives' understanding of their marketplace. Book companies and many magazines typically contract with writers on a free-lance basis, often by using literary agents as efficient intermediaries. That allows the publishers the freedom to hire the best people of the moment without long-term commitment and payroll. Newspapers, on the other hand, tend to hire reporters on an extended basis, largely because the daily mandate to "cover the news" requires the presence of a predictable group of creators at all times.

Production activities. Editors guide writers and select manuscripts based on a conception of the published work and the technological process that will create it. Decisions about the look of the published product are guided by competitive considerations, aesthetic considerations, and costs. The process of preparing the product necessarily goes hand in hand with the selection process. For example, a children's book editor involved in producing a book jointly with a publishing firm in another country (an activity called international copublishing) might caution the illustrator that the drawings must be appropriate to both the U.S. version and its French translation. Similarly, a magazine editor, knowing how much space is left in an issue, might caution a free-lance writer not to exceed five hundred words in a proposed article.

Even if a manuscript is solicited, it may be rejected. And even if it is accepted, it will go through a gauntlet of editorial work before being printed. Innovations by major companies in linking word processing, storing, retrieving, and printing capabilities of computers to publishing situations have resulted in increasingly closer ties between the editorial and printing phases of the publishing process. In magazine and newspaper companies computer-run production systems have substantially increased the

efficiency of editorial departments. Editors can call up and reshape articles at a moment's notice. They and their writers can also work closer to printing and distribution deadlines than ever before. And they can experiment with changes in the graphic designs of their periodicals much more easily than in the past. See COMPUTER: IMPACT—IMPACT ON THE WORK FORCE; GRAPHIC REPRODUCTION.

Distribution activities. A major publisher is primarily distinguished from a minor one by distribution clout—the ability to support the dissemination of a large number of printed copies to a large number of outlets quickly and efficiently. The specifics of distribution clout vary by industry and with the niche that a company has chosen within the industry. In the direct marketing industry, distribution concerns revolve mainly around postal and TELEPHONE rates. In the local daily newspaper industry, in which the newspaper firms themselves typically handle circulation, the mandate is to produce tens of thousands—even hundreds of thousands—of copies for efficient delivery to points throughout the target area. Doing that in a city on a daily basis requires a printing-to-delivery system that is hugely expensive. It makes starting a newspaper to compete with existing ones very difficult, if not prohibitive.

Several distribution approaches characterize different segments of the book and magazine industries. When it comes to getting books to stores and libraries, book publishers sell to the outlets directly at a discount and/or they work through large wholesalers, often called jobbers. Mass-market publishing has grown remarkably in the United States and Europe since World War II, largely on the strength of broad-based wholesaling. The approach is to format books in such a way that they can be carried not only in trade outlets but also in places that used to sell only magazines: newsstands, drugstores, discount chain stores, and supermarkets. The low price of these mass-market (mostly paperback) books has not been related primarily to the softcover, pocket-sized format that has characterized them, but rather to the huge numbers of copies printed for each title—numbers that were thought justified because of the wide access to outlets of the magazine jobbers that distribute them.

Bibliography. Phillip G. Altbach and Sheila McVey, eds., *Perspectives on Publishing*, Lexington, Mass., 1976; John P. Dessauer, *Book Publishing: What It Is, What It Does*, New York, 1974; S. I. A. Kotei, *The Book Today in Africa*, Paris, 1981; Alan M. Meckler, *Micropublishing*, Westport, Conn., 1982; E. Lloyd Sommerlad, *The Press in Developing Countries*, Sydney, 1966; Joseph Turow, *Getting Books to Children: An Exploration of Publisher-Market Relations*, Chicago, 1979; idem, *Media Industries: The Production of News and Entertainment*, New York, 1984;

Thomas Whiteside, *The Blockbuster Complex*, Middleton, Conn., 1981.

JOSEPH G. TUROW

PUBLISHING, ELECTRONIC. See ELECTRONIC PUBLISHING.

PULITZER, JOSEPH (1847–1911)

U.S. newspaper publisher. Joseph Pulitzer's great innovative paper, the *New York World*, carried JAMES GORDON BENNETT's formula of sex and politics to new heights. Pulitzer died just before his creation became one of the most respected newspapers in the United States. Like his newspaper, Pulitzer was a strange, complex personality, contradictory and eccentric.

Born in Makó, Hungary, he left home at seventeen and tried in vain to enlist in one of Europe's armies, but none would accept him. He was described then as "about six feet two and a half inches tall, ungainly in appearance, awkward in movement, lacking entirely in the art of human relations." In Hamburg Pulitzer found a recruiting agent for the U.S. Union Army who got a bounty of five hundred dollars for every man he could enlist as a substitute in the draft;



Figure 1. (Pulitzer, Joseph) Cartoon of Joseph Pulitzer, ridiculing his absenteeism from the U.S. Congress to concentrate on "The World." The Bettmann Archive, Inc.

he signed Pulitzer up at once. Jumping ship in Boston Harbor, Pulitzer enlisted in the First New York Cavalry but found army life intolerable. His most prominent characteristic was the incessant asking of questions, and he despised anyone who withheld information—journalistic qualities that led to numerous fights and eventual discharge.

After the Civil War Pulitzer migrated to Saint Louis, where he worked on the *Westliche Post*, the German-language daily, and became the city's leading reporter. Eventually elected to the Missouri House of Representatives, Pulitzer could have had a career in politics (he also served briefly in the U.S. Congress, 1885–1886), but instead he bought two newspapers and combined them into the *St. Louis Post-Dispatch*, still one of North America's best newspapers. Crusading was Pulitzer's journalistic stock-in-trade, and it made him rich enough to buy the *New York World* from financier Jay Gould in 1883. He launched it on a remarkable career with a ringing statement of journalistic idealism that is still quoted. Crusades for liberal causes resounded from the editorial page, but the news columns purveyed the kind of sex, scandal, and corruption that Bennett had exploited earlier. In short, the front page was for the laborer, the editorial page for the idealistic intellectual. The marked contrast did not entirely please either class. Yet Pulitzer felt compelled to carry sex and crime to even greater extremes when WILLIAM RANDOLPH HEARST came to New York in 1896 and began a direct rivalry with his *Journal*.

In this epic confrontation Pulitzer displayed extraordinary courage. Suffering for years from a steadily worsening neurological condition, he was half blind and so sensitive to noise that he could live only in a soundproof apartment. Eventually this sensitivity led him to spend most of his time on his luxurious yacht, editing the *World* from wherever he happened to be with incredible tenacity and intelligence. He fought Hearst ferociously at his own game, particularly in their historic battle for circulation during the Spanish-American War, but at a ruinous cost in both money and health. Hearst's genius for mass journalism was the greater, and Pulitzer's determination to lead that market proved to be a mistake. Nevertheless, he contributed to the development of the press by sending FICTION writer Stephen Crane (1871–1900) to cover the war in Cuba, introducing a kind of personalized, impressionistic reporting of men under fire that flowered in World War II with the work of Ernie Pyle (1900–1945) and others.

After the war Pulitzer withdrew from the dubious contest with Hearst, leaving the working-class audience to his rival and concentrating on making the *World* a great liberal, democratic organ. It spoke courageously and passionately for free speech, personal liberty, and constitutional government. It fought

hard against privilege and what Pulitzer called "the money power."

Like Bennett before him and E. W. SCRIPPS after him, Pulitzer died on his yacht. He left behind a newspaper that became perhaps the best ever published in New York before it failed in 1930, losing its identity and becoming the *New York World-Telegram*, a Scripps-Howard paper. Pulitzer's other legacies are the two institutions founded initially by his will, the Pulitzer Prizes in U.S. journalism and literature and the Graduate School of Journalism at Columbia University, whose *World Room*, decorated with materials from his old paper, embraces his memory.

See also NEWSPAPER: HISTORY; NEWSPAPER: TRENDS—TRENDS IN NORTH AMERICA.

JOHN TEBBEL

PUPPETRY

The art of designing, constructing, and operating puppets and marionettes, usually in theatrical PERFORMANCE. A puppet (from Latin *pupa*, "doll") is an articulated figure controlled by external means. Most puppets represent human or animal forms, though they may also give movement to normally inanimate objects or abstract shapes. While puppets can be life-size or larger, most are considerably smaller than their operators.

Puppets are classified according to their means of control. Hand or glove puppets, of the familiar Punch-and-Judy type, are controlled directly by the puppeteer's hand inside a cloth sleeve that forms the figure's body. Rod puppets are controlled from below by slender rods. Shadow puppets are two-dimensional cutout figures, also controlled by rods, that are held against a backlit screen to project black-and-white or tinted shadows. Marionettes are controlled from above by strings. The name ("little Mary") is believed to have been derived from the practice of using puppets in medieval church plays, though this may be merely fanciful. Various combinations of control methods are also possible.

Early history. Puppetry seems to be at least as old as the THEATER itself and to have shared the DRAMA's early connections with magic and RELIGION. The Greek historian Herodotus (fifth century B.C.E.) records the ancient Egyptian practice of displaying moving figures of the gods in holy processions. Hopi Indians used large articulated figures of the sacred snake in their corn ceremonies. Much of the shadow-puppet art of East Asia has a firm basis in religion (see EAST ASIA, ANCIENT).

Like the drama, puppetry soon broke free of its religious associations to become a performing art in its own right. It has been suggested that the objects

displayed to the prisoners in PLATO's famous Allegory of the Cave are glove puppets, already familiar from popular entertainment. And in the late classical period a puppeteer (*neurospastes*, "string-twister") is reported as performing in the theater of Dionysus in Athens. Medieval examples are numerous for various European countries, and a fresh infusion of vitality came from Italy in the sixteenth and seventeenth centuries. Eastern puppetry represents an even more ancient tradition, and in the Western world the art has continued with vigor to the present day.

Though the history of puppetry has been continuous, its reputation, particularly in the West, has been less consistent, varying widely according to period, social class, and country. At most times and places it enjoyed considerable popularity as a folk art or, as the English director Peter Brook has called it, "rough theatre." Various cultures have created their own puppet heroes or antiheroes, differing in their names and national characteristics but sharing an irreverent, even anarchic spirit that delighted in the flouting of taboos and the affronting of contemporary mores. Expressive of popular resentment against moral, legal, and political sanctions, these figures, being nonhuman, were comparatively safe from CENSORSHIP or reprisal and traditionally enjoyed a freedom to criticize far greater than that permitted to the human theater.

Eastern traditions and trends. It is in East Asia that the kinship of puppetry and serious drama is most clearly attested. This is particularly true in Japan, where from the seventeenth century on the two arts have been ranked side by side.

The Japanese puppet theater, Bunraku, has several distinctive features. Its figures, exquisitely crafted and standing some four feet high, are manipulated by a

combination of hand, rod, and trigger control. Each puppet has three operators. The master controls the trunk, the right arm, and the head—particularly the eyebrows, which convey a wide range of expressions. The first assistant controls the left arm, and the second the feet. They work, after long apprenticeship, as a closely knit team. All are visible during the performance; though the assistants wear black, the masters often wear bright kimonos. All are, however, by convention invisible. (See Figures 1 and 2.)

Bunraku shares many of the characteristics of its human counterparts, the Buddhist-inspired No and the melodramatic Kabuki. Musical accompaniment underlies the words and movement. A chanter narrates the action and recites the speeches. Many scripts have been taken directly from the human theater, and vice versa: Chikamatsu Monzaemon, "the Japanese Shakespeare," wrote with equal facility for both forms. Costumes, properties, ACTING styles, and staging devices have been similarly interchanged, and the massive complex of the Japanese National Theater contains a smaller auditorium for the Bunraku players.

Other oriental countries have preferred the shadow show (hence the name *ombres chinoises* for such performances in Europe). The Chinese tradition, in particular, suggests an early religious connection between shadow puppets and the spirits of the dead. Here the figures are some twelve inches high and made from animal skin worked until translucent and delicately colored. In modern times plastic has been substituted. As in Japan there is a close affinity between the puppet and the human actor. Plots have commonly derived from the Peking OPERA, although the showmen permitted themselves considerable latitude in interpretation, and the puppet tradition was

Figure 1. (*Puppetry*) Bunraku; the puppet and three operators. From Barbara Adachi, *The Voices and Hands of Bunraku*, Tokyo, New York, and San Francisco: Kodansha International, 1978, p. 31.





Figure 2. (*Puppetry*) Bunraku; a puppet repairer. From Barbara Adachi, *Backstage at Bunraku*, New York and Tokyo: Weatherhill, 1985, Figure 39.

oral rather than literary (see ORAL CULTURE; ORAL POETRY). Staging, too, followed the principles of the larger theaters, using one item of furniture to suggest a whole environment.

Java also cultivated a traditional shadow show, *Wayang kulit*, drawing on material from the two great Hindu epics, Ramayana and Mahabharata (see Figure 3). Another form cultivated there was *Wayang golek*, rod puppets, which in turn inspired *Wayang topeng*, human actors wearing masks and miming to the declamations of a chanter (see MASK; MIME). Clearly, those cultures that have cultivated masked and nonrealistic acting have been more sympathetic to the puppet theater than those in which the realistic style is paramount.

European traditions. The English-speaking world has provided a famous example in Mr. Punch. His origins are obscure. Suggestions include Pulcinella (see Figure 4), a favorite clown of the Italian *commedia dell'arte*, and—less probably—Pontius Pilate as portrayed in the religious drama of the MIDDLE AGES. Hook-nosed and humpbacked, Punch is a delightful villain. In the traditional scripts he defies every standard imposed by morality and society. He mocks, beats, and kills his wife, Judy, and murders their baby; he kills several other figures, including an interfering neighbor and the policeman sent to arrest him; and when finally caught he hangs the executioner in his own noose. In some versions Punch even escapes the ultimate punishment by killing the Devil himself.

Anthropologists and drama theorists have seen in Punch a direct descendant of the RITUAL combat of

Figure 3. (*Puppetry*) Shadow puppets from Java: Petrok, Yudistira, Demi Srikandi, and Burisrawa. Reproduced by courtesy of the Trustees of the British Museum.





Figure 4. (Puppetry) Pulcinella. The Bettmann Archive, Inc.

preindustrial society. As entertainment the Punch-and-Judy shows reached their apogee of popularity in the nineteenth and early twentieth centuries. Until the outbreak of World War II Punch booths could be seen on every English seaside beach. Their scripts, in the manner of the *commedia dell'arte* itself, were highly topical, introducing into the traditional plot characters and allusions of the day. (See Figure 5.)

France produced a similar figure in Guignol, who made his first appearance in Lyons around the end of the eighteenth century and was given local color as a representative of the people. A Lyonnaise silk-worker, he was shrewd and scornful of false pretenses, like Punch an unruly figure who, as puppet, could say and do things impermissible on the human stage. Also like Punch, his career was marked by mayhem—hence the term *Grand Guignol* for horror plays in the larger theaters.

Petrushka performed a similar function in Russia, as did Kasperl and Hanswurst in Germany. In the Mediterranean world the Greco-Turkish culture evolved Karagöz, a shadow puppet whose fantastic and often obscene adventures served as an outlet for opposition to the restrictions of Turkish officialdom (see Figure 6). Karagöz is a man of the people, poverty-stricken and always hungry. His plays are

Figure 5. (Puppetry) A Punch-and-Judy show on Bournemouth Beach, 1954. The Bettmann Archive/BBC Hulton.





Figure 6. (Puppetry) Hadjivat, the jinn, and Karagöz. From Hellmut Ritter, *Karagöz, Türkische Schattenspiele*. Hannover: Orient-Buchhandlung Heinz Lafaire, 1924, Figures 16, 17, and 18.

full of slapstick, and his favorite weapon is the watering can. These shows could once be viewed, on stretched sheets lit by oil lamps, throughout the Greek countryside. Only a few examples survive, in more sophisticated form, in major cities. Elsewhere, however, the liberty of expression has endured. Adolf Hitler's regime in Germany, which encouraged pup-

petry as a native folk art, found itself forced to tolerate the puppets' outspoken political satire. In Fascist Italy also the puppet theater took liberties that would have had human actors arrested.

These popular manifestations have often intertwined with, or inspired, more serious dramatic works. It has been argued on impressive scholarly authority

Figure 7. (Puppetry) Jim Henson, *The Great Muppet Caper*, 1981. The Museum of Modern Art/Film Stills Archive. Courtesy of Henson Associates Inc.



that the Karagöz show has affinities with the comedies written by Aristophanes for Athenian audiences in the fifth century B.C.E. Alternatively, it has been suggested that the shadow play derives from the Greek new comedy of the Alexandrian age. This form was carried to Asia Minor by Greek performers, was translated there into puppet form, and returned with the Turkish conquerors in the fifteenth century. In the Western world Johann Wolfgang von Goethe's massive two-part poetic drama *Faust* (1813, 1831) is said to have been inspired by a local puppet show. Alfred Jarry's bizarre and anarchic *Ubu roi* (1896), claimed as the earliest manifestation of the theater of the absurd, derived from the author's boyhood experiments with puppets, particularly the Lyonnaise Guignol. Igor Stravinsky's *Petrushka* (1911), created for the Diaghilev Ballet, raised the Russian folk figure to the level of high art. And one of George Bernard Shaw's last plays, *Shakes versus Shaw*, was written for marionettes.

Trends in the West. In spite of the general denigration of puppetry in the West, theorists and practitioners have always been eager to proclaim its aesthetic virtues. Often they have been influenced by the East. Heinrich von Kleist (1777–1811) wrote an essay in praise of the form. George Sand (1804–1876) wrote for hand puppets. The symbolist playwright Maurice Maeterlinck (1862–1949) wrote for marionettes. Their common understanding was that for certain purposes puppets surpass human actors because they transcend the trivial and individual. Like the mask, they have the power to abstract, or convey the essence of an idea. Edward Gordon Craig (1872–1966) devised a theory of the human actor as *Übermarionette* totally susceptible to directorial control. In the U.S. production of Stravinsky's *Oedipus Rex* the characters were puppets of superhuman size controlled by operators within. A related example is provided by the Bread and Puppet Theater, which employs huge cartoonlike figures to illustrate political and social themes.

Despite these examples, serious uses of puppetry in the Western world have been comparatively few. England in the eighteenth century enjoyed a thriving tradition in which the puppet theater served as an adjunct to its live counterpart, taking successful London plays through the provinces in miniature form. By the late nineteenth century, however, puppetry was thought of largely in terms of children's entertainment. The same has been true in the United States, where puppeteers have aimed increasingly at juvenile audiences and have been more concerned with mechanical dexterity than the quality of the material presented. Professional companies have subordinated artistic values to commercial necessity. While

Waldo Lanchester's company, based for many years in Stratford-upon-Avon, England, included an early Italian opera in its repertoire, the traditional circus proved more successful on tour. The so-called puppet revival in the United States in the 1930s, linked to Remo Bufano and Paul McPharlin, was largely local in its impact and had no great effect on the state of the art. More recently Jim Henson's work, first with the Muppet figures for television and subsequently with his imaginative films, has enlarged the popular audience and suggested more sophisticated uses of the art in association with electronic media (see Figure 7).

Europe has developed a more durable artistic tradition. In Austria the Salzburg Marionette Theater offers exquisite productions of Mozart operas performed to Salzburg Festival recordings and uses the magic of the medium to illuminate, particularly, *The Magic Flute*. Germany has similar companies. In France, Yves Joly developed a school of nonfigurative puppetry, animating familiar household objects, like umbrellas, to illustrate sociological or satirical themes.

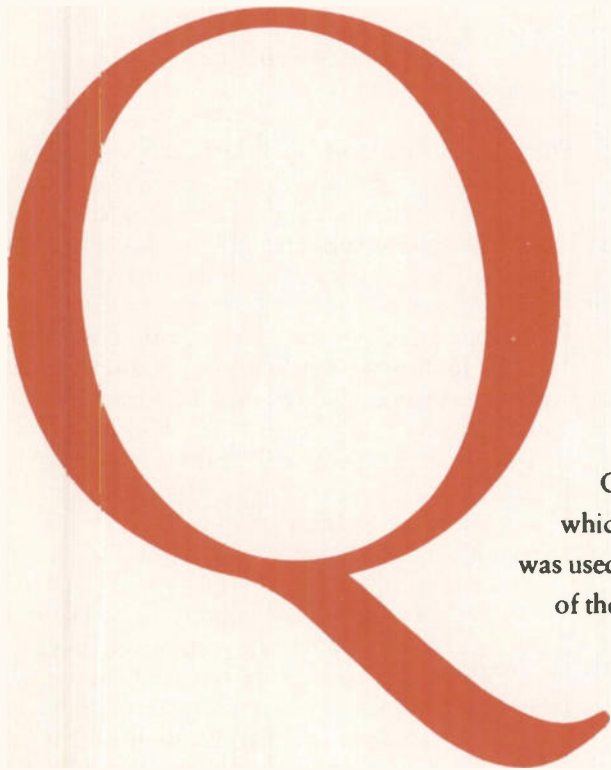
A distinctive form indigenous to Sicily has long combined literary qualities with strong popular appeal. The material, drawn from heroic verse sagas of the RENAISSANCE, deals with tales of chivalry and romance, crusades and battles, divided into installments that may run on for months. The figures, several feet high and extremely heavy in order to create a massive clanking effect, are supported from above by a thick metal rod passing through the top of the head. Stringing is minimal; the sword arm is the most mobile part of the body. Like the Greco-Turkish Karagöz, the heroic Sicilian marionettes could once be seen throughout the country and even accompanied emigrants to the Italian quarter of New York. Performances, though still traditional family affairs, have greatly decreased and are centered chiefly in Palermo.

The status of puppetry as a serious theatrical art is highly developed in the Soviet Union. Moscow has its State Puppet Theater, whose presiding genius, Serge Obraztsov, toured on several occasions in the West. It offers productions for children and for adults with equal acclaim.

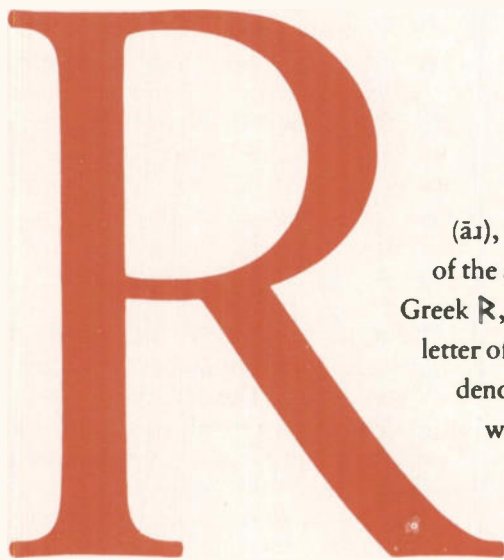
See also COMEDY; FOLKLORE; MUSIC PERFORMANCE; MUSIC THEATER; TRAGEDY.

Bibliography. Olive Blackham, *Shadow Puppets*, London and New York, 1960; Donald Keene, *Bunraku: The Art of the Japanese Puppet Theater*, Tokyo, 1965; Charles Magnin, *Histoire des marionnettes en Europe depuis l'antiquité jusqu'à nos jours*, 2d ed., Paris, 1862.

PETER D. ARNOTT

A large, stylized red letter 'Q' with a thick stroke and a curved tail that ends in a small hook.

(*kiū*), the seventeenth letter of the modern and the sixteenth of the ancient Roman alphabet, was in the latter an adoption of the Ϟ (κόππα, *koppa*) of some of the early Greek alphabets. The Phœnician letter from which this was derived had the forms Ϟ, ϙ, Ϛ, and was used as the sign for the deeper or more guttural of the two *k*-sounds which exist in the Semitic tongues (Hebrew ק, Arabic ق).

A large, stylized red letter 'R' with a thick stroke and a curved tail that ends in a small hook.

(*ā*), the eighteenth letter of the modern and seventeenth of the ancient Roman alphabet, is derived through early Greek Ϟ, ϙ from the Phœnician Ϟ, representing the twentieth letter of the early Semitic alphabet. In general the character denotes an open voiced consonant in the formation of which the point of the tongue approaches the palate a little way behind the teeth. . . .

QUIZ SHOW

Quiz programs and game shows are among the most ubiquitous of broadcast genres, popular worldwide on both RADIO and television (see TELEVISION HISTORY). They range from simple spelling matches and school quizzes broadcast on small stations and based on traditional formats to network productions involving elaborate rituals and offering such enticing prizes as automobiles, stereos, and vacation trips to exotic places. While formats and stakes vary widely, the basic appeal of all such programs is the same: they are contests in which results hang in the balance. Contestants are in most cases ordinary people with whom those at home can identify. A rooting interest develops; quiz addicts are not mere viewers and listeners but avid participants.

Quiz and game shows differ from almost all other broadcast entertainments in that outcomes are not predetermined. Questions and instructions may be scripted, but the main events are not. As in sports, the tensions, risks, fumbblings, uncertainties, successes, and failures are real. Those at home sense this and their reactions thus differ from reactions to fiction; no suspension of disbelief is required. The reality gives a special edge to the experience. A quiz viewer who has identified with a winning contestant may feel a sense of personal achievement and triumph not experienced by a drama watcher.

The anger that erupted in the United States during the late 1950s when it was revealed that contestants on some top-rated quizzes, notably "The \$64,000 Question" and "21," had been given answers and had even rehearsed was a measure of the extent to which viewers had experienced the programs as reality. When what had been perceived as real turned out to be fiction, they felt duped and betrayed. Even President Dwight D. Eisenhower felt a need to comment on the event. It was, he said, a "terrible thing to do to the American people." The U.S. Congress reacted with legislation outlawing quiz fixing, and the networks developed new supervisory procedures.

The nature of a viewer's participation in quiz programs can be complex. Viewers may identify with specific contestants (their representatives in the action) and at the same time measure themselves against those contestants. There is no disgrace for the viewer in missing a question the contestant proves able to answer; it is a victory for "our side." On the other hand, there may be special satisfaction in knowing an answer the contestant missed. A viewer's sense of self, of personal achievements or failures in life, and awareness of the contestant's status, occupation, and educational level (such details are commonly brought out in preliminary interviews) may all color the viewer's experience and the self-measuring process. And in moments of success there is always the sense that,



Figure 1. (*Quiz Show*) Charles Van Doren, a contestant on "The \$64,000 Question," who was later discovered to have been given answers in advance. The Bettmann Archive, Inc.

given the chance, the viewer might be the one on the screen. Quiz shows can also serve an even wider purpose. In the late 1950s, with the personal involvement of Prime Minister David Ben-Gurion, Israel Radio initiated a yearly Bible Quiz. The quiz became a major national event, its winners became famous overnight, and the program played an obvious role in rooting Israeli national identity in the biblical past. In the 1960s quiz programs were introduced into South Vietnam by Armed Forces Radio and Television.

With the perennial success of quizzes and games, producers have ceaselessly experimented with variations and new combinations of the essential elements. In the quest for high ratings, celebrities have sometimes been a part of the strategy, often teamed with ordinary contestants. Celebrities have also been enlisted as masters of ceremonies. In a quiz series hosted by Groucho Marx on U.S. radio and television, "You Bet Your Life," his anarchic preliminary interviews with contestants became high spots of the series. In several series, panels of the famous or not so famous have been faced with novel challenges. On "What's My Line" panel members were confronted with a person unknown to them and had the task of guess-



Figure 2. (*Quiz Show*) "Wheel of Fortune," with hostess Vanna White. Courtesy of Merv Griffin Enterprises.

Figure 3. (*Quiz Show*) "Blankety Blank," hosted by Terry Wogan. Copyright BBC (Enterprises) 1986.



ing, through a limited number of questions, his or her occupation. Each program presented several such challenges, the final one being to guess the identity of a masked mystery celebrity. This simple formula proved so involving that the series ran for many years in both the United States and Great Britain. Britain has launched many quiz successes of its own, such as "Brains Trust" and "Mastermind." Italy has been a devotee of elaborate game shows.

Television quiz and game programs, because of their spontaneous nature, have not proved suitable for translation via dubbing or subtitling. Such series have consequently not become export commodities along the lines represented by drama series. However, successful series have in some cases been reconstituted abroad under license from their originators. Programs known in the United States as "Password," "Match Game," "The Price Is Right," and "Sale of

the Century” have appeared in diverse languages in various parts of the world, using the original formulas and procedures but with local participants. Such transplants have met with varying success, but in some cases they have proven more popular than the original series. For example, in the 1960s “Call My Bluff” had only a brief run in the United States but has been telecast for more than twenty years on the BBC in Great Britain.

After the quiz scandals of the 1950s, large prizes were for a time avoided in the United States, but after confidence returned the value of prizes began to mount again, apparently heightening the sense of drama for the home viewer and stimulating participant applications. The growing readiness of manufacturers to donate prize merchandise became a factor in the escalation. Series like “The Price Is Right” and “Wheel of Fortune” became not only popular sponsored programs but also effective merchandising instruments for the donors, whose products were presented as the epitome of the good life, the ultimate reward.

MARK GOODSON

RADIO

Medium transmitting SOUND via electromagnetic waves. Evolving during the first quarter of the twentieth century amid disputes over its proper use, it became during the second quarter of the century the most ubiquitous mass communication medium ever known. Its offerings ranged from ENTERTAINMENT to news, EDUCATION, ADVERTISING, and POLITICAL COMMUNICATION. During this period the technology of television was developed largely within the radio industry, and after midcentury television rapidly replaced radio as the dominant mass medium in many countries (see TELEVISION HISTORY). Yet radio, with a somewhat changed role, remained a worldwide presence and a powerful social influence.

Development

The existence of electromagnetic waves was theorized by Scottish physicist JAMES MAXWELL in 1867 and clearly demonstrated in 1888 by German physicist Heinrich Hertz. The nature of these “Hertzian waves,” as they were known for a time, caused astonishment. That they could pierce night, fog, mountains, and walls suggested, in the words of British physicist Sir William Crookes, “the bewildering possibility of telegraph without wires, posts, cables or any of our present costly appliances.” Many scientists began to labor to achieve this possibility, including Edouard Branly in France, Adolphus Slaby in Germany, and Aleksandr Popov in Russia. In 1895

in Italy GUGLIELMO MARCONI succeeded in sending messages over large distances using the code of dots and dashes developed by SAMUEL F. B. MORSE for TELEGRAPHY. When Italian authorities showed no interest in the achievement, Marconi took his little black box to England, where its value to the vast British empire was readily perceived. Substantial funds were raised to create the Marconi Company. When it held demonstrations for the British navy off the southern coast of England in 1897, major naval and military powers sent observers. The equipping of all kinds of ships with “wireless” for communication with one another as well as with shore points proceeded rapidly in the following years. Wireless telegraphy was precisely what navies needed to coordinate large maneuvers, and they considered it their special instrument, bringing to the seas the advantages that wired TELEPHONE systems had brought to land.

If navies were content with dots and dashes, others were not. Among them was the Canadian-born electrical engineer REGINALD FESSENDEN, who showed that continuous radio waves could be used as a carrier for voice and music. He set up his own company to refine the process and to market equipment and by Christmas Eve of 1906 was ready for a historic demonstration. In various parts of the Atlantic Ocean wireless operators, listening on earphones for dots and dashes, heard a short speech sent by Fessenden from Brant Rock, Massachusetts, followed by phonograph music. He also sang, read from the Bible, and closed with a Christmas greeting. A number of wireless operators on ships of the United Fruit Company, alerted in advance, heard the transmissions. This company was already finding wireless valuable for coordinating the activities of scattered banana plantations and directing ships to the most profitable markets, and it later established its own wireless manufacturing subsidiary. The Fessenden version of wireless acquired the name *radiotelephony*, or *radio*, although the term *wireless* persisted.

Radio stirred wide curiosity and excitement. Although in many countries the military considered it their domain, activity originated from numerous other sources. Particularly in the United States the air was soon filled with a confusion of code, chatter, and music from amateur experimenters (“hams”), researchers at universities and electrical companies, independent inventors, and army and navy transmissions—all interfering with one another to some extent. There was little agreement on the goals of the experimentation. The hams looked on it as an exciting hobby, the exploration of a new domain. The military looked on radio, as on Marconi’s wireless, as a point-to-point communication device invaluable except for one drawback: people could eavesdrop. Still others, like Fessenden, considered this drawback to be radio’s greatest asset. This view was espoused

by U.S. inventor LEE DE FOREST, whose Audion vacuum tube, patented in 1907, brought radio transmission to a new level of clarity and became the basis for the electronics industry. De Forest felt there should be stations sending out continuous music, news, and other matter for the inspiration and delight of whoever might tune in. This was called *broadcasting*, originally an agricultural term meaning to scatter seed over a broad area rather than sowing in designated places. All this seemed visionary to most people—interesting, but hardly useful. There was, after all, no way to make it pay.

With the advent of World War I the broadcasting idea seemed evanescent. In the warring nations the airwaves suddenly became exclusively military terrain. When the United States entered the war in 1917 lone inventors like De Forest were ruled off the air, and thousands of ham operators, ordered to seal their equipment, were not even allowed to listen in. Major electrical companies such as General Electric, Westinghouse, Western Electric (a subsidiary of the American Telephone and Telegraph Company, AT&T), and American Marconi (a subsidiary of the Marconi Company of Britain) received huge government orders for electronic gear for ships, planes, tanks, and trenches. It was very secret. The public now heard no more about radio except through magazine FICTION describing its use in ESPIONAGE and dramatic wartime rescues. The broadcasting notion appeared to be dead. *See also* CRYPTOLOGY.

Postwar Resurgence

As the war ended, government contracts abruptly ceased, and electronic assembly lines lay idle. As countless hams unsealed their equipment and resumed their activities, Westinghouse and, later, other companies gave new thought to the broadcasting idea. If they were to establish stations offering schedules of music and other programming, would the public buy listening equipment of the sort the companies had manufactured for the military—compact and easy to operate? Might the revenue from such sales support broadcasting activity and earn a good profit as well? Approached in this way, broadcasting seemed not quite so visionary.

Station KDKA in Pittsburgh, launched by Westinghouse in time to broadcast returns for the 1920 U.S. presidential ELECTION, along with other stations launched immediately afterward in various cities by Westinghouse and others, put this idea to the test with great success. Crowds lined up at radio counters appearing in department stores. The U.S. Department of Commerce, seeking to avoid SPECTRUM chaos, began to issue broadcasting licenses and assign wavelengths. In many cities amateur installations emerged from attics and garages and became radio “stations.”

On both sides of the Atlantic the age of broadcasting had begun, but it developed along two separate lines.

In the United States the radio boom was a free-for-all from the start. Four dominant companies—General Electric, Westinghouse, AT&T, and United Fruit—had taken over American Marconi and turned it into a new entity, the Radio Corporation of America (RCA). This takeover, buying out British interests, was instigated by the U.S. Navy, which wanted the industry in U.S. hands. Aside from this corporate group many other interests were plunging into broadcasting: newspapers, hotels, universities, department stores, and churches (*see* RELIGIOUS BROADCASTING). Broadcasting seemed at first an inexpensive prestige device. As costs mounted, however, a new entrant came on the scene: the SPONSOR. In 1922 the sale of blocks of time, to be used as a sponsor wished, became a feature of U.S. broadcasting, first over separate stations and then over hookups. This arrangement attracted increasing numbers of corporations and led to the formation of the National Broadcasting Company (NBC) in 1926 as an RCA subsidiary and the rise of the Columbia Broadcasting System (CBS) in 1928 under WILLIAM PALEY, a member of a cigar-manufacturing family that had already found radio an effective promotional tool. Many major manufacturers began purchasing nationwide hookups, embarking on ventures that would transform advertising and PUBLIC RELATIONS. Pondering what kinds of programming might best serve their merchandising needs or corporate images, sponsors arrived at a range of solutions, including the SOAP OPERA, the QUIZ SHOW, symphonic music, jazz, masterpieces of literature, astrological forecasts, military bands, SPORTS events, COMEDY, barbershop quartets, and crime DRAMA. Advertising agencies became the producers or supervisors of most sponsored network programs as well as of the COMMERCIALS within them. Commercials were discreet and formal at first but grew longer and more insistent. Merchandising offers proliferated. Startling contrasts characterized the schedule. Because time was money, the pace was fast and often frenetic.

Events in Europe took a different turn. Because of the close proximity of foreign borders, and because of the past identification of radio with military and espionage activity, most European governments considered it essential to take control of radio broadcasting (*see* GOVERNMENT REGULATION). They also saw its future role as resembling those of institutions such as the SCHOOL, LIBRARY, or MUSEUM, serving to enlighten the public and therefore meriting government support—perhaps funded in part through license fees levied on set owners. Such ideas prevailed in most European countries and in their colonies overseas (*see* COLONIZATION). There was as yet no powerful advertising force pressing for a different

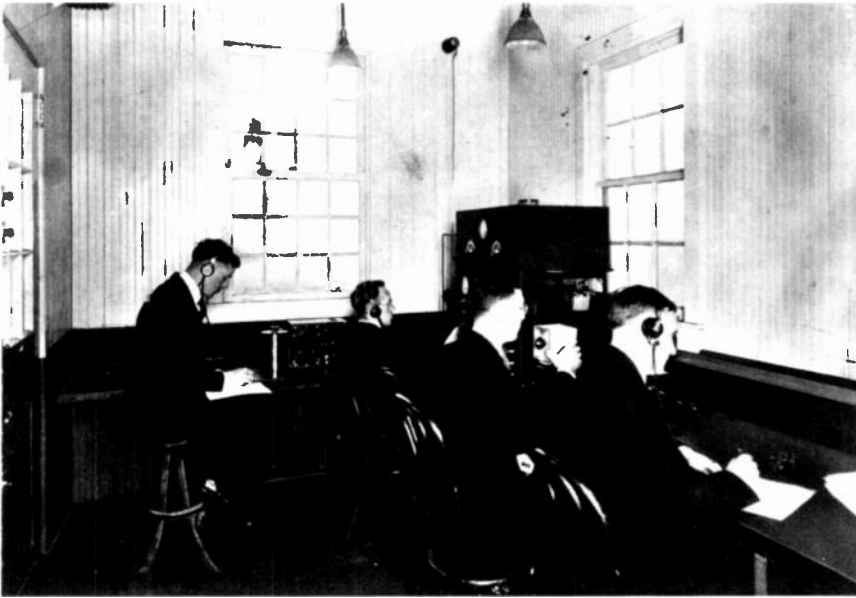


Figure 1. (*Radio*) Broadcasting the presidential returns, KDKA, Pittsburgh, Pa., 1920. State Historical Society of Wisconsin, Erik Barnouw Collection/The New York Public Library.

system because the war had devastated much European business and industry.

In England, starting in 1922, radio was entrusted to the British Broadcasting Company (later, Corporation), or BBC. The corporation was financed through license fees collected by the government, but it was sheltered from government control and other pressures by a charter that gave it considerable independence. Under JOHN REITH, who headed the BBC for its first sixteen years, that independence was resolutely defended. Policies were based not on what listeners might say they wanted but on what the BBC decided they needed, because "few knew what they wanted, fewer what they needed." The BBC therefore spent little on PUBLIC OPINION surveys. The idea of catering to public tastes repelled Reith; it was a betrayal of the task of leadership, which called for unified control and a focus on public service.

Reith's BBC and European systems similarly organized as centralized services developed programming different in tone from most programming in the United States—or in Latin America, where radio tended to follow the U.S. pattern (*see LATIN AMERICA, TWENTIETH CENTURY*). The European tone was staid, judicious, more leisurely. Its content was informative and dedicated to cultural values.

Although their tones differed, there were parallels between U.S. and European broadcasting. The same genres took root in Europe and the United States and then elsewhere (*see GENRE*). Eventually the two traditions began to influence each other. Radio almost everywhere had developed a powerful hold. The 1929 stock-market crash and the worldwide depression of the 1930s had a shattering impact on THEATER, vaudeville, and, for a time, the motion picture industry

(*see MOTION PICTURES*). Artists displaced by these media gravitated into radio, which could send an increasingly richer assortment of offerings into homes.

Growth of the Medium

In the late 1920s there was a sudden interest in the use of shortwaves, partly as a result of experimentation by ham operators. When broadcasting was officially launched in the United States in 1920, using medium-wave channels, amateurs were assigned to a shortwave band, which at the time was considered a sort of banishment. But they soon discovered the extraordinary if sometimes erratic ability of shortwaves to span vast distances. This finding led in two directions. The colonial powers of Europe established shortwave radio stations to broadcast to their overseas possessions; in Asia, Japan did likewise. At the same time, shortwaves began to be used as a relay device to inject special international pickups into domestic broadcasting. Radio began to be a significant news medium. During the 1930s MOHANDAS GANDHI, Benito Mussolini, Adolf Hitler, Franklin D. Roosevelt, and many other leaders were heard internationally via shortwave relays. Growing political tensions speeded this development. Major broadcasting systems established foreign representatives in key locations. Edward R. Murrow went to Europe for CBS in a position that evolved into a major news role. As war came, Murrow was responsible for an innovation that became a news standard: the news roundup, with such colleagues as William L. Shirer and Eric Sevareid reporting from various European capitals.

While radio grew as a news medium it also grew

as a dramatic medium. SERIAL drama had proved an early addiction, but longer forms emulating stage drama were slower to evolve. Modern stage drama proved to be an unsatisfactory model. Only when radio writers began to think of radio as a freer NARRATIVE medium did it develop its own excitement. In radio the imagination was the stage, and nothing was impossible. The narrator, often an intrusion in the theater, was welcome in radio. The use of SOUND EFFECTS became a radio specialty, as in "Lights Out," a long-running Arch Oboler horror series, and "The Shadow," in which ORSON WELLES for a time played the central role. More surprising was the sudden interest of British poet laureate John Masefield and U.S. poet Archibald MacLeish, who both proclaimed radio an ideal medium for POETRY. MacLeish's verse play *The Fall of the City* (1937), inspired by the Nazi threat to Europe, was performed on both CBS and the BBC and each time created a sensation. In his preface to the play's published edition MacLeish asked poets if they were really satisfied with writing "thin little books to lie on the front parlor tables." Through radio the poet might address the many rather than the few.

Radio's audience continued to grow. One-third of all U.S. homes had radio in 1930, a proportion that by 1935 had increased to two-thirds. By 1938, when Welles and his Mercury Theatre company dramatized H. G. Wells's *The War of the Worlds*, radio was acknowledged to be a powerful social influence. Yet the panic that ensued when thousands of listeners reacted to the broadcast as if it were news of an actual Martian invasion prompted increased concern over the effects of radio and vividly demonstrated that the medium was a fertile area for social science research (see COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT).

Feud. The evolution of radio witnessed a bitter struggle in the United States between two pioneers of the industry that was to have great repercussions. DAVID SARNOFF had been a telegrapher at American Marconi and an early advocate of broadcasting. He had risen to the top of RCA, which had become the dominant power of the industry to an extent that constantly raised MONOPOLY issues. EDWIN H. ARMSTRONG had started as a ham hobbyist and became a major inventor. In the 1920s Sarnoff suggested that Armstrong devise "a little black box to eliminate static." In March 1933 Armstrong invited Sarnoff to his basement laboratory at Columbia University to witness the result. What Sarnoff found was not a black box but a roomful of equipment that represented an entirely new radio system: frequency modulation (FM). Its startlingly alive, static-free quality was clearly a vast improvement over the existing system, which was based on amplitude modulation (AM). But Sarnoff's goal was the introduction of

commercial television, and RCA's profits from radio were being poured into the achievement of that goal. Armstrong's FM, if introduced as a rival to AM, seemed certain to bring an upheaval in radio and to endanger the radio profits Sarnoff counted on for his television plans. Besides, FM required more space in the spectrum, space that Sarnoff wanted for television. Armstrong became aware during the following months that Sarnoff was attempting to block what Armstrong considered his major life achievement. The resulting battle was fought out over many years in patent offices, Federal Communications Commission (FCC) hearings, and courtrooms. In the end both television and FM, in their final form, were held back until the postwar era, when FM not only acquired separate channels but also became the sound element of television. But the bitter struggle precipitated both Armstrong's suicide and lawsuits that, decades later, were all won by the Armstrong estate.

U.S. regulation. Radio's early years brought demands for regulation from differing directions. The newspaper press viewed radio as a threat to its circulation and advertising revenues. Educators decried the influence of advertising and big business on radio programming. Throughout the 1920s, as the number of radio stations grew, technical problems became acute. The increasing interference among stations prompted some (in defiance of their Department of Commerce channel assignments) to shift their dial positions, thus escalating the chaos. As a climax to the confusion a court ruling declared that the Department of Commerce did not have the power to license stations. This finally caused Congress to pass the Radio Act of 1927, creating a five-member board, the Federal Radio Commission (FRC), to regulate the industry and set STANDARDS. At first the FRC was meant to be temporary and to be abolished when the problems were solved, but it was made permanent. After his inauguration President Roosevelt, in order to make more of his own appointments to the commission and to bring telephone and broadcasting under the same jurisdiction, sought a new regulatory act. The Communications Act of 1934, essentially a redrafting of the 1927 Radio Act with only minor changes, established the Federal Communications Commission, which has regulated U.S. broadcasting since then under the resilient rubric of serving "the public interest, convenience, and necessity."

Wartime radio. Radio expanded rapidly during and just after World War II—before television came to the forefront. Soon after the United States entered the war the U.S. War Department decided to organize a network to serve its troops. By 1944 it had some eight hundred outlets operating out of Quonset huts near overseas army camps, in trucks moving behind troops, or through sound systems in battleships or

airfields. Each of these outlets received a weekly shipment of sixteen-inch disk recordings representing some thirty hours of programming, largely U.S. network programs from which the commercials had been deleted. Each outlet was authorized to add local programming of its own, and each received through shortwave relay supplementary programming such as coverage of baseball and football games and elections. There was also a special series entitled "Command Performance," based on requests from the field and featuring HOLLYWOOD talent. All this was seen as a powerful morale factor for U.S. troops, but each outlet also had an eavesdropping audience. Such broadcasting was a logical focus for espionage. At the same time, listeners in many countries were acquiring a taste for the U.S. radio comedy styles of such performers as Bob Hope, Bing Crosby, and Jack Benny, all heard frequently on the armed forces system.

Other warring nations put radio to intensive use. In some areas, such as Africa, transmission facilities were expanded in order to counter enemy broadcasts and to rally the population to wartime purposes. Radio personalities such as Axis Sally in Europe and Tokyo Rose in the Pacific attempted to influence Allied troops with a mixture of popular dance music and PROPAGANDA. And the assumed effectiveness of Nazi radio propaganda, under the aegis of JOSEPH GOEBBELS, was a major impetus in much of the MASS COMMUNICATIONS RESEARCH conducted in the United States in the 1930s and 1940s.

Near the end of the war radio acquired an important new SOUND RECORDING technology: magnetic recording. A primitive wire recorder was used by some of the Allied correspondents covering the 1944 Normandy landings. This device allowed reports to be recorded during the action, and the recordings could be censored if necessary (*see* CENSORSHIP) and then used for relay to home audiences. As Allied troops advanced into Germany they discovered that captured German radio stations had a much superior form of magnetic recorder—the tape recorder—which permitted rapid and precise editing. During the following years the tape recorder became a basic tool of radio journalism and brought an upsurge in radio DOCUMENTARY.

After Television

Listeners who had relied on broadcasting throughout World War II hardly imagined that they were experiencing the twilight of network radio. Yet within a few years television had seized the public fancy. In nations with commercial systems it also seized the fancy of sponsors, and many left radio for television. Program sponsorship by major corporations had given network radio, particularly in the United States, a

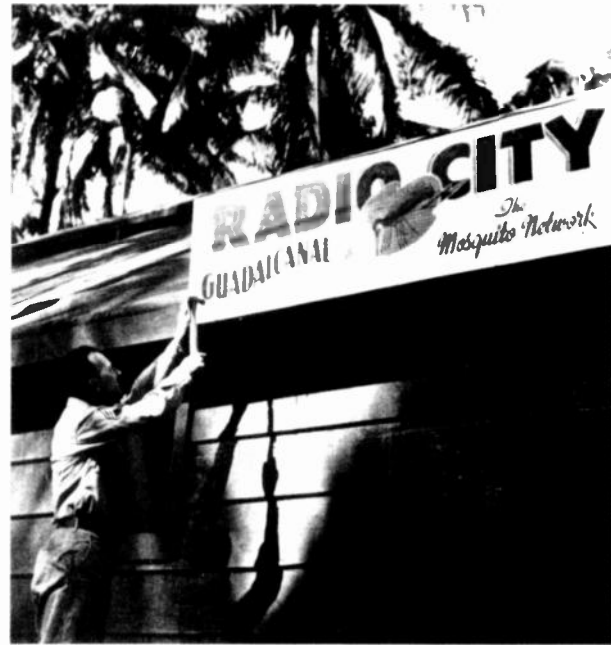


Figure 2. (*Radio*) "The Mosquito Network," Guadalcanal, 1944. Armed Forces Radio Service, World War II. State Historical Society of Wisconsin, Erik Barnouw Collection.

period of extraordinary prosperity; its departure brought a correspondingly rapid decline. By 1952 television, with far fewer stations, surpassed radio in revenues. Most new television stations were established by the owners of radio stations. Television took radio's management, programs, audience, advertising, and profits. As networks reduced their role in radio, radio's focus shifted to local programming. On many stations this meant recorded music and talk. Change was less precipitate in noncommercial systems, but even there a simplification began.

Radio had to change in order to survive, and in the decades after World War II it adapted by developing new genres and formats. In response to listener demographics and ratings (*see* RATING SYSTEMS: RADIO AND TELEVISION) stations were geared to particular groups, interests, and musical preferences. Some stations took advantage of radio's unique participatory capabilities and promoted talk shows in which listeners were encouraged to phone in and join on-air discussions. The disc jockey was an integral part of still another U.S. programming innovation: formula or "top-40" radio, in which a limited playlist of best-selling phonograph records was repeated around the clock. With help from radio the phonograph industry boomed, and new forms of popular music appeared and spread (*see* MUSIC, POPULAR).

The development in 1948 of the transistor, a much smaller replacement for the Audion vacuum tube,

led to the miniaturization and true portability of radio receivers (*see* MICROELECTRONICS). Radio became something that could literally be taken through the day, serving as a backdrop or accompaniment to other activities (*see* LEISURE). Radio stations proliferated in the United States—from about one thousand in 1946 to nearly thirty-five hundred in the mid-1950s to some ten thousand in the 1980s. One result was the rapid growth of FM as opposed to AM stations. The crowding of the AM portion of the spectrum and the vulnerability of AM signals to electrical interference—particularly in urban areas—seemed by the 1980s to pose a threat to the future of AM. AM countered with such innovations as stereophonic sound, and its stations became increasingly specialized in attempts to target specific audiences.

International Developments

The postwar expansion of radio was widespread and was abetted by increasing broadcast commercialization in many parts of the industrialized world. The availability of relatively inexpensive radio technology gave it an advantage in developing regions as well. In large rural areas of Africa (*see* AFRICA, TWENTIETH CENTURY), Asia (*see* ASIA, TWENTIETH CENTURY), and Latin America radio served as a link with population centers and played a significant role in development projects (*see* DEVELOPMENT COMMUNICATION). SATELLITE technology brought radio to places television could not reach, and its voices were increasingly numerous and diverse. Stations ranged from government-operated to clandestine enterprises. International radio burgeoned during the postwar decades, stemming from political, commercial, and religious interests (*see* RADIO, INTERNATIONAL). Many nations authorized low-powered community stations, often serving and controlled by small groups: Eskimo settlements in northern Canada, students on university campuses, South American Indian villages in the Andes. In Australia, Aboriginal groups experimented with ethnic radio (*see* AUSTRALASIA, TWENTIETH CENTURY). Japan inaugurated a class of mini-FM stations not requiring licenses if broadcasting no farther than half a mile. Local and community programming and control in western Europe, particularly in Italy, the Netherlands, Britain, Denmark, Switzerland, and parts of the Federal Republic of Germany, developed in response to pressures for CITIZEN ACCESS.

Radio's scope has increased with its reach. Commercial broadcasting, for example, is only one use of the radio spectrum. Other types of radio service include marine, industrial, aviation, military, and citizens bands (*see* CITIZENS BAND RADIO). Radio wave technology has even contributed to advances

in space exploration (*see* CETI). The future expansion of radio's role lies in two directions. The first, typified by radio's contributions to Third World development and its ability to give voice to the concerns of communities and nonmainstream groups as well as government and big business, centers on the participatory dimensions of radio applications. The second direction is that taken by radio and related technologies as they function in increasingly complex TELECOMMUNICATIONS NETWORKS. While new, competing technologies increase the capacity to communicate, they raise the issues—of control, access, and benefit—that have reverberated throughout radio's history and that today dictate the agenda of international TELECOMMUNICATIONS POLICY.

Bibliography. Erik Barnouw, *A History of Broadcasting in the United States*. Vol. 1, *A Tower in Babel*, Vol. 2., *The Golden Web*, New York, 1966, 1968; Asa Briggs, *The History of Broadcasting in the United Kingdom*, Vol. 1, *The Birth of Broadcasting*, Vol. 2, *The Golden Age of Wireless*. London, 1961, 1965; Andrew Crissell, *Understanding Radio*, London and New York, 1987; Sydney W. Head, *World Broadcasting: A Statistical Analysis*, Philadelphia, 1975; Elizabeth Mahan, Sergio Mattos, and J. Straubhauer, *Broadcasting in Latin America*, Philadelphia, 1987; Sir Charles Moses and Crispin Maslog, *Mass Communication in Asia: A Brief History*, Singapore, 1978; UNESCO, *World Communications: A 200-Country Survey of Press, Radio, Television, and Film*, 5th ed., New York and Paris, 1975.

LAWRENCE LICHTY

RADIO, INTERNATIONAL

RADIO transmissions from one territorial entity to listeners in another, with the intention of influencing ATTITUDES, opinions, and beliefs in favor of the broadcasting nation or source—in other words, for PROPAGANDA purposes. More than a hundred organizations in various parts of the world engage in this activity, ranging from regional operations of one or two kilowatts, broadcasting in a few languages for an hour or two of airtime per day, to the giant complexes of the United States and the Soviet Union, with worldwide coverage, transmitter power in the tens of thousands of kilowatts, using shortwave and medium wave, and broadcasting in dozens of languages and for more than 250 hours of airtime per day.

History. The transmission of Morse-coded messages designed to influence opinion abroad dates back to World War I, but the earliest voice broadcasts of this sort took place in 1923, when a German station sought to enlist the sympathies of European listeners with accounts of the French occupation of

the Rhineland. Those broadcasts lasted only a few days, as did broadcasts from the Soviet Union to Romania in 1926 in which the Soviets asserted the justice of their territorial claim to Bessarabia.

The first continuing experimental international radio station was established in the Netherlands in 1927. It was to provide Dutch citizens living outside the country, especially in the Dutch East Indies (Indonesia), with a link to the homeland. Great Britain began experimental overseas transmissions in the same year and for somewhat the same purpose, as did Germany in 1929, France in 1931, and several other European countries and Japan during the 1930s. The Soviet Union inaugurated a continuing international service in 1929, at first as a means of explaining the benefits of communism but increasingly with both veiled and direct attacks on capitalism. It was the world's first continuing international radio station to specialize in propaganda for external consumption.

These stations were all shortwave operations, which can cover huge distances—sometimes erratically. Most international radio since that time has been in the shortwave bands, although some countries have supplemented this with medium-wave broadcasts, especially when aimed at nearby populations; these transmissions have sometimes intruded on domestic radio, which uses mainly medium waves. Shortwave transmissions have made some use of relay stations to strengthen communication over large distances, especially in recent decades.

In the early 1930s Fascist governments in Germany and Italy began to make intensive use of international radio to present their own policies and to attack those of their opponents. The Soviet Union then concentrated more of its broadcasts on anti-Fascist themes, but other European countries did not seek to combat hostile broadcasts until the late 1930s, and even then their replies were more defensive than offensive. As tensions increased, the USSR, Germany, and Italy restricted listener access to foreign broadcasts by interfering with incoming signals (jamming), confiscating sets capable of receiving broadcasts from abroad and making available cheap sets that could not receive them, and/or making it illegal to listen to such broadcasts and especially to pass on to others what one had heard.

When World War II broke out many of the nations in western and central Europe had international stations. Some were taken over by the Nazis in their conquests, but a few of the exile governments established stations in their colonies (e.g., in the Belgian Congo and the French Congo) and found outlets over Britain's British Broadcasting Corporation (BBC) and the U.S. Voice of America (VOA). The BBC began international broadcasting in foreign languages only in 1938, and the VOA came into exist-

tence in 1942, but both expanded foreign-language services very rapidly, both to benefit the exiles and to present the Allied point of view to listeners in Europe, the Americas, and the Pacific. Several U.S. and British allies, notably Canada and Australia, also began to broadcast internationally as part of the war effort.

Alongside those official activities arose the clandestine stations. A few such stations had operated during the Spanish civil war. Usually carrying colorful names (e.g., the Nazi "Station Debunk") that disclosed nothing of the station's actual origins, source of financial support, or location, the stations often pretended to represent "true" PUBLIC OPINION within the target country and even occasionally portrayed themselves as the operations of patriots broadcasting from a secret location within the country itself. Such stations were labeled "black" operations, in contrast to "gray" stations (no identification of location but no outright DECEPTION) and "white" stations (full and true identification of source). Most clandestine stations used informal and even vulgar language and indulged in harsher attacks on the enemy than did their official counterparts. Most were on the air for a matter of weeks or months, because often they were used as tactical weapons in a particular theater of military operations. In the closing months of World War II in Europe, Nazi Germany placed six or seven clandestine stations in operation, some directed to Soviet soldiers, others to British or U.S. forces, all intended to sow dissension among the Allies.

World War II saw the rise to prominence of "personality" broadcasters such as Lord Haw-Haw, Tokyo Rose, and Colonel Britton. The speakers playing those fictional roles generally used forceful, informal delivery and spoke to listeners in a personal, intimate manner in marked contrast to the formality of most earlier international broadcasters. Many had their devoted fans, although sometimes for the wrong reasons. For example, U.S. servicemen claimed to listen to Tokyo Rose in part because they found her brand of propaganda obvious to the point of being amusing. Wartime broadcasts often featured propaganda campaigns in which set themes (e.g., "Your leaders are misleading you" or "Your allies are unreliable") were highlighted on a daily basis and in various program formats. Both personality and thematic broadcasting have remained common elements in international radio. Among the international broadcasting personalities prominent in the 1970s and 1980s were such figures as Radio Moscow's Joe Adamov, the BBC's Anatole Goldberg, and VOA's Willis Conover.

After World War II some governments debated whether to disband international stations on the grounds that they might not be necessary in peacetime. Several stations were reduced in size and the

VOA was nearly dissolved, but the coming of the cold war gave international radio a new lease on life. The Soviet Union assisted the development of international stations in eastern Europe, the United States encouraged the resumption of international broadcasts by the Federal Republic of Germany and Japan, and clandestine stations, now associated with pro- and anti-Communist causes, began to reappear. In the early 1950s the United States established Radio Free Europe, Radio Liberation (later Radio Liberty), and Radio Free Asia, all ostensibly public-supported (but in reality CIA-funded) stations designed to help "roll back communism." Most Communist nations countered those broadcasts with jamming, which many of the Western stations countered in turn by broadcasting on more frequencies or by "cuddling," broadcasting so close to a domestic station of the target nation that any jamming would also affect the domestic station.

During this period two further types of international service were developing rapidly. International religious stations had existed since the early 1930s but had been small and few in number (*see RELIGIOUS BROADCASTING*). In the late 1940s to mid-1950s such stations proliferated, especially in Africa and Asia. Generally backed by U.S. Protestant churches or groups, the stations sought to convert "heathens," Muslims, and even Roman Catholics. They were joined in the 1960s and 1970s by Islamic international stations based in Egypt, Libya, and Saudi Arabia, but those stations were uninterested in gaining converts; they existed to sustain the faithful. International commercial stations began to operate in the 1930s in Europe, southern Africa, and the United States. Most of them went off the air during the war, but a few came back after the war and were soon joined by others in North Africa, the Middle East, Asia, and later the Caribbean. Dominated by the target country's popular music, brief newscasts, and commercial messages, such stations sound much like typical U.S. commercial radio.

Third World nations, too, began to develop international services in the 1950s. Several of them, notably Egypt's Radio Cairo and Voice of the Arabs and Ghana's Radio Ghana, carried strongly anticolonial broadcasts and frequently hyperbolic praise for their national leaders. Possession of an international radio station became something of a token of modernity, and even some of the poorest nations, such as Bangladesh, acquired stations whether or not there was money enough to operate them continually. Nominally international, few Third World stations reach much beyond their immediate geographical neighbors. Third World clandestine broadcasts also have increased as political dissidents in exile, encouraged by neighboring nations, seek to reach listeners in their former homelands with attacks on the governments there.

By the 1980s the majority of the world's sovereign nations had international radio stations, but growth had slackened, and the largest stations were adding few languages or transmission hours, although regional conflicts in such places as Afghanistan, Central America, and the Middle East drew increased attention from leading international broadcasters and led to increased clandestine activity.

Purposes, programs, and audiences. Operators of international radio stations seek to influence public opinion, but for varying purposes. The first continuing international service, in the Netherlands, sought to remind Dutch listeners abroad of life in the homeland in order to strengthen morale and make them more effective spokespersons for the Dutch viewpoint. Many nations, especially those with colonies, have had similar services, and a few, including the USSR's Radio Rodina and the U.S.'s Armed Forces Radio and Television Service (AFRTS), still exist. Since U.S. military personnel are stationed in many foreign countries, English-speaking listeners there often have the opportunity to hear the AFRTS programming, most of which is from U.S. networks.

Most international services are financially supported and operated or supervised by governments. They seek to persuade listeners of their nation's goodwill, economic and military strength, rich CULTURE, and ideological leadership in order to increase trade, strengthen alliances, or gain new ideological converts. Religious stations usually attempt to convert listeners, strengthen the faith of believers, and also plead for funds. Commercial stations hope to entertain listeners so as to keep them tuned to and receptive to the ADVERTISING that pays the station's bills. Clandestine stations promote various political causes. Most stations broadcast far more positive material (usually about themselves) than they do negative material, although clandestine stations often emphasize the latter.

News and news-related programs (commentaries, features, editorials) take up the largest single share of program time on most government-supported stations. Popular music runs a fairly close second and predominates on international commercial stations (*see MUSIC, POPULAR*), although VOA, the BBC, and several other large stations feature disc-jockey-hosted jazz and pop music shows and encourage listener requests. Most international commercial stations devote little or no time to news, but the many stations operating under the aegis of France's SOFIRAD (Société Financière de Radio Diffusion), such as Radio Monte Carlo/Middle East, have developed sizable audiences for their newscasts in part because they are perceived as nongovernment broadcasters and thus freer of bias than most international stations.

Most government-supported stations employ relatively bias-free vocabulary in their newscasts, although item selection often is shaped by the country's

prevailing IDEOLOGY. Commentaries, features, and editorials usually display more value-laden terminology. Most stations offer weekly listener "mailbags" in which listener inquiries about the broadcasting nation or source are answered. English is the most commonly used language, with Arabic, Spanish, French, Russian, and Kuoyu (Mandarin) also prominent. The Soviet Union, the United States, and the People's Republic of China all operate combinations of stations that broadcast fourteen hundred to two thousand hours per week in forty or more languages. Great Britain, the Federal Republic of Germany, the Democratic People's Republic of Korea, Albania, and Egypt all broadcast five hundred to eight hundred hours a week, most of them in thirty to forty languages.

Research data on audiences for international broadcasting are relatively scarce and simplistic. Many countries prefer to know nothing about their citizens' uses and perceptions of international broadcasting. But surveys give a fairly consistent picture of the audience, whose members tend to be relatively young, largely male, fairly well educated, of above-average income, and often with some foreign travel experience. Listener percentages are higher in countries with relatively few domestic media and/or with what listeners regard as media under tight government control; listening rates are thus low in western Europe, North America, and Japan, and high in eastern Europe and parts of Africa, the Middle East, and Asia. Listeners usually tune to three or four international stations with some regularity and listen for one to two hours per day. If the international station is available on medium wave, as are VOA, the BBC, Radio Moscow, and Radio Cairo, among others, its listenership usually increases dramatically.

Policy issues. The frequency SPECTRUM for international radio broadcasting becomes more crowded as more nations and groups enter the field or seek to expand. Most of the largest stations and some of the smaller ones have relay transmitters in foreign countries, especially in the Third World, to improve their chances of being received. All of this costs a great deal, and poorer nations simply cannot afford it.

The International Telecommunication Union (ITU), a United Nations agency, attempts to act as arbiter and to ensure that all nations wishing to broadcast internationally may do so, but much of the spectrum space in the shortwave bands has long been taken by the industrially developed nations. Thus there has been a struggle within the ITU between the "have" and "have not" nations over the just allocation of spectrum space. The ITU's World Administrative Radio Conferences of 1979 and 1984 made some progress toward meeting Third World demands, but the spectrum remained congested, reception tended to deteriorate, and those nations that could afford to sought to overpower competing signals by install-

ing five-hundred- and one-thousand-kilowatt transmitters. The ITU and the United Nations have not sought to limit this superpower race, nor have they been able to prevent nations from jamming incoming international broadcasts. Broadcast content likewise has eluded all attempts at international regulation. Sovereign nations continue to decide how and what they will broadcast and jam, and cooperate with one another only when it is clearly in their self-interest. Some national governments, especially in Communist nations, consider certain international broadcasts to be "ideological pollution" akin to drugs and PORNOGRAPHY and feel perfectly justified in excluding them. See also NEW INTERNATIONAL INFORMATION ORDER.

The proliferation of communications satellites in the 1970s and 1980s made it easier for the largest stations to relay broadcasts to their overseas relay transmitters (see SATELLITE). Technical problems and equipment costs have limited direct in-home reception of satellite-transmitted international radio broadcasts, but further development of that technology is widely expected. The direct-broadcast satellite is seen by much of the Third World as a new instrument of superpower hegemony.

The problems connected with international radio have done little to discourage participants, and few international stations aside from clandestine operations have gone off the air since World War II. High initial investment and maintenance costs may find government officials and legislators looking for ways to economize, but few consider total elimination of such services. International radio allows access to audiences unreachable by any other medium, conveys news of developments quickly, and employs the special persuasive powers of the human voice. It is unlikely to vanish soon from the international arena.

Bibliography. Donald R. Browne, *International Radio Broadcasting*, New York, 1982; Bernard Bumpus and Barbara Skelt, *Seventy Years of International Broadcasting* (UNESCO Communication and Society Series, no. 14), Paris, 1984; Harwood L. Childs and John B. Whitton, eds., *Propaganda by Short Waves*, Princeton, N.J., 1942; Thomas Grandin, *The Political Use of the Radio* (Geneva Studies, Vol. 10, no. 3), Geneva, 1939, reprint (History of Broadcasting: Radio to Television Series) New York, 1971; Julian Hale, *Radio Power: Propaganda and International Broadcasting*, Philadelphia, 1976.

DONALD R. BROWNE

RATING SYSTEMS: RADIO AND TELEVISION

Commercial broadcasters generate revenues by selling advertisers access to the audiences won by their programming. Before a price can be established for ADVERTISING time on any series, whether on RADIO

or television (*see* TELEVISION HISTORY), it is necessary to determine both the size and the composition of its audience. Thus research defines the broadcaster's "product" (the audience), and it is not surprising to find that studies of radio and television audiences have been part of the broadcasting scene from the start.

History

The broadcast measurement industry has seen many competitors and many different approaches through the years. Although individual radio broadcasters provided measurements of their audiences during the 1920s, in the United States the first independent and syndicated radio measurement company was the Co-operative Analysis of Broadcasting (CAB), founded by Archibald Crossley in 1930. Crossley used the telephone recall survey technique. In 1934 Claude Hooper entered the business, and his "Hooperating" dominated radio measurement for the next decade. In 1939 the British Broadcasting Corporation (BBC) introduced a "survey of listening" that employed a twenty-four-hour aided-recall technique. In 1942 A. C. Nielsen introduced the first direct measurement device, the Audimeter, which was attached to the radio and recorded the set's dial position on ticker-tape-like paper. Sydney Roslow began his Pulse service in 1941. Pulse used an aided-recall telephone technique and, in 1949, added the measurement of out-of-home listening because listeners in cars represented a growing portion of the radio audience. In-home audience measurement alone was no longer adequate.

The rapid DIFFUSION of television in the United States after World War II created a need for television audience measurement, which was provided from the inauguration of this new medium by many of the firms originally involved in radio measurement. Hooper was measuring television audiences in 1948, James Seiler founded the American Research Bureau in 1949, and A. C. Nielsen entered the market in 1950 with a television version of the Audimeter. The BBC audience measurement program was expanded to include television in 1952, and the independent commercial television stations in Great Britain began measuring television audiences in 1955. By the beginning of the 1960s most European countries had some form of radio and television audience measurement system.

Perhaps the most significant milestone in the history of U.S. broadcast audience measurement was the 1963 House of Representatives hearing chaired by Representative Oren Harris of Arkansas. This hearing challenged the rating services to defend the validity and reliability of their rating systems. As a result of this challenge the services increased the size

of their samples and introduced stricter sampling procedures. An independent organization, the Broadcast Rating Council, was established to audit the rating services.

The era of overnight ratings began when Arbitron introduced the instantaneous meter in 1958, and Nielsen followed with its Storage Instantaneous Audimeter (SIA). Arbitron started to compete against Nielsen in the national arena but eventually conceded this market to Nielsen and concentrated on local markets. Nielsen soon cornered the national market with its Nielsen Television Index (NTI) service, although Nielsen and Arbitron continued to battle on the local television audience measurement front.

Procedures

Throughout the history of radio and television audience measurement a variety of methods have been tried. Early measurement services focused on the telephone. People were called either during the broadcast (the "coincidental") or on the day following the broadcast. Nielsen's Audimeter could not measure *who* in the household was listening and/or viewing. Arbitron's "diary" method proved to be the most effective for measuring who was listening or viewing.

As out-of-home radio listening became increasingly important, household measurement became less relevant, and the personal diary became the preferred measurement instrument. Arbitron selects its sample from a computer file of telephone households. In selected markets the sampling universe also includes unlisted telephone households, and special sampling procedures are employed to tap minority audiences. Respondents in the sample keep a seven-day personal diary. Each Arbitron survey lasts four weeks, with a different sample each week. The survey periods are January–February, April–May, July–August, and October–November. Major markets are surveyed four times per year; smaller markets are measured less frequently. Sample sizes range from 450 respondents in smaller markets to 3,000 in major markets. In all, Arbitron measures 201 radio markets.

RADAR, the network radio measurement service produced by Statistical Research, Inc., measures the audiences of the nation's radio networks through a telephone-based survey methodology. A random-digit dialing technique is used to include unlisted as well as listed households in the sample. One person per household is then designated as a respondent, who then provides one week of listening information in daily telephone interviews. There are two eight-week RADAR measurement periods per year, one in the fall and one in the spring. Data from the two most recent reports are published as a moving national average.

Television. Television measurement is accomplished by a combination of meters and diaries. Nielsen's national NTI service utilizes a panel of seventeen hundred metered households, supplemented by a separate diary sample of twenty-five hundred households that provides the essential "who is viewing" component. Each diary household keeps a diary for one week out of every three. The viewers-per-household (VPH) data from the diary household sample are combined with the metered household results to produce a biweekly NTI "pocketpiece" that reports the audiences of all network television programs. NTI also measures the audiences of the major cable services and nationally distributed syndicated programs. Meter-based household audience statistics are available for all fifty-two weeks of the year, but NTI pocketpieces combining household and individual viewing data are available for only forty-eight.

On the local level Arbitron and Nielsen rely predominantly on the diary. Meters have been introduced in major markets, and in these markets household audience estimates are available fifty-two weeks a year. However, in most markets metered measurement is not economically feasible, and diary-based surveys are employed. Each survey is four weeks in length. Major markets are surveyed seven times a year: in October, November, January, February, March, May, and July. Smaller markets are measured four times a year: in November, February, May, and July. These four surveys, when every market in the country is measured, are called the "sweeps" period. Broadcasters put their best programming on during these periods in order to attract the largest possible audiences in the surveys.

Nielsen provides reports in 205 designated market areas (DMAs), and Arbitron measures 211 areas of dominant influence (ADIs). Audience figures in both cases are provided for the metro area, the broader DMA or ADI, and a total survey area. Slight variations in definition and different statistical sources result in some variations between the DMA and ADI, although they basically parallel each other.

Key Measures

The key audience measures provided by both radio and television measurement services are the *rating* and the *share*. The rating equals the percentage of the given universe watching a particular television program or listening to a particular radio program. One percent of the given universe of households or persons equals one rating point. The share equals the percentage of the radio or television audience listening or viewing when a show is being broadcast that is listening to or viewing a given station. To calculate a share it is necessary to know the aggregate viewing

or listening level. In radio this statistic is referred to as the PUR (persons using radio), and in television it is called HUT (homes using television) or PUT (persons using television). The share equals the rating for the program over the HUT or PUT, depending on whether one refers to the audience in terms of persons or households. Figure 1 illustrates these concepts.

There are slight variations in how television and radio ratings are calculated. Radio ratings are reported on an average-quarter-hour and cumulative basis. The average-quarter-hour rating is defined by Arbitron as the percentage of total viewers tuned to a station for at least five minutes during the average quarter-hour. The cumulative audience is the number of different listeners who tune to a station at different times of the day for at least five minutes.

The Nielsen NTI rating is based on the number of viewers who tune in a program during the average minute that it is on. This rating is called the average audience rating, and the total audience rating includes all viewers who watched at least one minute of the program. At the local level the rating is calculated somewhat differently. Included in the local rating are all viewers who tuned to a program for five minutes or more during an average quarter-hour. Therefore, the local rating would exclude those viewing for five minutes or less, whereas the network rating would include those viewers provided they viewed for at least one minute.

Services in Other Countries

The United States is only one of many countries with broadcast measurement services. Nielsen measures television audiences throughout the world. Although Arbitron confines its measurement to the United States, this does not mean that Nielsen is not challenged abroad. Audits of Great Britain (AGB) provides audience measurement services throughout Europe as well as in the Far East and Australia. In several countries metered services similar to the U.S. system are used. In the Federal Republic of Germany GFK and AGB's Teleskopie compete with meter-based systems. AGB in Italy, Secodip in France, Nielsen in Brazil and Japan, and Dentsu Advertising in Japan provide competitive television measurement services. These companies customize their services to fit local market conditions.

Because many countries have government-controlled radio and television systems supported by taxes or user fees, broadcast managers in those countries are less concerned with quantifying the audience than they are with measuring the audience's satisfaction with what it is viewing. Audience surveys are thus supplemented by *qualitative* viewer satisfaction scores. However, in any country in which advertisers look

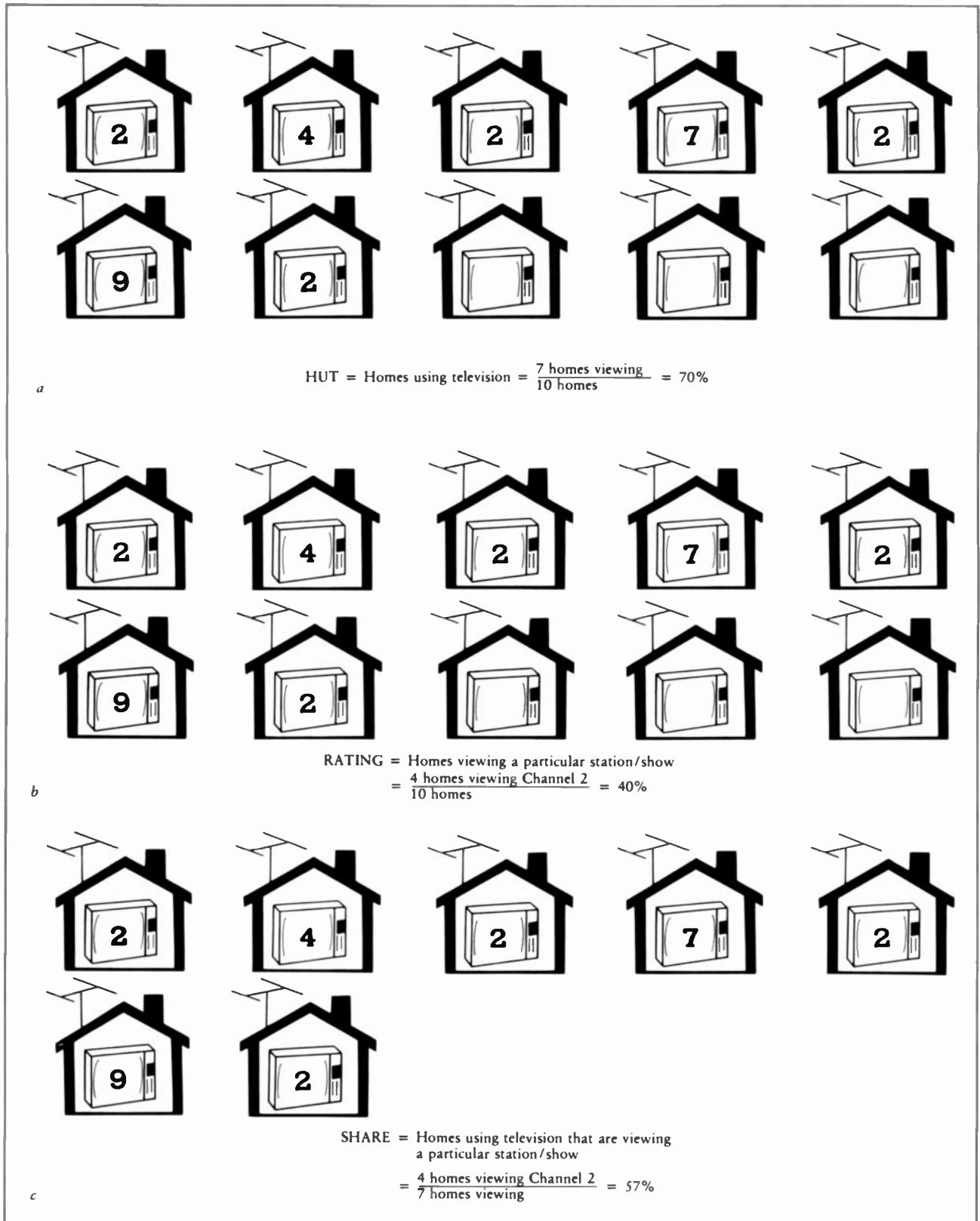


Figure 1. (Rating Systems: Radio and Television) Key concepts in the measurement of audiences.

to audience research to provide estimates of the number of people viewing their COMMERCIALS, the rating remains the basic unit of audience measurement.

The People Meter

Rating services are still undecided about whether the meter or the diary is the best data collection method. Some believe that the meter provides the most accurate measure of household viewing because it requires no action on the part of the viewer, but the meter cannot confirm the presence of viewers watching the set; it only registers when the set is on and the channel tuned. The diary does record who is viewing but is dependent on the viewer's remembering—and accurately reporting—everything viewed. Experience has shown that survey participants fall short of perfection on both counts.

One solution to this industry problem is an electronic method that would record not only that the set is on but also who is watching. "People meters" have been developed by Nielsen in the United States and by AGB and others in Europe. A problem with people meters as they have developed so far is that they require active viewer participation, and this intrusive aspect can affect both viewing behavior and respondent cooperation in surveys. Experimentation continues in order to reduce the impact of these limitations on the efficacy of this all-electronic form of audience measurement.

Beyond Ratings

The BBC audience measurement system has from its inception provided data on audience satisfaction with what is being broadcast, and this type of qualitative measurement of television audiences has also been introduced to the United States. Other challenges taken up by research services have included measuring the use of videocassette recorders (VCRs) in both record and playback modes. As the VIDEO marketplace continues to be changed by innovations in electronics, the methods of measuring audiences will have to be continually adapted in the years ahead, and perhaps entirely new ones developed.

Bibliography. Hugh Malcolm Beville, *Audience Ratings: Radio, Television, and Cable*, Hillsdale, N.J., 1985; David F. Poltrack, *Television Marketing: Network, Local and Cable*, New York, 1982.

DAVID F. POLTRACK

READING

Most scholars would agree that the ability to write SPEECH down in a permanent, transportable form

and to read it have affected both the growth of the mind and the growth of civilizations. But the nature of these effects is still open to debate. The effects of reading can be assessed from three different perspectives: (1) how reading functions in technological and nontechnological societies, (2) its effects on mental processes, and (3) its development in and out of SCHOOL.

Social Consequences of Literacy

Studies of reading in nontechnological societies report that reading serves primarily a *communicative* function and is highly personalized and dependent on the reader and writer sharing the same background (i.e., it is highly "contextualized"). By contrast the kind of LITERACY valued in contemporary industrialized societies requires general, abstract knowledge that will allow the reader to process texts that are complex and unfamiliar (i.e., "decontextualized").

Historically, literacy education was aimed at either a high level of literacy for a few or a low level of literacy for the masses. It has been suggested that to make the transition from a predominantly agricultural to an industrial society at least 40 percent of adults need to be literate (*see* DEVELOPMENT COMMUNICATION). For example, England reached that threshold in the eighteenth century, just before its Industrial Revolution. Politically, the ability to read well has been judged crucial for effective participation in democratic processes (*see* ELECTION; PUBLIC OPINION). From an economic perspective, some analysts contend that participation in a technological society requires a high (approximately twelfth-grade) reading level, necessary to read a sophisticated NEWSMAGAZINE, newspaper, and other print media. *See also* COMPUTER: IMPACT—IMPACT ON THE WORK FORCE.

Literacy has also been viewed as a potential force in leading people to a greater awareness of their role in society, a view held by Brazilian educator Paulo Freire. Literacy campaigns in Cuba, Nicaragua, and Sao Tome and Principe, among other places, have been organized according to Freire's ideas.

The term *cultural literacy* has been used to describe the knowledge shared by members of a literate society, needed for the decontextualized reading required in literate societies. (In the United States, for example, cultural literacy would include broad knowledge of the country's major historical figures, of major works of U.S. and English literature, and of basic civic and scientific knowledge.) Literate members of a culture share more than common knowledge. They also share the cognitive and interpretive skills necessary to derive from written materials simple and complex meanings, acquired from reading and writing in school and out of school,

from reading classic and modern literature, and from the study of history, science, and other topics.

Cognition and Literacy

Soviet researcher LEV VYGOTSKY suggested that the skills needed for reading and writing that represent a situation explicitly (i.e., for reading and writing that are intelligible without a shared context between reader and writer) necessarily involve higher mental processes than face-to-face communication (see INTERACTION, FACE-TO-FACE). Studies by another Soviet scholar, ALEKSANDR LURIA, of newly literate Soviet peasants in the 1930s and by U.S. researchers Patricia M. Greenfield and Jerome S. Bruner of Wolof CHILDREN in Senegal found that literate people were capable of higher mental processing and more abstract reasoning. Other studies of the differences between spoken and written LANGUAGE also suggest that the process of producing and understanding written language requires greater use of abstract thought than does spoken language. In this regard Canadian researcher David R. Olson distinguishes between *utterance* and *text*. Utterance refers to the more informal oral language statements common in a personalized context. In texts, however, an author communicates with a reader not necessarily known to him or her through a more explicit and formalized language. Olson argues that the language of texts requires the autonomous and decontextualized representation of MEANING, not usually a part of the oral tradition (see ORAL CULTURE). The ability to abstract—which Olson argues comes from the use of written language—is said to underlie the achievements of Western culture.

U.S. researchers Sylvia Scribner and Michael Cole found that nonschooled literacy (in their case, of the Vai people in Liberia and Sierra Leone in West Africa) did not appear to produce cognitive changes (see COGNITION). Schooling, on the other hand, seemed to improve performance on a number of different cognitive and metacognitive tasks. Their suggestion is that it is schooling and not merely being able to read and write that is responsible for the growth of abstract thought. However, other explanations for the lack of cognitive effects of Vai literacy are possible: Olson's text-utterance distinction and Jeanne S. Chall's model of stages in reading development. Since the Vai use their own script primarily for highly contextualized functions (e.g., LETTER writing and personal recordkeeping) and not for the abstract functions that Olson ascribed to text, it may well be that in this case literacy does not influence higher cognitive tasks. Using Chall's stage-development scheme it is possible to hypothesize that Vai literacy reached a level that did not lead to the reading of unfamiliar, abstract texts, and thus the effects on cognitive functioning were minimal (see Table 1).

The relationship between reading and abstract thought is reciprocal: higher cognitive and linguistic abilities favor growth of reading skills, and vice versa. U.S. educator J. B. Carroll suggests that students' reading abilities can, with instruction, reach the levels of their cognitive and linguistic functioning, a rationale that has been used for nearly a century to define the condition of reading disability as a significant gap between reading achievement and cognitive and language achievement. Another approach to the relationship between cognition and reading is through analysis of mature reading comprehension. Cognitive scientists have developed models that detail the integration of reasoning into the process of reading comprehension, going back to U.S. researcher Edward L. Thorndike's statement that reading *is* reasoning. Researchers have also used knowledge of how a proficient reader comprehends in order to teach those skills to younger and/or less proficient readers.

The Development of Reading

The process of learning to read and the most effective way to initiate people—especially children—into reading continue to be of great interest to researchers, teachers, and parents. In beginning reading there is a long-standing debate between proponents of an initial emphasis on the "code" or on "meaning." Some have argued for a "whole language" or "global" approach to beginning reading instruction, placing reading in a functional and meaningful context right from the start. Others have argued—calling on research and theoretical evidence over the period from 1910 to 1980—that a "sound-symbol" or a "code-emphasis" approach to beginning reading instruction is more effective for both word identification and comprehension. Languages as diverse as English, Hebrew, German, and Chinese have been involved in this debate. Although research tends to indicate that greater attention to the code in the beginning leads to higher achievement in word recognition and comprehension (at least through the fourth year of school and possibly later), it has always been acknowledged that reading materials did and should use meaningful and interesting language and that comprehension has been and can be taught along with decoding skills. Two national reports published in the United States—*Becoming a Nation of Readers* (1985) and *What Works* (1986)—specifically recommended the direct teaching of phonics in the early grades based on the strength of available research evidence.

Another way to look at reading is from a developmental perspective. Chall proposed that reading progresses through six stages, each representing a qualitative advance yet dependent on the knowledge and skills acquired in the previous stages. Children develop many abilities and skills needed for learning

Table 1. Stages of Reading Development: An Outline of the Major Qualitative Characteristics and How They Are Acquired

<i>Stage Designation</i>	<i>Grade Range (age)</i>	<i>Major Qualitative Characteristics and Masteries by End of Stage</i>	<i>How Acquired</i>	<i>Relationship of Reading to Listening</i>
<i>Stage 0: Prereading, "pseudo-reading"</i>	Preschool (ages 6 months–6 years)	Child "pretends" to read, retells story when looking at pages of book previously read to him/her; names letters of alphabet; recognizes some signs; prints own name; plays with books, pencils, and paper.	Being read to by an adult (or older child) who responds to and warmly appreciates the child's interest in books and reading; being provided with books, paper, pencils, blocks, and letters.	Most can understand the children's picture books and stories read to them. They understand thousands of words they hear by age 6 but can read few if any of them.
<i>Stage 1: Initial reading and decoding</i>	Grade 1 & beginning Grade 2 (ages 6 & 7)	Child learns relation between letters and sounds and between printed and spoken words; child is able to read simple text containing high-frequency words and phonically regular words; uses skill and insight to "sound out" new one-syllable words.	Direct instruction in letter-sound relations (phonics) and practice in their use. Reading of simple stories using words with phonic elements taught and words of high frequency. Being read to on a level above what child can read independently to develop more advanced language patterns, knowledge of new words, and ideas.	The level of difficulty of language read by the child is much below the language understood when heard. At the end of Stage 1, most children can understand up to 4,000 or more words when heard but can read only about 600.
<i>Stage 2: Confirmation and fluency</i>	Grades 2 & 3 (ages 7 & 8)	Child reads simple, familiar stories and selections with increasing fluency. This is done by consolidating the basic decoding elements, sight vocabulary, and meaning context in the reading of familiar stories and selections.	Direct instruction in advanced decoding skills; wide reading (with instruction and independently) of familiar, interesting materials, which help promote fluent reading. Being read to at levels above their own independent reading level to develop language, vocabulary, and concepts.	At the end of Stage 2, about 3,000 words can be read and understood, and about 9,000 are known when heard. Listening is still more effective than reading.
<i>Stage 3: Reading for learning the new</i>	Grades 4–8 (ages 9–13)	Reading is used to learn new ideas, to gain new knowledge, to experience new feelings, to learn new attitudes; generally from one viewpoint.	Reading and study of textbooks, reference works, trade books, newspapers, and magazines that contain new ideas and values, unfamiliar vocabulary and syntax; systematic study of words and reacting to the text through discussion, answering questions, writing, etc. Reading of increasingly more complex fiction, biography, nonfiction, and the like.	At beginning of Stage 3, listening comprehension of the same material is still more effective than reading comprehension. By the end of Stage 3, reading and listening are about equal; for those who read very well, reading may be more efficient.
<i>Phase A</i>	Intermediate, 4–6			
<i>Phase B</i>	Junior high school, 7–9			
<i>Stage 4: Multiple viewpoints</i>	High school, grades 10–12 (ages 15–17)	Reading widely from a broad range of complex materials, both expository and narrative, with a variety of viewpoints.	Wide reading and study of the physical, biological, and social sciences and the humanities; high-quality and popular literature; newspapers and magazines; systematic study of words and word parts.	Reading comprehension is better than listening comprehension of material of difficult content and readability. For poorer readers, listening comprehension may be equal to reading comprehension.
<i>Stage 5: Construction and reconstruction</i>	College and beyond (age 18+)	Reading is used for one's own needs and purposes (professional and personal); reading serves to integrate one's knowledge with that of others, to synthesize it, and to create new knowledge. It is rapid and efficient.	Wide reading of ever more difficult materials, reading beyond one's immediate needs; writing of papers, tests, essays, and other forms that call for integration of varied knowledge and points of view.	Reading is more efficient than listening.

From Jeanne S. Chall, *Stages of Reading Development*, New York, 1983, pp. 85–87.

to read before they receive formal reading instruction, including learning their native language (*see* LANGUAGE ACQUISITION), developing awareness of sounds in words, and learning the names of letters. At school the child's first task is to master the code—that is, to learn how to translate written language into an oral form. Once the code is mastered, fluency and automatic word recognition in context follow. Reading simple stories or books with rhyming or predictable patterns helps this process. Later stages involve using the already acquired skills to read unfamiliar, complex texts for purposes of learning from them, at first from a single viewpoint and eventually from a global perspective, melding read information with the reader's knowledge and experience to create new ideas.

Chall's stages represent a developmental continuum for individual children as well as differences in levels of literacy among societies or cultures. Thus the contextualized reading of the Vai is a kind of Stage 2 literacy, because the written word conveys information largely known by both reader and writer. Stage 2 literacy is not likely to have the cognitive consequences of Stage 3 literacy (i.e., using literacy to learn the new) or the cognitive consequences claimed by Olson for text (or decontextualized) literacy. Further, the kind of literacy required for the study of science and that required for political decisions need the critical comparisons of multiple viewpoints typical of reading at Stages 4 and 5.

U.S. researchers D. P. Resnick and Lauren B. Resnick have argued that mass literacy in the past was a Stage 2 literacy, meaning that large groups of people were able to read highly familiar materials and to read and write letters and simple notes. Attempts to provide universal Stage 3 literacy represent a more recent development, yet it can still be argued that even this higher level of literacy is not enough to have an informed populace in an increasingly complex world. Instead, the criterion for literacy that many have proposed for complex societies is at Stage 4, equivalent to a twelfth-grade reading level (see Table 2). Whether such a level can be achieved by (or provided for) most adults is an important question and a challenge for reading educators.

Bibliography. Richard C. Anderson et al., *Becoming a Nation of Readers*, Washington, D.C., 1985; J. B. Carroll, "Developmental Parameters of Reading Comprehension," in *Cognition, Curriculum, and Comprehension*, ed. by John T. Guthrie, Newark, Del., 1977; Jeanne S. Chall, *Stages of Reading Development*, New York, 1983; John A. Downing, ed., *Comparative Reading: Cross-national Studies of Behavior and Processes in Reading and Writing*, New York, 1972; Paulo Freire, *Pedagogy of the Oppressed* (*Pedagogia del oprimido*), trans. by Myra Bergman Ramos, New York, 1970; Patricia Marks Greenfield and Jerome

Table 2. Examples of Materials Accessible to Readers at Successive Stage Levels

Stage 1	"May I go?" said Fay. "May I please go with you?" ^a
Stage 2	Spring was coming to Tait Primary School. On the new highway big trucks went by the school all day. ^b
Stage 3A	She smoothed her hair behind her ear as she lowered her hand. I could see she was eyeing <i>beauty</i> and trying to figure out a way to write about being beautiful without sounding even more conceited than she already was. ^c
Stage 3B	Early in the history of the world, men found that they could not communicate well by using only sign language. In some way that cannot be traced with any certainty, they devised spoken language. ^d
Stage 4	No matter what phenomena he is interested in, the scientist employs two main tools—theory and empirical research. Theory employs reason, language, and logic to suggest possible, or predict probable, relationships among various data gathered from the concrete world of experience. ^e
Stage 5	One of the objections to the hypothesis that a satisfying after-effect of a mental connection works back upon it to strengthen it is that nobody has shown how this action does or could occur. It is the purpose of this article to show how a mechanism which is as possible psychologically as any of the mechanisms proposed to recount for facilitation, inhibition, fatigue, strengthening by repetition, or other forms of modification could enable such an after-effect to cause such a strengthening. ^f

^aAmerican Book Primer, p. 19.

^bGinn 720, Grade 2², p. 48.

^cGinn 720, Grade 5, p. 66.

^dBook F: *New Practice Reader*, Graves et al., New York, 1962.

^eA. B. Kathryn, "College Reading Skills," in *Modern Society*, 3d ed., ed. by John Biesanz and Mavis Biesanz, Englewood Cliffs, N.J., 1971.

^fE. L. Thorndike, "Connectionism," *Psychological Review* 40 (1933): 434–490.

Source: Jeanne S. Chall, *Stages of Reading Development*, New York, 1983, p. 39.

S. Bruner, "Culture and Cognitive Growth," *International Journal of Psychology* 1 (1966): 89–107; Shirley Brice Heath, "Being Literate in America: A Sociohistorical Perspective," in *Issues in Literacy: A Research Perspective* (Yearbook of the National Reading Conference, No. 34), ed. by J. A. Niles and R. V. Lalik, Rochester, N.Y., 1985; Aleksandr R. Luria, *Cognitive Development: Its Cultural and Social Foundations* (in Russian), trans. by Martin Lopez-Morillas and Lynn Solotaroff, Cambridge, Mass., 1976; David R. Olson, "From Utterance to Text: The Bias of Language in Speech and Writing," *Harvard Educational*

Review 47 (1977): 257–281; Charles A. Perfetti, *Reading Ability*, New York, 1985; Lauren B. Resnick and Phyllis A. Weaver, eds., *Theory and Practice of Early Reading*, 3 vols., Hillsdale, N.J., 1979–1980; Sylvia Scribner and Michael Cole, *The Psychology of Literacy*, Cambridge, Mass., 1981; U.S. Department of Education, *What Works: Research about Teaching and Learning*, Washington, D.C., 1986; Lev Semenovich Vygotsky, *Mind in Society*, ed. by Michael Cole, Cambridge, Mass., 1978.

JEANNE S. CHALL AND STEVEN A. STAHL

READING THEORY

The romantics and Victorians often valued literary works simply as a means of access to the minds and imaginations of their authors (see ROMANTICISM). In the early decades of the twentieth century this concern for the author yielded ground to a preoccupation with the work itself. T. S. Eliot, F. R. Leavis, I. A. RICHARDS, and the U.S. New Critics turned from authorial BIOGRAPHY and psychology to various theories of literary impersonality that grasped the literary text as an object in itself, as an autonomous, self-regulating organization of words that could not be reduced to the mind that produced it. It is only since the mid-1960s that literary theory has turned from both author and work to the indispensable role of the reader in the creation of literary MEANING and value. See AUTHORSHIP.

This new critical mode—variously called reception theory, reception aesthetics, or reader-response theory—regards a piece of WRITING as no more than a set of abstract marks that cue the reader into constructing a particular set of meanings. Meaning is seen less as an immanent property or quality of the written text than as a dynamic process of interaction between text and recipient. A BOOK is a physical object; a “text” is a process or construct based on, but not identical with, a set of material marks on a page. Many previous literary theories tended to view the reader merely as a passive receptacle into whom meaning could be poured; the act of INTERPRETATION was construed as an extraction, on the part of a reader, of some set of meanings that were already, so to speak, buried or secreted within the text itself. Reading theory challenges this empiricist notion of READING, viewing all meaning as the product of a complex collaboration between work and audience. The act of reading involves the continual construction of hypotheses, which are then ceaselessly modified, extended, or abandoned in the light of fresh textual evidence. Any literary work is intelligible only because the reader brings to it a set of what have been termed “pre-understandings,” a frame of implicit prejudices, beliefs, and assumptions without which nothing in the work itself would be identi-

able. A literary work cannot say everything about its subject, but leaves much to the reader’s imagination; so reading theory conceives of the act of interpretation as a “concretization” of the text, a constant filling out of its gaps and connecting together of its various segments.

All readers are thoroughly historical beings, whose encounter with a literary work is shaped by their own inescapable social, cultural, and ideological situations. What happens in the act of reading is an encounter, or for some reading theorists a fusion, between the reader’s own “historical horizon” and the alien “horizon” of the work itself. For this radical historicism there is never any possibility of knowing a work of the past “as it is”: reading is ineluctably a relationship to a text born out of our own historical situation, not a simple reflection of some given object. It follows from this that the meaning of any literary work is highly variable, depending on the changing historical, aesthetic, and ideological circumstances in which it is received. The meaning (or value) of, say, one of Shakespeare’s tragedies is not fixed and given for all time, but alters and develops as new generations come to absorb the work into their own very different concerns. Traditional criticism often conceives of our historical remoteness from a work of the past as a problem: how is criticism to leap the gap between the work and itself, abolishing the history that lies between them and understanding the work from the inside? For reading theory this is to overlook the truth that the literature of the past may come to be enriched and illuminated in fresh, unexpected ways by that intervening history. Literary meaning and value are always transitive, or for some particular reader, in some specific social conditions. Since such social and historical conditions vary widely, it no longer becomes possible to speak of *the* truth, meaning, or value of a literary work as an immanent quality that transcends the history of its reception.

Reading theorists are divided on the question of how much the reader contributes to the making of the literary text. Some, such as Polish critic Roman Ingarden and German critic Wolfgang Iser, imagine a kind of coauthorship between writer and reader, in which the reader is left free to construct the text in particular ways, but always within the constraining limits imposed by the author’s own organization of it. More radical critics, notably French theorists like ROLAND BARTHES and MICHEL FOUCAULT, are suspicious of the whole notion of the author, viewing it as an unwarranted attempt to limit the possible range of meanings of a piece of writing. Barthes, accordingly, flamboyantly proclaims the “death of the author”: we should see literary texts not as the fixed products of a single mind but as fields of free linguistic play, which readers may rewrite as they

wish. This libertarian doctrine arises from the literature of modernism, which breaks with the classical realist conception of the text as equipped with a full, stable meaning that the reader has merely to dig out.

The U.S. critic Stanley Fish insists that everything in a piece of writing is a matter of reader interpretation, right down to the punctuation. The whole burden of literary activity is thus shifted dramatically onto the reader, who is continually bringing into existence the very work he or she appears to "receive." On this theory it becomes impossible, as Fish candidly recognizes, to answer the question, What is it that the reader is interpreting? (For the answer to this question also must consist in an interpretation on the part of the reader, and so on in a potentially infinite regress.) Fish does not believe, however, that his doctrine leads to interpretive anarchy, for the reason that readers are never isolated individuals capable of dreaming up any interpretation that pleases them, but always members of an interpretive community whose codes, conventions, and institutions will determine the kinds of interpretation they produce. What is doing the reading, then, on this model, is the interpretive community itself, of which any individual reader would seem little more than a passive representative. Fish's theory raises important questions of what it might mean to read "wrongly," of how far the work itself might be said to challenge or resist any particular reader's version of it, and of whether interpretive communities are to be seen as unified or conflictive.

Whatever the difficulties raised by reception theory, there is no doubt that it has considerably complicated and enriched our previous ideas about what was at stake in the apparently straightforward act of reading a piece of writing. To restore the reader to his or her properly active function involves transforming our understanding of literature as a whole.

See also IDEOLOGY; LITERARY CRITICISM.

Bibliography. Roland Barthes, *The Pleasure of the Text* (Le plaisir du texte), trans. by Richard Miller, London, 1976; Stanley Fish, *Is There a Text in This Class?* Cambridge, Mass., 1980; Michel Foucault, "What Is an Author?" in *Language, Counter-Memory, Practice: Selected Essays and Interviews* (in French), ed. by Donald F. Bouchard, trans. by D. F. Bouchard and Sherry Simon, Ithaca, N.Y., 1977; Roman Ingarden, *The Literary Work of Art* (Das literarische Kunstwerk), trans. by George G. Grabowicz, Evanston, Ill., 1973; Wolfgang Iser, *The Act of Reading: A Theory of Aesthetic Response* (Der Akt des Lesens), London and Baltimore, Md., 1978.

TERRY EAGLETON

REALISM

As the term has been used in the modern era, a belief in a reality outside the mind to which the writer or

artist owes primary allegiance. LANGUAGE and images must reflect something outside the operations of the mind itself. The advent of realism as a literary and artistic value can be seen as a development of the scientific age from the late seventeenth century onward. The belief in an external world is a belief in a world of sensible particulars capable of being weighed and measured, analyzed, and put to use. Confidence in a scientifically perceivable and knowable reality was paralleled by a growing confidence in the ability to study and know humankind and to effect social change. From such confidence arose England's "Glorious Revolution" of 1688 and the American and French revolutions at the end of the eighteenth century. See DIDEROT, DENIS; LOCKE, JOHN.

Roots of realism. The first considerable body of artistic work to reflect the movement to realism is from seventeenth-century Holland, which took a leading role in social change. It early espoused Protestantism and republican ideals, and the wealth created by trade, COLONIZATION, and industry in its "Golden Age" was a capitalist, middle-class wealth. Holland also took a leading role in the new scientific developments in MATHEMATICS, optics, and astronomy. It produced an ART that did not depend on aristocratic patronage or the grand manner of execution but turned away from mythical or legendary subject matter toward the details of ordinary Dutch life. In the work of such painters as Rembrandt, Jan Vermeer, or Pieter de Hooch (Figure 1) we see a mimetic art created for a middle-class public, an art that does not accept the aristocratic assumptions of the grand style. The term *realism* was first used in France to describe the *vérité humaine*, or "human truth," of Rembrandt, and Dutch painting was to be an inspiration for much realism in a later period.

In literature the seventeenth century saw the establishment of what we have come to call realism in the European novel, although the term itself was not then used. The novel was a relatively new literary form that could take the existing physical and social world as its setting and could examine the behavior of human beings in contemporary social conditions. In England in particular, the new realistic novel accompanied a new MODE of dramatic representation. The THEATER underwent an important change, as the proscenium arch separated the audience from the actors, and dramatic characters became less symbolic and more representational (see DRAMA—HISTORY). In COMEDY especially, the actors performed the parts of recognizably modern character types before painted scenes representing the world outside the theater, the new buildings, streets, shops, and parks of London. In the novel, too, settings become increasingly recognizable, often urban places where characters neither angelic nor fiendish confront what seems not a fate but a series of problems. Other modes of writing that contributed to the new form

include criminal BIOGRAPHY, Puritan written self-examination, and the personal LETTER, as well as drama and the old romance (see ROMANCE, THE). The art of eighteenth-century novelists like Pierre Marivaux in France and Daniel Defoe, Samuel Richardson, Henry Fielding (Figure 2), and Tobias Smollett in England appealed to a new, wider readership, and their works were sold in the marketplace, removed from the aristocratic tradition of patronage.

In LITERARY CRITICISM and controversy of the eighteenth century, discussions of the novel emphasize the change from the unreal and “improbable” constituents of the romance to the mundane and believable elements of the new forms of history. The realistic work deals with common and contemporary life and behavior; it does not use “high” style, and it never offers against probability. The realistic work is presumed to have an intrinsic aesthetic appeal; the belief that what is described or presented could actually exist is supposed to make the reader more likely to respond emotionally and pleasurably to the experiences presented. In his investigation of what he calls formal realism in *The Rise of the Novel* (1957), literary critic Ian Watt stresses the realistic story’s attention to the scientifically probable in plot and structure, its respect for the realities of space and time, and its extensive use of characters neither noble nor historically significant. Characters are also given names that are not symbolic or openly descriptive (e.g., Mr. Greatheart, Mr. Badman) but credible, like the names of people we might meet (e.g., Tom Jones, Cécile Volanges).

Themes. The Enlightenment’s belief in the value of such pictures of real life was an aspect of an ideological program that entailed deposing many religious and aristocratic works (broadly lumped under the heading of “romance”) and denying their appeal. Claims for realism in art or literature reflected political aims, whether for the establishment of the republican rule of the middle class or for a wider extension of democracy. In art and literature alike, what might be called the age of high realism occurred in the nineteenth century, when the effects of the Industrial Revolution were most strongly felt. The period in which realism dominated the arts is customarily dated 1840–1880.

The center of realism in painting in the early nineteenth century was France; the realist movement rallied around the work of Gustave Courbet, and its rallying cry was Honoré Daumier’s “il faut être de son temps” (“one must be of one’s time”). Eugène Delacroix displayed in certain of his works the new realistic interests, as did Jean-François Millet, Gustave Doré, and later Edgar Degas and Édouard Manet. In England the major practitioners of realistic art were Edwin Landseer, John Everett Millais, and Ford Madox Brown, all of whom defied heroic history painting. Rembrandt was praised as the repre-

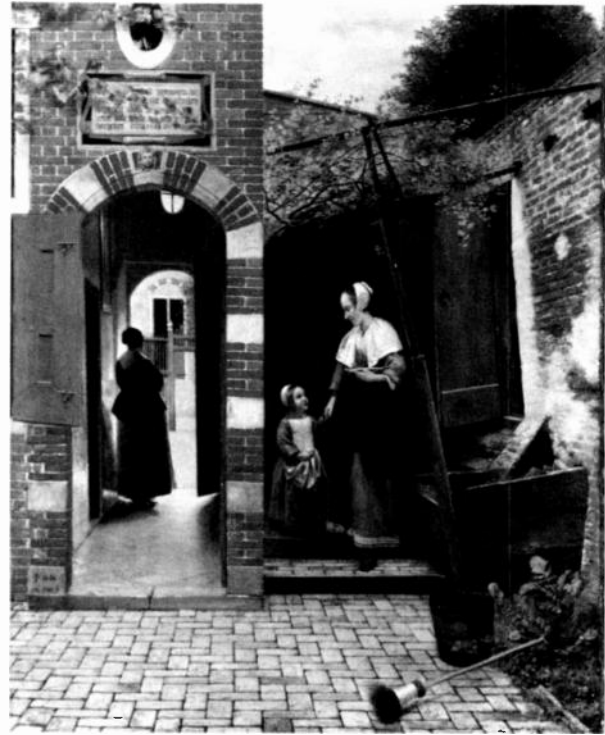


Figure 1. (Realism) Pieter de Hooch, *Courtyard of a House in Delft*, 1658. Reproduced by courtesy of the Trustees, The National Gallery, London.



Figure 2. (Realism) Illustration from *The History of Tom Jones: A Foundling*, after a drawing by Thomas Rowlandson, 1798. From *The Complete Works of Henry Fielding, Esq.*, New York: Croscup & Sterling Company, 1902, Book VII, p. 250.

sentative of the revolt against the *anciens*, those who regarded CLASSICISM, tradition, and authority as the fount of aesthetic values. Realistic artists chose as their subjects scenes of death and illness, labor, and the worlds of the middle class and poor (Figure 3). They emphasized painting in the open air (*plein-air*), making a virtue of getting away from the studio and painting nature and human beings in the particularity



Figure 3. (*Realism*) Jean-François Millet, *Potato Planters*, 1861–1862. Courtesy, Museum of Fine Arts, Boston. Gift of Quincy Adams Shaw through Quincy A. Shaw, Jr., and Mrs. Marian Shaw Haughton.

Figure 4. (*Realism*) John Everett Millais, *Lorenzo and Isabella*, 1849. National Museums and Galleries on Merseyside (Walker Art Gallery), Liverpool.



of a day. Human works and figures were fundamentally more important to the new realists than unhumanized nature.

Realism in its heyday affected literature as much as painting, and one of its chief theorists and major practitioners was Gustave Flaubert, who said, "The more Art develops, the more scientific it will be, just as science will become artistic." The realistic work might be characterized as one that acknowledges constraints—work, poverty, illness, time, change, death. It seems bravely to be investigating limitations, but with some lingering sense of the holy lurking in the external reality that is held up to the light. In England essayist John Ruskin was the chief prophet of realism in art and literature and novelist George Eliot one of its most eloquent practitioners. As Eliot explains in her moral appeal to us to understand her commonplace character Amos Barton: "You would gain unspeakably if you would learn with me to see some of the poetry and the pathos, the tragedy and the comedy lying in the experience of a human soul that looks out through dull grey eyes, and that speaks in a voice of quite ordinary tones."

The appeal of realism as a concept and a value in art lies ultimately in its moral claim that all human beings matter immensely. German critic Erich Auerbach traced our interest in this mode back to the Old Testament, with its heroes—so different from Greek heroes—engaged in "entangled and stratified human relations . . .," living imperfect lives and experiencing psychological problems unknowable to Odysseus. Auerbach saw realism as essentially rhetorical: it must in the first place deny a hierarchy of styles, making what in classical terms would be a "low" subject (like fishermen or carpenters) into a "high" subject, or, rather, dispense with such notions altogether. He tended to see both late-RENAISSANCE practice and neoclassicism as aberrations, and the Western love of a humane and dynamic realism in its literature as the rule.

The common tendency to use *realistic* or *realism* as terms of unqualified approval has met periodic opposition. In the high noon of the nineteenth century's realist movement, realism could be identified as a kind of cynicism, reflecting an inclination to take the lowest and ugliest view of people and places. It was sometimes thought morally dangerous, encouraging gloom and pessimism, and often considered aesthetically destructive, as antipathetic to POETRY in general. Alfred, Lord Tennyson and Robert Browning, like T. S. Eliot and Ezra Pound after them, found in other cultures, in the past, and in tradition and legend material for poetry that discounted absolute realism, just as the Pre-Raphaelite painters whom Ruskin admired found an outlet in unrealistic subjects painted with great fidelity to detail (Figure 4). English critic C. S. Lewis distinguishes between "realism of content" (i.e., Watt's formal

realism) and "realism of presentation," pointing out that all sorts of stories may make convincing use of credible detail without having to subscribe to realism of content and obey the rules of probability.

The decline of realism. According to U.S. scholar Wylie Sypher, "Realism is only a theory, not a style—an attitude, not a method." Or, as Watt says, realism is a convention. In the history of art we can see dogged and self-conscious realism exploding itself; the impressionists went faithfully to nature but included the nature of seeing, thus turning the concerns of painting to the subjective once more. Cubism and surrealism denied the old fidelity to external provable reality (Figure 5), and in literature James Joyce's *Ulysses*, among other works of the early twentieth century, broke through realism with a gigantic parody of realistic method.

At the popular level *realistic* is still a favorable term. Something realistic (a film or a novel) is "true-to-life" or "lifelike," as opposed to lifeless or, often, abstract or distorted. But the formal realism valued so highly since the eighteenth century proved a temporally contingent quality. And we misinterpret even the most "realistic" of literary forms—the novel—in its most "realistic" periods (e.g., the works of Victor Hugo and Charles Dickens) if we insist too much on its realism. Novelists have always incorporated many elements of the romance in their works, as well as exploring modes of stylistic play, imagistic presentation, textual or visual disruption, and surreal effects, just as the most realistic painters may have a vein of fantastic exuberance in their execution and may use symbolism or legend in their subject matter. Surrealism has often been called in as a new aesthetic value to redress the bony truths of realism. Modern novels are often fantastic and experimental, and deliberately break the laws regarding time and space. Vladimir Nabokov, Thomas Pynchon, Heinrich Böll, Gabriel García Márquez, and Italo Calvino are not hampered by the rules of probability.

Modern critics are less and less interested in realism. Since the end of the 1950s critical interest in the novel has focused on reader response (see READING THEORY) or on the work's psychological emblems, its location in a system of cultural signs and ambiguities (see STRUCTURALISM), or its richness of carnival play. Without wishing to rescind the moral and democratic feeling at the heart of realism's nineteenth-century appeal, the later twentieth century is more concerned with what is playful, and not with the formally and overtly coherent, finding its artistic vitality in mixed modes and unexpected reversals of formal expectations.

See also AESTHETICS; ROMANTICISM.

Bibliography. Erich Auerbach, *Mimesis: The Representation of Reality in Western Literature* (Mimesis: Dargestellte

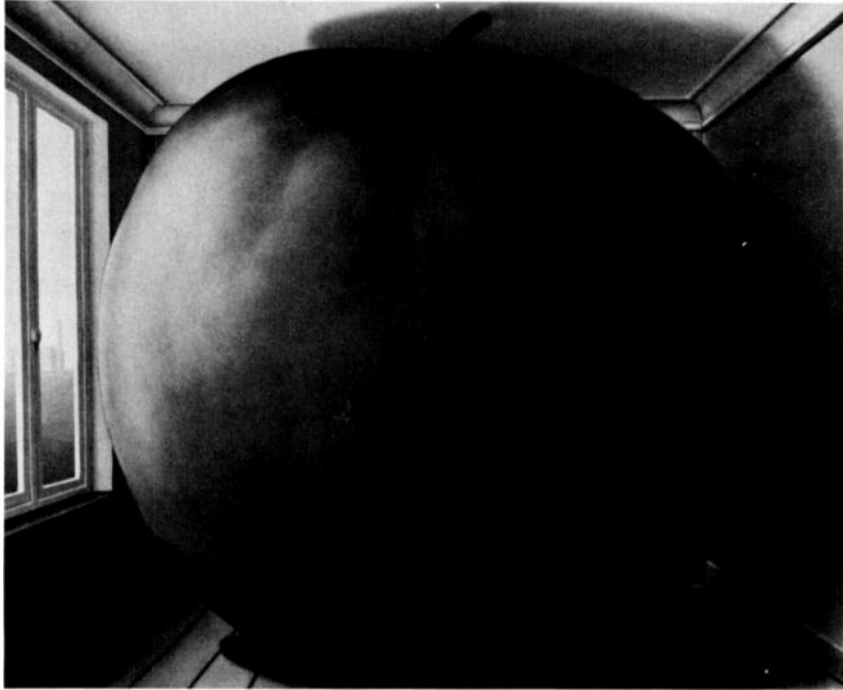


Figure 5. (*Realism*) René Magritte, *The Listening Chamber*, 1953. Art Resource, New York.

Wirklichkeit in der abendländischen Literatur), Berlin, 1946; Damian Grant, *Realism*, London, 1970; C. S. Lewis, *An Experiment in Criticism*, Cambridge, 1961; Linda Nochlin, *Realism*, Harmondsworth, Eng., 1971; Clara Reeve, *The Progress of Romance*, Colchester, Eng., 1785; Wylie Sypher, *Rococo to Cubism in Art and Literature*, New York, 1960; Ian P. Watt, *The Rise of the Novel*, Berkeley, Calif., 1957, reprint 1974.

MARGARET ANNE DOODY

RECORDING. See SOUND RECORDING.

REFERENCE WORKS. See ENCYCLOPEDIA; LANGUAGE REFERENCE BOOK.

REITH, JOHN (1889–1971)

British broadcasting pioneer justifiably called the father of the BBC. When in 1922, at the dawn of RADIO broadcasting, John Charles Walsham Reith applied for the job of general manager of the BBC, the letters stood for British Broadcasting Company, a private concern being organized by a group of electrical companies. When on January 1, 1927, it was transformed by royal charter into a public corporation, the British Broadcasting Corporation, Reith became—and would remain until his retirement in 1938—one of the most influential men in Great Britain. Newly knighted, he was Sir John Reith, director-general.

Reith was a tall Scot of impressive presence. He had been manager of various firms of no great importance, including an engineering firm. Those who hired him expected efficient management but little more. They could scarcely foresee the authority with which he would assume his position and stamp his vision and austere standards on virtually all aspects of the BBC. He himself had a sense of mission and wrote in his diary that he was “properly grateful to God for His goodness in this matter.” The task before him, as Reith saw it, was to carry into “the greatest possible number of homes everything that is best in every department of human knowledge, endeavour, or achievement.” To use radio for diversion alone seemed to him a “prostitution” of its possibilities for service.

Reith’s BBC had a MONOPOLY over radio broadcasting in Britain, which troubled some observers but was defended by Reith. Unified direction seemed to him a basic need, and for this the “brute force of monopoly” seemed essential. Such phrases worried his followers but reflected Reith’s unflinching style of leadership. The very different radio system evolving in the United States, supported by ADVERTISING (see also SPONSOR), seemed to Reith and his associates a “chaos” unsuitable for Britain. In the course of a 1929 conversation with César Saerchinger, the first European representative of the Columbia Broadcasting System, Reith wondered how Americans could successfully “worship God and Mammon at the same time.”

Under Reith the British radio audience grew rap-

idly and encompassed all social segments. Resistance to the license fees levied on set ownership to support the system was something less than had been expected. (Such resistance would develop later.) But criticism of elitist trends was heard. Reith was intent on broadcasting "the right English." The anonymous announcers developed a BBC style rather than personal styles. Dialects like Yorkshire and Cockney were confined to COMEDY. Language policies seemed to critics an aspect of class domination (see LANGUAGE IDEOLOGY). Announcers presenting evening music programs wore dinner jackets.

It was in news services that Reith's leadership provided a special strength. In 1927, over press opposition, Reith established the BBC's right to a journalistic role, for which he won remarkable independence. He generally supported the idea that opposing sides of controversial issues should be heard, which often annoyed government ministries. The government had vague contingency rights over broadcasting for use in emergencies. Reith's decisions on when to resist its intrusions proved important in establishing the BBC's degree of independence. He set a precedent during the 1926 general strike when Winston Churchill, then chancellor of the Exchequer, demanded that the cabinet should commandeer the BBC and use its facilities to quash the strike. Reith resisted the idea, as he would resist other demands—including one from the archbishop of Canterbury. Reith saw the BBC as inevitably a part of the Establishment but was determined not to yield its "independence of judgment."

In 1932 Reith began to make the BBC an international presence with broadcasts beamed to all parts of the world, at first in English only (not until 1938 in other languages). As world tensions increased, international radio (see RADIO, INTERNATIONAL) was becoming a cacophony of vituperative PROPAGANDA, which the BBC began to counter—not by retaliation but by restrained statement. Here the impersonal style of BBC news "readers," reporting without the resonances of promotion or indignation, proved remarkably effective, establishing wide trust among world listeners. This credibility may have been one of the most valuable legacies of the Reith years.

In the two years before Reith's 1938 retirement television seemed almost ready, and an experimental service was begun (see TELEVISION HISTORY). But the new medium did not imbue Reith with quite the fervor with which he had, years earlier, piloted the BBC into the radio age. In 1940, having withdrawn from the scene, he became Lord Reith of Stonehaven. In later years he was occasionally called on for other posts, such as head of the British Overseas Aircraft Corporation (BOAC) and of the Commonwealth Telecommunications Board.

See also RELIGIOUS BROADCASTING.



Figure 1. (Reith, John) Sir John Reith. Chalk drawing by Sir David Low. National Portrait Gallery, London.

Bibliography. Asa Briggs, *The BBC: The First Fifty Years*, New York, 1985; idem, *The History of Broadcasting in the United Kingdom*, 4 vols., London and New York, 1961–1979; Roger Milner, *Reith: The B.B.C. Years*, Edinburgh, 1983; John Reith, *The Reith Diaries*, ed. by Charles Stuart, London, 1975; César Saerchinger, *Hello America! Radio Adventures in Europe*, Boston, 1938.

HARTLEY S. SPATT

RELIGION

The major religions of the world have played a commanding role in cross-cultural communication either because their adherents were scattered across

various areas, as in the case of the Jews (*see* DIASPORA; JUDAISM), or because they possessed an impulse to missionize, like the Buddhists in China and elsewhere. Within societies and cultural areas religions have often had a powerful effect on ways of exchanging and developing ideas. For example, the Brahmin class in India had the effect of monopolizing a form of sacred knowledge; and the use of Confucian texts in the examination system of imperial China left its mark on the whole literary and cultural field (*see* CONFUCIUS; EAST ASIA, ANCIENT). At a more restricted level ethnic religions, chiefly to be found in relatively small-scale societies, gave shape to the mythic lore and consciousness of the group.

The effects of WRITING were considerable in that it created the possibility of sacred texts, which became the focus of learning (*see* SCRIPTURE). Religious specialists credited with special knowledge became a common feature of traditions, though the mode in which they operated varied. Thus Brahmins had control of the (originally oral) tradition of *sruti*, or revelation, and those outside the upper three classes of the Hindu caste hierarchy were excluded from contact with the Vedic scriptures. The severe taboos surrounding transactions with Brahmins helped to preserve the esoteric character of divine knowledge. In the Christian traditions there developed a priesthood that also had special, though not exclusive, access to sacred knowledge, partly because in western Europe Latin became the specialized LANGUAGE of religion and learning even when people spoke various vernaculars (*see* MIDDLE AGES). In Judaism in its major formative period after the fall of Jerusalem in 70 C.E., the rabbis became important as highly trained interpreters of the Law, or Torah, and they became the means through which the Oral Torah was codified and developed. In Islam the main focus of INTERPRETATION of the tradition had to do with the *Shari'a*, or Law, and again there was need of a body of trained persons, an elite of jurisconsults (*see* ISLAM, CLASSICAL AND MEDIEVAL ERAS). In some respects Arabic became a sacred language, in the sense that only in Arabic is the Qur'an strictly speaking the Qur'an; translations are merely interpretations. For Arab cultures this did not present a barrier, but it has for the majority of Muslims, who live outside the heartlands of Islam. The Confucian classics, though not strictly sacred or revelatory texts, nevertheless have a complexity that required very skilled understanding, and the scholar-gentleman came to occupy a special role in the transmission of the tradition. Even in Buddhism, which was not supposed to be an esoteric religion, for the Buddha wished the teaching to be transmitted in the relevant vernacular languages, Pali (once a North Indian vernacular) came to be a sacred language for various Theravadin cultures (including Sri Lanka and Thailand), while the

great wing of Buddhism known as the Mahayana developed Sanskrit texts. In later Buddhism—for example, in Tibet—there were also trends toward an esoteric approach to learning.

Despite all this, it was certainly not the intention of the major traditions to restrict the transmission of their values and doctrines, unless social arrangements dictated it, as in Hindu India. This is especially obvious when the religions were consciously missionary in character—chiefly Christianity, Islam, and Buddhism. Even relatively nonmissionary systems such as Hinduism and Confucianism had an osmotic spread, permeating not only great cultural areas such as India and China but also beyond to Southeast Asia, Japan, and so on. If there were religious elites who dominated sacred learning, the logic was not so much to restrict the spread of ideas as to control it.

This was a major motive in the formation of canons. There was a multiplication, for instance, of supposed Christian texts in the second and third centuries, and to deal with heresies the Christian church set about forming a regular collection of approved scriptures. It was not always successful. The canon of Buddhist texts was supposedly fixed at councils after the death of the founder, but from the first century C.E. onward new Sanskrit texts were composed as were other texts in China, such as the famous Ch'an (Zen) classic, *The Platform Sutra*. Even the more conservatively oriented Theravadin scriptures added material in the interstices, filling out the barer bones of the earlier Buddhist records.

In theory many of the scriptures are considered to be communications directly or indirectly from beyond—from God or from the transcendental insight of the Buddha. It happens that the Buddha did not believe in a supreme God and did not take the sacramental rituals of the Brahmins seriously, so there was a certain openness about the mode of communication of the Transcendent to ordinary people. He was concerned, of course, about proper transmission, for this was the logic behind his founding of the Sangha order of monks and nuns. Among other things, the order was to preach the dharma (teaching). But among religions that had the sense of God and the sacred there was even greater concern to control the message, which was part of a sacred tradition embodied in a community. This tendency toward sacred control was reinforced in Western Christendom by the centralization of the church under the increasingly influential papacy. With the growth, through the Crusades, of the use of force to propagate the faith, the Inquisition had state assistance in suppressing heresy by physical means (*see* CRUSADES, THE). Because of the sacred character of the church it became easy to equate heresy with profanity, and so with the forces of the Antichrist. Thus differences of opinion were identified with re-

jection of the holy character of the sacraments and of the church.

Control over ideas. This ideological control was also something that concerned the Chinese emperors from time to time. In 213 B.C.E. the Ch'in emperor caused the burning of all books that could be used to attack the new regime—in fact all books, including the Confucian classics, that addressed higher values, philosophy, and religion (technical manuals on farming, divination, and the like were exempted). The burning was accompanied by a banning of the scholarly class. But later, and more generally, ideological control was exercised in alliance with and mostly in the name of the Confucian control. It was on this basis that eventually a *modus vivendi* was achieved among the Confucian, Taoist, and Buddhist traditions (although Buddhism continued to be persecuted sporadically). See BOOK; CENSORSHIP.

There were similar qualms in the West about how to treat non-Christian, and later non-Islamic, learning. In a way the position was reversed in the sense that in Christian Europe the old classical culture was viewed with some suspicion as being “pagan.” For this reason the famous LIBRARY at Alexandria was burned by Christians in 391, and later with similar motives by Muslims in 642. The rediscovery of the classical past later on was, of course, a main reason for the RENAISSANCE of the fifteenth and sixteenth centuries, and there remained, even after the Reformation, tensions between the need for religious control and the desire to incorporate the best of secular or pagan knowledge into the fabric of Christian thought and life (and similarly with Islam).

The Reformation was spurred by various forces, including the increased use of the vernacular, such as the translations into English of the Bible by John Wycliffe. The invention of PRINTING gave a new impetus to the circulation of religious ideas and texts. The evolution, however, of a new alliance between church and state—for example, in England and Sweden—theoretically gave new possibilities of control. Thus entry into higher EDUCATION in Britain involved affirming the Anglican Thirty-nine Articles (keeping out Catholics, radical Reformers, and Jews). However, because many nineteenth-century European nationalist movements were dominated by liberals, the state tended to be halfhearted in enforcing religious conformity.

Dissemination of ideas. Though religions have in varying ways placed some restrictions on communication, they also have had, on the whole, a considerable concern for propagating the various aspects of the relevant faith. In doctrine there has been care regarding the question of true formulation, but the religions also became involved heavily in wider intellectual interests and some form of higher education for religious specialists—as with the training of *pan-*

ditas (learned persons) in the Hindu tradition, the establishment of Buddhist universities (above all, that at Nalanda in North India), Islamic universities such as al-Azhar in Cairo, and so on (see UNIVERSITY). Many of these forms of training went far beyond the religious interests of the tradition, but they were at least centered on the relevant faiths. Philosophy in Christian Europe, Islam, and India became a vital adjunct to religion, and Buddhist philosophy—for example, the critical approach of Nāgārjuna (ca. 100 C.E.)—itself became a way of reasoning held to lead toward the spiritual goal. The modes of formulating doctrines and the shape of the worldview became more sophisticated, as with the Neo-Confucian revival in China from the eleventh century on.

The mythic or narrative dimension of religion focused on the main events in the lives of founders, but it also came to incorporate a wealth of material that was important in reaching out to a wider, largely illiterate public (see LITERACY). Especially noteworthy here are the Jataka tales in Buddhism, which recount events in the previous lives of the Buddha and serve as illustrations of ethical behavior. In Christian Europe there also developed means of presenting stories in dramatic entertainment (the so-called mystery plays). The massive lore of Hindu life came to be expressed through the Puranas, a vast and intricate collection of myths. More important still were the great epics, the Mahabharata and the Ramayana, which formed the basis of dramatic presentations that traditionally entertained and molded the mores of Indian village life down the centuries (see MUSIC THEATER—ASIAN TRADITIONS). Now they also are used as the basis for the mythological dramas produced by the Indian film industry (see MYTHOLOGICAL FILM, ASIAN). In traditional China DRAMA was also integrated into religion through association with celebrations of the New Year, the cult of ancestors, and the like. On the other hand, Buddhism had a ban on monks or nuns watching drama or dance, and this inhibited the development of Buddhist drama. Much of the Jewish interpretation of the Bible concentrates on the complex stories contained in it, and the NARRATIVE dimension provides the main historical substance of Judaism, which through its CALENDAR commemorates some of the major events in the history of the Jewish people.

Religious traditions have typically also been concerned with more directly communicating ethical values. Sometimes these have been tightly integrated into a system of law, as in Judaism and Islam, and this involves the creation of a class of specialists to interpret the law. In Buddhism a strong emphasis in monks' sermons is morality, which is the strongest part of their educational effort in raising the standard of life of laypersons. As noted above, the Buddhist Jataka tales also have ethical implications. And

Christianity has evolved educational systems whose ethos is directed especially at ethical upbringing.

Varieties of rituals. At the heart of most religions is the practice of various rituals—from formal, as in the case of a Roman Catholic High Mass, to very informal, as in a meeting of the Society of Friends (see RITUAL). These may be supplemented by various modes of spiritual practice, such as meditation, prayer, and confession. This ritual-practical dimension of religion is a major means of communicating the substance of a faith (in fact the very word *communication* comes from the Latin term for the distribution and participation in the elements of the Eucharist or Lord's Supper or Communion). Because ritual performances involve more than the use of words they contain a symbolic side (reinforced also in many cases by religious ART).

SYMBOLISM is a strong way of conveying the meaning of the faith and has an impact greater than the abstractions of doctrine. It also often includes a picturesque element that has easy access to popular imagination. Thus pilgrimages to famous sacred places traditionally make a more tangible contribution to faith than mere words. The practice of pilgrimage is fairly central to Islam, the hajj to Mecca being a potent symbol of Islamic solidarity. It has also been important in Catholic and Orthodox Christianity, especially to the Holy Land. It is widespread in Buddhism—to Bodh Gaya, Sarnath, Kapilavastu, and Kusinagara, associated with major events in the Buddha's life—and also in Hinduism, especially to bathe in the sacred Ganges at Banaras. There is a traditional pattern of sacred mountains in Japan, which are foci of pilgrimages. These migrations helped with the circulation of ideas among adherents from widely different parts of the relevant area of the world. Their significance in some countries has declined (being replaced by that secular pilgrimage known as TOURISM), but elsewhere modern means of transport have increased the intensity of pilgrimage, especially with Islam and in the Indian subcontinent (see ISLAMIC WORLD, TWENTIETH CENTURY).

In some religious cultures the wandering holy person is an important phenomenon. This, for instance, contributed to the religious unity of India even when it was thoroughly divided politically, for the wanderer would journey to sacred sites all over India.

Of all the rituals, ultimately the most potent for the modern world may have been the sermon (see HOMILETICS). Preaching has a central place in much of Protestant Christianity, being in effect the most important sacrament. The preacher is supposed to convey the message of the Bible and behind that of God through his or her eloquence, and part of that conveying is the arousal of strong feelings of love, dedication, commitment, and so on. Protestant em-

phasis on the word has in recent times often been expressed, especially in the United States, by the use of the media—both RADIO (popularized rather spectacularly by Aimee Semple McPherson in southern California in the 1920s) and television, in which some preachers, such as Oral Roberts and Robert Schuller, have built up big audiences and prosperous organizations (see RELIGIOUS BROADCASTING). It happens that the free-enterprise aspect of media in the United States lends itself better to this extension of preaching than do the controlled systems in Great Britain and France and elsewhere in Europe.

The ritual aspect of religion thus has a certain polarity: at the one end are the nonverbal symbolisms of ritual action, and at the other is the highly verbalized ritual of preaching as a means of bringing the Ultimate to the people.

The object of much of such activity is the creation of feelings within people, and so it constitutes a kind of RHETORIC, which can result in powerful religious experiences. This is especially emphasized in that strand of religion often referred to as mysticism. Buddhist meditation, Christian monasticism, Hindu yoga, Sufi groups—all these may be vehicles for bringing about an inner experience of peace and insight. In turn these depth experiences have to be expressed and conveyed somehow through words and actions. On the one hand, there is a pervasive tradition in the mystical strand of the great religions that because the inner experience of the eternal is indescribable it is often conveyed best through silence. On the other hand, the sense of the presence of God, as in conversion experiences, often gives rise to enthusiastic utterance, including that strange form of speech known as glossolalia, or speaking in tongues. In the bhakti, or devotional wing of Hinduism, and in the Christian and Jewish traditions singing is associated with worship and the expression of such sentiments as joy and awe (see MUSIC PERFORMANCE; SONG).

Religious arts. The art of a religion is also a powerful means of communication. Thus the sublime smile of a Buddha figure may signify not just the relaxed peace and joy of one who has attained Enlightenment but also the sense that it is by a gesture—however minimal, like a smile—rather than by words that the truth is conveyed. But in an important sense the religious art of generations up to the modern era is often a substitute for writing. The story of the Buddha or Krishna is communicated in pictures; so are the stations of the cross in the Catholic tradition. The lighting of candles or incense sticks is a concrete means of expressing reverence, often in front of a picture or statue. The uses in the West of stained-glass windows, in Eastern Christendom of icons, in the Buddhist tradition of bas-reliefs, and so on, are

powerful modes of educating the laity in the essentials of the narratives, and sometimes even of doctrines. Chinese Ch'an and Japanese Zen paintings, which contain large expanses of blankness, are means of showing in a minimalist way that we act by not acting and that the essence of things in this world is the void. *See* ICONOGRAPHY.

Religious art can create its own language—for instance, in mudras, the various gestures made by the hand in Buddha statues, each with a conventionally assigned meaning (e.g., that the Buddha is here teaching in an analytical way, or that he bids us leave fear behind). These mudras are part of the complex signals in a statue of the various motifs of the Buddha's life and doctrine. In the Hindu tradition, and to some extent among Buddhists and Jains as well, statues are conceived as themselves endowed with power, so they become sacramental incarnations of the holy and the locus of particular gods or supernatural beings. The study of such iconography is an important item in the understanding of religion.

However, some religions are icon-free—Islam and parts of Christianity (Calvinism in the old days, for instance, and still among some evangelical groups) and Judaism, which consider it wrong and inappropriate to depict God. God as spirit is beyond such representation, it is held, and depicting him may lead to the worship of the images themselves, or idolatry. Naturally, such religions have alternative means of expressing their attitudes toward the Ultimate. So Islamic ARCHITECTURE with its purity of form and its decoration (often with texts from the holy Qur'an) conveys something of the awe-inspiring otherness of the divine. In brief, differing religions hold different views about how best through the plastic arts to represent and express God as a holy being, or the unspeakable Ultimate of the Buddhist tradition.

Music is also a powerful means of communication because it has a natural affinity with differing emotions. In modern times especially, religions have taken an interest in the creation of hymns and music to encourage mass participation. Some already have their deeply inbuilt music—for instance, Islam with its chanting of the Qur'an. This, in an awe-inspiring and sacred way, most vividly encapsulates the revelation of God and is the real manifestation of the Islamic word. The Arabic-written Qur'an can be compared to a musical score, which though a guide to the music, is secondary to it. *See* MUSIC HISTORY.

Architecture also is a mode of conveying ideas. The soaring Gothic cathedral points to heaven. The massive towered Hindu temple is a holy mountain in stone around whose peaks and upper slope the gods gather (gods who are all ultimately varied representations of the one reality). By contrast the simplicity of the old Scottish kirk or a New England

church reflects values of innerworldly asceticism, such as characterized much of the Reformation. The domed Orthodox church symbolizes the way heaven comes down to earth. In Moldavia (Romania) there are churches with frescoes painted on the outside, an evident mode of lay education in the myths and values of the faith. The shrine rooms of Buddhist temples are designed to confront the faithful with the greatness and serenity of Buddhahood at close range.

Missionary activities. Ultimately the most important symbols communicating the essence of religion are the people involved—the shaved monk, the village priest, the hermit, the wandering holy man, the preacher, the sober laypersons, and so on. This is also relevant to the way religions spread. Some of the great religions, notably Buddhism, Christianity, and Islam, have been highly successful missionary religions. Buddhism penetrated to virtually every country in Asia and left its imprint. Islam has large command over a huge crescent running across the middle of the world from West Africa to southeastern Indonesia. Though military conquest may have been one factor, as in Islam and colonial Christianity, more vital has been the presence of dedicated and holy people, such as Sufi mystics, Christian missionaries, and Buddhist monks.

Crossing cultural boundaries has presented challenges in communication and has subtly led to changes. Thus, for instance, the Chinese had to translate many technical and religious terms from Indian Buddhist practice and often chose terminology drawn from the Taoist tradition. This was a factor in the sinicization of Buddhism and the creation of original Chinese forms of Buddhism, such as Ch'an Buddhism, in which diverse cultural elements were creatively blended. The missionary efforts of Christianity led to the identification of many missionaries with the anticolonial struggles of the twentieth century and in turn with the effects of ecumenical cooperation overseas on the mother churches in the United States and Europe. But probably the deepest effect of Christian missionary activities was the invention of written modes for a host of languages hitherto only oral (*see* ORAL CULTURE). This has paved the way for new literatures.

The development of modern communications, along with increasing travel, means that there are new opportunities for diasporas, such as Sikhs living both in the Punjab and scattered not only through India but also in countries such as Great Britain and Canada. Minority Muslims in the United States, for instance, can readily maintain contact with Muslims abroad. These factors also lead to the more rapid cross-cultural spread of new religious movements, some of which are in any event old religions in new

places, such as the Hare Krishna movement. Such cultural transmissions and migrations give many of the world's cities a pluralist character, with religions from different cultural backgrounds living side by side and often in mutual interaction.

All this has reinforced some modern trends in religious education. Although the conservative branches of some traditional religions often reject critical scholarship and appear to have an interest in restricting the open inquiry of the young, since about 1970 concern has been evident in a number of countries to inform children of the variety of religions. It is a consequence of the modern separation of church and state that religion is increasingly a private option, and religious education is sometimes seen as a way to prepare the young for such a choice.

Bibliography. Redmond A. Burke, *What Is the Index?* Milwaukee, Wis., 1962; Trevor O. Ling, *A History of Religion East and West*, London, 1968; Albert C. Moore, *Iconography of Religions*, Philadelphia, 1977; Hans Schwartz, *Divine Communication: Word and Sacrament in Biblical, Historical and Contemporary Perspective*, Philadelphia, 1985; Ninian Smart and Richard Hecht, eds., *Sacred Texts of the World*, Blauvelt, N.Y., 1983.

NINIAN SMART

RELIGIOUS BROADCASTING

Broadcasts in the interest of religious values or practices have existed since the beginnings of RADIO broadcasting and have been a factor in all subsequent media developments, including television (*see TELEVISION HISTORY*), CABLE TELEVISION, VIDEO, and program distribution by SATELLITE. Virtually all media genres have been adapted to religious purposes. The impact has varied substantially from region to region, amid varying social and political circumstances.

Beginnings. The first surge of religious broadcasting took place in the United States and was initiated by the first licensed station, KDKA in Pittsburgh, Pennsylvania, which on January 2, 1921—less than two months after the station's debut—produced a remote broadcast from the local Calvary Episcopal Church. The idea of radio as an evangelistic tool inspired others. In 1924 KFUV ("Keep Forward, Upward, Onward") in Saint Louis, Missouri, working from the attic of the Lutheran Concordia Seminary, became the first station founded under religious auspices and was followed rapidly by others. By 1925 some sixty-three stations in the United States were owned by religious institutions. But the rise of commercial broadcasting (*see SPONSOR*) made radio frequencies increasingly valuable, and many churches were persuaded to sell out to commercial entrepre-

neurs, in many cases accepting a promise of free broadcast time as part of the transaction. By the 1930s the rash of church-owned stations had all but vanished. The broadcasting of Sunday services either from church premises or from station studios had become common.

Stations and networks—the National Broadcasting Company (NBC, formed 1926) and Columbia Broadcasting System (CBS, 1927)—faced a thorny problem as radio evangelism spread. Which churches, groups, or sects should or could be accommodated? Broadcasters encouraged the formation of local and regional councils of churches to help them cope with this issue. On the national level the Federal (later National) Council of the Churches of Christ represented more than a score of denominations. The councils tended to be dominated by the "mainline" Protestant denominations and ministers; groups and individual preachers not favored by the arrangements began to seek access by buying time on a commercial basis. At first CBS welcomed such purchases, selling network time to the Lutheran Missouri Synod as well as to the fiery Father Charles E. Coughlin of the Shrine of the Little Flower in Royal Oak, Michigan. But as Coughlin's broadcasts turned highly political and sometimes anti-Semitic, CBS adopted the NBC policy of refusing to sell time for religious purposes, instead apportioning a limited amount of free time to major Protestant, Catholic, and Jewish faith groups. Those bypassed or unsatisfied with their allotments focused increasingly on local coverage, free or purchased, and in some cases organized ad hoc hookups of stations via leased telephone lines. Many made over-the-air fund appeals to help them continue and expand their radio evangelism.

After World War II, with the rise of television, the U.S. networks emphasized a policy of "cooperative broadcasting." The major faith groups were invited to provide assistance to the networks in the production of weekly half-hour television series dedicated to religion, such as NBC's "Frontiers of Faith" and CBS's "Look Up and Live." The American Broadcasting Company (ABC, formed 1943, split off from NBC) was represented by "Directions." A wide diversity of groups maintained a presence on radio or television or both, by various arrangements. The Mormons were represented on network radio (first NBC, then CBS) by a nondoctrinal musical program, "Music and the Spoken Word," featuring the Tabernacle Choir, begun in 1929 and continuing more than a half century later. The Seventh-Day Adventists were represented by "The Voice of Prophecy," begun in 1930. In 1945 the Jewish Theological Seminary started "The Eternal Light," dramatizing aspects of Judaic culture and religion, offered weekly over NBC radio and occasionally produced for television. Some groups sought to extend their coverage through pro-

gram SYNDICATION—the United Methodists with the film series “The Way,” the Lutheran Missouri Synod with “This Is the Life.” Many Catholic groups were program producers. Paulist Productions distributed an “Insight” series; the Franciscans syndicated radio dramas on the lives of saints and, later, a series of television spots. Commercial sponsorship became a factor: Texaco sponsored Monsignor Fulton J. Sheen in “Life Is Worth Living” (1952–1957), first on the short-lived Dumont Television Network, then on ABC Television. In 1968 the U.S. Catholic Conference established an Office of Radio and Television to represent it in all broadcasting matters.

In Europe the first religious broadcast took place in late December 1922 on BBC—the British Broadcasting Company (later Corporation). The Reverend John Mayo, Vicar of Whitechapel, London, spoke on the wonders of the new invention and what it could do for humanity. Within a year JOHN REITH, first director of the BBC, had developed an impressive advisory committee that included the archbishop of Canterbury, a staunch supporter who at first had the impression that listeners had to have their windows open to hear the wireless. In January 1924 the BBC broadcast a service from Saint Martin’s-in-the-Fields, and audience response was so favorable that “outside broadcasts” of church services became a standard feature. At first these were not Sunday morning services; Reith was reluctant to broadcast anything on Sunday morning, let alone a church service, since he expected listeners to be in church. Nevertheless, a Sunday-morning service was broadcast in 1933, and this too became standard, along with religious talks and a daily fifteen-minute worship service.

With the coming of television the BBC experimented with various formats, including the popular “Songs of Praise,” introduced in 1961. By the 1970s the BBC was taking the view that religious programming should be treated on its own merits and not be subject to special consideration. This gave rise to “Anno Domini” (later “Everyman”), a controversial and highly acclaimed DOCUMENTARY series dealing with moral and ethical issues worldwide. In 1976 a government report, the Annan Report, endorsed the idea that religious programs should not be solely Christian; subsequently broadcasts dealt occasionally with Islam and other great world faiths.

Trends worldwide. Elsewhere religious broadcasting has developed in various ways, always influenced by each country’s distinctive religious and political makeup. The Federal Republic of Germany has had a wide diversity of programming on both national and local channels for Protestants and Catholics, with time also available to the Free Churches. Stations support substantial religious departments, and there is an elaborate advisory system. In Austria the broadcasting system allocates time mainly to Cath-

olics and Protestants, with several programs a year serving Old Catholics, Muslims, and Jews. Switzerland provides a wide range of formats and subjects under the auspices of the Reformed, Catholic, and Free Church groups. The German Democratic Republic provides a single Sunday-morning preaching program on radio plus six Saturday periods for television programs on “church” themes (no social commentary) and one or two live-worship services. Poland has no religious television; radio provides three programs a month for Catholics and one for the Protestant-Reformed-Orthodox group, all confined to pretaped programs. The USSR has no religious radio or television programs.

Until 1944 all religious broadcasting in Italy was Catholic, but subsequently regular programming was also provided for other groups, primarily Protestants and Jews. In the 1970s a proliferation of new stations, radio and television, in most cases operating on a commercial basis, attracted fundamentalist groups ready to purchase time. Radio Vatican has long run a twenty-four-hour international broadcasting service in a number of languages.

The state-operated broadcasting systems in the Scandinavian nations provide small percentages of their television and radio budgets and broadcast time for religious programs, again in cooperation with the representative church groups. The Church of Finland has its own radio pastors producing weekly programs, with the Finnish Broadcasting Company providing production services and transmission free of charge.

Outside North America and Europe the amount of religious broadcasting is smaller and varies considerably country by country. Africa presents sharp contrasts. In Ghana both Christian and Muslim groups have their own studio facilities and broadcast regularly through the Ghana Broadcasting Corporation. But the Ivory Coast allots no broadcast time to Protestants, who nevertheless manage to serve an Ivory Coast audience through broadcasts produced in Liberia and relayed by shortwave. In Burundi, which is more than half Catholic, the churches participate in the national Voice of the Revolution station. But in Ethiopia a station founded by Protestants was taken over in 1977 by the revolutionary government. In Kenya religious groups have maintained an extensive broadcasting program, including a training center and several recording studios, with the government providing time on the Voice of Kenya. *See AFRICA, TWENTIETH CENTURY.*

It is difficult to characterize religious broadcasting in the Muslim world because Islam presents a blend of religion and political, social, and economic IDEOLOGY. During periods of political crisis presidents Gamal Abdel Nasser and Anwar as-Sadat in Egypt and the Ayatollah Ruholla Khomeini in Iran assumed

the unifying role of both imam (religious leader) and commander in chief. There is little distinction between religion and CULTURE, so while state-controlled radio and television regularly broadcast the call to prayer and give airtime to political-religious leaders, they do not provide time for religion in the Western sense. See ISLAMIC WORLD, TWENTIETH CENTURY.

There is a similar pattern in Japan, where Shinto is as much a cultural as a religious institution, as well as in predominantly Hindu nations such as India, where state broadcasting of the culture—music, DANCE, DRAMA—embraces religion, so that religious organizations are not accorded special programming. Asia, Africa, Latin America, and other parts of the Third World have this in common: religious broadcasting per se is the strongest where Western influence has been greatest, and religion on state-dominated stations varies according to the extent to which the nation has embraced Western technology and culture. See ASIA, TWENTIETH CENTURY; LATIN AMERICA, TWENTIETH CENTURY.

Three organizations specialize in coordinating religious broadcasting and other communication activities internationally. The World Association for Christian Communication, headquartered in London, works with churches and other groups in sixty countries. UNDA (Latin for “wave”) is an international Catholic organization serving Catholic broadcasters on every continent. The Lutheran World Federation maintains its Communication Office in Geneva to coordinate the work of Lutheran churches around the world.

Technology and outreach. When shortwave radio became a reliable means of long-distance communication, Christian missionary groups soon grasped its potential. On Christmas Day, 1931, the World Radio Missionary Fellowship went on the air in Quito, Ecuador, with station HCJB, then a carbon microphone in a wooden box, a 250-watt transmitter in a sheep shed, and an antenna wire strung between two eucalyptus poles. Since then HCJB has grown to ten studios, twelve transmitters, twenty-eight antennas supported by fifty towers, and a staff of two hundred North Americans, broadcasting twenty-four hours a day in thirteen languages and reaching virtually every corner of the globe. HCJB is but one of a half-dozen large shortwave evangelistic efforts. The Far East Broadcasting Company, with offices in thirteen countries, broadcasts in ninety languages and dialects for a total of about eight thousand hours per month. Trans World Radio, established in 1952, claims to reach a listening area that includes 80 percent of the world’s population; it broadcasts from sites in Monte Carlo, the Netherlands Antilles, Guam, Swaziland, and Sri Lanka, and from Evangelisum Rundfunk (its branch in the Federal Republic of Germany), and it also uses purchased time on Radio

Cyprus. Seventh-Day Adventists support programming on more than thirty-nine hundred radio, television, and cable outlets in ninety countries. See RADIO, INTERNATIONAL.

A development with many international as well as national ramifications is the so-called electronic church, a movement that began, like religious broadcasting itself, in the United States. Making maximum use of new technologies, it is at the same time an extension of the tent revivalism characteristic of earlier decades in the United States. In the 1950s Billy Graham brought television cameras and sophisticated ADVERTISING techniques to his evangelical mass meetings and, with the help of WILLIAM RANDOLPH HEARST’S newspapers, became an overnight celebrity. Radio evangelist Oral Roberts moved to television, offering to heal people in their homes if they would lay their hands on the television set. In the 1960s Rex Humbard built the first church designed for television, and a decade later Pat Robertson perfected a ninety-minute religious format that closely resembled popular commercial host-show programs. Via satellite, his programs were fed to some fifty-five hundred cable systems by the Christian Broadcasting Network (CBN), reaching a large audience that included many outside the United States. The impact of the electronic church was significant because of the right-wing political ties of many of its preachers. Religion was more openly being politicized, even as many politicians were using religious appeals.

The National Religious Broadcasters (NRB), established in 1944 with the encouragement of the National Association of Evangelicals to “fight for the right of churches to continue to buy air time,” grew into a coalition of some one thousand radio stations (including campus stations), ninety-two television stations, and more than five hundred production companies and distributors related to electronic evangelism. When the NRB lobbied for deregulation of broadcasting, mainline churches complained that the electronic evangelists had become captives of commercial broadcasting and its values and that their emphasis on purchase of time played into the hands of commercial broadcasting and drove religious diversity off the air. During the 1970s the number of stations carrying mainstream denominational religious programs dropped by more than half, as stations sold time to electronic church operations in preference to carrying free network or local programs.

Meanwhile the challenge of the new technologies has influenced religious groups of all sorts, new or old. In the United States the Southern Baptists have created a program network (ACTS) that combines satellite, conventional television stations, cable systems, and low-power television stations. The Mormon church has two-way interactive satellite

interconnection with its temples. The Catholic church has a satellite system interconnecting its major dioceses. Clearly, as new forms of broadcast communications emerge, their use by religious groups will not be far behind.

See also CITIZEN ACCESS; HOMILETICS; RELIGION; SCRIPTURE. For religious expression in other media see ARCHITECTURE; ART; MUSIC HISTORY; POETRY; SCULPTURE.

Bibliography. William F. Fore, *Television and Religion: The Shaping of Faith, Values, and Culture*, Minneapolis, Minn., 1987; George Gerbner, Larry Gross, et al., *Religion in Television*, Philadelphia, 1984; Jeffrey K. Hadden and Charles E. Swann, *Prime Time Preachers: The Rising Power of Televangelism*, Reading, Mass., 1981; Peter G. Horsfield, *Religious Television: The Experience in America*, New York and London, 1984; Paul A. Soukup, *Communication and Theology: Introduction and Review of the Literature*, London, 1983.

WILLIAM F. FORE

RENAISSANCE

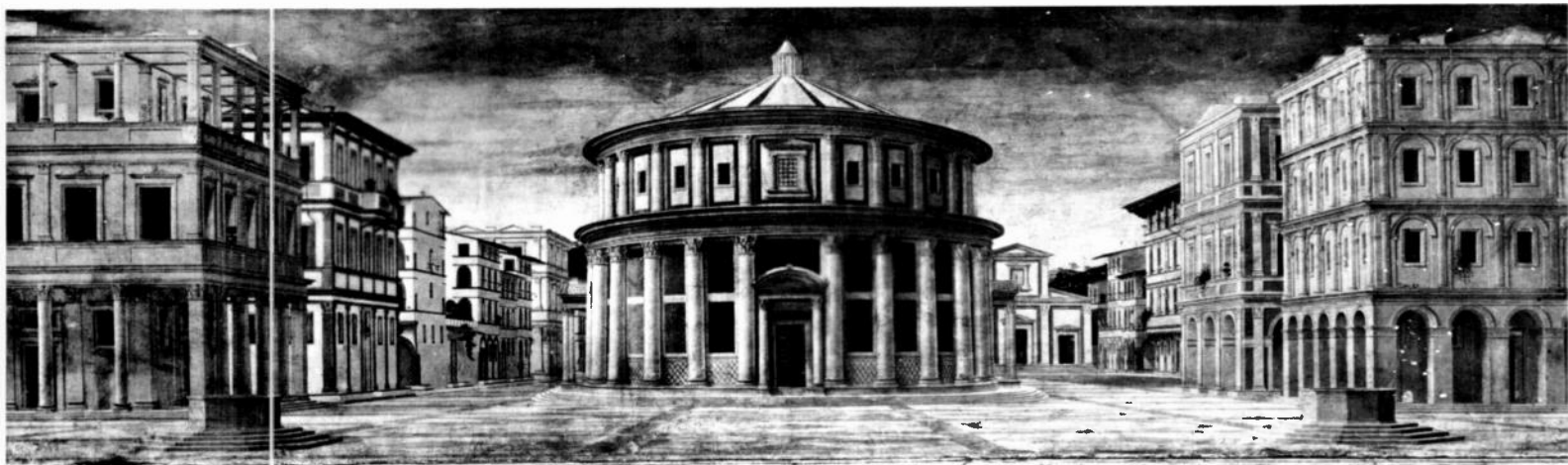
A term first used in the nineteenth century to characterize the complex of changes in western Europe during the period 1350–1600 that supplanted many of the institutions and goals of the CULTURE of the MIDDLE AGES. The terms *Middle Ages* and *Renaissance* (“rebirth”) reflect a bias, strongly promoted in the latter era, that the one true culture was that of classical antiquity (Greek and Roman), that it had been lost in the period 400–1300, and that it was brought again to life by the rediscovery and reevaluation of the monuments, writings, and LANGUAGE

of the ancients. See HELLENIC WORLD; ROMAN EMPIRE.

Renaissance ideals were sustained and in part formulated by the emergence of capitalism as an economic system. Capitalism, as practiced in urban-centered trade, industry, and banking, created a middle class that fostered kinds of ART and technology quite different from those sponsored by the aristocracy of the feudal era. Middle-class aspirations also encouraged an increased concern with human affairs and with the individual personality as compared with the more theocentric focus of the Middle Ages.

Humanism. Much of the character of the Renaissance was imparted by an intellectual movement that became known as humanism. Humanism was not the generalized interest in the welfare of human beings that the term later suggested but a scholarly devotion to the learning and languages of classical antiquity, especially in the fields of history, moral philosophy, RHETORIC, and POETRY—fields that in modern times came to be called the humanities. Humanism played a major role at the start of the Renaissance in shaping the political principles of the newly empowered bourgeoisie, and humanists found key roles in republican governments, duchies, and the administration of the church. Humanists in the universities (see UNIVERSITY) joined in opposition to the traditional and dominant organization of learning known as scholasticism, in which the key disciplines were theology, natural philosophy (science), MATHEMATICS, music, logic, law, and medicine. Scholastics tended to retain the upper hand in university EDUCATION, but the humanist reform of secondary education left an indelible mark. Humanism was ushered in by the fourteenth-century Italian poet

Figure 1. (*Renaissance*) School of Piero della Francesca, *Ideal City*. Mid-fifteenth century. Ducal Palace, Urbino. Alinari/Art Resource, New York.



and essayist Petrarch, who pointed the way to the treasures of ancient Roman literature, writing in a Latin and a Tuscan Italian that revived the elegance of style of the great Roman writers and providing an intimate image of his own personality.

Humanists took the lead in the rediscovery and editing of the classical Greek and Latin manuscripts that had been forgotten in monastic and secular libraries throughout the Middle Ages (see LIBRARY—HISTORY). They collaborated with the first PRINTING houses from the 1470s on to bring ancient learning and literature to a wide audience. They wrote original work inspired by ancient authors, the most influential examples being theoretical or practical treatises and essays like Leon Battista Alberti's books on painting and ARCHITECTURE and Niccolò Machiavelli's *Il principe* (The Prince, 1513). The discovery and publication of scientific texts stimulated the scientific revolution of the later Renaissance, and theologian-humanists like Desiderius Erasmus and MARTIN LUTHER produced scholarly revisions of SCRIPTURE



Figure 2. (Renaissance) Leonardo da Vinci, studies of water eddies, ca. 1510. Ink drawing no. 12660, verso. Windsor Castle, Royal Library. © Her Majesty Queen Elizabeth II.



Figure 3. (Renaissance) Andreas Vesalius, illustration from *De Humani Corporis Fabrica*. Basel, 1543. Engraving.

and the writings of the church fathers that radically altered the path of theological studies. The classical interests of the humanist movement and Renaissance culture in general have been wrongly accused of being antireligious; humanist scholarship provided the intellectual underpinnings both for the establishment of Protestantism and for the reform of the Roman Catholic church.

The arts. Artists and their patrons shared the fascination of the humanists with the remains of classical antiquity. This is most apparent in architecture, in which, after 1420 in Italy, there appeared colonnades carrying round arches, ancient orders, masonry domes, and other characteristically Roman features. A system of proportions based on the human body differentiated classical from medieval architecture, and Renaissance designers not only returned to that approach but also developed a more subtle system integrated with the consonances of musical theory (see MUSIC THEORIES).

Proportions, particularly as applied to the human body, also interested figural artists, who studied and imitated the remains of ancient SCULPTURE. A math-

emational perspective system for painters based on medieval optical treatises was developed by Alberti and the sculptor-architect Filippo Brunelleschi; it profoundly affected the organization of paintings throughout the Renaissance, favoring symmetrical composition with a central viewing point and a box-like space.

But not a l of Renaissance art was oriented to the study of its ancient antecedents and mathematical concepts. In fifteenth-century Italy a vigorous lyrical naturalism emerged out of the international court style, and in northern Europe, particularly in Flanders, painters like Jan van Eyck and Rogier van der Weyden developed a style of oil painting (the medium of the early Italians was mostly tempera) of meticulous mimetic detail and jewellike richness of surface.

By the early sixteenth century a fully developed Renaissance style, known as High Renaissance or classic Renaissance, had grown in grandeur to challenge its ancient models and was employed by leaders of the state and church in order to express their power and to display their discrimination. Artists

such as Raphael, Titian, and Michelangelo were sought out by Western rulers, and their work profoundly influenced the art of subsequent centuries. For the first time artists were acclaimed for their individual styles and were accorded a prestigious position in society.

The same was true with music. Contemporary with the classic moment in art, medieval polyphony, long focused on abstract approaches to musical structure, gave way in part to a closer expressive and mimetic relationship between music and text, both sacred and secular. The increased patronage of music by both popes and princes furthered the careers of several great Renaissance composers, including Josquin des Prez, Orlando di Lasso, and Giovanni Pierluigi da Palestrina. In secular music the madrigal, normally set to contemporary Italian poetic texts, became the representative Renaissance form; its counterpart in sacred music was the Latin motet. *See* MUSIC HISTORY; SONG.

Science and technology. Renaissance science, departing from the medieval emphasis on abstract the-



Figure 4. (*Renaissance*) Jacopo Sansovino, Library of San Marco, Venice, begun 1536. Alinari/Art Resource, New York.

ory, progressed primarily in the descriptive disciplines, such as botany, zoology, anatomy, and CARTOGRAPHY. Three accomplishments of Italian Renaissance art aided the contribution of graphic artists to scientific endeavor: the control of proportion, the rationalization of sight through painters' perspective, and the projection of relief through the reproduction of effects of light and shadow (*chiaroscuro*). Artists wanted to reproduce nature as accurately as possible, but they also believed that the technical achievement of accuracy should serve an ideal vision. The notebooks of Leonardo da Vinci are an extraordinary record of the workings of a voracious empirical mind that touched on all aspects of Renaissance scientific and technological investigation, but Leonardo never organized his observations into functioning theoretical principles.

Advances in mapmaking and navigation spurred the Renaissance rulers to exploit the riches of Asia by finding direct sea routes that would avoid the long and dangerous trade caravans across the deserts to the Levant. In the late fifteenth century Portuguese ships rounded the southern tip of Africa, proving that there were no fabled terrors south of the equator, and the Spanish rulers sent an Italian sailor,

Christopher Columbus, westward to find India, with well-known results. The consequent influx of gold from the New World accelerated the decline in Italian maritime power and cultural preeminence. See EXPLORATION.

The major scientific issue of the later Renaissance was posed in the field of astronomy by the Polish scholar Nicolaus Copernicus, a theoretician rather than an observer, who placed the sun rather than the earth at the center of the universe. The conflict of this hypothesis with church dogma, and incidentally with human pride, propelled it into the foreground of international attention, especially after Galileo Galilei, the first great modern scientist, took up the defense of the heliocentric theory at the cost of his freedom.

Perhaps the most important Renaissance contribution to technology was the development of printing in Germany, principally by JOHANNES GUTENBERG and Peter Schöffer, in the mid-fifteenth century. By the 1470s there were publishing houses throughout Europe capable of printing in Greek and Hebrew as well as in Latin and the vernaculars. Humanists collaborated with publishers by discovering and editing manuscripts of the basic writings of the Western tradition. New literary and expository writings exerted great influence and, from the 1520s on, played a particularly important role in the growing struggle between the Roman Catholic church and Protestantism.

From almost the earliest moment, books were illustrated with woodcuts (see BOOK). Woodblocks of the same height as the metal letters could easily and inexpensively be put into the printing frame, and to readers accustomed to illuminated manuscript books it seemed the natural thing to do. It also seemed natural to the designers to imitate manuscript paintings. Color printing was used from an early date, and in many incunabula (books printed before 1500) the illustrations were colored by hand to make the imitation more convincing. The chief purpose was to give printed books the status of handwritten ones, and both the style and the content were echoes of the manuscript culture. See PUBLISHING—HISTORY OF PUBLISHING.

It took a long time before illustrations were fully accepted as an independent and irreplaceable form of communication. Not until the 1530s—more than sixty years after the appearance of the first books with pictures—were scientific, technological, and architectural texts produced in which illustrations effectively instructed. Andreas Vesalius's *De Humani Corporis Fabrica* of 1543 is the best-known example.

Artists began making reproducible prints shortly after the first books were produced. Most early prints were engravings on copper. Woodcuts seemed too crude until Albrecht Dürer, in the 1490s, showed



Figure 5. (Renaissance) Andrea del Verrocchio, *Bartolomeo Colleoni*, ca. 1483–1488. Campo dei Santi Giovanni e Paolo, Venice. Alinari/Art Resource, New York.



Figure 6. (Renaissance) Albrecht Dürer, *The Cannon*, 1518. Etching on iron. The Metropolitan Museum of Art, New York, Fletcher Fund, 1919. (19.73.111)

how they too could serve artistic ends. He also made the first significant etching, on iron, but this technique then lay dormant for decades. See GRAPHIC REPRODUCTION.

The subject of Dürer's etching, a mobile cannon, wielded more temporal power than any prince portrayed by that artist. Its use by the armies of Charles VIII of France in 1494–1495 facilitated the conquest of Italy, and the experience of Charles and his successors in pursuing their Italian claims accelerated the progress of the Renaissance in France. The mobile cannon also radically changed the form of fortifications: the medieval brick walls stretching between tall square towers gave way to low stone walls with bastions designed to facilitate the movement of defensive artillery; the new shape of these walls affected the way Renaissance cities developed.

Politics. Prior to the age of mobile artillery, war retained something of the choreographic character of chivalrous combat, as when the small Italian states of the fifteenth century hired the armies of condottieri to fight other mercenaries. But the wars of the sixteenth century were waged to extend nations and to

defend RELIGION, and these wars were deadly serious.

The formation of the nation-state was one of the primary achievements of the Renaissance. In the sixteenth century, especially in England, France, and the Holy Roman Empire (which at its height under Emperor Charles V included most of central Europe, Spain, and the Netherlands), rulers brought the divisive power of the high nobility under central control to create the great political units of the modern era. But Italy, which had been the generator of Renaissance culture, remained fragmented into many city-states and duchies and became the political pawn of the powerful new nations. The twilight of the Renaissance and the dawn of the era known to students of the arts as baroque and to historians as the Age of Absolutism were linked to these changes.

Bibliography. Hans Baron, *The Crisis of the Early Italian Renaissance*, Princeton, N.J., 1955, reprint 1966; Creighton Gilbert, *History of Renaissance Art*, New York, 1973; Marie Boas Hall, *The Scientific Renaissance, 1450–1630*, New York, 1962; William M. Ivins, *Prints and Visual Communication*, London, 1953, reprint Cambridge, Mass.,

1969; Paul O. Kristeller, *Renaissance Thought: Its Classical, Scholastic, and Humanist Strains*, New York, 1961, reprint 1965; Paolo Rossi, *Philosophy, Technology and the Arts in the Early Modern Era* (I filosofi e le macchine), trans. by Salvator Attansio, New York, 1970.

JAMES S. ACKERMAN

RENOIR, JEAN (1894–1979)

French filmmaker. Jean Renoir, the second son of the famed impressionist painter Pierre-Auguste Renoir, shared with his father a love of nature and a zest for life. During World War I he served in the French cavalry and air force and was twice wounded. After the war he married his father's model, Andrée Heuschling, and in 1924 he launched his career in MOTION PICTURES. His wife (under the name Catherine Hessling) starred in many of his silent films, most of which had limited success.

In the 1930s, with the coming of sound, Renoir became perhaps the key figure in French cinema. More fully than any others, his films captured the mood of the nation, from an anarchic revolt against bourgeois values, as in *Boudu sauvé des eaux* (Boudu Saved from Drowning, 1932), to commitment to social causes (including a film made specifically for the French Communist party) to an ultimate paralysis and disillusion, as in *La règle du jeu* (The Rules of the Game, 1939). His two masterpieces of the period were *La grande illusion* (Grand Illusion, 1937), an international success that explored national loyalties and class affinities in a World War I setting, and *La règle du jeu*, a bitter comedy about class tensions that was not appreciated until after World War II.

Renoir spent World War II in the United States but found it difficult to adapt his spontaneous and improvisatory style to the HOLLYWOOD studio system; still, he directed films there throughout the 1940s. With *The River* (1951), made in color in India, Renoir regained his artistic freedom and recaptured the quality of his prewar films, as well as prompting a young Indian artist, Satyajit Ray, who had assisted him on location, to embark on his own filmmaking career. Renoir's later films of the 1950s were colorful evocations of past eras featuring international STARS like Anna Magnani and Ingrid Bergman. The young critics who founded the film magazine *Cahiers du cinéma* and who created the NEW WAVE FILM movement that transformed French cinema at the end of the 1950s recognized his inspiration, and Renoir returned the compliment by dedicating to them his autobiography, *My Life and My Films* (1974). In 1975 Renoir received an honorary Academy Award for his cumulative work, and in 1977 he was inducted as an officer of the French Legion of Honor.

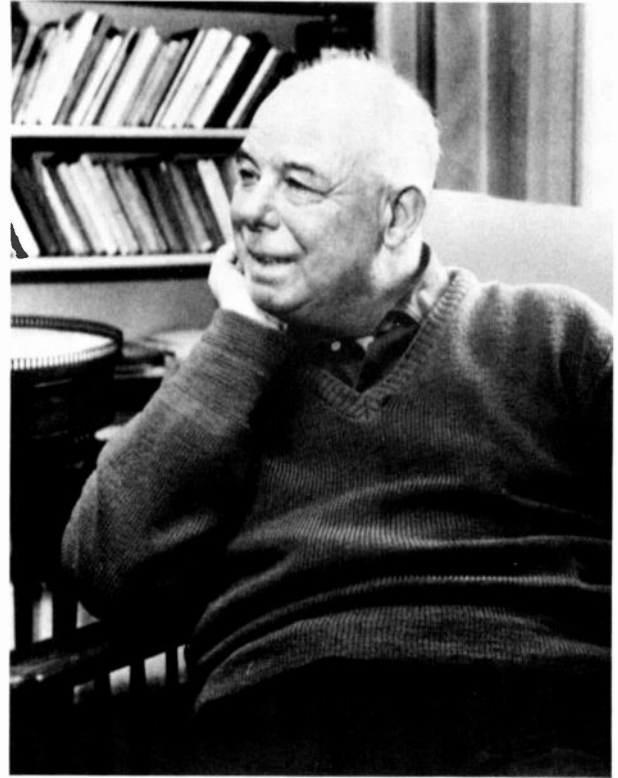


Figure 1. (*Renoir, Jean*) Jean Renoir. National Film Archive, London.

Renoir was a master of literary adaptation, especially in his films of Émile Zola's novels *Nana* (1926) and *La bête humaine* (The Human Beast, 1938). The world of the THEATER served him frequently as a metaphor, via both amateur theatricals (*La grande illusion*, *La règle du jeu*) and spectacular evocations (*The Golden Coach*, 1952; *French Cancan*, 1954). Nature in all its varied aspects also played a prominent part in Renoir's work, whether lyrical, as in *Une partie de campagne* (A Day in the Country, 1936), cruel (*The Southerner*, 1945), or life-giving (*The River*).

François Truffaut, his disciple, identified an all-encompassing sympathy for the human species as Renoir's "trade secret," quoting words spoken by Renoir himself as a performer in *La règle du jeu*: "You see, in this world, there is one awful thing, and that is that everyone has his reasons." But perhaps critic André Bazin has best summed up Renoir's special qualities. It seemed to Bazin that Renoir, through his use of depth-of-field CINEMATOGRAPHY, kept audiences constantly aware of his characters' complex interrelationships with all aspects of their environment and that this resulted in the most intimate knowledge of their inner life. One could observe and caress the surface and, through the surface, touch the soul:

In Renoir's films acquaintances are made through love, and love passes through the epidermis of the world. The suppleness, the mobility, the vital richness of form in his direction, result from the care and the joy he takes in draping his films in the simple cloak of reality.

Bibliography. Roy Armes, *French Cinema*, New York, 1985; André Bazin, *Jean Renoir* (in French), ed. with an intro. by François Truffaut, trans. by W. W. Halsey and W. H. Simon, New York, 1973; Raymond Durgnat, *Jean Renoir*, Berkeley, Calif., 1974; Jean Mitry, *Histoire du cinéma*, 5 vols., Paris, 1967-1980; Jean Renoir, *My Life and My Films* (in French), trans. by Norman Denny, New York, 1974.

SHELDON MEYER

REPRESENTATION, PICTORIAL AND PHOTOGRAPHIC

At the center of the idea of representation is the idea of one thing standing for another. If we leave the idea this general, then we might say that when the thing that stands for another is itself a picture this is an example of pictorial representation, and if the picture is a photograph it is an example of photographic representation. A task of the theory of representation is to formulate any significant distinction between pictorial representations and other representations, and to formulate a distinction between photographic representations and other kinds of pictorial representations, if there is one.

Representation in General

Examples of things that represent other things are extremely varied. The following, for instance, are probably too different from one another to be comprehended by any useful theory.

1. The name *John F. Kennedy* represents John F. Kennedy.
2. Leonardo da Vinci's painting *Mona Lisa* represents some particular woman.
3. A street map of Chicago represents, among other things, the interstate highway system just west of downtown Chicago.
4. An electrocardiogram represents certain aspects of the electrical situation in the vicinity of someone's heart.
5. A red piece of litmus paper represents the acidity of some liquid.
6. A photograph of Mount Vesuvius represents Vesuvius erupting.
7. A finish-line photograph represents the outcome of a horse race.
8. An attorney represents a client during a court proceeding.
9. John F. Kennedy represented the people of Massachusetts in the U.S. Senate.
10. The riderless horse in John F. Kennedy's funeral procession represented John F. Kennedy, the assassinated president.
11. Various actors have represented John F. Kennedy in plays and movies.
12. The character Shylock in William Shakespeare's play *The Merchant of Venice* represents Jews in general.

These examples show that construing *represents* as more or less a synonym for *stands for* is to construe the sense of the term *represents* too widely. The element that varies in these examples is the relation between the first thing and the second when the first represents the second. Representation itself is undoubtedly a relation, a connection between two things, but the connection can be achieved in markedly different ways.

In examples 8 and 9, the relation is one of political or legal representation, and it has to do with one person acting in place of or on behalf of others. Example 10 is a kind of "symbolic" representation, as is example 12, although of a somewhat different kind. Example 11 is representation of the kind sometimes called impersonation. Examples 8 through 12 are interesting and legitimate examples of representation in the most general sense but will not be discussed here.

In examples 1 through 7, all except example 1 involve a representation that is itself a picture or something like a picture, and all seven have in common certain logical features. In example 1 the connection between a name and what it represents seems utterly "conventional," while in examples 2 through 7 the first thing seems connected to what it stands for by a kind of "natural" relation. The natural relation in examples 2 and 3 seems to be the relation of resemblance; that is, the first thing represents the second by looking like it. In examples 4, 5, and 7 the natural relation seems to be causation; the first thing represents the second by being a causal consequence of it. Example 6 is special because it seems that the photograph is linked to what it pictures by both resemblance and causation. Except for the case of photographs, most interest in representations is centered on cases in which the link between a representation and what it represents is not causal.

Pictorial Representation

A name stands for a person and may be said to represent that person. A picture of the same person also represents that person. What is the difference between the name and the picture? There is nothing in the name itself that could indicate whose name it

is, and for this reason one might say that the connection between the name and the person is entirely arbitrary. It is only by knowing that the name belongs to the person that an observer could connect the two. From the picture, however, an observer can discover whose picture it is. This is a real difference between names and pictures, but it is not yet formulated precisely enough because there are representational words that do allow an observer to infer what the words stand for. Suppose there is a man named Fred standing in the doorway. From the word *Fred* an observer can infer nothing about the person (except, perhaps, that the person is male, because Fred is conventionally a male name). From a picture an observer can tell that the person is standing in the doorway, that he is a man, and various specific features of his appearance. But consider the description "the tall man with blond hair and blue eyes who is standing in the doorway." Certainly one can infer some very definite features of the thing represented by those words. The words have a connection with the man that is not entirely arbitrary. Indeed, one might discover from the words just those features of the represented person that can be discovered from his picture. Then what is the difference between words and pictures when the words are not names but are genuine descriptions?

There are three principal theses about the nature of pictorial representation. The first takes pictorial representation to be essentially a matter of resemblance; the second supposes it to be a matter of substitution, in which the representation is a kind of surrogate for the thing represented; and the third insists that pictorial representation is essentially the same as representation by words or any other items that stand for things, the difference being only a matter of the kind of system in which the standing-for occurs.

Pictorial representation as a kind of resemblance. The difference between pictures and words, we may suppose, is that a picture is the kind of representation that resembles what it stands for, and therefore an observer knows that whatever is represented by the picture will look like the picture. The observer also knows from descriptive words what the represented thing will look like, but not because of any natural relation of resemblance: the words do not look like what they stand for.

If a pictorial representation is the kind of representation that looks like what it represents, then what remain to be explained are (1) what it means for one thing to look like another, especially when one of the things (the picture) is two-dimensional and at least in that regard seems not much at all like the thing it represents, which typically is three-dimensional; (2) how a pictorial representation is to be understood as such if it happens not to stand for

anything; and (3) why the relation of pictorial representation is asymmetrical—that is, why the picture typically represents what is depicted and not the other way around, this being a problem if resemblance is all there is to pictorial representation because the picture and what it depicts seem clearly to resemble each other.

1. The idea that a representation is essentially a simulacrum is at least as old as PLATO and ARISTOTLE. In their writing free use is made of the term *mimesis*, usually translated as "imitation" and occasionally as "representation." In the *Poetics* Aristotle asserts that a tragedy is an imitation of a human action, assuming evidently that it will not be difficult to extrapolate the idea of imitation from cases of statuary, for instance, in which the statue may be said to imitate the person it stands for, to the more abstract case in which a drama may be said to imitate an action. An element of this conception is contained in the word *represent* and its etymological suggestion that a representation re-presents the thing it stands for. The representation may be more or less complete with regard to the number of features it displays. In example 2, for instance, the painting is relatively full, presenting in considerable detail the face it shows. Example 3 is different; it is more abstracted and presents only structural, relational details. In example 2, a painting of a woman, the part of the painting corresponding to the woman's hair is of a particular color and thereby indicates that the represented woman's hair is of that very color. In example 3, however, the part of the map corresponding to a highway is colored black, and this does not indicate anything about the color of the highway represented. The map is a representation that has abstracted virtually all the features of what is represented except those of distance and direction (*see GRAPHICS; MAP PROJECTION*).

The thesis that pictorial representation is a matter of resemblance has only recently been called into serious question. Its proponents have included Leon Battista Alberti, Joshua Reynolds, and John Ruskin. Since the time of Alberti most theoretical proponents of the resemblance thesis have relied heavily on some theory of perspective in pictures as a way of giving content to the idea that pictorial representations look like what they depict. In fact, perspectival pictures have been taken to be exactly that: two-dimensional objects that look like three-dimensional arrays. This assumption involves a number of problematic prior assumptions concerning the behavior of the eye when it is directed at a two-dimensional surface as opposed to being directed at a three-dimensional vista. Research has begun into the nature of the human visual system that may well determine whether these assumptions are tenable.

The central problem is to explain what it is for the

representation to look like what it represents. The two things do not look like one another in every respect, and in some salient respects they are quite different. For instance, the picture is probably of a considerably different size; a picture with a total area of six square feet might represent Chicago, an area thousands of times greater. The colors of the picture may well be different from those of the object. And equally troublesome is the fact that what is seen by an observer is markedly different if the observer moves during the observation. Then what does it mean to say that the picture looks like its object? Perhaps the best answer this theory can give is that the conception of resemblance is a "primitive" conception—the kind of conception we accept readily enough in mathematical and scientific theories—that is not itself defined but is conveyed in examples. The theory might also observe that it is exceedingly difficult and perhaps impossible to define the relation of resemblance in general, and so it is no particular liability of the theory that it invokes this relation in explaining pictorial representation.

2. Suppose that what makes a picture represent a particular horse is that the picture resembles the horse. Then what are we to say of a pictorial representation of an object that does not exist, say, a unicorn? It cannot be its resemblance to a unicorn that makes the picture a picture of a unicorn, because there is no unicorn that the picture could resemble. Indeed, many of us have learned what unicorns look like from pictures, and we could not have done that if we first needed to know what a unicorn looked like in order to realize that the pictures were of unicorns. This conundrum, which is one part of the general logical problem of understanding fictional references, besets all theories of pictorial representation, but it seems especially acute in the case of the resemblance theory.

3. It sounds awkward to say that whenever one thing resembles another, the other resembles the one, which is to say that resemblance is a symmetrical relation; but it is difficult to quarrel with this assertion. If it is granted, then whenever a pictorial representation of a face resembles some particular face, the face also resembles the picture. Then why is it that the picture represents the face and not also the other way around? The obvious answer, which leads to the core of the resemblance theory, is that when two things resemble one another in whatever respects are relevant, if one is a pictorial representation and the other is not, then the picture represents the other thing but the other thing does not represent the picture. This answer is unassailable, but it assumes that we already know what it is for something to be a picture. The resemblance theory must thus be supplemented by a theory of what it is for something to be a picture, for it is only when we know in advance

that something is a picture that we can proceed to learn what it pictorially represents.

Pictorial representation as a kind of substitution. This theory has been advanced mostly in the form of schematic suggestions made by Ernst Gombrich, but it has origins in ancient Greece and also in the Bible. Aristotle's idea is that in at least some cases of mimesis the imitation can produce in an observer certain effects like those that would be caused by the original. Thus a tragedy, an imitation of an action, produces in its audience feelings closely related to those that the action itself would produce were the audience to witness it. The biblical injunction against idolatry is far from clear, but part of its concern seems to be that those who make representations of God are in danger of coming to use the representations as substitutes for God. One kind of idolator undertakes to worship the idol, thereby treating it as only God should be treated.

Gombrich's idea is that what he calls "the roots" of representation are to be found in the biological and psychological mechanisms observable in children and animals. In his celebrated discussion of children and their hobbyhorses Gombrich notes that the hobbyhorse is used by a child in place of a real horse and thus in some sense stands for a horse. What matters, according to Gombrich, is not that the hobbyhorse look like a horse (which it does not) but that it be capable of being used as the child would use a horse (which it is). It is the connection between riding the hobbyhorse and riding a real horse that makes the hobbyhorse acceptable to the child.

In later discussions Gombrich extends this idea of substitution, asserting that pictorial representations in general support the same kinds of reactions as would be provoked by what they depict. These reactions have to do mostly with the psychology of vision and not with actions like the child's riding, but the idea remains that the representation is a surrogate for the original and is in some sense used as the original might be.

This daring, imaginative theory has done much to stimulate recent work in the theory of pictorial representation, partly by loosening the grip of the idea of resemblance. The theory respects the intuitive sense of *represent* as meaning to re-present, but it understands that what is being presented is not the visual appearance of an original but a kind of functional substitute for the original. In doing this it promises to supply a more substantial content for the conception of resemblance. It is not yet clear, however, that the substitution theory is free of the problems of the representation theory. Those problems threaten even the example of the child's hobbyhorse, in which we were freed of the need to formulate any resemblance between the hobbyhorse and

real horses because all that mattered was the blunt fact that both the hobbyhorse and a real horse could be ridden. Riding a hobbyhorse, however, is not exactly the same as riding a real horse. It is *like* riding a real horse, one might say, and surely that is correct; but now we have the problem of explaining how riding a hobbyhorse resembles riding a real horse, and this is reminiscent of the old problem of resemblance. If it is easier to explain the resemblance of riding a hobbyhorse to riding a real horse than it is to explain the visual resemblance of a hobbyhorse to a real horse, then the substitution theory may have a considerable advantage over the resemblance theory. If not, then although it is a welcome augmentation of our understanding of pictorial representation, it cannot simply replace the resemblance theory.

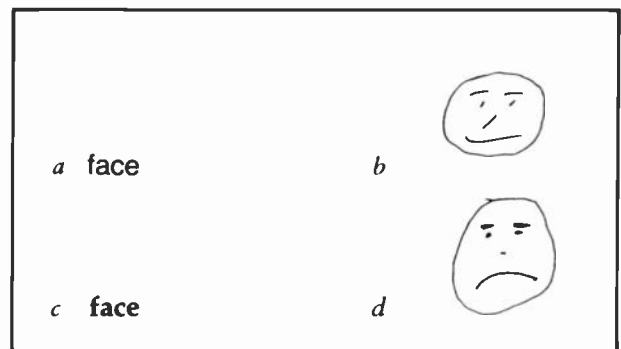
Pictorial representation as denotation. This is the most recent of the three theories, owing its development largely to Nelson Goodman. This theory forsakes the use of any conception of resemblance as any part of the explanation of pictorial representation. It insists, instead, that pictorial representations denote their objects just as words denote what they stand for. Examples 1 and 2 are exactly the same, in this theory, with regard to the relation between the representation and the thing represented. This relation, denotation, is understood in this theory, as it is typically in theories in logic (see SYMBOLIC LOGIC) and MATHEMATICS, as a primitive notion, and it is not defined. The sense of the notion is assumed to be conveyed clearly in examples like these: the relation of the symbol 1 to the number one, the relation of the word *Chicago* to the city of Chicago, the relation of the word *woman* to any particular woman.

The central tenet of this theory is that when one thing stands for another in the way that a pictorial representation stands for a thing, the representation denotes the thing it stands for. This denotation is exactly the same relation as the one between any symbol and what it denotes. Thus the name *John F. Kennedy* denotes that man, and the painting *Mona Lisa* denotes the particular woman pictured in the painting.

The critical task of the theory is to explain the difference between the kind of denoting symbol that is a word or group of words and the kind of denoting symbol that is a picture. One might expect the theory to say that pictorial denoting symbols resemble the things they stand for, but it is a special aim of this theory to avoid using the idea of resemblance. It declares instead that the difference is to be found in the systems in which these denoting symbols occur. There is no intrinsic difference between a word and a picture, and there is no significant logical difference between the ways they relate to what they stand for. The difference is a systemic one. In any denotational

system symbols are associated with the things they stand for. This association is achieved by means of rules of correlation or correspondence, and once one knows these rules and is thereby equipped to use the system, one can determine what object, if any, a symbol denotes. The rules of correlation differ from system to system, and so therefore do the methods used to determine what a given symbol denotes. Goodman characterizes the logic of symbol systems in terms appropriate to discussing the characteristics of formal, logical systems.

The difference that distinguishes merely denotational systems from those whose denoting symbols can be said to represent what they denote has to do with how it is determined just what symbol is present. The physical, observable symbols we encounter are in fact inscriptions of symbols, according to Goodman, just as "woman" and "woman" are two different inscriptions of the same symbol (the word *woman*). The question is whether every alteration in a given inscription is logically significant in that symbol's system. The following example roughly explains the point.



In this example (a) is an inscription of a word, (b) is an inscription of a pictorial symbol, and (c) is an alteration of (a), with various lines changed; (d) is a similar alteration of (b); (c) still inscribes the same word as (a)—the alterations were not enough to change the syntax of the inscription. However, according to this theory, (d) is an inscription of a different symbol from that inscribed by (b). It is a characteristic of the kind of system (b) and (d) belong to that every alteration is symbolically significant. Because (d) inscribes a different symbol from (b), (d) may well denote something different. It remains true, however, that the relation of (b) and (d) to whatever they may denote is exactly the same as the relation of (a) and (c) to faces.

According to Goodman's theory, pictures of the

kind to which we are accustomed belong to what he calls "the traditional Western system of representation," and it is a characteristic of inscriptions in that system that, as with (b) and (d), every difference makes a difference. This explains why we find ourselves often attending with greater efforts at discrimination to pictures than to words in order to determine just what they stand for; and this explanation requires no reliance whatever on the idea that the picture looks like what it represents. A consequence of this theory is that symbols like the street map in example 3 are not regarded as true representations because the systems in which they achieve their denotations are systems in which different symbol inscriptions can inscribe the same symbol.

The theory of pictorial representation as denotation, unlike the resemblance and substitution theories, does not take a pictorial representation to be any kind of intimate, intrinsic re-presentation of the object it represents. The representation need not resemble its object, nor need it function in any way as a surrogate for the object.

Perspective is understood by this theory in terms of the correlation rules that link denoting symbols to their objects. The resemblance theory takes perspective to be a technique for making one thing look like another. The denotation theory takes perspective to be rather like a CODE that links coded messages to their uncoded contents. Imagine a picture showing two oranges of equal size, one farther away than the other. Perspectival technique requires that one painted orange, the one nearer the viewer, be larger than the other. The resemblance theory explains this by noting that this will make the picture look like a pair of equal-sized oranges, one farther away than the other. The denotation theory says that in fact the picture is just like the sentence "There are two equal-sized oranges in front of you but at different distances." Once one has learned the rules that correlate words with their objects, one will correlate the sentence with a pair of oranges. Similarly, once one has learned the rules of perspective one will correlate this picture with a pair of oranges.

One of the considerable achievements of the denotation theory is that from the outset it addresses a central phenomenon in pictorial representation, the phenomenon of one thing standing for another. It construes this in terms of the relation of denotation, a well-understood relation and one that we make good use of in many formal theories as well as in ordinary situations of naming.

A major dissatisfaction with the denotation theory has been its neglect of the idea of resemblance. For centuries artists, critics, and observers have spoken of pictorial representations in terms of resemblance, noting greater or lesser similarity in various pictures.

The denotation theory tells us that we are in fact applying the rules of pictorial representation in order to infer what a pictured person will look like. But almost none of us can say what any of these rules are.

The denotation theory has a reply to this, and the success of the theory may depend on how compelling it can make this reply. It says that we deal with the words of our LANGUAGE regularly, determining what those words refer to and how accurate they are, without being able to formulate the rules governing how we do this. We do this habitually, and the relevant habits are acquired as we gain more experience with the particular symbol system that is our native language. It is just the same with the symbol systems of pictorial representation. Our experience of pictures from those systems is just as thoroughgoing as our experience of language, and it too leads to the development of habits. These habits, which guide our comprehension of words and pictures, are the products of experiential learning, and it is irrelevant whether we can formulate rules that describe these habits.

Photographic Representation

Theories of PHOTOGRAPHY in general, and of photographic representation in particular, are of recent origin and prominence, in part because photography is a relatively new representational art and in part because it has proved peculiarly resistant to theoretical understanding that goes beyond the sheer technical aspects of photographic production. Two kinds of theories have emerged. The first treats photographs as essentially like any other pictures and hence as pictorial representations to be understood however one chooses to understand pictorial representation in general. The other treats photographs as images of a peculiar kind, peculiar because of their close causal connection with what they picture.

The pictorial conception. Theories emphasizing this conception tend to regard photographs as pictures that happen to be made with the use of a camera and the attendant photochemical paraphernalia of the darkroom but that function as representations independently of these facts concerning their production. It may or may not be true that these representations have an intimate causal connection with what they depict, but the logic of a photograph's representationality is independent of that connection. Thus it might be the case that in the production of a particular photograph the camera was trained on some object *x*, but what in fact the photograph represents will be determined without regard to any prior reference to *x*. It is possible that the photograph will represent something besides *x*, say *y*. The deter-

mination of what the photograph represents will be settled by one's theory of pictorial representation, and there is no conceptual reason why one should not be free to make use of a resemblance theory, a substitution theory, a denotation theory, or any other supportable theory to show that the photograph represents *y* and not *x*. Proponents of the pictorial theory do not rely on the natural relation of causation and so may wish to avoid the natural relation of resemblance as well.

Particular problems for pictorial theories of photography are created by newspaper photographs, television pictures, and other photographic images made of discrete units of color and illumination. A theory like Goodman's regards pictorial representations as essentially unique and unreplicable because the logic of their systems requires that every alteration in a symbol inscription, including those undetectable by an observer, is significant. Dot-matrix pictures can be duplicated precisely. A denotation theory of pictorial representation that incorporates a pictorial conception of photographs should perhaps treat these dot-matrix pictures as nonphotographic, regarding them as more like maps and words than as pictorial representations.

The causal conception. Theories that emphasize the causal origin of photographs vary considerably, but all consider photographs to stand in a special relation to their objects, a relation not exhibited by other kinds of pictures. The basic idea, shared to some extent by Rudolf Arnheim, André Bazin, and Stanley Cavell, is that when a photograph pictures an object the object is causally responsible for the photograph. The causal efficacy of the object in securing its own representation must be understood, if it is to be plausible, in terms of the object's emission or reflection of the light that exposed the photographic film.

Although theories of this kind emphasize the causal connection, they typically assume that a resemblance relation will result from the causal relation. This assumption makes statements like example 7 troublesome. A finish-line photograph indicates the order in which the horses crossed the finish line, precisely because of the causal connection between that photograph and the actual race; but in fact the photograph does not resemble the race, at least not in the sense of looking like anything that transpired during the race. A similar problem for the theory arises in example 6 if we suppose the photograph to be so inept that it does not look at all like Mount Vesuvius. Thus it seems likely that no theory of photographic representation will be altogether satisfying unless it blends elements of the pictorial conception and elements of the causal conception.

See also PERCEPTION—STILL AND MOVING PICTURES; VISUAL IMAGE.

Bibliography. Leon Battista Alberti, *De Pictura*, and *De Statua* (On Painting, and On Sculpture), ed. and trans. from the Latin by Cecil Grayson, London, 1972; Rudolf Arnheim, *New Essays in the Psychology of Art*, Berkeley, Calif., 1986; André Bazin, *What Is Cinema?* (Qu'est-ce que le cinéma?), 2 vols., Berkeley, Calif., 1967, 1971; Stanley Cavell, *The World Viewed: Reflections on the Ontology of Film*, enl. ed., Cambridge, Mass., 1979; Ernst H. Gombrich, *Meditations on a Hobby Horse*, 4th ed., Chicago, 1985; Nelson Goodman, *Languages of Art*, 2d ed., Indianapolis, Ind., 1976; W. J. T. Mitchell, *Iconology: Image, Text, Ideology*, Chicago and London, 1986; Kendall L. Walton, "Pictures and Make-Believe," *Philosophical Review* 82 (1973): 283–319; idem, "Transparent Pictures: On the Nature of Photographic Realism," *Critical Inquiry* 11 (1984): 246–277.

TED COHEN

REVOLUTION

All nations are subject to periodic revolts. On rare occasions those revolts result in social revolutions, which are societywide events in which regimes representing ruling elites are overthrown by force through the action of opposition groups. Part of the revolutionary process is the communication of solidarity among the revolutionaries and the villainization of the ruling elite.

Social revolutions are complex phenomena, involving numerous groups having both common and contradictory interests among themselves. In the English Revolution of 1640–1649, for example, opposition to the throne included Protestant sects, certain elements of the gentry, London merchants, yeomanry, small merchants, urban poor, and peasants. Thus central to the revolutionary process is the destruction of barriers to communication among the various groups struggling against the regime.

In a stable society authoritative communication is mostly from the elites to the governed. Within a revolutionary situation collective grievances and symbols of resistance are communicated from the dominated to the dominators, so that one aspect of the revolutionary process is the democratization of communication. During the American Revolution the banner of a snake composed of the thirteen colonies with the caption "Don't tread on me!" signified the concept of strength in unity and the resistance of the colonies to English rule. Other symbols of resistance from various social movements and revolutions are the raised clenched fist (adopted by socialist workers in Europe, also used in the United States in the protests of the 1960s), the hammer and sickle (representing the unity of industrial and agricultural labor) of the Russian Revolution, and bare-breasted Liberty carrying the tricolor and a rifle from the French Revolution.



Figure 1. (*Revolution*) François Rude, *Le départ des volontiers en 1792 (La Marseillaise)*, Arc de Triomphe, Paris, 1833–1836. Lauros-Giraudon/Art Resource, New York.

In revolution formerly isolated groups begin communicating across what formerly seemed "natural" barriers, facilitating innovations in the communicative process. This was evident in the Iranian Revolution (1979–1980). Western-oriented, technically trained middle-class Iranians created a market for cassette tape recorders, which were subsequently used by the mullahs (Islamic clergy) to record and circulate the revolutionary messages of the then-exiled Ayatollah Khomeini and by the masses to record gunshots from confrontations with the shah's Javidan Guards, playing them through loudspeakers to confuse the guards in subsequent demonstrations (*see DEMONSTRATION*).

Much behavior of dissident groups is directed at dramatizing messages to the authorities and to non-participants. The famed Boston Tea Party of the Sons of Liberty in the American Revolution was a form of street THEATER. In the French Revolution the storming of the Bastille was a surprisingly bloodless affair, but its symbolic significance was much more powerful than its strategic importance. The "long march" of Mao Zedong has symbolized the arduous efforts of the revolutionary forces in the Chinese Revolution. Similarly the sacking of the U.S. embassy by Iranian university students symbolized the anti-imperialism of the Iranian Revolution. Such acts of dissidence have a tremendous impact on the consciousness of the populace, often being celebrated for centuries thereafter.

The destruction of the barriers to communication also leads to a sense of collective solidarity among the dissidents, uniting them under a set of common symbols. The unifying symbols serve to reinforce a sense of common suffering and mutuality of interests among the revolutionary groups. Thus in the English Revolution the Quakers dressed in simple dark CLOTHING and soldiers shaved their heads to distinguish themselves from the elaborate trappings of the nobility and the crown.

Revolutionary visions. Within dissident groups there develops a vision of an alternative society to the present one. That utopian vision (*see UTOPIAS*) is communicated among dissidents through a variety of media: books, pamphlets, posters, speeches, music, plays, films, and so forth. The *Communist Manifesto* of KARL MARX and Friedrich Engels was written as a PAMPHLET during the revolution of 1848. Not only did it provide a concise critique of capitalist social relations, but it also presented a program for the evolution to a Communist society.

It is the promulgation of the vision of an alternative that allows for the radical critique of domination that exists in contemporary society. Thus the writings of Gerrard Winstanley gave the Levellers of the English Revolution a critique of agrarian feudal relations. Critiques of the regime and contemporary society

are maintained in iconic as well as symbolic form. For example, the Nicaraguan Sandinistas have made a shrine out of a building in which a blood bank was housed that was owned and operated by the Somozas, who sold the blood to the United States. The building is a reminder to the Nicaraguans of the parasitic hold the Somozas had on the country.

The solidarity of dissident collectives is communicated through the use of common symbols, pageantry, and mass gatherings. In the Iranian Revolution dissident groups adopted fundamentalist Islam in resistance to the Western-oriented regime of the shah. Women increasingly wore the traditional female dress of the chador, and Islamic holidays were celebrated with fervor in mass gatherings in the streets in contradiction to orders by the shah. Within those mass gatherings religious icons and large pictures of Khomeini were carried. Young men courted martyrdom by confronting the defenders of the regime, shouting revolutionary slogans at them and lifting their shirts as an invitation to death. With each killing a forty-day mourning period, complete with mass processions, would be required, which would induce similar behavior. Not only was dissident solidarity communicated to the regime, but provocations by self-assured revolutionaries were made. By adopting the symbols of Islam the revolutionaries made the regime appear to be the violator of a sacred heritage.

Within a revolution part of the process is the conceptualization of "new humans," who are seen as the next step in the evolution of the human species. They are more intelligent and virtuous than the flawed characters of contemporary society. New norms and ideals of behavior are communicated. Thus within the English Revolution nonconformist clergy perceived the revolution as the triumph of the virtues of the Protestant ethic of hard work, sobriety, and rational living as opposed to the conspicuous consumption of the nobility and the court. Likewise within the French Revolution the image of the Citizen of Republican Virtue was promulgated. In the Russian Revolution there emerged the ideal of the "New Socialist Man," who was without the vices of capitalist alienation. He was a "comrade": a friend, a fellow worker, a true socialist, and a fighter for the ideals of socialism. Such images were present in the Cuban Revolution as well. In each case ideals of new humanity were valorized in heroic art and immortalized in literature.

After the revolution. Once the regime is overthrown, slogans and symbols emerge that reflect the euphoric aspirations. In the Chinese Revolution of 1925–1949 Mao's famous slogan "Let a thousand flowers bloom" reflected the sense of liberation. Major cities experienced a surge in free speech as reflected in the huge wall posters displayed in public

places. In the Iranian Revolution the Islamic Revolutionary Guards placed roses in the barrels of their rifles, symbolizing the beginning of a new order. Khomeini's slogan "Neither East nor West" expressed the newly felt cultural pride of the Iranians in throwing off the cultural imperialism of the West and casting a suspicious eye toward the USSR of the East. In Russia after the October Revolution there emerged the notion of "people's art" to celebrate the revolution among artists. V. I. Lenin proposed the creation of monumental PROPAGANDA. Statues of the heroes of the revolution and large-scale memorials were built throughout the country despite the lack of facilities and materials. Additionally, mass street performances and demonstrations were held in celebration. All ART was subject to popular discussion and dispute. Socialist realism emerged as the official style of art because it reflected popular taste.

With the old order overthrown, revolutionaries herald the dawning of a new age. They develop new forms of address, nomenclature, and modes of expression. Thus in the French Revolution persons referred to each other as "Citizen." Streets and cities are renamed (e.g., St. Petersburg became Leningrad, and Saigon became Ho Chi Minh City). The capital of the newly independent United States of America was named after the leader of the revolution. The French Revolution resulted in the institution of a new CALENDAR, which was discarded in Year III of the revolution, during the Thermidor counterrevolution. New anthems are sung in praise of the new regime. In France the national anthem became the "Marseillaise." After the revolution the national anthem of the USSR became the "Internationale."

Consolidation and counterrevolution. Once revolutionaries take over the state, they must turn to the issue of the consolidation of power. Most theorists of revolution understand that in the wake of a revolution there is a period of reaction, in which contending parties jockey for position and power within the newly formed state. This is usually a period of political instability in which warring factions claim to be the true inheritors of the revolution and are likely to depict each other as counterrevolutionaries. Thus revolutionary symbols become associated with new purposes, not those of revolt but of consolidation and a return to law and order—or "counterrevolution." Usually the counterrevolution is bloodier than the revolution itself.

A striking example of the process, with symbols harnessed alternately to both revolutionary and counterrevolutionary ends, has been Iran. Symbols of the revolution—the Qur'an, the sword, images of Imam Khomeini—became symbols of state. The new constitution was averred to be the incarnation of Islamic law. Symbols of the Western influence associated with the shah's regime were either destroyed

or appropriated; monuments built by the shah were renamed. Although within the revolution a spate of feminism erupted among the educated, it too was declared evidence of Western corruption and was rooted out. Western jeans were declared subversive for women, and the chador was pronounced the only acceptable feminine wear in public. The dominance of Islamic symbols made it extremely difficult to criticize the regime without being accused of impiety and blasphemy. In Western revolutions symbols of rebellion have likewise turned into symbols of state building, legitimacy, counterrebellion.

Thus in a revolution, communication patterns democratize, symbols change, and language alters to reflect new social relations and aspirations. Symbolic revolt accompanies political revolt, as old symbols take on new meanings and new symbols emerge and are in turn transformed in the revolutionary process.

Bibliography. Daniel A. Foss and Ralph Larkin, *Beyond Revolution: A New Theory of Social Movements*, South Hadley, Mass., 1986; Christopher Hill, *The World Turned Upside Down*, Harmondsworth, Eng., 1970; George Rude, *The Crowd in History: A Study of Disturbances in France and England, 1730–1848*, New York, 1964.

RALPH W. LARKIN

RHETORIC

The study and teaching of practical, usually persuasive, communication. Behind the concept lies the hypothesis that the influence and significance of communication depend on the methods chosen in conceiving, composing, and presenting messages. The kinds of methods considered rhetorical have varied radically across the centuries.

As a concept and term, rhetoric originated in southern Europe in the fifth century B.C.E. and has been present continuously in Western thought. The term derives from the Greek *rhētorikē*, which survives in many modern languages, as in *rhétorique* (French), *rhetórica* (Spanish), and *Rhetorik* (German).

Early Theory and Practice

Earliest works on rhetoric came from traveling teachers called Sophists. These works included compilations of significant literary passages and cogent quotations; handbooks on the pleading of legal cases by writers like Corax and Tisias, fifth century B.C.E. Sicilians; and admired orations such as Gorgias's *Encomium of Helen*. More philosophical works from the fourth century B.C.E. included Isocrates' *Against the Sophists*, a rationale for learning statecraft through rhetorical practice and the study of models; PLATO'S

Gorgias and *Phaedrus*; and ARISTOTLE'S *Rhetoric*, the most comprehensive treatment of the subject in antiquity. Plato's and Aristotle's views of rhetoric exemplify a continuing dispute over the legitimacy of rhetorical theory, practice, and pedagogy. Plato saw popular discourse as generally superficial and often deceitful. Ideal rhetoric, he said, should express philosophical distinctions, preferably through dialectical questioning and answering but in any event through exposition by speakers with full philosophical understanding of their subjects and unerring knowledge of what hearers need to know. Aristotle's mature view held that rhetoric is the "faculty of observing in any given case the available means of persuasion." Rhetoric, said Aristotle, is an indispensable instrument for creating and sustaining human sociality within a *polis*. He contended that there is an art of rhetoric because systematic principles of invention, arrangement, style, and presentation are observable, and they govern the influence of discourse. Conflicts between the Platonic, idealist view of communication and Aristotelian functionalist views have marked the history of rhetoric from classical to modern times. See also HELLENIC WORLD.

Roman culture inherited primarily Isocratean and Platonic interpretations of rhetoric. Strategies of oratorical practice, especially legal pleading, received closest attention from the two great Latin writers on the subject: CICERO and Quintilian. From the fall of the Roman Republic to the fall of the Western ROMAN EMPIRE, study of rhetoric as speech composition and delivery formed the core of Roman education; but as imperial control of public institutions grew, display rather than practical social influence came to dominate rhetorical study and practice. In consequence, historians have called the imperial period the Second Sophistic.

Toward the end of the imperial period Aurelius Augustinus (St. Augustine, 354–430), a professional teacher of sophistic rhetoric, was converted to Christianity and thereupon developed a highly original but significantly Platonic and Ciceronian theory of sacred rhetoric: HOMILETICS. His major works on this subject were *De magistro* (The Teacher) and *De doctrina Christiana* (On Christian Doctrine). In St. Augustine's theory God was the source of ultimate knowledge, and human communication was the conversion of thoughts and feelings into shared sign systems according to principles of religious exegesis and Ciceronian stylistic practices (see also SIGN SYSTEM).

Following the fall of the Roman Empire in the West, most classical works on rhetoric were either lost or went unnoticed. It was mainly on a few works by St. Augustine and Cicero that understanding of communication had to be rebuilt once secular scholarship and administrative and commercial activities required attention to ordinary discourse. Inherited

theory, however, was primarily theory of stylistics, and the frame of reference was theological. In consequence, until at least the fifteenth century study of rhetoric remained predominantly study of style, with some developments in philology. This trend was reinforced in the sixteenth and seventeenth centuries by pedagogical redefinitions of the liberal arts, promulgated especially by French philosopher and logician Petrus Ramus (1515–1572). Defining rhetoric as the study of style and presentation, he considered all other aspects of communication to be the domain of logic.

An alternative but not immediately successful claim was developed by George Campbell (1719–1796) in his *The Philosophy of Rhetoric*, originally published in 1776 and republished in more than forty editions and reprints in English between 1776 and 1963. Campbell, a Scottish theologian, drew selectively on the entire body of classical and later thought about rhetoric, but he grounded his analysis in the philosophical and psychological premises of British philosophers Francis Bacon, JOHN LOCKE, and especially David Hume. Campbell called rhetoric "the grand art of communication," asserting that it was an intellectual discipline founded in and justified by "the new science of the human mind." For the first time since Aristotle, theory of rhetoric was fused with a comprehensive psychology. Campbell's project, however, was far less influential than the unoriginal and essentially stylistic *Lectures on Rhetoric and Belles Lettres* (1783) by Scottish rhetorician Hugh Blair, which appeared in scores of editions in the eighteenth and nineteenth centuries—in English, French, Italian, Russian, and Spanish. Also important was *English Composition and Rhetoric* (1866), by Scottish philosopher and psychologist Alexander Bain, who said the concerns of rhetoric were correctness, polish, and elegance. His book became a model for textbooks on writing in England and the United States.

Early Modern Trends

It is not surprising that identification of rhetoric with verbal style dominated modern British and European thinking until very recently, although classical scholars, especially in Germany, were actively collecting, editing, and commenting on ancient Greek and Latin rhetorical texts. In the United States students of composition began to show interest in broader dimensions of rhetoric in the early decades of the twentieth century. Charles Sears Baldwin's essay, "Rhetoric," in Paul Monroe's *Cyclopedia of Education* (1914), and Baldwin's later books, such as *Ancient Rhetoric and Poetic, Interpreted from Representative Works* (1924), were parts of his program to revive classical conceptions of the intellectual problems associated with composition and presentation. At the

same time, students of oral communication were putting forward theories of communicative behavior based on current psychological theories. Reflecting a WILLIAM JAMES influence, James A. Winans gave a pragmatic interpretation of speaking in his *Public Speaking* (1915/1917); and Charles H. Woolbert, in works published between 1917 and 1922, provided behavioristic accounts of speaking and writing based on theories of psychologist John Watson. Rising interest in SEMANTICS was reflected in such works as Charles K. Ogden and I. A. RICHARDS's *The Meaning of Meaning* (1923) and Richards's *The Philosophy of Rhetoric* (1936).

World War II and After

World War II marked a historic turning point in rhetorical studies. International concern with PROPAGANDA and PERSUASION stimulated ever wider multidisciplinary attention to all aspects of rhetorical processes.

Intensive psychological study of persuasive processes during wartime led to such postwar experimental studies as those sponsored by the Yale Institute of Human Relations under the direction of CARL HOVLAND. Two landmark works, both by Hovland and others, were *Communication and Persuasion* (1953) and *The Order of Presentation in Persuasion* (1957). Comparable research was carried out by social scientists from psychology, sociology, speech communication, mass communication, human relations, and other specialties. Since 1950 these inquiries have focused on interrelations among forms of communication, media, topics, communicative situations, and predispositions of audiences.

Reassessments of how science, communication, and values are interrelated led philosophically inclined scholars to explore the natures of philosophical and scientific argumentation. British philosopher Stephen Toulmin's *The Uses of Argument* (1958) continues to influence theory of argument. Chaim Perelman and L. Olbrechts-Tyteca, in Belgium, addressed the same subject in 1958 in their *La nouvelle rhétorique: Traité de l'argumentation* (English translation, 1969). These and other writers asserted that Cartesian assumptions and formal logic cannot explain argumentation as generally practiced. Perelman and Olbrechts-Tyteca specifically derived their explanations from classical theories of rhetoric and dialectic and from analyses of the structures of everyday argument. Mario Untersteiner's *The Sophists*, published in 1948 in Italian and in English in 1953, also reflected renewed interest in informal argument, as did Maurice Natanson and Henry W. Johnstone, Jr., in *Philosophy, Rhetoric, and Argumentation* (1965). Similar interests led to European and American rediscovery of Italian philosopher Giambattista Vico

(1668–1744) and the importance he gave to rhetorical theory in his long-neglected *The New Science* (English translation, 1970).

A different thrust in rhetorical studies emerged in LITERARY CRITICISM following World War II: verbal behavior was interpreted as symbolic action. The philosophical background for this view came from Ernst Cassirer in Germany, especially his *The Philosophy of Symbolic Forms* (1923–1929 in German; English translation, 1957), and Susanne K. Langer, *Philosophy in a New Key* (1942), in the United States. Crucial works relating rhetoric to literary criticism were the writings of philosopher KENNETH BURKE. Burke redefined rhetoric as symbolic inducement to an act or attitude. He proposed “dramatistic” rather than “scientific” approaches to symbolic works. By “dramatistic” he sought to emphasize the active, rather than the reactive, nature of symbolic processing. Burke's fundamental theoretical and critical stance was first articulated in *The Philosophy of Literary Form* (1941; reissued in slightly revised form, 1957). His symbolic action theory now informs a number of research programs in social psychology, literary criticism, philosophy of science, and rhetorical theory and criticism. Central premises of Burke's view are (1) humans are by nature symbol-making and symbol-using beings; (2) use of symbols is inevitably selective, therefore always rhetorical (“dramatistic”) action toward self and others by an “actor”; and (3) selection and use of symbols are always accomplished from some perspective—“terministic screens” are adopted, through which we view and represent ideas or feelings.

Burke's conception of rhetoric is, at its base, Aristotelian, though vastly broadened. Other returns to the classical tradition have also appeared. In *The Ethics of Rhetoric* (1953) and in his textbooks on English composition, Richard M. Weaver sought to reinstate the Platonic program for rhetorical study and practice. In other textbooks on oral and written composition in the United States various authors sought to resuscitate such classical concepts and practices as use of topics (*topoi*) when discovering what could be said (*inventio*), evaluation of figures of speech for their psychological rather than ornamental force, and analysis of discourse as informal reasoning rather than as formally logical argument. *Classical Rhetoric for the Modern Student* (1965), by Edward P. J. Corbett, was a landmark textbook of this kind because it reinjected classical concepts and practices into a pedagogy of writing that had for nearly two centuries displaced these considerations in favor of stylistic and/or formally logical precepts.

For the most part, traditional rhetoric focused on concerns of speakers and writers and minimally on how practical discourse is perceived and processed

by recipients. Speaker-listener and writer-reader relationships tended to be portrayed as relationships of hunter and hunted. In the 1950s and after, interdisciplinary inquiry fostered the concept that communication is a transaction between and among mutually involved, active, autonomously but interdependently choosing persons. Philosophers, rhetoricians, psychologists, sociologists, critics, and teachers of oral and written composition have increasingly focused on rhetorical phenomena as interactions among symbolizers, symbolic formulations, predispositions of creators and perceivers, implicitly or explicitly articulated propositions, and the milieu in which communication that is actually or apparently intended to influence occurs. Many scholars have argued that no enterprise that includes intentional transactions can be entirely nonpersuasive or nonrhetorical. It does not follow that all consideration of communication is consideration of rhetoric. Many communicative phenomena are impersonal and therefore not marked by persuasive intentions, such as interactions of electronic systems, much communicational "noise," genetic directiveness, or unconscious signaling among animals or humans (see ANIMAL COMMUNICATION).

The most radical departure from traditional thinking about rhetoric has been attribution of epistemic significance to the theory and practice of rhetoric. Broadly stated, contemporary claims for an epistemic status for rhetoric allege that human conceptions are very frequently or always articulated symbolically and that few or no human realities can exist apart from their selective, self-persuasive formulations. Such formulations, it is claimed, are always created from a human, situated point of view and are formed for some purpose that seems potentially satisfying for the formulator alone or for some audience. In its strongest form this epistemic claim alleges that humans cannot know without strategically, hence rhetorically, acting toward and upon their elemental perceptions.

Epistemic claims for rhetoric have been made from markedly different premises. In his *Rhetoric as Philosophy: The Humanistic Tradition* (1980) and other works, Ernesto Grassi has followed Vico in contending that discovery must precede any "logical" formulation, and that this antecedent "noticing" occurs by virtue of selective, humanizing, rhetorical actions toward phenomena of awareness. In the United States classicist and philosopher Richard McKeon has argued from a Ciceronian point of view in numerous books and essays published between 1957 and 1980 that knowledge can enter personal and social life only through rhetorical construction. Drawing on Burke and Cassirer and on neurophysiological resources, Richard B. Gregg in *Symbolic Inducement and Knowing* (1984) accepts Burke's definition of rhetoric as symbolic inducement and expands the

concept of rhetoric to include all processes by which we are induced, lured, invited, goaded, and enticed to "know" that which we take to be "knowledge." Other scholars have discussed the relationships between formulating selectively, or rhetorically, and coming to know, making less sweeping claims for the epistemic status of rhetoric than those just cited. In general, however, all of those who make epistemic claims for rhetoric have been moved to do so by a belief that when humans give form to knowledge they do so selectively and purposefully, hence rhetorically, rather than as a process of achieving some literal representation of reality.

Consideration of the relationships between rhetorical activity and epistemology has brought a rapprochement among rhetorical, philosophical, literary, and scientific studies. With or without using the term rhetoric, much critical study of scientific discourse, literature, politics, anthropology, and other human behavior now addresses the question, What happens socially and epistemologically when a notion is symbolically formed? To this extent the study of rhetoric has ceased to be a discipline or a single art and has become the study of all the arts, techniques, or rhetorics available to humans who must make situated choices among symbolic systems and among the options available within a given system used in a particular situation. Aristotle's original definition might be revised to read: Rhetoric is the art of discovering, using, and evaluating the available and the actually used symbolic means of inducing in any given case.

The concept of rhetoric as a subject of study and practice has been so far extended beyond the traditional arenas of speaking and writing that some have argued that acculturation to the forms and practices of organizations, social groups, sciences, technologies, subcultures, and cultures is significantly rhetorical learning. Such learning, it is said, involves learning what is communicatively appropriate to particular bodies of content in particular kinds of situations. In principle, however, the original impetus for the study of rhetoric remains: to discover the available means of communication so that practice can be rendered more effective and sociality can be created, maintained, and understood.

See also COMMUNICATION, PHILOSOPHIES OF; FORENSICS; MODELS OF COMMUNICATION; ORATORY; PUBLIC SPEAKING.

Bibliography. Carroll C. Arnold and John Waite Bowers, eds., *Handbook of Rhetorical and Communication Theory*, Boston, 1984; Kenneth Burke, *A Grammar of Motives and a Rhetoric of Motives*, Cleveland, Ohio, 1962; Cicero, *De oratore*, trans. by E. W. Sutton, Cambridge, Mass., 1948; Samuel Ijsseling, *Rhetoric and Philosophy in Conflict*, The Hague, 1976; George Kennedy, *The Art of Persuasion in Greece*, Princeton, N.J., 1963; idem, *The Art of Rhetoric*

in the Roman World, Princeton, N.J., 1972; James J. Murphy, *Rhetoric in the Middle Ages*, Berkeley, Calif., 1974; Walter J. Ong, *Ramus: Method and the Decay of Dialogue*, Cambridge, Mass., 1958; Brian Vickers, ed., *Rhetoric Revalued*, Binghamton, N.Y., 1982.

CARROLL C. ARNOLD

RICHARDS, I. A. (1893–1979)

British literary critic and educator. First a fellow of Magdalene College and university lecturer at Cambridge and later a professor at Harvard, Ivor Armstrong Richards is considered by some to have virtually launched the modern TEACHING of literature in the English-speaking world and to have been the founder of modern LITERARY CRITICISM in English. In the course of his prolific career (he wrote or coauthored more than sixty books) Richards moved from the study of LANGUAGE and literary INTERPRETATION to research on EDUCATION. His work was informed throughout by two unifying concerns: a desire to effect a mediation between the arts and science and a passionate interest in the general processes of human communication.

Richards's first books were coauthored (*Foundations of Aesthetics* in 1922 with C. K. Ogden and James Woods, and *The Meaning of Meaning* in 1923 with C. K. Ogden) and revealed interests in the nature of artistic experience and in SEMANTICS that would be lifelong. Two of the next volumes that Richards wrote on his own—*Principles of Literary Criticism* (1924) and *Practical Criticism* (1929)—had the most transforming effect on later literary criticism and pedagogy. Literary studies in the English-speaking world in the opening decades of the twentieth century tended to be impressionistic, antiquarian (e.g., focused on classical or linguistic origins), or historical in the most literal sense (e.g., emphasizing knowledge of historical or social backgrounds rather than of texts themselves) and were decidedly overshadowed both in the intellectual world and in the general society by the rapidly developing fields of the sciences. In formulating a coherent theory of criticism and in early defining basic terms for aesthetic experience (and in effect resuming and refining the project of Richards's great predecessor in English criticism, Samuel Taylor Coleridge), *Principles of Literary Criticism* and *Practical Criticism* gave to English literary study a solid conceptual and methodological framework that it had previously lacked. Especially in *Practical Criticism*—with his experimental registering of his students' unmediated responses to a sequence of unfamiliar poems, then his systematic analysis of those data and his formulation of numbered sets of criteria for poetic interpretation based on it—Richards did much to give literary study more of the shape of a "science."

Richards's theory of ART as "the supreme form of the communicative activity" was rooted in nineteenth-century ROMANTICISM, but he found additional footing for the theory in the new discipline of psychology. Richards turned teachers and scholars away from the notion of literature as a static and finished entity toward a conception of literature as the communication of dynamic experience from author to reader, one that could in turn inculcate finer communicative ability in readers as well. The corollary of Richards's vision of literature as communication was close and ideally unbiased reading of individual texts, and he in effect created the school of close reading of primary sources, the New Criticism, which dominated literary studies in English for decades thereafter. When the U.S. poet and critic John Crowe Ransom published *The New Criticism* in 1941, he hailed Richards as a founding figure.

Richards's later work turned more toward educational reform and the propagation of the system of Basic English first formulated by C. K. Ogden in the 1920s. (Moving to Harvard in the 1940s, Richards chose to be located at the School of Education rather than in the English Department.) But here too, in works like *Basic English and Its Uses* (1943) and *Design for Escape: World Education through Modern Media* (1968), Richards's long-standing interests in language and in an accommodation between literature and science were manifest. Toward the end of his career Richards turned to the writing of POETRY and comic plays. He also lived long enough to see the New Criticism come under attack from "newer" schools, primarily the Marxists and structuralists (see AUTHORSHIP; MARXIST THEORIES OF COMMUNICATION; STRUCTURALISM).

JOSEPH CADY

RIDDLE

In general usage, an act of playful communication in which a party poses a witty question to a respondent who is obligated to offer an apt reply. Folklorists commonly distinguish between a larger class of traditional questions designed to confuse or test a respondent and the riddle per se. The riddle per se is felt to require (1) an (at least) implied question-and-answer structure, (2) a solution reachable through information contained in the question, (3) a basis in the general cultural knowledge of performer and respondents (shared language, worldview, and/or tropes), and (4) a slot within a particular tradition and PERFORMANCE context.

The riddle is one of the oldest and most culturally widespread of FOLKLORE genres. Examples have been found in Greek, Latin, Hebrew, and Sanskrit traditions. One of the most notable examples from antiquity is the Riddle of the Sphinx, which is the story

of the half-woman, half-animal who would fly to the walls of the citadel of Thebes and ask a riddle of the young men there: "What is it that goes on four legs in the morning, two at midday, and three in the evening?" When the young men could not answer correctly, she ate them. After Creon's son Haemon had been eaten by the Sphinx, Creon promised the kingdom and the hand of Laius's widow, Jocasta, to anyone who could answer the riddle. A young stranger passing through the city, Oedipus, correctly answered, "Man, who crawls in infancy, walks upright in his prime, and leans on a cane in old age," thereby causing the Sphinx to kill herself and also, incidentally, fulfilling the prophecy of the oracle of Delphi that Oedipus would kill his father and marry his mother.

Cultural contexts. Riddles evolve from common features of the group's environment. Linguistic environments are particularly influential. For example, the common English riddle, "What is black and white and red (read) all over? *Newspaper*," works only because in English the adjective *red* and the verb *read* (in its past-participle form) sound alike. Similarly, the following riddle depends on linguistic features of Spanish for its wit:

Cual es el animal que lleva la hembra en la barba? *El chivo*.

What animal carries its female in his beard?
A goat. (Feminine *chiva* also means "goatee.")

When literacy is shared by interactants, riddles such as the following become possible:

The beginning of every end,
The end of every place,
The beginning of eternity,
The end of time and space.
What is it? *E*.

Each culture, moreover, builds its riddles on common practices and objects, as indicated in the Yoruba riddle, "A dark black ram goes to the river; it turns white. *Soap*," which alludes to the fact that the Yoruba's native soap is black but produces white lather. Note also the metaphorical features of the riddle, in that the soap is compared to a ram. The means of creating wit here differ from the preceding English and Spanish examples, which exploit linguistic features only.

Riddles, in turn, contribute to the maintenance of those cultures from which they draw their material. Among contemporary U.S. society, riddling commonly serves as entertainment, although some investigators underscore the importance of riddling to children's cognitive development (see CHILDREN; LANGUAGE ACQUISITION). In a wide spectrum of cultures riddles also function to manage social conflict, teach rules of conduct, and conceptualize the environment for adults as well as children. For example,

among the Venda of Africa children's riddles are introductions to the ritual formulas that both teach neophytes proper behavior and act as verbal tokens of their preparation for rites of passage.

Other verbal puzzles. Distinct from the riddle per se is the *neck riddle*, so called because its teller's neck is saved from death if hearers cannot guess the answer. Consider, for example:

Under gravel I travel
On green leaves I stand,
Riding a colt that never was born
And holding the bridle in my hand.

Although this enigma, like all neck riddles, employs an interrogative structure and was reportedly posed to respondents, two features distinguish it from a genuine riddle. First, the information required in order to respond is uniquely the knowledge of the riddler. The question alludes to the facts, which are known only to the poser, that he rode a mount that had been a foal taken from its mother's womb before birth. He put leaves in his shoes to muffle his footsteps, camouflaged himself with leaves, and put gravel on top of his shoes. Moreover, like other neck riddles, this example was embedded in a narrative as an episode describing the riddler's escape from death by virtue of creating a riddle that would-be executioners could not solve—a violation of the dialogic features of genuine riddles.

Queer-word riddles are a kind of substitution riddle, in which nonsense words are substituted for some of the words in a description of an action taking place. There is often no relationship between the queer words and their referents. For example:

I went up fumble grumbles, looked out the hazel fazel.
There I saw old squibbly squabbly eating up all the little denin pipes.

I went up a ladder in the barn, looked out a window, and saw a pig eating some ducks.

Another type of verbal enigma, the *wisdom question*, calls for a response based on the recall of specialized rather than general cultural knowledge. The clues for solutions are not contained in direct questions, such as "What was the first operation in the Bible? *The removal of Adam's rib to create Eve*." There is no display of wit in such puzzles; answers require the recall of memorized facts from particular fields, such as baseball, literature, or the Bible.

Joking questions merely parody the riddle form to permit the delivery of a comic punch line. Unlike a riddle, a joking question is insoluble and calls for a conditioned and virtually immediate capitulation by the respondent, as in the following exchange:

POSER: Where does a 500-pound gorilla sit?
RESPONDENT: I don't know.
POSER: Anywhere he wants.

Catches and joking questions share the features of insolubility and comic intent. *Catches* are questions framed in such a manner that what appears to be the appropriate response compromises the respondent. To the catch, "What do virgins eat for breakfast?" the response, conditioned by exposure to joking questions, is generally, "I don't know." As an apparent confession of sexual activity, this response characteristically embarrasses the adolescent female to whom the question is commonly directed.

Riddles and other verbal enigmas draw on the established interrogative patterns of the groups in which they arise. Yet, in the majority of cases, the conventions for responding to interrogatives are turned, temporarily, to confusing purposes. Particularly in riddling, "normal" responses are rendered inadequate. Special strategies are developed that call forth unexpected connections between phenomena. Thus, the process of riddling disorients respondents. When the logic of the fit between question and answer at last becomes apparent, the conventional foundations of group perceptions are only rarely actually broken down. Along the way, however, disorientation leads to a reexamination of the culture's cognitive orders, language, and tropes.

See also HUMOR; SPEAKING, ETHNOGRAPHY OF; SPEECH PLAY.

Bibliography. Roger D. Abrahams, *Between the Living and the Dead*, Helsinki, 1980; Donn V. Hart, *Riddles in Filipino Folklore*, Syracuse, N.Y., 1964; John Holmes McDowell, *Children's Riddling*, Bloomington, Ind., 1979; William J. Pepicello and Thomas A. Green, *The Language of Riddles*, Columbus, Ohio, 1984; Robert Petsch, *Neue Beiträge zur Kenntnis des Volksrätsels, Palaestra IV*, Berlin, 1899; Charles T. Scott, *Persian and Arabic Riddles*, Bloomington, Ind., 1965; Archer Taylor, *English Riddles from Oral Tradition*, Berkeley, Calif., 1951.

THOMAS A. GREEN

RITUAL

May be defined as the PERFORMANCE of more or less invariant sequences of formal acts and utterances not encoded by the performers. Many would argue that ritual is not simply one of many modes of communication available to humans but *the* one that has made other sorts of human communication possible, particularly those resting on LANGUAGE.

Although popular understanding tends to associate ritual with the concerns or practice of RELIGION, a fundamental aspect of the definition offered here is that it does not stipulate ritual's subject matter. Ritual is understood to be a form or structure, that is, a number of features or characteristics in a more or less fixed relationship to one another. Events con-

forming to this definition occur outside religious contexts. Psychiatrists, for instance, have used the terms ritual and ceremony to refer both to the pathological behavior of obsessive-compulsives and to the healthy but stereotyped interactions between parents and children. In fact, usage does not have to be confined to the human species. Ethologists use the term to designate stereotypic displays through which members of a very large number of species communicate with their conspecifics (e.g., the courtship rituals of great-crested grebes or fiddler crabs). (See ANIMAL COMMUNICATION; ANIMAL SIGNALS; ETHOLOGY.)

A second feature noted in the definition is performance. If there is no performance, there is no ritual; performance itself is an aspect of that which is performed. The medium is part of the message; more precisely, it is a metamessage about whatever is encoded in the ritual.

Third, the definition stipulates that the sequences of formal acts and utterances constituting ritual are not absolutely invariant but only more or less so. This stipulation not only allows for imperfection in performance but also recognizes that some variation will likely be present within any liturgical order (ritual) no matter how punctilious its performance must be. For example, certain Melanesian rituals call for offerings of pigs by hosts to guests, but the number of pigs given may vary. Among the Maring of Papua New Guinea men pledge to assist groups other than their own in future rounds of warfare by dancing at their festivals. There is a specified place in these rituals for such dancing, but the sizes of visiting contingents differ. Most significant and fundamental, the individual always has the choice of whether or not to participate in a ritual. See also FESTIVAL.

Kinds of Messages Transmitted in Ritual

That there are variant and invariant aspects of ritual implies that two classes of messages are being transmitted. First are the apparently changeless messages signified by the invariant order of the ritual's canon. These are concerned with the enduring aspects of the social and cosmological order. Second are messages carried by whatever variation the ritual allows or requires: giving away twenty pigs or thirty. These are concerned with the immediate states of the performers, expressing, among other things, the current relationship of the performers to the invariant order that the canon encodes. Such informational aspects of the ritual transmission of these self-referential messages as the features of ritual that may vary, the digital representation of analogic processes, and the material representation of abstractions will not be discussed here.



Figure 1. (Ritual) Tarahumara Easter ritual, Mexico: procession to the village cemetery. Ava Vargas/Anthro-Photo.

The relationship of SIGN to signified in each of these two classes of messages may be different. That which is signified by the invariant canon is not confined to the here and now, may not be material, and, as in the case of transcendent deities, might not even be thought to exist within the space-time continuum. Since these significata are not present in their entirety, their signification requires the use of symbols, in the sense meant by philosopher CHARLES S. PEIRCE, symbols being signs related “only by law” (convention) to that which they signify. Words are the quintessential symbols in this usage.

In contrast, the states of the performers signaled by variations in performance exist in the here and now. As such, the relationship of the sign to the signified need not be symbolic in Peirce’s sense, and often it is not. It may be indexical. An index in Peirce’s usage is a sign that is “really affected by” its referent; a dark cloud, for instance, is an index of rain. A gift of thirty pigs by a host to a guest in a Melanesian ritual feast does not *symbolize* the host’s great worth or influence; it *indicates* it, as a gift of ten pigs would not. It may even be claimed that

dancing at someone else’s festival does not symbolize a man’s pledge to fight but is rather an index of that pledge, or something like it, because the dancing is, in John L. Austin’s sense, performative. That is, the dancing brings the pledge into being and therefore cannot help but indicate it.

The indexical nature of the signs referring to current states of transmitters is of considerable importance. Indexical communication is relatively free from a vice inherent in the symbolic relation. When signs are freed from what they signify, as is the case when the symbolic relation between sign and signified prevails, lying is, if not for the first time made possible, at least enormously facilitated. It is much more difficult to lie indexically. This is not to claim Maring dancers always honor their pledges or even that they were sincere when they made them. It is simply to say that they made them. What leads the hosts to feel confident—to the extent that they do—that visiting dancers will honor their pledges is the association of those pledges with messages intrinsic to the invariant canon, a matter to be discussed later.

It has just been asserted that the self-referential

message relies for its significance, and in some cases for its acceptability, on the canonical. It is conversely the case that the canonical message carried by ritual in turn depends on the self-referential. Indeed, there is a self-referential message present in all ritual without which the canon would be devoid of force or significance. Ritual, in sum, is not simply a collection of messages and metamesages but a complex form of communication in which the two sorts of messages are mutually dependent.

The Necessity for Performance

A ritual is an order of *acts* and *utterances* and as such is enlivened or realized only when those acts are performed and those utterances voiced. This relationship of the act of performance to that which is being performed—that it brings it into being or realizes it or makes it real—cannot help but specify as well the relationship of the performers to that which they are performing. They are not merely transmitting messages they find encoded in the canon. They are participating in—that is, becoming part of—the order to which their own bodies and breath give life.

To *perform* a liturgical order, which is by definition a relatively invariant sequence of acts and utterances encoded by someone other than the performers themselves, is perforce to *conform* to that order. As such, authority or directive is intrinsic to liturgical

order. But participation suggests something more binding than whatever is connoted by terms like authority and conformity. Communication entails transmitters, receivers, and messages, but in ritual performances transmitters are always among the most important receivers of their own messages; there is a partial fusion of transmitter and receiver. A further fusion that occurs during ritual is that the transmitter-receiver becomes one with the message being transmitted and received. In conforming to the order that comes alive in performance, the performer becomes a part of it for the time being. Because this is the case, for performers to reject whatever is encoded in the canons that they are performing while they are performing them seems to me to be a contradiction in terms, and thus impossible. This is to say that by performing a ritual the performers accept, and indicate to themselves and others that they accept, whatever is encoded in the canons of the liturgical order that they are performing. This message of acceptance is the indexical message—or metamesage—intrinsic to all ritual, the message without which canonical messages are devoid of force. It is not a trivial message, because humans have the choice, at least logically, of participating or not. It follows, incidentally, that myth and ritual are not the same, despite the claims of some scholars. Myth itself, as a form, does not specify the relationship of those who tell it or read it or hear it to the content of the myth. See also FOLKTALE.



Figure 2. (Ritual) Albrecht Dürer, *The Triumphal Procession of Emperor Maximilian* (detail), 1526. Marburg/Art Resource, New York.



Figure 3. (*Ritual*) A renowned warrior and his pig, Highland New Guinea. Irven DeVore/Anthro-Photo.

This message of acceptance, however, is not synonymous with belief. Belief is an inward state, knowable subjectively if at all. Acceptance, in contrast, is a public act visible to both witnesses and the performers themselves. Acceptance is thus a fundamental social act forming the basis for public social orders as unknowable and volatile belief cannot. Acceptance not only is not belief; it does not even imply belief. Although the act of participation may make the private beliefs of individuals congruent with their public acts, this does not always happen. Participants may have their doubts, but doubt does not vitiate the acceptance. Some theologians even suggest that acceptance may be more profound than belief, for in the act of participation performers may transcend their doubts by accepting in defiance of them.

To say that acceptance is intrinsic to performance is not to claim that the performer will abide by whatever rules or norms he or she has accepted. A man may pilfer from the poor box on his way out of church to keep an assignation with his neighbor's wife after participating in a liturgy in which he has

recited the Ten Commandments, and all this without making his acceptance less binding. Liturgical performance establishes conventions—understandings, rules, norms—in accordance with which behavior is supposed to proceed; it does not control that behavior directly. Participation in a ritual in which a prohibition against adultery is enunciated might not keep a man from committing adultery, but it does establish for him a rule that he has accepted. Acceptance entails obligation, and whether or not he abides by it he has obligated himself to do so.

This is not an insignificant point. Some conventions, such as linguistic conventions, may be simple products of usage. In other cases, however, usage is full of vagary and violation. As such, usage is not itself capable of establishing convention. Societies must establish conventions in ways that protect them from the erosion of ordinary usage. Ritual does so, and in this respect it may be without equivalents. Rules promulgated by decree may also be protected from the erosion of usage by the power of the promulgator, but their promulgation does not entail acceptance.

To establish a convention—a publicly recognized rule or understanding stipulable in language and open to modification through language—is to specify it, communicate it, and accept it. If acceptance entails obligation, it follows that ritual invests whatever conventions it represents with morality, for breach of obligation is always and everywhere regarded as immoral. Indeed, it may be argued that breach of obligation, in contrast to such specific acts as homicide, is the fundamental immoral act. Homicide is not always and everywhere immoral; it is killing someone whom there is an obligation not to kill that is immoral.

In sum, ritual *embodies* social contract. As such, it is the fundamental social act upon which human society is founded.

Features of Ritual

Rituals include both words and acts. Differences in the communicative capacities of words on the one hand and acts, substances, and objects on the other will not be discussed here. Another problem is, however, raised by the discussion of acceptance, social contract, and morality. It was earlier noted that in ritual the transmitter, receiver, and message become fused in the participant, but nothing was said about the nature of the participant. Given the possibility of disconformity or even conflict between public acts and private processes of the performer as accepting agent, this is highly problematic.

It may be suggested that the use of the body defines the self of the performer for himself or herself and for others. In kneeling, for instance, the performer is

not merely sending a message of submission in ephemeral words. The use of the body *indicates* that the subordinated self is neither a fabrication of insubstantial words nor some insubstantial essence or soul that cannot be located in time or space. It is his or her visible present living substance that the performer "puts on the line" or that "stands up (or kneels down) to be counted." See also BODY MOVEMENT.

Reliance upon both word and act in ritual has further significance. By drawing themselves into the formal postures to which canonical words give symbolic value, the performers give bodily form to the symbols they represent. They give substance to symbols as the symbols give them form. The canonical and indexical come together in the *substance* of the formal posture.

Another important feature of ritual is its invariance. It is from its invariance that sanctity is derived. Sanctity is to be understood in communicational terms as a property of certain discourse, particularly that of ritual, rather than of the objects of that discourse. Thus it is the credal assertion of Christ's divinity and not Christ himself that is sacred. That Christ may be divine is another matter. Sanctity, to put it differently, is a possible property of discourse in which objects may be represented as possessing divine qualities.

In corpora of religious discourse, sanctity inheres in and flows from a certain class of expressions that may be called ultimate sacred postulates. "There is no God but the One God, and Muhammad is his prophet" is an example. Such expressions are peculiar. Because their significata are typically devoid of materiality, they are in their nature objectively unverifiable and empirically unfalsifiable. They also seem to be impervious to logical assault. Although they are often mysterious, barely comprehensible, or even self-contradictory (e.g., the divine as both one and three), they are taken to be unquestionable.

The unquestionable quality of these expressions is of the essence. Sanctity may be defined as the quality of unquestionableness imputed by congregations to expressions that are in their nature absolutely unfalsifiable and objectively unverifiable.

The unquestionableness of these "ultimate sacred postulates," it may be argued, following U.S. anthropologist Anthony F. C. Wallace, derives from the invariance of their expression in ritual. Information, in information theoretical terms, is that which reduces uncertainty among possible alternatives. If a sequence of acts and utterances is fixed, its performance can not reduce uncertainty among alternatives because there are no alternatives. Hence, to the extent that a canon is invariant it is devoid of information. But, Wallace observed, information is not synonymous with MEANING, and the meaning of a

canon's informationlessness is the certainty of its contents.

This certainty is one of the grounds of sanctity's unquestionableness. Earlier it was argued that performances conforming to invariant canons constitute acceptance of whatever those canons encode. Acceptance may be construed as an agreement not to question, another aspect of unquestionableness. In sum, the notion of the sacred is implicit in ritual's invariance.

While sanctity has its apparent source in ultimate sacred postulates, which are typically without material referents, it flows to other sentences that do have material or social referents and that may be directly implicated in the regulation of society, sentences such as "Henry is by Grace of God King," "I swear to tell the truth," "Thou shalt not kill," "Honor thy father and thy mother." In its flow the generalized unquestionableness of the sacred is transformed into more specific qualities—truth, reliability, correctness, propriety, morality—thus sanctifying, *which is to say certifying*, the messages in terms of which and by which social life proceeds. The pledges that the Marrying signify by dancing are sanctified by their association in ritual with ultimate sacred postulates. Sanctity, in sum, underwrites the discourse on which human social life generally is based.

As the notion of the sacred springs out of ritual's invariance, so, British anthropologist Maurice Bloch has argued, may the notion of the divine. The words spoken by ritual's performers are not their own words. Their origin is immemorial. Words imply speakers, and immemorial, invariant words imply first speakers who existed in time immemorial, at the beginning of time or even before time began.

Religious Experience

As important as liturgical invariance may be, language and the human way of life must be founded on more than formal acceptance and tricks in INFORMATION THEORY. We have been concerned thus far with sanctification and the sacred, but the sacred is only the discursive component of a more inclusive phenomenon that may be called "The Holy." The other aspect of "the Holy," which, following Rudolph Otto, we may call "the Numinous," is its nondiscursive, experiential aspect. Numinous experience is frequently (but not always) invoked in rituals. The social conditions called "communitas" and "effervescence" are among its manifestations, and the intimate, nonverbal modes of communication called "communion" and "communing" may be numinously charged.

In an essay on communication we are not concerned with numinous (or "religious") experience per se but rather with its epistemic qualities, particularly



Figure 4. (*Ritual*) The faithful pray before the Wailing Wall in Jerusalem. United Nations photo 149159/John Isaac (sm).

as they relate to messages encoded in language. It is important to note in this regard that those who have had such experiences report them to be deeply or even ultimately meaningful but that their meanings seem to be beyond discursive grasp. Their ineffable meaning is not so much a matter of signification as itself a directly experienced state of consciousness or even “being.”

Such experiences do have sensible physiological components. Being directly felt, emotionally and physically as well as cognitively, they seem always to be powerfully convincing—not merely accepted formally or represented as certain but experienced as absolutely undeniable. When such experiences occur in the presence of ultimate sacred postulates or representations thereof, those postulates seem to become their source and their subjects. This is to say that in ritual, ultimate sacred postulates may be predicated with the quality of the undeniable by the numinous experience of the worshiper. Thus, in ritual, messages encoded in language, in which a symbolic relation prevails between sign and signified, are grasped by immediate experience. To put it a little differently, messages in which the signified is conveyed through symbols are grounded in that which seems directly known through the senses. This is the third ground of unquestionableness forged in ritual.

The characteristics of the sacred and the numinous are the inverse of each other. The sacred is discursive,

but its significata are not material, and therefore it is unfalsifiable. The numinous is immediately material but nondiscursive, and therefore it is not merely unfalsifiable but undeniable. Ultimate sacred postulates thus come to partake of the immediately known and undeniable quality of numinous experience. That this is logically unsound is beside the point, inasmuch as the association is not one that is intellectually conceived but directly experienced.

In their union in ritual, then, the most abstract and distant of conceptions are bound to the most immediate and substantial of experiences. A remarkable spectacle is revealed to us at the end: the unfalsifiable supported by the undeniable yields the unquestionable, which transforms the dubious, arbitrary, and conventional into the correct, the necessary, and the natural. This operation makes possible institutions based on language and thus makes language itself possible. Inasmuch as humanity is defined as such by its possession of language and by language it may be claimed that this structure is the foundation on which the human way of life stands, and it is realized in ritual.

See also SEMIOTICS; SIGN SYSTEM.

Bibliography. J. L. Austin, *How to Do Things with Words*, 2d ed., ed. by J. O. Urmson and Marina Sbisa, Cambridge, Mass., 1975; Gregory Bateson, *Steps to an Ecology of*

Mind, New York, 1972; Maurice Bloch, "Symbols, Song, Dance and Features of Articulation," *European Journal of Sociology* (Archives Européennes de Sociologie) 15 (1974): 55–81; Clifford Geertz, *The Interpretation of Cultures*, New York, 1973; Charles Sanders Peirce, *Elements of Logic*, Vol. 2, *Collected Papers of Charles Sanders Peirce*, ed. by Charles Hartshorne and Paul Weiss, Cambridge, Mass., 1931–1960; Roy A. Rappaport, "The Obvious Aspects of Ritual," in *Ecology, Meaning, and Religion*, Richmond, Calif., 1979; John R. Searle, *Speech Acts*, Cambridge, 1969; Anthony F. C. Wallace, *Religion: An Anthropological View*, New York, 1966.

ROY A. RAPPAPORT

ROMAN EMPIRE

The civil wars plaguing the Roman Republic from about 50 B.C.E. on precipitated its collapse and led in the following decades to concentration of power in the hands of a single man, Augustus Caesar. The advent of empire under his rule created an immediate need to organize communications over territory that extended from Spain to Syria. Augustus exploited existing structures while also introducing bold new initiatives, many of which remained in place throughout the centuries of the Roman Empire—some until the sack of Rome in 410 C.E.

Imperial Communications

The imperial government employed many forms of communication. A wide range of techniques, including public celebrations, monuments, written accounts and speeches, COINS, ARCHITECTURE, and careful recordkeeping, all served to consolidate, legitimize, and preserve the emperor's sovereignty.

Public image. While Augustus and his circle of trusted advisers sought to control the circulation of ideas and information to reinforce the emperor's dominance of Roman society, they also took pains to make it appear that there had been no fundamental break with the traditions of the Republic. For example, under the Republic the celebration of a military triumph, with its long RITUAL procession, its display of foreign captives and plunder to the crowds that thronged the route, and the construction of commemorative temples and public buildings, had offered members of the senatorial aristocracy, Rome's political elite, their most conspicuous opportunity to enhance their prestige. Augustus put an end to this by claiming the right to celebrate military triumphs as an exclusively imperial prerogative. Successful generals were forced to settle for mere "triumphal decorations," which the emperor himself bestowed, and their statues were erected not in the Roman Forum—the civic and religious communications cen-

ter of the Republic—but in a new forum built by Augustus and dominated by symbolism associated with his victories. The messages were clear: a physical shift away from the Republican civic center to the emperor's newly constructed spaces, and a shift in focus away from numerous senatorial generals to Augustus himself. Later emperors—Vespasian, Domitian, Nerva, Trajan, Septimius Severus—followed Augustan precedent and sought visual legitimization of their reigns by constructing lavishly decorated forums of their own (see Figure 1).

Augustus left instructions that the written account of his own accomplishments, addressed to the Roman people, be inscribed on bronze tablets and set up in front of his mammoth mausoleum in the heart of Rome. While this document had some literary precedent in senatorial funeral addresses and magistrates' statements of accounts, nothing so grandiose and elaborate had ever before appeared in Rome or had ever been circulated so widely. In this document Augustus prides himself on having restored notable public monuments in Rome "without inscribing my own name on any of these." What Augustus does not say is that during his reign the initiation of all public building activity in Rome, as well as most other monumental forms of expression, became the exclusive prerogative of the emperor. Under Augustus's successors, leading senators in Rome found their opportunities for self-glorification ever more restricted: portrait statues and inscriptions appear most often in their private residences, at family tombs outside the city, or—at still greater remove from Rome—in the public spaces in the Italian and provincial cities and towns where they had connections.

To give sharper definition to the emperor's public image, the visual arts were pressed into service. Sculpted reliefs on the "altar of peace," near the northern gate of the city, represented the emperor, his family, and state officials marching in solemn religious procession into a new golden age of peace (see Figure 2). Coins, minted in Rome and controlled by the emperor, were circulated throughout the empire; they portray Augustus with idealized classicizing features, and accompanying legends and ICONOGRAPHY present him as the savior of citizens' lives (see Figure 3). Later emperors also used coins for these purposes (see Figure 4). The public appearances of emperors, and the physical settings in which these occurred, were staged performances, carefully arranged for maximum impact. The sight of an emperor in his conspicuous tribunal at crowded spectacles and games, located in theaters and amphitheaters, made these far more than popular entertainments, just as imperial portraits on coins and statues functioned as far more than artistic creations.

The domestic architecture of the emperors conveyed its own distinctive messages. For his principal



Figure 5. (*Roman Empire*) Portrait of a young woman with stylus and tablet, from Pompeii, Claudian period. Wall painting transferred to panel. Museo Nazionale, Naples. Alinari/Art Resource, New York.

One group of scholars holds that LITERACY, by which we mean the ability to write a simple message with understanding, together with the implied ability to read with some fluency, extended to between 60 percent and 80 percent of the population. However, such a figure seems seriously exaggerated. It is true that widespread literacy might be suggested by the eight thousand surviving graffiti from Pompeii, scratched or painted on walls, and ranging from the obscene to the literary (see Figure 6). Many examples in both Greek and Latin are known also from Rome, as are official notices that warned against messing up walls with graffiti, and examples from other locations prove that enthusiastic sightseers, then as now, could not be deterred from scribbling at the famous tourist sites. However, the status, sex, and occupations of the graffiti writers are scarcely ever specified, so that it is hazardous to argue from them about the identity of the writers or how representative they were of the public.

It is also true that public and private libraries proliferated under the empire. Augustus gave decisive impulse to the future of such facilities in Rome by building two libraries, each containing separate sections for Greek and Latin books. By the fourth

century there were twenty-nine in Rome alone, while eminent citizens of towns in Italy, Asia Minor, Greece, North Africa, and Egypt built and endowed libraries as personal benefactions. However, the existence of libraries is no guarantee of extensive literacy: at Rome, permission to use them had to be secured from an imperial official, which was difficult even for members of the emperor's inner circle. As regards city libraries, they are better evidence for the literary interests of the donor than for the extent of literacy in towns.

Other distinctive cultural, social, and economic conditions of imperial society together suggest a much lower rate of functional literacy. First, high literary culture—authors, reciters, readers, and collectors and circulators of books—did not penetrate far beyond the wealthy elite, which can hardly have amounted to much more than .25 percent (150,000) of the 60 million inhabitants of the empire in the second century. In a world of scribes and copyists rather than of printers, there existed no technology capable of producing vast numbers of books, newspapers, or documents. Second, since the majority of the population lived outside cities, access to teachers and school instruction, which were distinctly urban phe-

nomena, was meager for most rural inhabitants. A third factor is the limited need, by those who controlled the labor force in this preindustrial society, for literate slaves or employees. One writer on agriculture notes that even the managers of substantial productive estates “need not read and write so long as they have good memories”; and frequently itinerant scribes fulfilled the needs of citizens, including high officials, who were themselves semi- or barely literate. On balance, a full-scale study of imperial literacy seems destined to reach somber conclusions. Using the definition adopted here, a provisional estimate of three million to six million functional literates throughout the empire—between 5 percent and 10 percent of the population—seems most realistic.

Geographical Factors in Travel and Communication

The size and scope of the empire both encouraged and hindered travel and communication. The geographical and cultural distances were enormous, but the imperial organization of this large area made it possible to improve roads and administrative networks and to construct relatively efficient communications systems.

The emperor and the organization of space. A number of Augustan initiatives reveal a new conception of Rome’s relationship to the world it dominated, and a concern for the communications systems that would bind the capital more closely to its satellite cities, both in Italy and beyond. For example,

his division of Rome into numbered regions and named neighborhoods was a scheme quickly adopted by the major imperial port cities in Italy, Puteoli, and Ostia. In addition, he organized Italy into eleven regions. The network of Roman roadways converged, conceptually at least, in Rome, as Augustus solemnly and symbolically affirmed by placing in the forum a “golden milestone,” a monument that probably listed the names of the principal cities of Italy along with their distances in Roman miles from the walls of Rome. His conception of Rome’s mastery of space had even wider geographical horizons, as is proved by his great project to draw and display in the heart of Rome a sculpted monumental map of the entire world—which meant, in essence, the Mediterranean world.

A logical complement to the foregoing initiatives was the systematic improvement and development of the main arteries of traffic on both land and sea. By the reign of Diocletian (285–316), Roman emperors had constructed fifty-three thousand miles of roads, a network that linked Rome with the most distant provinces and frontiers (see Figure 7). Military engineers, demonstrating remarkable accuracy in surveying, kept road alignments straight in open country, and in broken country kept to high ground, avoiding narrow valleys. Augustus repaired most of the major paved roads of Italy at his own expense. By the time of Trajan (98–117) a road one thousand miles long ran from Holland along the Rhine and Danube to Tomi, via Vienna and Belgrade; under Claudius, Vespasian, and Trajan the early links to Lyons were extended to the Atlantic Ocean, the

Figure 6. (Roman Empire) Graffiti from Pompeii. Courtesy of the Soprintendenza Archeologica di Pompei.

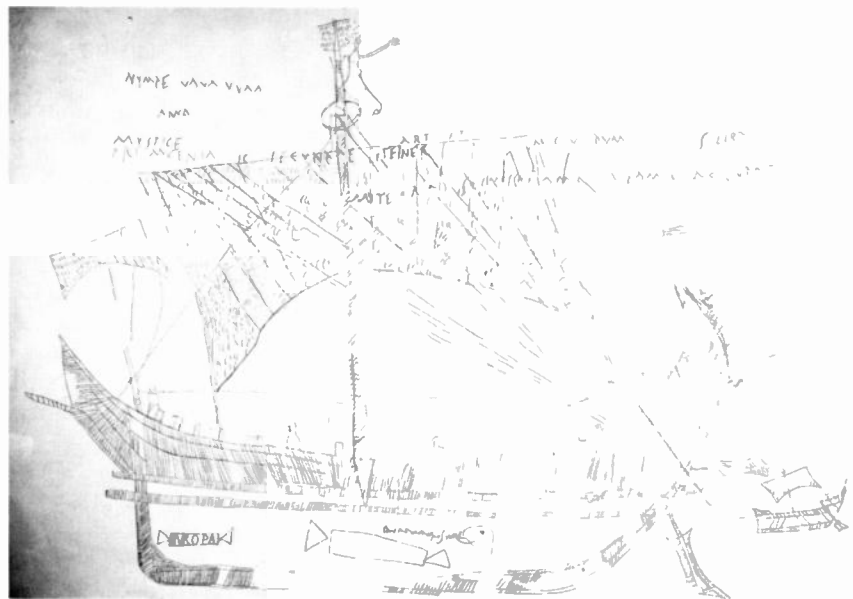




Figure 7. (*Roman Empire*) The Appian way, in the Campanian countryside. Construction began in 312 B.C.E. SEF/Art Resource, New York.

English Channel, and the North Sea. In North Africa roadways ran inland from Carthage and south to connect the desert trade with ports, and, eventually, a coast road twenty-eight hundred miles in length extended from Tangiers to Alexandria. Cylindrical milestones six feet high listed the names of the emperors who built or repaired the road, together with distances from Rome (on trunk roads in Italy) or from the district capital (in the provinces).

While detachments of imperial troops stationed along the roadways helped to keep these safe from highwaymen, the safety of the seas from pirates was secured by the imperial fleets (see Figure 8). In the first case the chief concern of the emperor was to protect the transport of military supplies; in the second the primary motive was the economic need of feeding the capital. As early as the Augustan Age, the emperor can be seen mobilizing resources, in exceptional circumstances, to produce prodigious maritime giants: two vessels that transported Egyptian obelisks to Rome had a capacity of more than three thousand tons, and one of them was at least three hundred feet in length.

To expedite official and especially military dispatches, Augustus adapted the courier system that he found in Egypt and fashioned a service in which each messenger himself went the entire route. The new system, which enabled couriers to be privately interrogated and their papers more swiftly delivered, depended on changes of horses and fresh carriages being kept always in readiness at relay stations, which

were 6 to 16 miles apart. Grooms and wheelwrights were provided, as well as inns every 20 to 25 miles for overnight stops. Couriers traveled roughly 50 miles a day, but urgent messages could be transmitted much more quickly. News of the revolt of the Rhine army reached Rome from over the Alps (and in midwinter) in nine days, a rate of more than 150 miles per day. As the system developed the couriers appointed were increasingly army scouts. Every user of the service had to possess an official pass, entitling its bearer to the use of state-maintained facilities; these passes were normally signed by the emperor, but governors of provinces also could issue a limited number in their names. Since all users of this system had to know exactly where inns and changing stations were situated, hand lists were available, indicating the locations and distances between stopping places along any given route, and sometimes information about the range of services offered. A thirteenth-century copy of one of these third-century "itineraries" has survived, the so-called Peutinger Table (see Figure 9). An elongated piece of parchment thirteen inches wide and twenty-two feet long, it presents a highly schematized road map of the Roman world from Britain to the mouth of the Ganges; the map shows the major routes, names cities and major towns, indicates distances between these in Roman miles, and suggests, by means of pictorial symbols not unlike those of modern guidebooks, the grades of facilities available for couriers and other travelers at each stopping place (see CARTOGRAPHY).

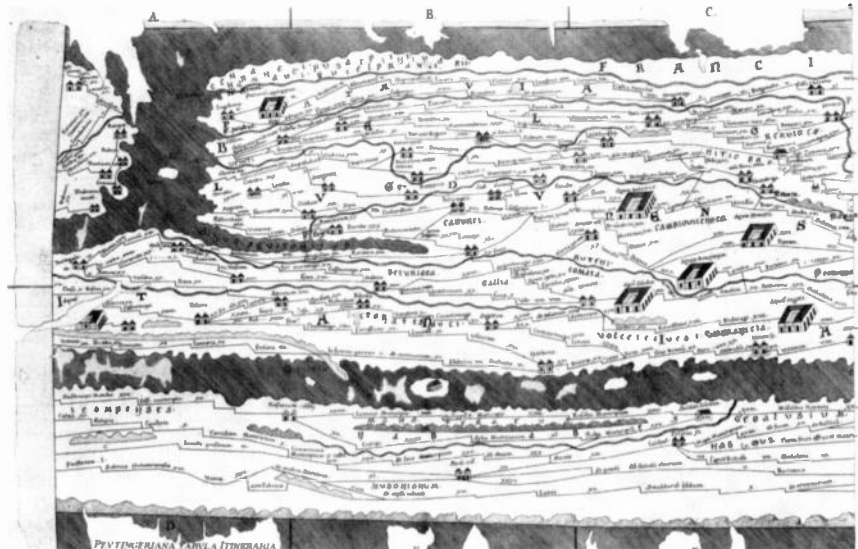
Speed of communications. Emperors reached their subjects mostly by the spoken word: everything from lost-property notices to daily news bulletins and governmental edicts was read or proclaimed by criers in Rome's most frequented public spaces, where they vied for attention with itinerant vendors, each peddler possessing his or her own distinctive cry. Communication of news over wide distances, however, presented formidable problems. The Egyptian scribe who prepared a draft of the news of Nero's accession learned of the event thirty-five days after it took place in Rome; other papyri reveal that in Middle and Lower Egypt the emperor Trajan was still thought to be alive four months after his death. A reasonably sophisticated communications system operated in the army. The arrangement of forts on the frontiers was based on information about enemy forces that was passed to the rear lines by signals, so as to permit troops to concentrate at threatened points; signal torches from watchtowers along the Danube under Trajan seem to have spelled out messages by semaphore (see SIGN SYSTEM).

Except through the courier system, land travel was very slow (thirty-five Roman miles per day being thought a remarkably good speed), and the fre-



Figure 8. (Roman Empire) Roman sailing ships. Gliptoteca Ny-Carlsberg, Copenhagen. Alinari/Art Resource, New York.

Figure 9. (Roman Empire) A copy of the Peutinger Table. Detail from *Peutingeriana Tabula Itineraria, Vindobonae, Ex Typographia Trattneriana, 1753*. Courtesy of the Library of Congress.



quently tardy delivery of even the most urgent official news underlines the backwardness of much of Roman imperial technology. Long-distance travel by horseback was slowed by the absence of stirrups, of fastened iron horseshoes, and by the lack of proper saddles. For the land transport of goods, the draft horse was usually passed over for lack of a satisfactory harness, and preference given instead to the ox and mule—slower animals with less traction power. As for the sea, the Romans were slow to develop the use of the lateen sail; because of the Mediterranean winds, long voyages remained notoriously insecure and restricted to the period between April and October. Long-distance vessels were almost exclusively cargo ships, and carried passengers only incidentally.

Travelers

During the first two centuries of imperial peace, travel over wide expanses of territory was unquestionably easier than it had ever been before, or than it would be again until the nineteenth century. Moreover, Greco-Roman cultural unity assured that if travelers spoke both Greek and Latin, they would be understood wherever they went. Private individuals traveled for trade, health, pleasure, and piety or to gain and impart knowledge. Nor was all voyaging the exclusive prerogative of the rich. Roman soldiers engraved their names on the pyramids, and sailors assigned to Italy from the economically backward regions of the empire sent letters home to their fam-

ilies in Egypt and elsewhere; military service moved persons of low status across wide distances. There were also the wandering Cynics and beggar priests, for whom poverty was no bar to travel; indeed such men, social dropouts and critics, were a significant feature of later antiquity. Thus, in the course of a journey, one could expect to move along roads busy with government officials, traders, pilgrims, the sick, letter carriers, sightseers, runaway slaves, fugitives, prisoners, athletes, artisans, teachers, and troops. Who did not travel? Most peasants, except for herdsmen, and in general women, until pilgrimages became more common.

Private traders covered impressive distances, reinforcing the cultural links between eastern and western regions of the empire: the rich Gallic shipper who moved Spanish oil from Baetica both to Gaul and to Rome, or the Syrian who carried wares to Lyons, or the merchant from Asia Minor who boasted on his tombstone in Phrygia (Turkey) that he had rounded the southern tip of Greece seventy-two times on voyages to Italy. The incredible dispersion of North African pottery in Italy and throughout the Mediterranean from the outset of the second century points also to sophisticated organization of private trading ventures over wide distances; while the fact that slaves, freedmen, and other humble "front men" could legally be entrusted to supervise business on their masters' behalf suggests something of the socially heterogeneous character of those on the road. Indeed, the sight of a slave traveling alone or with a few others must have been common; otherwise, it is difficult to understand how fugitive slaves found it so easy to remain inconspicuous, especially in large cities.

It was primarily the rich who could afford to travel for reasons of health or pleasure. Medical authorities who advocated long sea voyages—for instance, from Italy to Egypt—to cure tuberculosis were prescribing for the wealthy elite, the same persons who frequented numerous famous spas and mineral springs in Italy and Sicily. But a more motley group of invalids, including the freeborn poor, made the trek to one or another of the many sanctuaries of Asclepius, the god of healing. The most famous of these were in Epidaurus (Greece), the Aegean island of Cos, and at Pergamum in Asia Minor. For the wealthy, travel for pleasure amidst the trappings of luxury became an established part of the pattern of life. Roman senators routinely maintained more than one private villa, in Italy and near the cities of their origin in the provinces, as well as comfortable establishments in the suburbs of Rome. Various indicators, moreover, suggest that persons other than the rich could indulge themselves in pleasurable travel. Inns, mules, and carriages were available for hire in all but the most remote places; means of conveyance

could be hired in one city and left at the gate of the next; and the existence of guides and guidebooks at the most famous sites, as well as a brisk trade in souvenirs and reproductions of works of art, all point to the development of widespread TOURISM on a far from primitive scale, with people of moderate fortune the mainstays of the market.

The ease of physical mobility facilitated the spread of cults, most conspicuously that of Christianity. From the itineraries that can be recovered from the book of Acts alone, it has been calculated that the apostle Paul traveled nearly ten thousand miles during his reported career. He is only the most famous of those who traveled specifically to spread the Christian mission; many others are known from passages in the New Testament, especially natives of the eastern lands who had migrated to Rome in order to live and work. The more dynamic of pagan cults, such as that of Isis, were carried to Italy by traders and immigrants; they clustered in the most cosmopolitan urban centers such as Rome and the major port cities. There the new foreign settlers found neighbors from the same country already established, and sanctuaries for their native Syrian and Egyptian gods in full operation.

With the arrival of the uncertainties of the third century—barbarians threatening the armies at the frontiers, severe economic crisis in the city and countryside—prosperity declined, the roads again became unsafe, and Greco-Roman cultural unity, which had been facilitated by the improved patterns of communication connecting eastern and western cities, was fragmented. City life declined as town dwellers, increasingly burdened by taxation, gravitated for protection toward the landed estates of the powerful. The upper classes continued to travel, however. After Rome's conversion to Christianity, one new aspect was the professional moving about of the clergy, to church councils and elsewhere; a second was pilgrimages by the rich to the Holy Land, birthplaces of the new RELIGION. With the conversion of Constantine, we find petitions being brought to him from representatives of the Carthaginian and Alexandrian churches, and the emperor's judgments and replies once again being slowed by the limitations imposed by distance and the difficulties and delays of travel—limitations that had always separated the Roman emperor from the vast majority of his subjects.

See also HELLENIC WORLD; MIDDLE AGES.

Bibliography. J. P. V. D. Balsdon, *Life and Leisure in Ancient Rome*, New York, 1969; Lionel Casson, *Travel in the Ancient World*, London and Toronto, 1974; R. Chevallier, *Roman Roads* (*Les voies romaines*), trans. by N. H. Field, Berkeley, Calif., 1976; John H. D'Arms, *Commerce and Social Standing in Ancient Rome*, Cambridge, Mass., 1981; Werner Eck, "Senatorial Self-Representation: De-

velopments in the Augustan Period," in *Caesar Augustus, Seven Aspects*, ed. by Fergus Millar and Erich Segal, Oxford, 1984; Moses I. Finley, *The Ancient Economy*, Berkeley, Calif., 1973; Ludwig Friedlander, *Roman Life and Manners under the Early Empire* (in German), 4 vols., London, 1907–1913, reprint New York, 1979; Peter Garnsey, Keith Hopkins, and C. R. Whitaker, eds., *Trade in the Ancient Economy*, Berkeley, Calif., 1983; N. G. L. Hammond and H. H. Scullard, eds., *The Oxford Classical Dictionary*, 2d ed., Oxford, 1970 (s.v. "archives," "books," "itineraries," "letters," "libraries," etc.); W. V. Harris, "Literacy and Epigraphy I," *Zeitschrift für Papyrologie und Epigraphik* 52 (1983): 87–111; Ramsay MacMullen, *Roman Social Relations, 50 B.C. to A.D. 284*, New Haven, Conn., 1974; Wayne A. Meeks, *The First Urban Christians: The Social World of the Apostle Paul*, New Haven, Conn., 1983; Fergus Millar, *The Emperor in the Roman World, 31 B.C.–A.D. 337*, Ithaca, N.Y., 1977; Fergus Millar and Erich Segal, eds., *Caesar Augustus, Seven Aspects*, Oxford, 1984; Michael I. Rostovtzeff, *The Social and Economic History of the Roman Empire*, 2d ed., rev. by P. M. Fraser, 2 vols., Oxford, 1957; Nigel Sitwell, *Roman Roads of Europe*, New York, 1981; Zvi Yavetz, "The Res Gestae and Augustus' Public Image," in *Caesar Augustus, Seven Aspects*, ed. by Fergus Millar and Erich Segal, Oxford, 1984.

JOHN H. D'ARMS

ROMANCE, THE

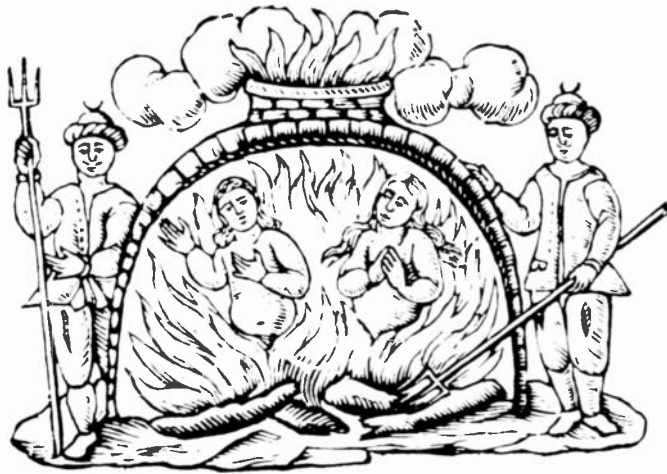
Many different literary forms have been called romances, including courtly or chivalric tales from the MIDDLE AGES and stories of heroic exploits and exotic adventures from many periods and countries. In modern popular FICTION, however, the term *romance* describes a NARRATIVE that traces the course of a woman's courtship and successful marriage. Romances are a female GENRE; they are read primarily by women, and most are written by women. Many novels contain love stories, but only when the love plot provides both the narrative's shape and its primary conflict is the work considered a romance. Although many romances take place in the past—eighteenth-century gothic romances set in the medieval period or twentieth-century novels set in the Victorian age—romances dramatize issues and dilemmas that are contemporary to the female audiences of their own time. See LITERATURE, POPULAR.

With few exceptions, popular romances are ephemeral literature, novels that are read widely when they are published and then go out of print a short time later. Most are issued in inexpensive editions that are bought or borrowed, read, and thrown away. Catalogs of circulating libraries (see LIBRARY) in the nineteenth century list various types of romances among the offerings; romance fiction also was issued in series of nineteenth-century dime novels and other inexpensive paperback formats. The ro-

mance genre has been especially prominent in periods when female roles were either changing rapidly or under apparent stress or imperatives to change. For much of its history the genre has been dominated by British writers, with authors in other countries copying successful models produced in Britain.

The popular romance began in the eighteenth century and developed in tandem with the novel itself. Increasing levels of EDUCATION and LITERACY, which accompanied the expansion of the middle class, generated an audience of readers eager for entertainment. By the mid-nineteenth century many genres of popular fiction had emerged, each appealing to various segments of the audience for light fiction. The romance, and indeed much popular fiction in general, developed as an amusement for middle-class women who had the LEISURE to read for entertainment. Romance conventions influenced other popular genres, notably the sentimental gothic novel popular in the early nineteenth century. While the pure romance created suspense by placing impediments of FAMILY, geography, social status, or misunderstanding between the potential lovers, the sentimental gothic novel—such as Ann Radcliffe's *The Mysteries of Udolpho* (1794)—used nefarious plots or pseudo-occult effects to separate the couple and threaten their relationship. Although most romances end in a happy marriage, some do not. When the heroine does not follow the accepted norms of female behavior, particularly if she is sexually promiscuous or domineering, the story—as in Kathleen Winsor's *Forever Amber* (1944)—may end in her defeat or humiliation. Novels that do not follow the strict conventions of the genre, like Margaret Mitchell's *Gone with the Wind* (1936), may attract a male audience as well as a durable readership.

In the eighteenth century, as the novel developed as a literary form, romance conventions were central to many fictional narratives. Samuel Richardson's stories of seduction, *Pamela* (1741) and *Clarissa Harlowe* (1747), offered models for the plethora of popular romances read by women in the ensuing century. Both Richardson novels drew upon the increasing social concern with female chastity and supported the value of virginity before marriage that had become so important to the future prospects of middle-class women. Susanna Haswell Rowson's *Charlotte Temple* (1791) suggested that a woman who failed to remain chaste would inevitably suffer. As other writers followed Richardson's example, the popular romance was born. Serious writers in the century after Richardson, notably Jane Austen and Charlotte Brontë, also explored the social implications of female dependence on marriage, using the romance as a vehicle for social criticism as well as entertainment. The romance as a popular genre is characterized by a narrower emphasis on the emo-



ROMANCE NUEVO, EN QUE SE DECLARA Y DA CUENTA, como estando cautivo un cristiano, natural de la ciudad de Valencia, en la ciudad de Constantinopla, en el palacio del gran Turco, se enamoró de él la hija de dicho Rey: da se cuenta como con sus persuasiones la redujo á nuestra santa Fe, bautizándola; y como despues murieron mártires. Con todo lo demas que verá el curioso lector.

Figure 1. (*Romance, The*) "New romance, where it is declared and account is given, of how while captive a Christian, a native of the city of Valencia, in the city of Constantinople, at the palace of the great Turk, the daughter of the said King fell in love with him: account is given of how with his persuasions he reduced her to our Faith, baptizing her; and how later they died as martyrs. With everything else that the curious reader will see." From E. R. Cepeda, *Romancero impreso en Cataluña* (Imprenta de B. Pla y Viuda Pla, 1770–1865), Tomo III (Facsimiles) LII–XCIV. Madrid: José Porrúa Turanzas S.A., 1984, p. 449.

tional, behavioral, and individual aspects of courtship and marriage, thereby supporting common social assumptions—for example, that the female imperative to marry makes courtship a contest between women and men, that romantic love should lead to marriage, and that individuals are responsible for their own fates.

From the beginning, romances have mirrored and exploited the social dilemmas of women in their culture. With few options open to eighteenth- and nineteenth-century women, many were preoccupied with marriage and the status and roles it could confer upon or deny them. Because romances charted the course of successful courtship, drawing on the conflicts and tensions felt by many women in their own lives, the novels attracted readers confronted with the limited options of marriage or single dependency. In the twentieth century the genre responded to the confusions and conflicting expectations of women readers who felt dislocated by rapid social change (see FOTONOVELA).

Female chastity became a less central concern in the romance novel as options for women began to widen. Popular romances in the Victorian period—for example, Maria Susanna Cummins's *The Lamplighter* (1854) and Augusta Jane Evans Wilson's *St. Elmo* (1867)—linked traditional notions about female sexuality with support for a broader range of women's social functions. Courtship and marriage frequently provided a stage for the heroine's performance of the domestic roles of nurturing, managing a home, and serving as the moral center of the family.

Victorian-era romances posited a world in which men and women inhabited distinctly separate spheres. Both potential marriage partners profited by the successful conclusion of a romance: men gained emotional and domestic support, and women gained economic security and the opportunity to participate in socially sanctioned female activities. Although some romance heroines of the time aspired to individual achievement, their primary concerns remained domestic, and their success was defined in terms of their roles as lovers and wives.

Romances continued to reflect conservative notions of femininity until the decades following World War II. In the 1950s and 1960s romances were among the most active and lucrative areas of fiction publishing (see PUBLISHING—PUBLISHING INDUSTRY). Three subgenres dominated the field: the modern gothic romance of Eleanor Burford Hibbert (Victoria Holt) and Mary Stewart; the historical romance of Georgette Heyer, Barbara Cartland, and Anya Seton; and, to a lesser extent, the simple romance of the Canadian-based Harlequin Enterprises and other paperback houses. These variations continued many traditions of earlier books, particularly in assumptions of male dominance in relationships and insistence upon female chastity as a requirement for a successful courtship and marriage.

With the resurgence of the feminist movement around 1970, both traditional female roles and the romance genre underwent significant alterations. Initially changes in romance formulas represented responses by authors and publishers to the widely

publicized "sexual revolution"; novels began to include longer and less euphemistic portrayals of sexual encounters and to loosen the restrictions on premarital sex for heroines. Writers such as Kathleen Woodiwiss and Rosemary Rogers sold millions of copies of historical romances in which heroines had multiple sexual encounters. Toward the end of the decade even the most conservative romances became more overtly sexual in content.

The increasing popularity of these newer formulas led to intense competition for readership. Predicting an expanded market for romances, U.S. publishers designed and issued new romance series, or lines, to undermine Harlequin's domination of the market. To lure readers away from older formulas and encourage an expanded audience, editors and publishers urged authors to liberalize the limits of acceptable sexual and social behavior for heroines, to portray more egalitarian relationships between heroine and hero, to find new settings and new problems that reflected contemporary social mores and issues, and to feature heroines with interests beyond marriage and family. These changes, however, did not alter what many saw as the genre's essential support of traditional beliefs about the significance and rewards of successful courtship and marriage for women, even when the heroines were not portrayed as dependent on men for economic security and social status.

The simple romance, which adheres strictly to the courtship and marriage plot and is told primarily from a female perspective, is only rarely found in films or television programs. The audiences for the film and electronic media are more heterogeneous than those for popular fiction, and media production expenses must be offset by appealing to a larger audience than that needed to make a paperback book profitable. Some essential conventions of romance novels do not work well in film or television. The novels' reliance on a female perspective is difficult to achieve on film and may not appeal to a male audience. The focus on emotional aspects of romance is not easily dramatized, because these aspects frequently develop through the heroine's long internal monologues. The virtual requirement that there be a new hero and heroine for each story works against television's typical series structure. Television's closest analogy to the popular romance, the SOAP OPERA, shares many of the same preoccupations but differs significantly from the romance genre in structure. Soap opera narratives focus on domestic and love relationships and are concerned with sexual and romantic relationships, but their plots are more open-ended and dramatize more relationships among more characters. Those romance formulas that include adventure and outside agencies as impediments to love are, however, sometimes to be found in film and

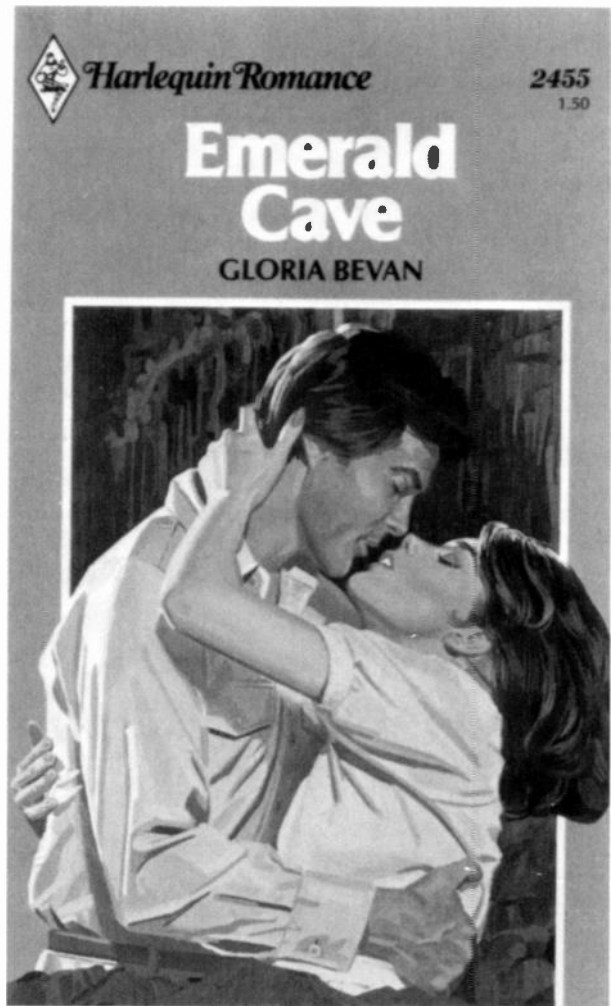


Figure 2. (*Romance, The*) Cover of a Harlequin Romance, 1982. Courtesy of Harlequin Enterprises Limited, Ontario, Canada.

television. Some ALFRED HITCHCOCK films (both his 1940 adaptation of Daphne du Maurier's *Rebecca* and his 1946 *Notorious*, for example) bear close similarities to the conventions and point of view of romance fiction. Some novels with more heterogeneous audiences (like *Gone with the Wind*) also have been successfully adapted to film. More frequently, however, romance conventions appear in films as elements of a larger narrative.

Like novels in other formulas of popular fiction, romances are rarely classed with conventional best-sellers and are infrequently reviewed, although they may be tremendous commercial successes and are often translated into many different languages. The genre has been the subject of much controversy, with some critics assuming that romances encourage women readers to passively accept their status and others defending them as an appropriate entertainment form for women who feel that traditional female roles are fulfilling and valuable. Despite such arguments, how-

ever, the romance genre has proved itself to be both enduring and flexible in appealing to its changing audience over time.

See also FEMINIST THEORIES OF COMMUNICATION.

Bibliography. Nina Baym, *Woman's Fiction: A Guide to Novels by and about Women in America 1820–1870*, Ithaca, N.Y., 1978; Sandra M. Gilbert and Susan Gubar, *The Madwoman in the Attic: The Woman Writer and the Nineteenth-Century Literary Imagination*, New Haven, Conn., 1979; Mary Kelley, *Private Woman, Public Stage: Literary Domesticity in Nineteenth-Century America*, New York, 1984; Tania Modleski, *Loving with a Vengeance: Mass-Produced Fantasies for Women*, Hamden, Conn., 1982; Kay Mussell, *Fantasy and Reconciliation: Contemporary Formulas of Women's Romance Fiction*, Westport, Conn., 1984; Janice A. Radway, *Reading the Romance: Women, Patriarchy, and Popular Literature*, Chapel Hill, N.C., 1984.

KAY MUSSELL

ROMANTICISM

A term that first appeared in the second half of the eighteenth century and was used to refer to European literature from the MIDDLE AGES to the RENAISSANCE.

The word *romantick*, as it was often spelled, was derived from the medieval form of the romance (see ROMANCE, THE). Romantick literature was a result of the Enlightenment, which believed that since such literature emerged from specific environmental and historical circumstances it was as valid as the literature of the classic tradition, which had emerged in the same way (see CLASSICISM). The attributes of romantick literature were judged to be alternative and antithetical to those of the classic tradition, which by the mid-eighteenth century had been dominant in Europe for several centuries. Romantick meant uncontrolled and fantastically imaginative, as opposed to controlled and rational. The classic depended on a widely accepted cultural norm; the romantick emphasized individual sensibility. The late Enlightenment CULTURE of sensibility is best understood as one of emotional liability, in contrast to the emotionally static culture of classicism. Romantick was rapidly expanded to include painting, landscape, and FICTION, as well as POETRY. The Gothic novel was an exemplar of this "romantick culture," as was the "classic style" of Austrian composers Franz Joseph Haydn and Wolfgang Amadeus Mozart.

Romanticism emerged as a new cultural epoch in the 1790s, in response to the French Revolution, the

Figure 1. (Romanticism) Théodore Géricault, *Raft of the Medusa*, 1818–1819. Louvre, Paris. Alinari/Art Resource, New York.





Figure 2. (*Romanticism*) Louis Edward Fournier, *The Funeral of Shelley: The Last Rite at Viareggio*, 1889. National Museums and Galleries on Merseyside (Walker Art Gallery), Liverpool.

Revolutionary Terror, and the ensuing militarism and imperialistic expansion that culminated in the oppressive and bureaucratic Napoleonic empire. A few Europeans judged that the Revolution, in bringing about the opposite of its purported aims of liberty, equality, and fraternity, proved the failure of the Enlightenment and thus of European culture. They also saw that if European culture had failed there was no longer any public or general source from which the value of an individual could be derived. Thus the romantics of the 1790s and after saw as their primary task the creation of a new culture.

Romanticism as a Cultural Movement

Romanticism retained two central ideas from the Enlightenment romantick: the possibility of a culture not merely alternative to but actually transcending the regnant culture, and the need for individuals to create that culture from their own resources of imagination and personality. For the new romantic only the self could create value, both of the individual and of life itself.

That *romanticism* came to designate those emergent writers and artists of the very late eighteenth and early nineteenth centuries was a historical accident. Whether the term was used in approval or disapproval, it was based on the recognition that those known as romantics were proposing a culture that would be an alternative to and would transcend the dominant culture of Europe by solving the problems that had invalidated it.

This gives a clue to understanding the great variety of ways in which the terms *romanticism* and *romantic* have been used. To those who did not believe that the traditional culture of Europe had been fatally compromised, romanticism was simply engaged in a fantastic, destructive, and perhaps insane endeavor. To those who believed the opposite, romanticism was heroic, creative, and culturally redemptive. Hence



Figure 3. (*Romanticism*) Eugène Delacroix, *Paganini*, ca. 1832. The Phillips Collection, Washington, D.C.

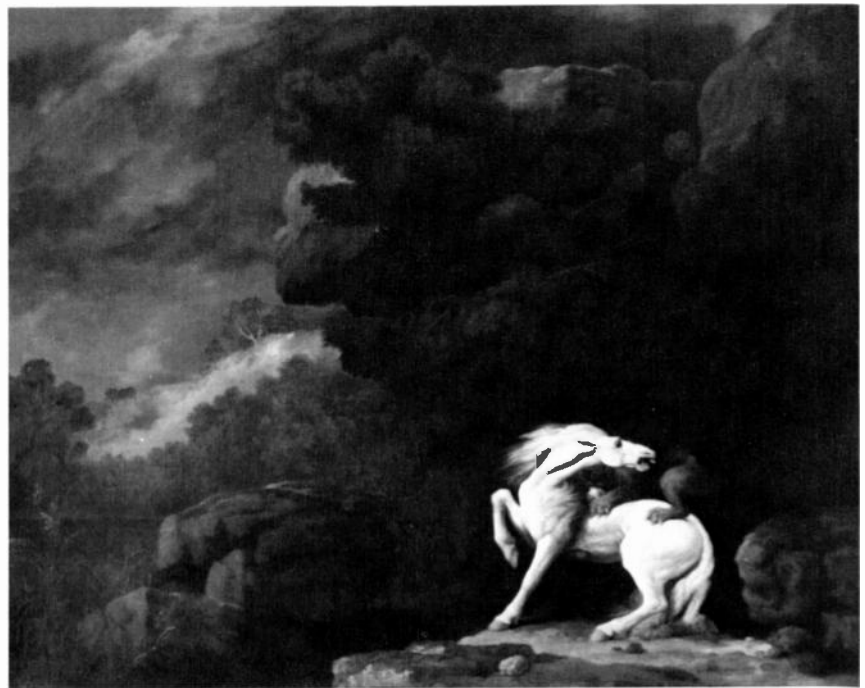
the exaltation of the artist and poet, the essentially creative individual (*see* AUTHORSHIP). For one side romantic individuality was aberrant and to be condemned; for the other it was the only source of cultural hope.

Thus in popular usage *romantic* has come to mean any behavior or set of judgments that violates the dominant cultural conventions. To those who believe



Figure 4. (*Romanticism*) John Constable, *Weymouth Bay*, 1816. Reproduced by courtesy of the Trustees, The National Gallery, London.

Figure 5. (*Romanticism*) George Stubbs, *Lion Attacking a Horse*, 1770. Yale University Art Gallery, New Haven, Conn. Gift of the Yale University Art Gallery Associates.



that there is no alternative to the established culture and its ideologies (*see* IDEOLOGY), *romanticism* and *romantic* are terms of scorn ascribed to those who endeavor fruitlessly to achieve such an alternative. To those convinced that there must be an alternative to a culture whose failure and destructiveness are evident, these are terms of approbation. It would be schematic but nevertheless illuminating to say that the antiromantic believes that the individual exists

for the sake of the culture, one's task being to maintain it; but to the romantic, culture exists not merely for the sake of the individual but also to support the individual's need to transcend that culture. In extreme forms the first position can easily become a reactionary conservatism, while the second can degenerate into a facile redemptionism or even a belief in REVOLUTION for its own sake.

Because of the almost impossible burden it places

on the individual and the need to achieve cultural innovation, romanticism is much too various to be defined in terms of its attributes or the kinds of ART and thought the romantics actually produced. For example, medievalism was thought to be an attribute of romantic ARCHITECTURE until classicism was recognized to be just as important. The aim in both cases was not revivalism but to uncover architecture's roots. The romantics' wish to transcend the existing culture led them automatically to analyze it. Analysis took the place of traditional synthesis, but since to see the world synthetically is metaphysics, romanticism became antimetaphysical. Thus from the beginning, and in its consequences up to the present, romanticism has been engaged in an analytic dismantling of the superstructure of Western culture. In the mid-twentieth century, philosophy rejected metaphysics as a merely linguistic phenomenon; later, deconstructionism proposed that analysis can show the incoherence in any linguistic construct. Roman-

ticism sees synthetic coherence as a matter of will rather than reason.

Romantic Themes

If this antimetaphysical position can be taken as the reductive foundation of romanticism, it has its own superstructure of related themes to be discerned not only in literature and every kind of verbal speculation but also in the other arts and in the lives of the romantics themselves. The first of these themes is alienation, which results from the conviction that one's culture has failed. Alienation can be expressed in the form of sickness: melancholia, despair, and suicide were all common themes in the works and lives of early nineteenth-century romantics. The effort to escape from that depression took the form first of satirical or ironic attacks on the failed culture and its various modes of cultural vandalism, and second of a realization that attack is not enough,



Figure 6. (*Romanticism*) Caspar David Friedrich, *Winter Landscape with Church*, 1811. Inv. Nr. 4737. Museum für Kunst und Kulturgeschichte der Stadt Dortmund.

that the failed culture must be transcended. In the 1820s and 1830s the effort to transcend it was symbolized in the figure of the virtuoso, that person who carried art or thought past what had previously been possible. The hero of this period was Niccolò Paganini, the awe-inspiring violinist.

Closely related to alienation and antimetaphysical cultural analysis were two other romantic themes that spread throughout Western culture. These were historicism and REALISM, which are two sides of a coin. One explanation of historicism may be found in the philosophy of G. W. F. Hegel. By the end of the eighteenth century the incoherence of the Enlightenment had become apparent. On the one hand, it was believed that human beings are a product of nature and can therefore know nature both in the form of environment and in the form of individual personality and mind. On the other hand, Immanuel Kant demonstrated that one can know nature only in terms of one's own interests, and therefore one cannot know nature in itself at all. Hegel demonstrated that knowledge of reality is not a property of the individual mind, as Kant had proposed, but that the individual mind is itself a product of human history, of *Geist*, as he called it—that is, of culture in the anthropological sense of learned behavior. Our grasp of the world is the result of the dialectical interaction of the categories of thinking (that is, of LANGUAGE) and the data of the senses. That interaction is unstable and historical. This was the source of U.S. pragmatism, which was concerned with the question of exactly how innovation occurs historically. An analytic examination of European cultural history or even a small part of it, as in the novels of Walter Scott, reveals not only the sources of present thinking but also an alternative MODE of thinking. History proves that cultural transcendence is possible, and in the historical novel both author and reader can enter a different culture. See HISTORIOGRAPHY.

Realism, which has appeared in romantic works from the start, depends on taking a historical attitude toward one's present. Just as historicism is an uncovering of what had been forgotten, so realism is an uncovering of what the prevailing culture has ignored. It is analogous to science, which advances only if experimentation uncovers data that current theories cannot account for. Thus realism brings to public attention factors and attributes of current life that the official explanations of that life—its regnant ideologies—cannot explain and therefore ignore. Literary realism has continued in its romantic function up to the present. Moreover, the fantastic (even wildly fantastic) release of the imagination, a persistent romantic tradition, is best understood as psychological realism. As empirical realism challenges regnant ideologies, so psychological realism challenges and undermines the reason and releases both

the will and the unconscious mind. Religious revivalism and innovation—often derived from non-European cultures—and mysticism come under this heading.

There is widespread disagreement about when the romantic period ended, theories positing the 1820s and 1830s to later in the nineteenth or even the twentieth century. Thus some see the emergence of modernism in the first decade of the twentieth century not as a break with romanticism but as a fulfillment of it, as perhaps the first true romanticism. Since cultural innovation is romanticism's aim, it can be argued that genuine and significant innovation is still in the romantic tradition, and that romanticism has not only not ended but is more powerful than ever.

Bibliography. Michael G. Cooke, *The Romantic Will*, New Haven, Conn., 1976; Frederick Garber, *The Autonomy of the Self from Richardson to Huysmans*, Princeton, N.J., 1982; Morse Peckham, *Beyond the Tragic Vision: The Quest for Identity in the Nineteenth Century*, New York, 1962; Charles Rosen and Henri Zerner, *Romanticism and Realism: The Mythology of Nineteenth-Century Art*, New York, 1984; Peter L. Thorslev, *Romantic Contraries: Freedom versus Destiny*, New Haven, Conn., 1984; Geoffrey Thurley, *The Romantic Predicament*, New York and London, 1983.

MORSE PECKHAM

ROPER, ELMO (1900–1971)

U.S. political pollster who pioneered accurate and selective studies of PUBLIC OPINION. Born in Hebron, Nebraska, and educated at the University of Minnesota and the University of Edinburgh, Elmo Roper showed little indication of his future fame as a pollster when he first sold retail and wholesale merchandise. Becoming increasingly interested in consumer preferences and sales management, he joined two partners to form a market consulting firm in 1933. His unusual method was to forecast sales by using carefully prepared questionnaires in interviewing subjects who were selected to represent the general census. He was so successful and so accurate in using smaller samples and higher quality control in an era characterized by large, unselective sampling that in 1935 he was engaged to write a regular public opinion column in HENRY LUCE's *Fortune* magazine, a feature that continued for fifteen years.

For the 1936 presidential ELECTION Roper created a four-point attitude scale, permitting him to quantify mixed responses. Unlike rival pollster GEORGE GALLUP, who used a two-point scale, Roper was able to detect shades of gray in complex voter responses. While the notoriously incorrect POLL of *The Literary Digest* forecast Alfred Landon as the victor by 19

percent, Roper, like Gallup and Archibald Crossley, correctly forecast Franklin D. Roosevelt as the winner, but Roper outstripped rival pollsters in accuracy, coming to within 1 percent of the actual vote. Using the same methods in the 1940 and 1944 elections Roper again proved accurate, with errors as small as one-fifth of a percent.

However, in the 1948 presidential election Thomas Dewey was so far ahead that neither Roper nor his rivals undertook a final poll. Harry S. Truman's upset victory embarrassed all the pollsters and led to a Social Science Research Council inquiry. The exposed weaknesses of rigid forecasts based on quota sampling showed the need for more finely tuned techniques. The results were a change to probability sampling and a greater awareness of shifts in voter thinking as campaigns progress.

Like Gallup, Roper retained a lifelong interest in perfecting polling techniques and in educating people about polls. Besides his column in *Fortune* Roper wrote articles for *Public Opinion Quarterly* and other magazines.

HEYWARD EHRLICH

RUMOR

An unverified report that may turn out to be either true or false; or, the process by which such a report is carried forward and diffused. Rumors are often assumed to spread primarily by word of mouth, but in an era of electronic communication the mass media not infrequently forge crucial links in rumor transmission, amplifying and speeding up the effects of rumor in ways inconceivable when their DIFFUSION depended solely on word of mouth. Terry Ann Knopf, in her study of rumor, argued that the U.S. news media have often played a significant role in race riots by their transmittal of rumors that later proved to be unfounded.

Although the content of rumors is infinitely variable, certain themes tend to reappear—for example, rumors of mass poisoning in wartime. Several researchers have attempted to develop standard classifications of rumors. The best known is probably that of Robert Knapp, who studied more than one thousand rumors collected in 1942 by the Massachusetts Committee on Public Safety and sorted them into three broad categories: "pipe dreams" (wish-fulfillment rumors), "bogies" (expressive of fears and anxieties), and "wedge drivers" (aggression rumors).

It is useful to distinguish between the origins of rumors and the functions they serve. Although most research has focused on rumors that appear to arise spontaneously, it should be pointed out that rumors can be powerful PROPAGANDA weapons and have often been used that way—for example, by governments, especially in wartime, or by political partisans,

to enhance the fortunes of one political candidate at the expense of another. Though the origins of such rumors have generally been concealed to increase their acceptance by the intended audience, they are later shown to have been deliberately created and planted. By contrast, the origins of most rumors, like those of folktales and legends, are often shrouded in obscurity (see FOLKTALE).

Functions of rumors. Though the origins of many rumors may be obscure, the functions they serve are easier to discern and can be grouped into two main categories: instrumental and expressive. Writers on rumor have tended to emphasize the instrumental set of functions. Rumors serve to provide information in situations that demand action but are inadequately defined—for example, a battle or a natural disaster such as a flood or an earthquake. Tamotsu Shibutani, in his now classic study of rumor, has labeled this function "improvised news." Rumors arise in situations of uncertainty and threat, when authoritative information is in short supply. Gordon W. Allport and Leo Postman hypothesized that the amount of rumor in circulation was a multiplicative function of the importance of the issue and the ambiguity surrounding it, and Shibutani argued that rumors arise in any situation in which the demand for news exceeds its authoritative supply, as under conditions of CENSORSHIP or crisis. Experimental studies by Ralph Rosnow and Gary Fine have demonstrated that rumors are spread more often under conditions of ambiguity and by subjects high in anxiety. The function of rumor is to reduce uncertainty and thereby diminish the sense of threat, though if a rumor turns out to be false and the actions taken on the basis of it incorrect, the price paid for reducing uncertainty may well be high. In situations of uncertainty, rumor serves as a coping mechanism, though not necessarily an adaptive one. People listen to such rumors because of a need for information; they transmit them because supplying a scarce commodity enhances their status.

Providing information under conditions of uncertainty and threat is only one of the functions served by rumor. Rumors can also serve to rouse a group to action and justify its behavior, as in a race riot or revolt. For example, the U.S. National Advisory Commission on Civil Disorders estimated in 1968 that rumors had significantly increased tension or disorder in two-thirds of the incidents studied. It is this second, justifying function of rumor that has been labeled expressive. Expressive rumors, like instrumental ones, may reduce unease by permitting a group to take action against some perceived threat, but that threat is often another racial, religious, or ethnic group, and the actions taken may prove violent.

Transmission of rumors. Rumor, as a process of communication, can be seen to involve variables that

also affect other communication processes, including such factors as source credibility, selective PERCEPTION (see SELECTIVE RECEPTION), recall (and forgetting). However, there has been little systematic study of their application to rumor.

Probably the best-known experimental studies of rumor transmission are those of Allport and Postman, in which subjects were asked to transmit, one at a time, information they had received either from a previous subject or from the experimenter. On the basis of a large number of such experiments, Allport and Postman described three basic distorting processes. The first of these is called *leveling*, elimination of some details. The second is called *sharpening*, selective emphasis on a limited number of details. The third was called *assimilation*, a tendency to change some details to produce a more coherent whole, or one fitting better with the knowledge and past experience of the transmitter. Sometimes this tendency was found to produce elaboration rather than selective omission of detail. Such findings have been replicated by other investigators and have practical implications. Eyewitness TESTIMONY in a legal context, for example, while often regarded as reliable, may involve distortions closely paralleling those in rumor transmission. Outside the laboratory the transmission of rumor is undoubtedly more complex than the research experiments suggest.

It is reasonable to suppose that accuracy in transmission will vary as a function of many factors, including the salience of the rumor to the individual. The term *accuracy* is itself variable in meaning. Omitting some details and emphasizing others may at times convey meaning accurately. One systematic investigation of newspaper accuracy in the reporting of six specific crises found that the general impression conveyed by media accounts was accurate but that the newspapers erred in the reporting of numerous details, usually because an authoritative source was not available or had not been consulted.

One well-known instance of a media-generated rumor involved a 1938 CBS radio broadcast titled "The War of the Worlds," about an invasion from Mars. It was broadcast from New York and featured ORSON WELLES. Freely adapted from a novel by H. G. Wells, the play had the Martians landing in nearby New Jersey, and it included fictional news bulletins appropriate to the plot. More than 6 million people were later estimated to have heard the broadcast; of these, 28 percent were found to have thought, at least temporarily, that the events were real. Most of the listeners were soon reassured, but many rushed from their homes and spread the word to others. Some people reported that they had seen the Martians. Observers later concluded that the Munich crisis of the previous month, when the possibility of world war seemed to hang in the balance, had contributed

to the panic and the credence given to the rumors.

Almost forty years later a fictitious radio report of a disaster at a nuclear power station at Barsebäck in southern Sweden was widely described by the media as having caused a similar panic among listeners who mistook it for a current news report. Although a subsequent investigation indicated that these media reports were themselves largely fictional—inaccurate rumors transmitted by newspapers and television stations on the basis of faulty early reports—a widespread impression of panic caused by the radio broadcast persisted.

An early study of rumors about the state of Joseph Stalin's health, as reported in Paris newspapers, found that the newspapers tended to print rumors congenial to their political attitudes, and Rosnow has argued that by presenting rumors alongside hard news newspapers and electronic media enhance the credibility of the former. The potential for subtle influence, witting as well as unwitting, is clear.

Most rumors die a natural death, either because the situation is resolved or because interest wanes. At times of crisis authorities sometimes attempt to stop a rumor by issuing denials; they run a risk of giving it further currency. The success of the suppression effort may depend on the level of trust that exists in a community and the credibility of the official source issuing denials and "authoritative" information.

Rumors are thus one kind of information always being generated and communicated within a social group. Certain conditions (e.g., social crises and natural disasters) intensify the production of rumors; others (e.g., emotional arousal) contribute to the distortion of the content; still others (e.g., publication by the mass media) multiply the range and speed of their spread. Whereas psychologists have tended to view rumors as distortions of reality, designed to meet a variety of individual needs, sociologists have tended to emphasize the social context of rumors as well as their problem-solving functions. Both perspectives are useful for understanding how rumors emerge and spread and what role they play in social life.

See also GOSSIP.

Bibliography. Gordon W. Allport and Leo J. Postman, *The Psychology of Rumor*, New York, 1947, reprint 1965; Hadley Cantril, Hazel Gaudet, and Herta Herzog, *The Invasion from Mars*, Princeton, N.J., 1947; Terry Ann Knopf, *Rumors, Race, and Riots*, New Brunswick, N.J., 1975; Ralph L. Rosnow and Gary Alan Fine, *Rumor and Gossip: The Social Psychology of Hearsay*, New York, 1976; Tamotsu Shibutani, *Improvised News: A Sociological Study of Rumor*, New York, 1966; Ralph H. Turner and Lewis M. Killian, *Collective Behavior*, Englewood Cliffs, N.J., 1957.

ELEANOR SINGER

International Encyclopedia of Communications

ERIK BARNOUW
Editor in Chief

GEORGE GERBNER
Chair, Editorial Board

WILBUR SCHRAMM
Consulting Editor

TOBIA L. WORTH
Editorial Director

LARRY GROSS
Associate Editor

Volume 4

Published jointly with
THE ANNENBERG SCHOOL OF COMMUNICATIONS,
University of Pennsylvania



OXFORD UNIVERSITY PRESS
New York Oxford

Oxford University Press

Oxford New York Toronto
Delhi Bombay Calcutta Madras Karachi
Petaling Jaya Singapore Hong Kong Tokyo
Nairobi Dar es Salaam Cape Town
Melbourne Auckland

and associated companies in
Berlin Ibadan

Copyright © 1989 by the Trustees of the University of Pennsylvania

Published jointly by
The Annenberg School of Communications,
University of Pennsylvania,
and Oxford University Press, Inc.,
200 Madison Avenue, New York, New York 10016

Oxford is a registered trademark of Oxford University Press

All rights reserved. No part of this publication may be reproduced,
stored in a retrieval system, or transmitted, in any form or by any means,
electronic, mechanical, photocopying, recording, or otherwise,
without the prior permission of Oxford University Press.

Library of Congress Cataloging-in-Publication Data

International encyclopedia of communications / Erik Barnouw, editor-in-chief . . . [et al.].

p. cm.

Bibliography: p.

Includes index.

1. Communication—Dictionaries. I. Barnouw, Erik, 1908–
P87.5.I5 1989 001.51'0321—dc19 88-18132 CIP

ISBN 0-19-504994-2 (set)

ISBN 0-19-505802-X (vol. 1)

ISBN 0-19-505803-8 (vol. 2)

ISBN 0-19-505804-6 (vol. 3)

ISBN 0-19-505805-4 (vol. 4)

Acknowledgments of sources of illustrative materials appear in captions
throughout this work. Conscientious efforts have been made to locate owners
of copyrights on illustrative materials and to secure their permission to use
them herein. If any illustration has been inadvertently used without proper
acknowledgment of its source, the publishers invite notification by copyright
owners so that a correction can be made in future printings.

2 4 6 8 9 7 5 3 1

Printed in the United States of America
on acid-free paper

International
Encyclopedia of
Communications



THE UNIVERSITY OF PENNSYLVANIA

The International Encyclopedia of Communications
was conceived, developed, and edited at
The Annenberg School of Communications,
University of Pennsylvania.

Editorial Board

GEORGE GERBNER, *Chair*

Professor of Communications and Dean, The Annenberg School of Communications,
University of Pennsylvania

DAVID ATTWOOLL

Editorial Director, Reference and General Books,
Oxford University Press, Oxford

ERIK BARNOUW

Professor Emeritus of Dramatic Arts, Columbia University

PETER CLARKE

Professor of Communications and Dean, The Annenberg School of Communications,
University of Southern California

LARRY GROSS

Professor of Communications, The Annenberg School of Communications,
University of Pennsylvania

SHELDON MEYER

Senior Vice-President, Editorial, Oxford University Press, New York

MAURICE B. MITCHELL

Former President and Editorial Director,
Encyclopaedia Britannica, Inc., Chicago

WILBUR SCHRAMM

Director Emeritus, Institute for Communications Research, Stanford University,
and Distinguished Center Researcher Emeritus, East-West Center, Honolulu

TOBIA L. WORTH

Former Editor, Encyclopedia Section, Professional and Reference Book Division,
McGraw-Hill Book Company, New York

A large, bold, red capital letter 'S' is positioned on the left side of the page. It is a simple, sans-serif font with a slight curve at the top and bottom.

(es), the nineteenth letter of the English and other modern alphabets, and the eighteenth of the ancient Roman alphabet, derives its form (through the S and Σ , Ξ of early Latin and Greek inscriptions) from the Phœnician W (Hebrew שׁין *shīn*), which represented a voiceless sibilant: in some of the Semitic languages (s), in others (f). . . . In ancient Greek and Latin the value of the letter is believed to have been always (s).

SAPIR, EDWARD (1884–1939)

U.S. anthropologist and linguist. Edward Sapir was born in Lauenburg, Pomerania, but his family emigrated to the United States five years later. He grew up on New York's Lower East Side, where his father was a cantor. Winning a prestigious Pulitzer scholarship to Columbia University, Sapir obtained a B.A. in 1904, an M.A. in 1905, and a Ph.D. in 1909. His first two degrees were in Germanic philology, but FRANZ BOAS persuaded him to switch to anthropology, initiating a lifelong commitment to the salvage recording of American Indian linguistic and cultural data. Sapir became the preeminent linguist of Boasian anthropology and later a seminal figure in the emergence of LINGUISTICS as an autonomous discipline in North America.

Sapir began American Indian fieldwork in 1905, held positions at the University of California (1907–1908) and the University of Pennsylvania (1908–1910), and in 1910 (at the age of twenty-six) became head of the new Division of Anthropology of the Geological Survey of Canada. Sapir moved to the University of Chicago in 1925 and to Yale University in 1931; he held joint appointments in anthropology and linguistics at both institutions.

Sapir was an intuitive and eclectic thinker, acknowledged for his genius by his contemporaries and intellectual progeny. His numerous publications include many that are revolutionary in American Indian linguistics. Virtually alone among his generation, Sapir had a verbal artistry and an intellectual incisiveness that allowed him to present complex technical ideas about LANGUAGE and CULTURE to a wider audience. Thus his early linguistic and ethnological publications gave way, in emphasis at least, to more general orientations.

During the mid-Ottawa years Sapir turned to the writing of POETRY and LITERARY CRITICISM as an escape from the rigidity of scientific writing. He became intrigued by psychological literature and moved into the emerging interdisciplinary field of culture and personality. After his return to academic life Sapir became the primary spokesman for the interdisciplinary study of personality, at Chicago mediating effectively between sociology and psychiatry, particularly in the interactional paradigm of HARRY STACK SULLIVAN. Much of this work was abortive, because of Sapir's premature death in 1939 at the age of fifty-five and the advent of World War II, but it set the stage for investigations by other scholars.

Sapir's only full-length book, *Language*, appeared in 1921 and was directed at a popular audience. It remains the classic text for the nontechnical view of language, tracing language through human history and geographical variation as a means of symbolic communication whose internal form characterizes

the thought patterns and lifeways of its speakers. In the generation after Sapir linguistics became much narrower in its definition of language, stressing internal form in isolation from MEANING, ignoring cultural context, and excluding the aesthetic dimensions of language. Sapir's view is again in ascendancy, however, and his delineation of the legitimate scope of linguistics—not denying linguistic form but placing it in a context of everyday human life—is a manifesto for all disciplines focusing on communication, not solely for anthropology and linguistics.

Sapir attempted to tie the concerns of his disciplines to understanding of his own society, arguing that a "genuine culture" was one in which the individual member experienced a sense of security and integration of his or her worldview. He berated his colleagues for reifying the notion of "superorganic" culture and thus overshadowing the individual as the locus of culture; he even argued that there are as many cultures as there are individuals.

A series of articles published in the *Encyclopedia of the Social Sciences* between 1931 and 1934 provides the best manifesto of Sapir's mature thought. Topics include communication, custom, dialect, fashion, group, language, personality, and SYMBOLISM. Sapir argued that linguistic form is the core of the human ability to define culture and provide a satisfying context for individual fulfillment. His emphases on culturally constituted meaning, variability within a culture based on individual creativity, and symbolic thought as the essence of being human have been elaborated in disciplines as diverse as anthropology, sociology, FOLKLORE, linguistics, psychology and psychiatry, and belles lettres.

Sapir himself easily crossed disciplinary boundaries. For example, he used native-speaker intuitions of linguistic form to define the "psychological reality" of the phoneme (the smallest meaningful unit of sound), thereby revolutionizing the way in which grammars were written (see GRAMMAR). He used linguistic labels to approach the complexity of ethnographic cultures. He experimented with poetry and essays as literary genres to present anthropological content. And he argued that the task of the anthropologist was to take the exotic out of the primitive, thereby revealing the humanness of all members of culture. He speculated on the relationship between linguistic categories and human thought, a hypothesis more systematically elaborated by his student BENJAMIN LEE WHORF. Then, of course, he trained a generation of American Indian linguists and students of culture and personality. There is no single disciplinary label or intellectual paradigm within which the richness of Sapir's thought can be contained or its repercussions traced through subsequent scholarship.

Bibliography. Regna Darnell, *Edward Sapir: Linguist, Anthropologist, and Humanist*, Berkeley, Calif., forthcoming; Edward Sapir, *Selected Writings of Edward Sapir in Language, Culture and Personality*, ed. by David G. Mandelbaum, Berkeley, Calif., 1949, reprint (with a new epilogue) 1985.

REGNA DARNELL

SARNOFF, DAVID (1891–1971)

U.S. broadcasting executive whose meteoric career was closely interwoven with the history of the Radio Corporation of America (RCA). David Sarnoff played a key role in the company's creation in 1919 (a reorganization of British-controlled American Marconi), its long domination of RADIO manufacturing and broadcasting, its shaping of an electronic television industry (see TELEVISION HISTORY), and its eventual evolution into what President Lyndon B. Johnson called "a key element in our defense structure," specializing not only in military communications but in a range of electronic weaponry.

Born in the bleak village of Uzlian, Russia (in the province of Minsk), Sarnoff emigrated to the United States at age nine. On New York's Lower East Side he attended school while helping support his immigrant family by working as a newsboy and at other jobs. Having joined American Marconi as an errand boy, he learned TELEGRAPHY and became a junior telegraph operator. During the 1912 *Titanic* disaster he gained public recognition by staying at his post long hours to relay news of survivors telegraphed by rescue vessels. In 1917 he moved to American Marconi's newly formed Commercial Department, a response to the government's stepped-up orders for military communications equipment. Sarnoff, still in his twenties, gained valuable experience in negotiating with military contractors.

The military importance of electronics led to the Americanization of the company as RCA in a take-over engineered by General Electric (GE) under prodding from the U.S. Navy. By 1921 Sarnoff was RCA's general manager. The sudden eruption of the broadcasting boom made radio the company's principal field of action. Sarnoff, who had for some time urged manufacture and sale of "radio music boxes"—along lines long promoted by LEE DE FOREST—took up the challenge.

RCA was at this point controlled by GE, Westinghouse, AT&T, and United Fruit, which had jointly taken over the majority holdings formerly in British hands. This had created a patent pool that included virtually all major U.S. electronic patents. But RCA was not in control of its own affairs: under the RCA trademark it sold radio sets that were manufactured (in agreed-on proportions) by GE and Westinghouse.

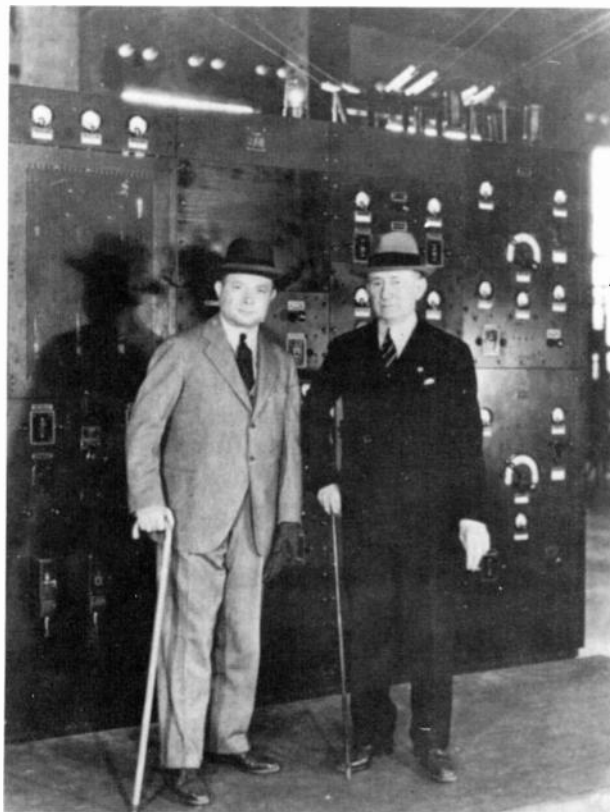


Figure 1. (*Sarnoff, David*) David Sarnoff (left) and Guglielmo Marconi at RCA facilities, ca. 1930. The National Portrait Gallery, Smithsonian Institution, Washington, D.C. Gift of Erik Barnouw.

As the MONOPOLY implications of the arrangement began to alert antitrust officials in Washington, Sarnoff used the threat skillfully to win independence for RCA. He urged its corporate owners to support unification of manufacturing and marketing under RCA. Eventually GE and Westinghouse relinquished their ownership in exchange for RCA debentures and other inducements. RCA, emerging from its role as sales agent, became a powerful entity in its own right. Its purchase of the Victor Talking Machine Company in 1929 broadened its power. In 1930 Sarnoff became president.

By this time television had moved to the top of Sarnoff's agenda. Inauguration of an electronic television era became his overwhelming ambition. VLADIMIR K. ZWORYKIN, who had conducted television experiments in czarist Russia and later at Westinghouse, became leader of the RCA television research staff. Sarnoff set a rigid schedule and drove his cohorts relentlessly. Although he engaged in bitter patent struggles with two independent inventors, EDWIN H. ARMSTRONG and PHILO FARNSWORTH, Sarnoff succeeded in introducing television at the 1939

New York World's Fair. He also won an enthusiastic reception for an improved system following World War II and for RCA color television soon afterward. From 1947 to 1970 he was chairman of the board; within RCA his power was unchallenged.

The thin immigrant boy had by now become a remote, imperious executive, impeccably dressed and speaking flawless executive English. At RCA he was called "the General" in recognition of his brief service in uniform during World War II, which had made him a brigadier general. RCA officialdom now communicated with him through memorandums, on which he penciled "yes," "no," or "PSM" ("please see me"). Few knew him intimately, but world leaders were ready to listen to him. After the war he was constantly back and forth to Washington, proposing new and more heinous weapons of mass destruction. Anti-Russian strategies became an obsession. Some associates deplored the trend, but few opposed him. He had made RCA one of the great corporations of the modern era and was virtually the corporation's embodiment. So closely was RCA identified with him and controlled by him that his retirement in 1970 brought a period of internal conflict and declining fortune. In 1985, after a series of disastrous decisions and dwindling revenue, the corporation was ready to be absorbed by GE, which had led in its creation.

Bibliography. Kenneth Bilby, *The General: David Sarnoff and the Rise of the Communications Industry*, New York, 1986; Carl Dreher, *Sarnoff: An American Success*, New York, 1977.

JEANNE THOMAS ALLEN

SATELLITE

Space vehicle designed to follow a predetermined route, usually orbiting the earth, for the purpose of collecting and transmitting information. Located at the intersection of space and communications technologies, satellites are central to the revolution in communications that has characterized the second half of the twentieth century. While satellites play an important role in space exploration, this article will address their communications function—the collection and transmission of information via earth-orbiting satellites.

There are many types of satellites. While the U.S. space agency, the National Aeronautics and Space Administration (NASA), used to divide them into four general categories (communication and navigation, meteorology, remote sensing, and geology), eighteen types of satellites have been identified for the purposes of international technical regulation. However, in terms of the services performed by satellites, they can be divided into two broad categories:

observation satellites used for the collection, processing, and transmission of data about earth and its environment; and communication satellites used for the transmission of information from one location on earth to another.

Observation satellites. The potential value of using satellites for monitoring the earth's environment was recognized at an early stage of space activities. However, it took almost a decade to appreciate the wealth of information available by these means and to develop techniques for using the new data. Satellite technology has several advantages over traditional techniques such as ground observation and aerial photography. A satellite circling the earth at an altitude of several hundred kilometers or more, or in a geostationary orbit at thirty-six thousand kilometers, can cover a large portion of the terrestrial landscape in a single photograph and can survey areas of the earth that are virtually inaccessible for continuous observation by any other means. Even after fifty years of aerial surveys, only about 30 percent of the earth was considered adequately mapped, while photographs from high-altitude satellites have provided extensive maps with very little distortion.

A number of technical innovations were developed to assist the observation satellites. New methods for the collection of images and data have included multispectral cameras and sensors capable of measuring even minute differences in the amounts of energy reflection, so that it is possible to distinguish between salt and pure water or clear and polluted air, and to identify the composition of soil, air, and water. The large amount of information that is generated by these technologies makes the processing of data and their translation into usable forms one of the most important and difficult challenges of satellite use. As a result, the use of digital data processing and interactive and automated data analysis has increased rapidly in order to optimize or enhance images for visual interpretation and to develop a variety of specific applications.

The new technology and the equipment developed for satellites during the early stages of space exploration have been applied to the global observation of the earth in three main areas: meteorology, remote sensing, and military surveillance. In meteorology, which by definition is an international science, there has been extensive cooperation between countries. National satellites play a key role in the international programs established under the aegis of the World Meteorological Organization (WMO). For the space-based subsystem of the Global Observing System geostationary satellites were launched by the United States, Japan, and the European Space Agency, and polar-orbiting satellites were launched by the United States and the Soviet Union. Data received from these satellites are used to determine profiles of atmosphere

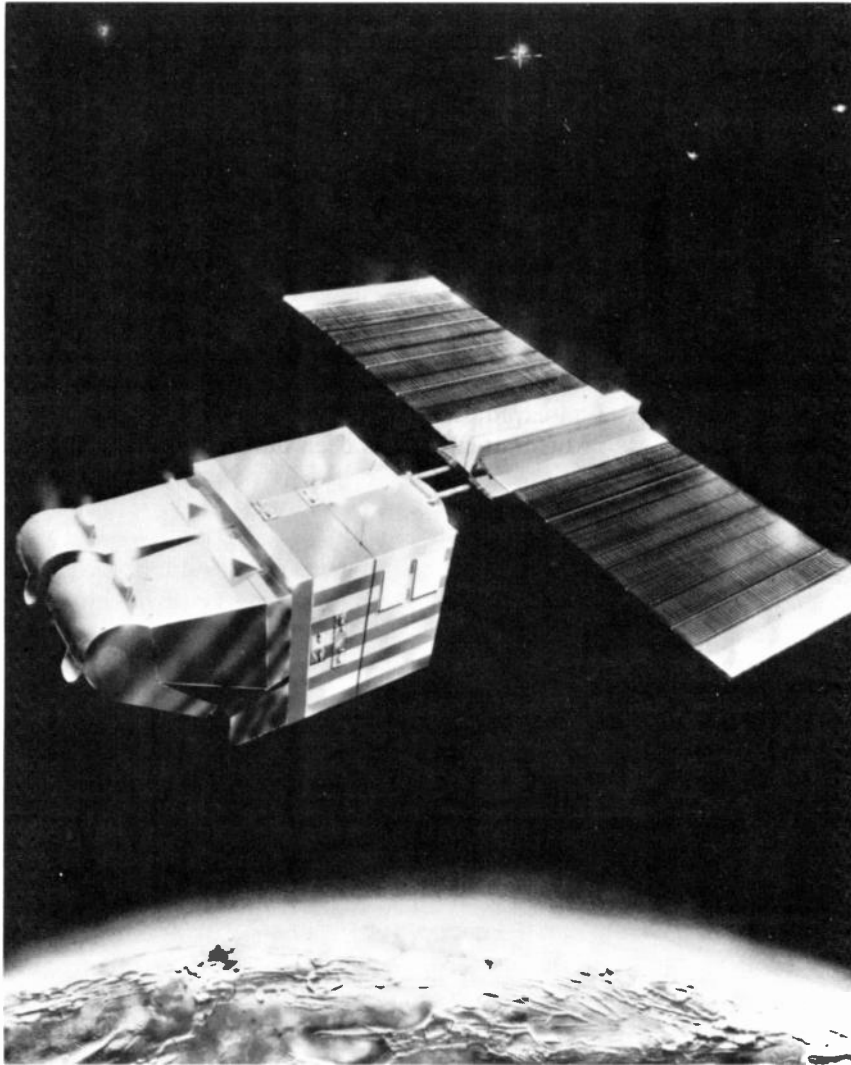


Figure 1. (*Satellite*) Drawing of the French satellite SPOT 1, which records images in orbit 517 miles from earth. Courtesy of Spot Image Corporation.

temperatures, cloud cover and height, snowmelt, surface water boundaries, and water-vapor sensing. Such information is also provided by the Global Atmospheric Research Programme (GARP). In addition, meteorological satellites are used by the World Weather Watch to monitor and trace typhoons and monsoons and to observe the effects of droughts, particularly in the Sahel region of Africa. Not only scientists but also the general public have become acquainted with this space technology through the satellite weather pictures displayed on TELEVISION NEWS programs.

Remote sensing of the environment was pioneered by special earth-exploration satellites such as the U.S. Landsat series, the Soviet Soyuz 5 and 6, and experimental space platforms such as Skylab. Remote sensing data collected via satellites have applications in agriculture, forestry and range management, hydrol-

ogy, geology, oceanography, energy resource identification, flood and disaster warnings, and land-use charting (*see* CARTOGRAPHY). Despite the great promises of this technology, it was long considered experimental or preoperational because of the lack of the necessary institutional setting to ensure continuity of service, as well as the absence of international agreements on costs and legal principles. It is expected, however, that data from remote sensing via satellites will be available to growing numbers of diverse users, particularly in developing countries.

Satellites have also been used for meteorological and remote sensing activities by the military. These techniques have found a more controversial use in military reconnaissance and surveillance, conducted particularly by the two major space powers to observe ballistic missile sites, weapons testing and deployment, military exercises, and wars. While con-

troversial, these activities have also been viewed as a potentially stabilizing factor, since they could be used as part of the verification clauses in arms agreements such as the SALT treaties.

Communications satellite systems. By the time the first Sputnik was launched in 1957, communications technology was ready for outer space. In fact, space communication had already begun during the previous decade through the use of the moon as a reflector for signals from earth. The same principle was used in the U.S. Echo project in which signals were bounced off a large, aluminized, space-borne balloon. Subsequent developments focused on active satellites, which receive signals from earth, shift their frequencies as required, and amplify and retransmit the signals to earth.

The primary uses of communications satellites have been for long-distance, point-to-point, two-way telecommunication links carrying TELEPHONE and other traditional telecommunications messages; for providing live transoceanic television transmissions; and, increasingly, for data traffic between large and costly earth stations linked to TELECOMMUNICATIONS NETWORKS. Advances in rocket technology have made possible the use of heavier, more powerful satellites, which, together with the introduction of new communication techniques such as digital transmission, have permitted reductions in the size of the earth stations. Satellite systems in use and under development provide a wide range of services: satellite networks with earth stations situated at each branch or local office of large organizations; facilities for communication with mobile entities such as ships, aircraft, trucks, or patrol units; general telecommunication services with earth stations close to or within each large city in a country; and the opportunity for remote and isolated communities to establish reliable access to global communication networks.

In the early years of satellite communication it was generally thought that this new technology would be organized in the form of a few major systems providing all required services in all parts of the world. Contrary to these expectations, there has been a proliferation of specialized systems at the international, regional, and national levels for the purposes of general telecommunications, navigation, direct broadcast, and military activities.

Two organizations have provided services at the international level for general telecommunications such as telephone, telex, data, and television transmissions: INTELSAT (International Telecommunications Satellite Consortium), first established in 1964 at the initiative of the United States and including more than one hundred member countries by 1985; and Intersputnik, established in 1968 at the initiative of the Soviet Union and including eastern European countries and some countries in Asia,

Africa, and Central America. Concurrently, a number of systems were established or planned at the regional level (western Europe, the Arab region, Africa) and the national level (Canada, the United States, the Soviet Union, Indonesia, India, Japan, Brazil, France, the Federal Republic of Germany, the People's Republic of China, etc.).

The first satellites to provide navigation services were developed for military purposes, but such systems have now also found civilian uses. In 1978 the international agency INMARSAT was established to provide worldwide maritime communications. The use of satellites for aircraft navigation has remained in an exploratory stage.

Much attention has been devoted to direct broadcast satellites (DBS), which are capable of providing a signal strong enough to be received by individual sets equipped with small antennas and are, therefore, independent of the telecommunications networks linking earth stations. The American ATS-6 satellite was an example of an experimental satellite used for early trials of this service in the United States, India (the famous Satellite Instructional Television Experiment, SITE, in 1975-1976), and other countries (see EDUCATIONAL TELEVISION). A number of operational DBS systems have been or will be deployed in various countries, including the United States, Canada, the Soviet Union, Japan, India, and various European countries. A clear distinction was once made between the fixed-satellite service for point-to-point telecommunications and the broadcasting-satellite service for direct reception, but developing technology has blurred it. Signals from certain fixed satellites can be received on individual sets, and satellite systems with direct broadcast capacity can also be used for two-way services.

As with all other communication technologies, satellites have military applications. Though satellites are used by the military for many so-called nonaggressive purposes (the three Cs: control, command, communications), they inevitably made outer space a major strategic frontier. Thus, military communication satellites became such an integral part of modern arms systems that they were added to the long list of potential military targets, and technologies whose functions were directly aggressive were developed and tested. These have included antisatellite weapons in the form of interceptor/destroyer satellites and other systems such as high-energy laser and particle-beam weapons.

Future technological developments. Technically, the development of satellite communications depends on advances in launcher, satellite, and ground equipment technology. The rapid advances in these technologies were reflected in the approximately 150 civilian communications satellites in orbit by the mid-1980s, with the prospect of further rapid growth.

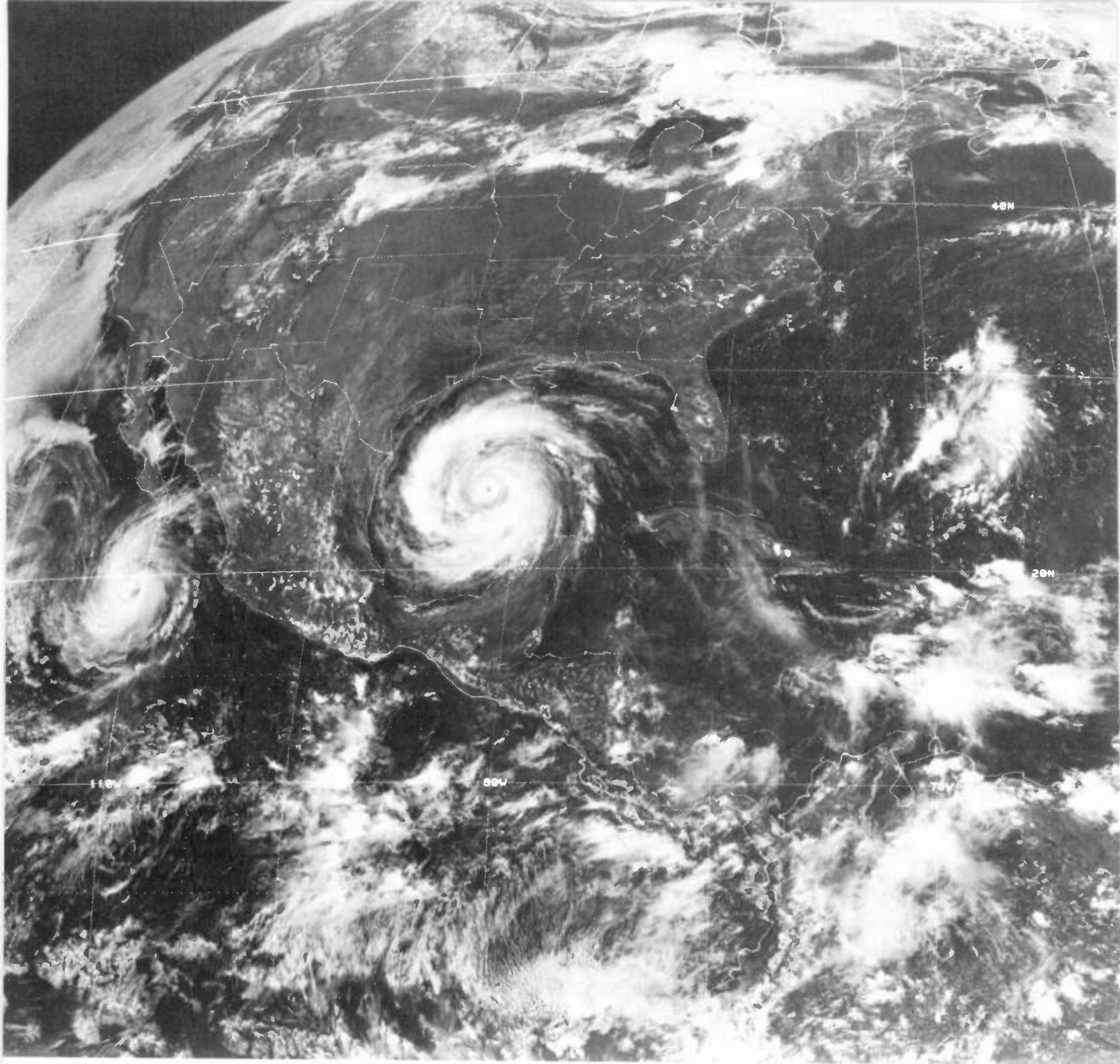


Figure 2. (Satellite) A GOES satellite photograph of Hurricane Allen taken on August 8, 1980. Courtesy of NOAA/NESDIS.

Satellite communications were a multimillion-dollar business, mainly in the hands of a few countries. In a very short time the problem of overcrowding in space developed for satellites in geostationary orbit. The use of this space must be determined in reference to the problems of interference in the frequency bands, which, according to international agreements, are supposed to be available for space communica-

tions (see SPECTRUM). Consequently, new satellite communication concepts were developed by various space organizations and by industry. These include multission satellites that could combine the payloads of different operations and locate them on one large, multipurpose satellite; clusters of jointly operated satellites located at the same longitude; and geostationary platforms consisting of diverse ele-

ments that are launched separately into space and then assembled, or making up what in another design version is called an orbital antenna farm. The implementation of such concepts will demand new and imaginative legal, organizational, and financial arrangements.

International regulation. Communication satellite operations were organized in a variety of ways at the international, regional, and national levels. From the beginning, though, international regulation has been a crucial aspect of the development of satellite communication. This is particularly true with regard to agreements on the use of radio frequencies, since the regulations for the new technology had to be compatible with international rules governing the allocation and use of frequencies for earthbound radio services. The complicated technical and administrative work in this field is managed by the International Telecommunication Union (ITU), the specialized agency within the United Nations system responsible for the international ordering and regulation of telecommunications. Through a series of international conferences starting in 1963, an increasing number of frequency ranges were allocated to the different kinds of space communication, primarily to satellite services. In addition, a series of detailed rules was agreed upon for advance notification about projected satellite services and other administrative procedures.

Other international aspects of this area have been the concern of the United Nations Committee on the Peaceful Uses of Outer Space as part of its work on the development of space law. In this context two issues have proved to be important and controversial: international legal principles to govern remote sensing via satellites, particularly in respect to rules concerning the use of information about one country collected by another; and international legal principles governing direct satellite broadcasting from one country to another (in addition to the technical-administrative rules agreed upon within the context of the ITU). The continuing negotiations show clearly the complex issues associated with the use of communications satellites and their growing importance in the communications systems of the world.

See also INTERNATIONAL ORGANIZATIONS.

Bibliography. Centre for Research of Air and Space Law, *Space Activities and Implications: Where From and Where To at the Threshold of the 80's*, Toronto and Montreal, 1981; Ralph Chipman, ed., *The World in Space: A Survey of Space Activities and Issues* (prepared for UNISPACE 82, United Nations), Englewood Cliffs, N.J., 1982; Arthur C. Clarke, ed., *The Coming of the Space Age*, New York, 1967; Bhupendra Jasani, ed., *Outer Space: A New Dimension of the Arms Race*, London, 1982; Kiran Karnik, ed., *Alternative Space Futures and the Human Condition* (pre-

pared for UNISPACE 82, United Nations), Oxford and New York, 1982; Edward W. Ploman, *Space, Earth, and Communication*, Westport, Conn., 1984; Delbert D. Smith, *Communication via Satellite: A Vision in Retrospect*, Leyden and Boston, 1976.

EDWARD W. PLOMAN

SAUSSURE, FERDINAND DE (1857–1913)

Swiss linguist. Born in Geneva into a prominent Huguenot family, Ferdinand de Saussure studied Indo-European LINGUISTICS at the Universities of Leipzig and Berlin (1876–1880), then taught in Paris at the École des Hautes Études (1881–1891). His publications, particularly *Memoire sur le système primitif des voyelles dans les langues indo-européennes* (1879), brought him international attention at a very young age. In 1891 he was called to the University of Geneva, where he was the first professor of Sanskrit and Indo-European languages and later professor of general linguistics (1906–1913). Between 1907 and 1911 he gave three courses on general linguistics, a subject that had interested him for many years but about which he published nothing during his lifetime. After his death two younger colleagues, Albert Sechehaye and Charles Bally, compiled a book appropriately entitled *Cours de linguistique générale* (1916), based on the students' notes, in which they attempted to offer a synthesis of the essential ideas that Saussure had developed in the three courses.

Scholarly acquaintance with Saussure's ideas was initially based entirely on the *Cours*. It was not until 1957 that Robert Godel published a monograph, *Les sources manuscrites du Cours de linguistique générale de F. de Saussure*, in which the lecture notes themselves and Saussure's own notes were for the first time examined and extensively analyzed. In 1968 Rudolf Engler published a critical edition of the *Cours de linguistique générale*, in which each paragraph of the text is flanked by the student notes relating to it. Another milestone in the study of Saussure's thought was the publication in 1967 of an Italian translation of, and careful commentary on, the *Cours* by Tullio de Mauro (the commentary has since been published in a French version). These contributions have enabled scholars to gain a more intimate acquaintance with Saussure's ideas as they were unfolded in his Geneva lectures and thus to correct and refine earlier analyses of the *Cours*.

Saussure's posthumous fame has largely rested on two notions: first, his conception of LANGUAGE as a system of interrelated elements, and, second, his conviction that language is a set of signs, one of a number of "semiological" institutions characteristic of the human species. As regards the first, the systematicity of language precludes any atomistic approach to words or their meanings; both facets of language

can only be defined and identified relationally. Linguistic units exist insofar as they contrast with, that is, are not identical to, other units similar to them. For example, the MEANING of the English word *dog* is definable only negatively, as not the same as the meanings of other words associated with it, such as *wolf* and *fox*. One language, for instance, may have verbs that distinguish between locomotion on foot and locomotion in a vehicle (e.g., German *gehen* and *fahren*), and another language may lump them together (e.g., Italian *andare* and English *go*). Every language is, therefore, a vast system of multiply interrelated sets of associated units. Moreover, each of these units is a SIGN, namely, the conjunction of a *signified* (roughly, a meaning) and a *signifier* (roughly, a word). The relationship between signified and signifier is arbitrary, as is the relationship among signifiers. *See also* SEMIOTICS; SIGN SYSTEM.

Saussure was the first linguist to impress on his colleagues the need to achieve terminological and conceptual clarity. Regarding the nature of the object that linguists analyze, he insisted that three things be distinguished clearly, namely, (1) language (*langue*), (2) SPEECH (*parole*), and (3) the linguistic faculty (*faculté de langage*). *Langue*, for Saussure, is the set of conventions prevalent in a speech community that makes it possible for individual speakers to utilize their *faculté de langage*. Hence, the linguistic faculty is something entirely distinct from language, but the former cannot be exercised without the latter.

By the term *parole* Saussure denotes the acts of individual speakers utilizing their linguistic faculties by means of the particular social conventions observed in the speech community of which they are members. The result of *parole*, thus, is the concrete speech act. Within this conceptual system, *langue* occupies a position of priority; it should be the focus of the linguist's preoccupations, according to Saussure. Clearly, in such a "semiological" perspective, *langue* is eminently social in character: any complex system of signs owes its very existence to the community that uses it. However, compared with other cultural institutions, *langue* is something over which the members of society can exercise little freedom of choice, if only because it is inherited by the social group in toto from preceding generations. This accounts for the stability of linguistic systems over relatively long periods of time.

As for the discipline of linguistics, Saussure recommended that a radical distinction be observed between studying a language current at a particular point in time and viewing a language as an ever-changing object. From the first perspective, the language is seen as a system of contemporaneously functioning signs. This Saussure called the synchronic or static viewpoint. Adopting the other perspective, which he called the diachronic or dynamic viewpoint,

the linguist follows the historical development of a language such as French. In his opinion these two perspectives should never be mixed, as they often were in the "historical" grammars of the late nineteenth century. But neither should one of them be neglected in favor of the other. Thus Saussure disapproved of the one-sided preoccupation of the linguists of his own day with historical research, and the publication of the *Cours* contributed to the shift of interest that has occurred in linguistic research over the past half-century toward descriptive (i.e., synchronic) work.

The influence of the *Cours* among twentieth-century linguists has been considerable, especially since World War II. Though it cannot be said that Saussure ignited the spark that gave rise to the various structuralist schools (e.g., the so-called Copenhagen and Prague circles), theoretical linguists certainly found inspiration in the pages of the *Cours*. Saussure's ideas have also enjoyed great popularity among certain philosophers, anthropologists, and literary theorists, particularly in French-speaking countries. *See also* LITERARY CRITICISM; POETICS; STRUCTURALISM.

Bibliography. Rudolf Engler, *Lexique de la terminologie saussurienne*, Utrecht, 1968; Ferdinand de Saussure, *Cours de linguistique générale*, critical ed., ed. by Tullio de Mauro, Paris, 1972; idem, *Course in General Linguistics*, ed. by Charles Bally and Albert Sechehaye, trans. from the French by Wade Baskin, New York, 1959; idem, *Course in General Linguistics*, ed. by Charles Bally and Albert Sechehaye, trans. from the French by Roy Harris, La Salle, Ill., and London, 1983.

W. KEITH PERCIVAL

SCHOOL

An institution for preparing the younger generation to participate in the life of society. Not usually thought of as a medium of mass communication, the school is nevertheless a complex communications network that provides the basis for much of the future communication in society. Essentially the school trains students as receivers and senders of messages.

Like the LIBRARY, MUSEUM, and ARCHIVES, the school is a repository of CULTURE, which encompasses the history and achievements of the society. But the school has a special mission to transmit this culture to the younger generation: it disseminates information, inculcates values, and develops tastes. It also trains students in the use of signs and symbols, beginning with READING, WRITING, and MATHEMATICS. Finally, at a deeper level the school transmits the structures of society, habits of PERCEPTION, and view of reality implicit in the culture and sign systems. *See* SIGN SYSTEM; STRUCTURALISM.



Figure 1. (*School*) An exercise tablet belonging to a Babylonian schoolchild. The elementary sign for “dish” has been impressed again and again on both sides of the clay tablet. Nippur, ca. 1700 B.C.E. The University Museum, Philadelphia. Neg. 133371.

Yet the school does not merely aim to transmit the accumulated knowledge to the younger generation. It also hopes to prepare the younger generation to hand on the knowledge to its successors and, in more open societies, to add something in the process. The process necessarily rests on a number of optimistic assumptions, the most important being that the human race—or at least a significant portion—is capable of learning. It also assumes that knowledge is infinite and that the human race is capable of managing the knowledge accumulated even though the burden becomes greater with each generation. Within this context modern communications techniques are essential, becoming what MARSHALL MCLUHAN called “extensions” of humankind.

The history of the school reflects, in part, its close links to communications techniques. Even amid modern technology the school’s basic technique is still INTERPERSONAL COMMUNICATION, centered on the student-teacher relationship (*see also* INTERACTION, FACE-TO-FACE). A vital remnant of ORAL CULTURE and perhaps RITUAL, the student-teacher relationship is an outgrowth of the young person’s relationships to parents, peers, priests, and storytellers that sufficed for instruction in earlier nonliterate societies. The beginning of schools is associated with the invention of writing: schools were established to train priests and scribes. Writing and scribal education first developed in Egypt, Sumer, and China during the third millennium B.C.E.; a parallel development occurred during the first millennium B.C.E. in Mesoamerica (*see* AMERICAS, PRE-COLUMBIAN). The next radical

change in the school did not occur until the invention of PRINTING in the mid-fifteenth century (*see* GUTENBERG, JOHANNES). The printed BOOK affected the school in two ways: through the far-reaching changes in society that resulted from this invention—including the extension of schooling to a wider populace—and directly through shifts in curricula and methods of TEACHING.

A similar revolution is occurring as the school adapts to the electronic communications media developed during the second half of the twentieth century, the main ones being television and the computer. Both of these, like the printing press before them, have brought about a change in all aspects of the school. Objectives considered in the past to be desirable but unattainable are now within reach because of the new media. Teaching methods that utilize the new technology no longer resemble those traditionally used in schools, and teaching how to use the new communications media occupies a growing part of the curriculum.

The factors most important in molding the school’s method of operation are, however, political and economic. The school is a social institution, and its history mainly reflects that of the societies—their ambitions, biases, and limitations—within which it has functioned. Historical changes in the school have included three dimensions:

1. the organizational dimension, which determines *who* will benefit from the school’s services (and also who will be teachers);
2. the dimension of the curriculum, which reflects *what* is considered appropriate to teach in different societies and eras; and
3. the didactic dimension, which determines *how* the appropriate curriculum will be taught.

Organizational decisions incorporate political assumptions about society (in an aristocratic society the population of school pupils differs from that in a democratic society). Curricular decisions incorporate the accepted cultural view (in traditional societies the learnings that are considered important, such as classical literature, differ from those in technological societies, such as mathematics or science). Didactic decisions incorporate prevailing concepts about human nature (rote learning as a learning method reflects a view of human nature different from that of a more creative method).

The way these three dimensions are affected by the interplay of communications, politics, and economics is illustrated by the history of the school in Western culture. As the history shows, the aims of EDUCATION depend largely on the particular society managing it. *See also* EAST ASIA, ANCIENT; ISLAM, CLASSICAL AND MEDIEVAL ERAS; SOUTH ASIA, ANCIENT.

An Illustrative History

In European languages the word for school is derived from the Greek *scholē*, meaning "spare time." The etymology suggests that the first Western schools taught older children, for whom it was more significant to distinguish between spare and nonspare time. The etymology also supports the hypothesis that schools were established when social differentiation began. The appearance of schools marks that stage in the division of labor when physical labor is separated from spiritual labor and the social roles are so diversified that the FAMILY no longer reflects social life in its entirety. Various regulations in the form of written laws or accepted practices indicate the social interest that accompanied the school from its very beginning.

Ancient Greece and Rome. The school first became institutionalized in ancient Greece (see HELLENIC WORLD). In Athens the schools were not compulsory, but only the sons of free citizens could receive education (girls were trained by their mothers at home). From ages seven to fourteen the Athenian boy studied reading, writing, music, and gymnastics. The state did not support education, but it did supervise and regulate by law all elementary education.

Roman education during the empire period absorbed the Greek educational ideals (see ROMAN EMPIRE). The various schools sprang up without governmental regulation, but the state later came to regulate them. The educational system of Rome, which influenced Europe until modern times, assumed the following forms:

1. the *ludus* or elementary school (from about ages seven to twelve)
2. the grammar school (from ages twelve to sixteen)
3. the school of rhetoric (equivalent to contemporary college, from ages sixteen to twenty)

The Middle Ages. During the MIDDLE AGES, after the educational patterns established in classical times were practically destroyed, the church adopted the school as an educational framework, first as a tool for preparing the various levels of the priesthood and later for disseminating its influence among the faithful. The church school imitated the classical curriculum, which included the seven liberal arts (the trivium, consisting of GRAMMAR, RHETORIC, and dialectics; and the quadrivium, consisting of music, arithmetic, geometry, and astronomy), but it eliminated pagan values and focused on the Christian faith. After the twelfth century cities began developing their own institutions of education, including universities (see UNIVERSITY). They were centers of freethinking at that time, and the research undertaken within them led to the crystallization of attitudes that were eventually manifested in humanism, the RENAISSANCE, and the Reformation. See also RELIGION.

During the Middle Ages schools were not yet important to most social classes. The aristocracy did not need their services, as the exchange of sons between the various courts was sufficient for its purposes. In villages there were a few church schools, which undertook religious indoctrination, but most craftsmen in the towns educated their sons through apprenticeship arrangements.

The Renaissance and Reformation. There was a decisive change during the Renaissance, and particularly at the time of the Reformation. The Renaissance, which reflected the antifeudal spirit of urban society, shifted the emphasis from *divina studia* to *humana studia* (principally at the universities). Vittorino da Feltre (1378–1446) established the House of Joy (*Casa giocosa*) at Mantua. This was a school that, in the spirit of humanism and Greek general education, aimed at developing aesthetic taste and moral values, provided physical education, and encouraged pupils' motor and constructive impulses. Most Renaissance thinkers, however, were satisfied to undermine the validity of the educational features accepted at the time. Juan Luis Vives (1492–1540) in Spain, François Rabelais (ca. 1483–1553) in France, Desiderius Erasmus (ca. 1465–1536) in the Netherlands, Jacob Wimpfeling (1450–1528) in Germany, and many others condemned scholastic teaching methods and curricula, demanding that educational processes be based on sense perception and educational content on ancient classics.

In comparison with the Renaissance, whose character was individual and aristocratic, the Reformation was imbued with the spirit of religion and was more of a mass movement. Whereas during the Renaissance considerable interest centered on the universities, during the Reformation elementary and secondary schools were developed. MARTIN LUTHER (1483–1546), one of the leaders of the Reformation, regarded education as a precondition for a religious revival, and in contrast to the Catholic doctrine that saw the church as sole legitimate intermediary between individuals and their creator, he relied on individuals to address God directly and understand God's messages in the Holy Scriptures (see SCRIPTURE). This accounts for the great importance he attached to the elementary school as an institution that taught reading and writing in the vernacular and for his demand that free schools be established for all children of both sexes under the supervision of the state (and whose curriculum would include physical education and musical instruction). Philipp Melanchthon (1497–1560) and Johannes Sturm (1507–1589) were among the planners of the secondary school, using Latin rather than the vernacular and using methods of education based on the pupils' activities (debates, dramatization, LETTER writing, recitation, etc.). Luther and Melanchthon also influenced the universities of their time by stressing the

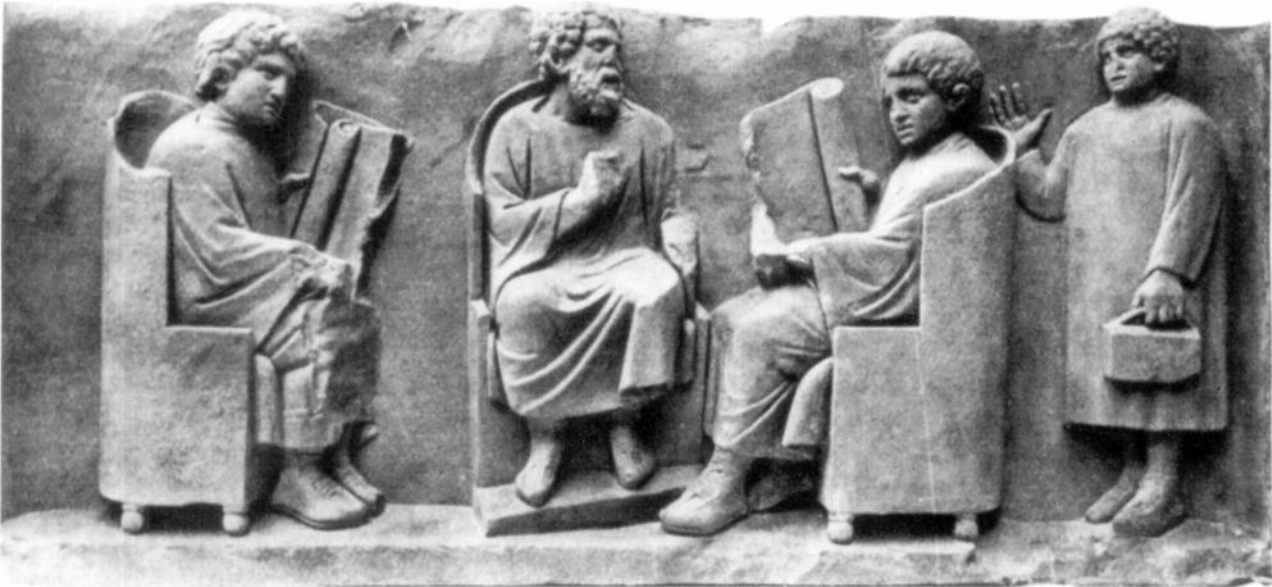


Figure 2. (*School*) A Roman school. The Bettmann Archive, Inc.

need for critical thought freed from the authority of the church (even though they themselves limited it by emphasizing the authority of the Holy Scriptures).

The Catholic Reformation. In the sixteenth and seventeenth centuries the Catholic church adopted the educational methods that had been developed during the Reformation and directed them against it. The Jesuit order established an educational system (primarily for secondary and higher education) that was designed to strengthen the Catholic church by training religious and secular leaders imbued with faith and loyal to the church. Their schools preserved the content of church education and added content taken from humanist education (the ancient literature of Greece and Rome) but meanwhile neutralized those influences that could undermine the foundations of Catholicism. The Jesuits' principal innovations were to rigidly centralize the entire educational system, permitting close supervision of each pupil, but at the same time to grant individual care and encourage pupils' talents (which were intended to serve the church). They fostered competition between pupils (by organizing them into competing pairs), awarded prizes (instead of administering corporal punishment), and frequently repeated the material studied. The teachers were selected from among the best pupils and were specially trained for their task. Eventually the Jesuits added the residential school to the regular school, thereby extending their educational influence over their pupils. These schools evinced the basic elements of the modern school that developed later in Europe: close contact between teacher and pupil, as a precondition for influencing the lat-

ter's character and intelligence, and the organization of pupils into groups or classes.

During the seventeenth century the method of the Jesuits was opposed from within the Catholic camp by the Jansenists in France. They sought to base faith primarily on religious experience and not necessarily on ritual. In 1637 they founded the Little Port Royal Schools, whose object was to provide the pupils with individual attention. The focus of education was the person, not the role the student was destined to fulfill. They were also interested in younger children and opened elementary schools. Characterized by an educational atmosphere free of fear, coercion, and competition, their schools contained small classes and used group methods of teaching. Despite the fact that the Jansenists' educational enterprise continued for only seventeen years and was limited in its extent, their attempts constituted a step toward the crystallization of the modern school.

Toward the new school. Johann Amos Comenius (1592–1670), a teacher and one of the leaders of the Moravian Brothers sect, provided the most comprehensive theoretical basis for education in the spirit of the age. In his book *Didactica Magna* (1657) he laid the foundations of the new education and outlined a scientific approach to the problems of education. He wanted to prove that it was possible “to teach everyone everything,” relying on “the laws of nature,” and proposed a new structure for the educational system (for boys and girls) at four levels:

- the mother school, for young children (up to six years old)

- the elementary school, in which subjects would be taught in the vernacular (for ages six to twelve)
- the Latin school, or gymnasium (for ages twelve to eighteen)
- the university and study tours (for ages eighteen to twenty-four)

Among the many books Comenius wrote, his innovative *Orbis Pictus* (1658) was the first to contain didactic illustrations and to be arranged according to methodical considerations. Comenius both outlined his theories and taught in many parts of Europe, trying to implement his theories practically.

During and after the eighteenth century the rate of change in the organization of schools and in teaching methods accelerated. The ideas of Jean-Jacques Rousseau (1712–1778) and the enterprises of Johann Bernhard Basedow (1724–1790), Johann Heinrich Pestalozzi (1746–1827), Andrew Bell (1753–1832), Joseph Lancaster (1778–1838), and many others provided a theoretical and practical basis for the development of the new school. Two trends are evident in their activities:

1. Attempts to organize and fund education in such a way that wide sections of the population would benefit from its services. For example, in the “monitorial schools” of Bell and Lancaster the older pupils taught the younger ones; one teacher supervised hundreds of pupils through “monitors” who dealt with groups of pupils. In the institutions established by Robert Owen (1771–1858) and Pestalozzi at the beginning of the nineteenth century an attempt was made to combine study with the students’ labor (by Owen in industry, by Pestalozzi in agriculture), thereby solving the problem of funding schools at a time when the state had not yet taken over.

2. Attempts to extend teaching methods and adapt them to the needs of pupils from the various social classes. Of primary importance in this area were Rousseau’s ideas concerning the intrinsic value of childhood, the autonomy of the personality, education through activity and contact with objects, natural punishment, and so forth. The outstanding representative of this approach was Pestalozzi, who based the teaching process on “sense perception and observation” and utilized psychological considerations. He regarded the harmonious development of all the child’s “powers” as his objective, perceiving the teacher’s love for the pupil as a precondition for this. Pestalozzi contended that education was the principal way by which society could be improved and was called the father of the elementary school for his contribution to laying its organizational and educational foundations. His disciples—Friedrich Diesterweg (1790–1866); Friedrich Froebel (1782–1852), the founder of the modern kindergarten; Johann Friedrich Herbart (1776–1841), who laid the

foundation of teaching theory; and many others—disseminated his ideas throughout Europe. As a result of their efforts schools ceased to be the precinct of pioneering innovators alone and became a central concern of society, a basic part of the network of social, cultural, economic, and political activities of the modern state.

Schools in Modern Industrial Society

Schools in modern society are constantly changing in their structure, curriculum, and aims, so that change itself is one of their fundamental values. They have switched their emphasis from the past—when, according to the view that prevailed formerly, all ideals had been fulfilled (the younger generation was therefore supposed to emulate these ideals)—to the future, which bears within it the chance of fulfilling the ideals of today. The orientation toward the future has given rise to reforms and changes, in contrast to the orientation toward the past, which reinforced conservative trends.

Another fundamental change has been the expansion of educational opportunity through the rise of state-run schools that are compulsory and free. State schools arose from the recognition that education is one of every individual’s basic rights that it is the state’s duty to ensure. In nineteenth-century Europe the rise of state schools was intertwined with political struggle, first of the middle class and later of the working class. Yet the trend of sociopolitical pressure has not always been to make education generally available and compulsory. In the United States and England, even among groups influenced by liberal ideas, reservations concerning state schooling continued for a long time because of fear that the state would dominate the education of children and the consciences of their parents. In the end, however, compulsory education became the official policy of the modern state, although its implementation varies from one country to another and illiteracy is still prevalent in the world (*see* LITERACY).

The state replaced the church as the chief agent of education and took over supervision of schools during the course of the nineteenth and twentieth centuries. The transition was smoother in Protestant than in Catholic countries and in countries with several religions rather than predominantly one. At the end of the process the state assumed actual (though not always formal) control of the schools either by separating church from state, sometimes leaving a certain sphere of influence within state-controlled schools to the church, or by recognizing church schools after they had accepted the supervision of the state. The place formerly held by religion was now occupied by the national IDEOLOGY, which dominated the school and was a main influence on the content

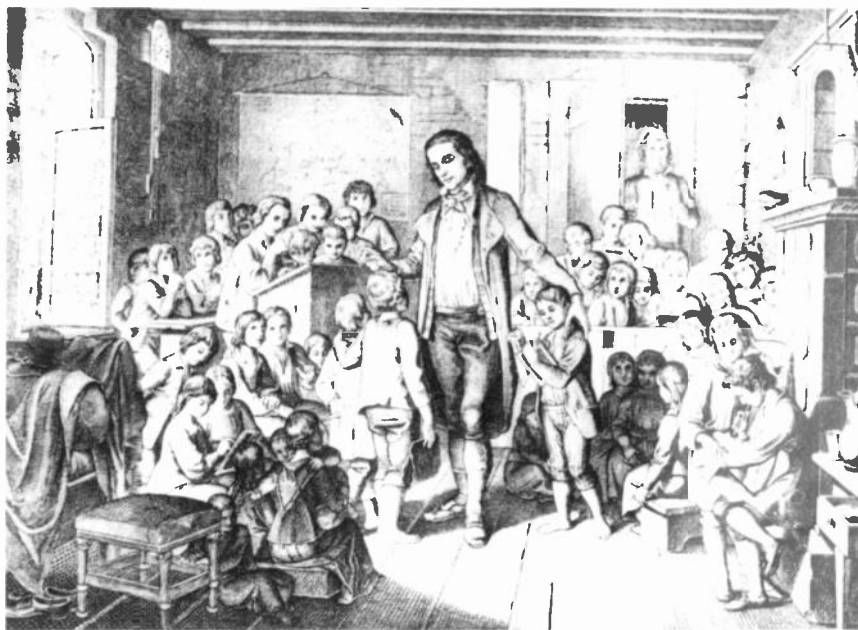


Figure 3. (*School*) Johann Heinrich Pestalozzi (1746–1827), Swiss educational reformer. The Bettmann Archive, Inc.

and trends of educational activity. The classics of the ancient world were superseded by national literature, and the history of Greece and Rome by national history. Geography focused primarily on the pupils' native land, and the vernacular became one of the most important subjects. The demand for physical education was reinforced by emphasizing "defending the homeland," and premilitary education became part of the general curriculum in many countries. Countries receiving immigrants gave the schools the additional task of absorbing them into the dominant culture.

Hence the state's supervision of schools in modern society is threefold:

1. determining the extent of compulsory education (at what age it should begin and can end);
2. funding the education budget; and
3. determining the curriculum.

The state may determine the curriculum either through government or public committees for preparing curricula or by selecting teachers, determining official or administrative procedures, and appointing supervisory bodies.

A final change, resulting from the processes of industrialization and accelerated technological development, is that education has acquired a utilitarian character. The previous concept of education as a way of bringing the individual closer to human perfection has been replaced increasingly by the view that education is a means by which the individual can climb the social scale and one country can compete with another. This approach has contributed

greatly to the expansion of educational processes and the democratization of schools.

Schools in New States

The colonial and semicolonial countries of the past were influenced while under foreign rule by the educational patterns of the European powers, which established schools for their own purposes—namely, to prepare local personnel for minor administrative positions and to crystallize an intelligentsia that would identify with the culture of the rulers. Most of the countries also had schools that had been founded by various religious sects. In some countries modern schools and traditional institutions of education existed side by side, but most of the population remained uneducated in a formal sense. At the final stages of the colonial period many countries had a thin stratum of intellectuals who, imbued with the spirit of nationalism, led the struggle for independence and fought for education in the spirit of the native culture. *See DEVELOPMENT COMMUNICATION.*

When they achieved independence, most of these countries imitated the organizational forms, educational methods, and curricula of European education, combining them with the values of their own culture. Many made education compulsory for five to ten years but encountered considerable problems in implementing this, primarily because of the dearth of teachers and the high rate of illiteracy as well as the large financial investment required to build the appropriate structures. Complex cultural and religious problems—such as tribal and linguistic differences—



Figure 4. (*School*) Jacob A. Riis, *Talmud School on Hester Street*, ca. 1890. Jacob A. Riis Collection, Museum of the City of New York.

led some states to decide that the language of instruction would be the language of their former rulers because it was the only one the different tribes shared. These countries are trying to prepare cadres of academically trained professionals (by sending them to developed countries for further education) who will be able to run research and teaching institutions in their countries later on. *See also* LANGUAGE IDEOLOGY.

The Critique of the School

Few would dispute the claim that since the Industrial Revolution schools have supported the various national cultures and trained people for the different economic tasks prevalent in modern societies. Since World War I, however, radical criticism has been directed against the activities of schools. The principal contentions have been that schools isolate chil-

dren from society, occupying them with activities not relevant for their lives, and that schools are designed to compel children to accept the authority of society and its ruling bodies—that the schools, in short, are mechanisms for controlling citizens' thoughts. The values transmitted by the schools, some critics claim, are those of the ruling classes, and in modern mass societies they are those of the middle class. As a result children from other classes fail at school. Thus schools are a mechanism for perpetuating the existing structure of society and for giving preferential treatment to children from certain social classes.

These criticisms have led to several proposals that are being tested to a limited extent in various parts of the world. The most extreme is the idea of deschooling society. That is, education should return to its original form, with children educated by direct participation in the activities of adults, within the framework of their informal age groups, and through

the cultural institutions of society, such as museums and libraries.

A less extreme idea is the open school, in which children learn primarily because of their own motivation and not according to a preordained curriculum. In these schools learning is meant to be a function of the children's lives in the present and not a process designed to prepare them for the future on the basis of fixed models of social needs.

Technological changes, the democratization of societies, and changes in values—which have occurred primarily in the mass societies of the West—are reflected in the frequent reforms in schools since the beginning of the twentieth century. They indicate that schools are in a process of change that will undoubtedly be extensive, encompassing organization, curriculum, and teaching methods.

Bibliography. Martin Ballard, *The Story of Teaching*, New York, 1971; James Bowen, *A History of Western Education*, 3 vols., New York, 1975; Lawrence A. Cremin, *The Transformation of the School*, New York, 1964; Paulo Freire, *Pedagogy of the Oppressed* (Pedagogía del oprimido), trans. by Myra Bergman Ramos, New York, 1970; Dennis Gardner, *Developments in Communications: Their Implications for Education*, London, 1974; Ronald Gross and Beatrice Gross, eds., *Radical School Reform*, New York, 1969; Ivan Illich, *Deschooling Society*, New York, 1970, reprint 1983; Ithiel de Sola Pool, Hirosh Inose, Nozumu Takasaki, and Roger Hurwitz, *Communications Flows: A Census in the United States and Japan*, Amsterdam, 1984; Wilbur L. Schramm, *Men, Women, Messages, and Media: Understanding Human Communication*, 2d ed., New York, 1982; Charles Silberman, *Crisis in the Classroom*, New York, 1970; Robert Ulich, ed., *Three Thousand Years of Educational Wisdom*, 2d ed., enl., Cambridge, Mass., 1954; Michael F. D. Young, ed., *Knowledge and Control*, London, 1971.

ZVI LAMM

SCHRAMM, WILBUR (1907–1987)

U.S. scholar and researcher who helped establish communications as a recognized field of academic study. Wilbur Lang Schramm grew up in Marietta, Ohio, where he attended Marietta College. Later he studied simultaneously at Harvard University and, on a music scholarship, at the New England Conservatory. But his experience as a newspaper reporter and correspondent while at Harvard steered him toward journalistic interests.

Schramm is often credited with the creation of the field of communication. Schramm himself constantly paid tribute to those he called the "Four Fathers" of the field: HAROLD D. LASSWELL, PAUL F. LAZARSFELD, KURT LEWIN, and CARL HOVLAND. The work of these four, each from a different discipline—political sci-

ence, sociology, group dynamics, and experimental social psychology—represented Schramm's interdisciplinary approach to communications and his view that communication plays a central role in society at all levels, from the intrapersonal to the group to the social to the international. Schramm attempted to synthesize relevant ideas from different areas into a new, separate but related field of study devoted principally to the clarification of processes of information dissemination, PERSUASION, and social pressure. See COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT.

Schramm had a substantial influence on the field in two principal ways: first, through his creation of the Institute for Communication Research at the University of Illinois (1948) and a similar research center at Stanford University (1955); and second, through his many books and articles touching on a wide variety of research areas. Schramm contributed to the institutionalization of communications as an academic discipline, gaining for it the recognition of universities and funding agencies. His early writings and compilations helped attract students from such fields as journalism, English, sociology, psychology, and political science to concentrate on communications problems. The unprecedented DIFFUSION of television (see TELEVISION HISTORY) may have helped convince administrators that this new medium, along with the press, MOTION PICTURES, and RADIO, required people specially trained not only for its operation but also for the study and analysis of its impact on society. See also COMMUNICATIONS, STUDY OF.

Lasswell's studies of World War I PROPAGANDA probably contributed to Schramm's interest in POLITICAL COMMUNICATION. Communist press theory was the subject of a chapter in *Four Theories of the Press* (with Fred S. Siebert and Theodore Peterson, 1956). Developments in the United States after World War II, particularly the 1947 report of the Hutchins Commission on a Free and Responsible Press, spurred him to focus on the U.S. scene. His book *Responsibility in Mass Communication* was first published in 1957 (a revised edition with coauthor William L. Rivers appeared in 1969) and contributed further to the view that journalism and the mass media in general carry a major responsibility to society, qualifying the libertarian ideal of media freedom.

From the late 1950s on Schramm's work focused increasingly on the unrealized potential of the mass media in two areas. The first was their meaning for children, as discussed in *Television in the Lives of Our Children* (1961), written with Jack Lyle and Edwin Parker. The second was the role of the media in national development, as surveyed in *Mass Media and National Development* (1964) and other works. In 1963 Schramm wrote: "As nations move from the

patterns of traditional society toward the patterns of modern industrial society, spectacular developments take place in their communication. From one point of view, developments in communication are brought about by the economic, social, and political evolution which is part of the national growth. From another point, however, they are among the chief makers and movers of that evolution." Results in some cases seemed to justify his enthusiasm, but Schramm himself saw the long-term results as mixed or disappointing (see DEVELOPMENT COMMUNICATION).

Communication programs in many countries carry the Schramm imprint and continue to influence training, practice, and research. Schramm always emphasized the need for scientific rigor in communications research because of his real interest, as Lyle Nelson has written, in the media's "potential to better the lives of people everywhere."

Bibliography. Godwin C. Chu and Wilbur Schramm, *Learning from Television: What the Research Says*, Washington, D.C., 1967; Daniel Lerner and Wilbur Schramm, *Communication and Change in the Developing Countries*, Honolulu, Hawaii, 1967; John W. Riley, Jr., and Wilbur Schramm, *The Reds Take a City: The Communist Occupation of Seoul, with Eyewitness Accounts*, New Brunswick, N.J., 1951; William L. Rivers, Wilbur Schramm, and Clifford C. Christians, *Responsibility in Mass Communication*, 3d ed., New York, 1980; Wilbur Schramm, *Mass Media and National Development*, Stanford, Calif., 1964; Wilbur Schramm, Jack Lyle, and Edwin B. Parker, *Television in the Lives of Our Children*, Stanford, Calif., 1961; Wilbur Schramm, ed., *The Impact of Educational Television*, Urbana, Ill., 1960; Wilbur Schramm and Daniel Lerner, eds., *Communication and Change: The Last Ten Years—And the Next*, Honolulu, Hawaii, 1976; Frederick S. Siebert, Theodore Peterson, and Wilbur Schramm, *Four Theories of the Press*, Urbana, Ill., 1946, reprint Freeport, N.Y., 1973.

GODWIN C. CHU

SCHUTZ, ALFRED (1899–1959)

Austrian-U.S. philosopher. Since his death Alfred Schutz has been recognized as one of the leading philosophers of the social sciences in the twentieth century. His major contributions to communications theory derive from his interest in how people know and interpret their everyday experiences as they interact in the social world.

Schutz was born in Vienna, where he received his early education and later studied law and social science at the University of Vienna. He drew heavily on the writings of German sociologist MAX WEBER, whose influence was extensive in western Europe when Schutz was a student. He also turned to the work of European philosophers Edmund Husserl and Henri Bergson for inspiration and material to de-

velop his phenomenological theories and to arrive at a consistent theory of MEANING. By applying Husserl's concept of meaning to interpersonal and social action, Schutz was able to give interpretive sociology a sounder footing in phenomenology. This methodological footing enabled interpretive sociology to penetrate to the subjective phenomena at the heart of social experience.

Schutz left Austria during the unrest in the 1930s before it fell to the Nazis, and he spent a year in Paris. In 1939 he came to the United States, where he settled in New York City and joined the faculty of the New School for Social Research. Here Schutz came in contact with the writings of pragmatic philosopher and social psychologist GEORGE HERBERT MEAD, who had also focused on the analysis of meaning in social interaction in work that paralleled Schutz's. Mead's perspective stimulated Schutz and broadened his analysis and interpretation of the meanings of human interactions.

Schutz's best-known work, *Der sinnhafte Aufbau der sozialen Welt* (*The Phenomenology of the Social World*, 1932), was not translated and published in English until 1967; before then his work was little known to U.S. social scientists and philosophers. In this book he devoted extensive consideration to intersubjective understanding, meaning establishment, and meaning interpretation, as well as to the meaning context of communication.

Schutz theorized that communicative acts can consist of gestures, words, or artifacts (see ARTIFACT; GESTURE; LANGUAGE), all of which employ signs and a SIGN SYSTEM in evoking understanding (see SIGN). He wrote that the sign system is present to the person who understands it as a meaning context of a higher order between previously experienced signs. For example, Schutz notes that the German language is the meaning context of each of its component words. Or, for another example, the sign system of a map is the meaning context of every symbol on that map (see CARTOGRAPHY; MAP PROJECTION). He points out that even though someone may not know how to play a game of cards, that person can still recognize the cards as "playing cards." The placing of a sign within its sign system is something we do by putting it within the total context of experience. Further, one does not have to understand the meaning of the individual signs or be fully conversant with the sign system. (For instance, a Westerner can ascertain that certain characters are Chinese without understanding their meaning.) Therefore, an established sign is meaningful and, in principle, is intelligible.

Schutz was aware that merely focusing on the establishment and interpretation of meaning was too limited. To him these aspects were the content of communication, but the actual communication is itself a meaningful act that calls for interpretation in

its own right. Once the interpreter has determined both the objective and subjective meanings of the content of any communication, he or she may proceed to ask why the communication was made in the first place. Writing in *The Phenomenology of the Social World*, Schutz states:

For it is essential to every act of communication that it have an extrinsic goal. When I say something to you, I do so for a reason, whether to evoke a particular attitude on your part or simply to explain something to you. Every act of communication has, therefore, as its in-order-to [purposeful] motive the aim that the person being addressed take cognizance of it in one way or another.

The person who is the object or recipient of the communication is frequently the one who makes this kind of interpretation. Having settled what are the objective and subjective meanings of the content of the communication by finding the corresponding interpretive or expressive schemes, he proceeds to inquire into the reason why the other person said this in the first place. In short, he seeks the "plan" behind the communication.

Schutz stressed that every communication has both objective and subjective meanings. He believed that the tendency to look for these meanings in everything in existence is deeply rooted in the human mind. Schutz died in 1959 just as he was working on a fuller statement of his theories on the meanings of signs, symbols, and their role in communication.

See also COGNITION; COMMUNICATION, PHILOSOPHIES OF; INTERACTION, FACE-TO-FACE; INTERPERSONAL COMMUNICATION; NONVERBAL COMMUNICATION; SYMBOLISM.

Bibliography. Alfred Schutz, *The Phenomenology of the Social World* (Der sinnhafte Aufbau der sozialen Welt), trans. by George Walsh and Frederick Lehnert, Evanston, Ill., 1967.

EDITH W. KING AND R. P. CUZZORT

SCIENCE FICTION

The fantastic GENRE of romantic literature (see ROMANTICISM) that both warns against and applauds the advance of science and technology. Through its heritage of utopian speculation (see UTOPIAS) and social satire, science fiction can claim a lineage almost as old as recorded history. Its modern efflorescence parallels the increasing rate at which technological innovation has changed our world. In 1818 English novelist Mary Shelley provided a name and an image for the modern fear of science gone awry: Frankenstein's monster. Later that century the enthusiastic imaginary voyages of Frenchman Jules Verne taught that the exploring mind could tame time and space (Figure 1). In its popular forms science fiction often assuages the widespread unease in our ever-changing world by offering blatant wish fulfillment. While

some have therefore dismissed science fiction as merely escapist, in our era of rocket travel (first proposed in 1657 by French soldier-writer Cyrano de Bergerac) and the planetary communication SATELLITE (first proposed in 1945 by English science-fiction writer Arthur C. Clarke) only science fiction consistently considers the problems and possibilities posed by meeting the new, the unexpected, the alien. Science fiction draws its considerable entertainment value from deep mythic or social wells. In the 1980s the single best-selling author in the Communist world was Stanisław Lem, a Pole who slyly sets his social speculations on other worlds or, frequently, in a putative United States. Clearly science fiction has grown well beyond the central zone of fantastic, romantic literature, indeed beyond literature itself. Just as a mushroom cloud and a single footprint on the moon are this era's linked icons of despair and hope, so science fiction in both warning against arrogance and proselytizing for perpetual discovery embraces our deep ambivalence toward the institutions of science and technology, their products, and their effects on humanity.

History and Themes

Frankenstein is the earliest work today called science fiction. While it is Victor Frankenstein who endues dead flesh with life, the name Frankenstein is popularly misused to refer to the monster rather than its creator, probably because of the strong visual impact of the creature's image in the longest series of films (beginning with the Edison Company's 1910 version) based on any single work. These mostly HOLLYWOOD productions—of which the most admirable may be the 1931 version starring Boris Karloff and directed by James Whale (see HORROR FILM)—distort the book by calling the creator "Doctor" or "Baron," tarring the scientist with the popular mistrust in the United States of aloof, privileged power (Figure 2).

Shelley's novel is subtitled *The Modern Prometheus*. Victor Frankenstein seeks the divine fire of life, but as happens with so many figures in the tradition of Prometheus and the medieval Faust, the stock figure of the science-fiction scientist is often punished for hubris. The prideful search for knowledge and power leads to a social isolation that rejects ordinary community restraints. Sometimes the scientist does succeed, like Prospero in Shakespeare's *The Tempest* (1611), but in so doing typically must abjure science, or, as Prospero promises, "drown" his books and return to society. Occasionally scientists rightly rule their worlds. Notable heirs to PLATO's philosopher-kings (called Guardians) are the scientists imagined in *The New Atlantis* (1626), by Englishman Francis Bacon, the man who, in *Novum Organum* (1620), first expounded what has since



Figure 1. (*Science Fiction*) "At the idea that *L'Épouvante* could rival the eagles . . ." Illustration by George Roux for *Maître du monde* (Master of the World), by Jules Verne. From Jules Verne, *Voyages extraordinaires*, Paris (1866): Hachette, 1979, p. 351.

come to be called the scientific method. Popular literature (see LITERATURE, POPULAR) has sometimes adulated the scientist hero or, more commonly, the engineer-technician hero, but often scientists are portrayed as myopically overeducated clowns, like Professor Aronnax in Verne's *Twenty Thousand Leagues under the Sea* (1869), who always reasons carefully to wrong conclusions, or evil geniuses like Rotwang in *Metropolis* (1926), by German novelist and screenwriter Thea von Harbou. In those cases the day—and usually the world and the human race—is typi-

cally saved not by the scientist but by a jack-of-all-trades. From Captain John Carter in the *Mars* books (1912–1943) of U.S. writer Edgar Rice Burroughs to adolescents with special talents such as telepathy or teleportation to young adults with less spectacular talents, science fiction typically applauds not the specialized knowledge of the scientist but the adaptability, resourcefulness, and faith of the young. The dominant myth of modern popular science fiction offers an adolescent power fantasy not gone awry, as it did for Victor Frankenstein, but crowned with

success, as in the wildly popular *Dune* books (1967–1985) of U.S. writer Frank Herbert.

In “literary” science fiction, too, Guardian scientists occasionally recur, as in the later works of Englishman H. G. Wells, including *The Shape of Things to Come* (1933; Figure 3). More typically, however, the scientist, even if viewed kindly, is isolated by his or her intellectual acts, as with the title characters in such early Wells novels as *The Island of Dr. Moreau* (1896) and *The Invisible Man* (1897). When scientists take on socially dominant roles, they are typically exposed as foolish, like the rulers of Laputa in *Gulliver’s Travels* (1726), by Englishman Jonathan Swift, or ruthless, like the figureheads of totalitarianism in such important dystopian works as *We* (1920), by the Russian Yevgeny Zamyatin, English novelist Aldous Huxley’s *Brave New World* (1932), and *1984* (1949), by Englishman George Orwell. While popular science fiction displays a range of ideologies, literary science fiction is almost exclusively monitory.

Science fiction’s heritage of social imagination and commentary runs from Plato’s *Republic* through *Utopia* (1516), by Englishman Thomas More, to the scientifically perfect world of *Walden Two* (1948), by U.S. psychologist B. F. Skinner, and the transcendently perfect world of Clarke’s *Childhood’s End* (1953). When LITERARY CRITICISM has viewed science fiction favorably, as with the chilling projections of *A Clockwork Orange* (1962), by English novelist Anthony Burgess, it typically does not label the works as science fiction at all. This critical prejudice arises from ideological conflicts both within and outside science fiction.

Directions in Contemporary Science Fiction

One can point to three major tendencies in science fiction: “hard” science fiction, “escape” science fiction, and “soft” science fiction. Hard science fiction, exemplified by U.S. writer Isaac Asimov’s *I, Robot* (1950) or Clarke’s *A Fall of Moondust* (1961), offers the reader a concrete puzzle to solve using science, MATHEMATICS, and specific rules and conditions (often of the author’s own invention). In hard science fiction, science usually saves the day. When Hugo Gernsback, an enormously influential editor, began producing the first “pulp” science-fiction magazines (*Modern Electrics* in 1911, *Amazing Stories* in 1926), he played up the U.S. faith in technological progress, publishing new works and reprinting such nineteenth-century classics as Edgar Allan Poe’s “tales of ratiocination.” Gernsback also began developing what has come to be called fandom, the loose but highly active association of readers, writers, editors, and critics who communicate through magazine letters columns and a network of fan conventions.



Figure 2. (*Science Fiction*) James Whale, *Frankenstein*, 1931. Poster from the Universal rerelease. National Film Archive, London. Copyright © by Universal Pictures, a Division of Universal City Studios, Inc. Courtesy of MCA Publishing Rights, a Division of MCA, Inc.

There are more than two hundred such conventions each year in the United States. Gernsback’s early efforts eventually led to the establishment of an annual world science-fiction convention that bestows fan-chosen awards called Hugos, in his honor, and the Science Fiction Writers of America, which confers annual Nebula awards. The fan movement is worldwide. Japan, for example, home of writer Kobo Abe, held its twenty-fifth national science-fiction convention in 1986. Active fandom has made scientific

accuracy—and the discovery of scientific errors—a perpetual game in hard science fiction.

Escape science fiction reveals most clearly the fairytale roots of much science fiction. Children—and childlike adults—save the universe repeatedly. In the so-called sword-and-sorcery works such as those featuring Conan the Barbarian, and in wish-fulfillment fantasies such as the dragon books of U.S. writer Anne McCaffrey, science fiction offers in full measure admittedly simple psychological pleasures. Because these pleasures are usually deemed trivial by critics and because the puzzle-solving pleasures also enjoyed by fandom often require a technical background foreign to many reviewers, science fiction has historically been dismissed as trash.

Soft science fiction concerns itself not with the relatively deterministic sciences like physics and chemistry but with the social sciences, including anthropology, sociology, and political science. Works like *The Left Hand of Darkness* (1969), by U.S. writer Ursula K. LeGuin, try to explore our social systems and the meaning of being human. While this subgenre clearly reflects descent from both the quasi-gothic *Frankenstein* and Western utopian literature, it typically rejects science as the answer to problems and points instead to the need to rethink human behavior and relationships with the social and natural environment. In the twentieth century such

thoughtfulness has been prized by literary critics, who admire it in works like Wells's *The Time Machine* (1895) and *War with the Newts* (1936), by Czech writer Karel Čapek (whose 1921 play, *R.U.R.*, added the word *robot* to the English language). While appreciating these works, critics historically refused to see them as science fiction. Beginning in the 1970s, however, with a new refinement of soft science fiction, particularly through the works of U.S. feminist writers like LeGuin and Joanna Russ, critics began to see that not all science fiction is technical and have begun therefore to accord the genre as a whole more respect.

Although science fiction is a phenomenon that arises wherever modern science and technology make people aware of new problems or cause them to view old problems in new ways, science fiction worldwide has a distinctly U.S. flavor. Western European science fiction tends to be bleaker, eastern European science fiction tends to be more politically subtle, and Asian science fiction tends to be more philosophical; but all have been influenced by U.S. technological leadership and by early U.S. domination of the popular science-fiction market (see PUBLISHING—PUBLISHING INDUSTRY). With the international influence of Hollywood, even such xenophobic works as *Invasion of the Body Snatchers* (1955) have had international impact. Most famous science-fiction works have

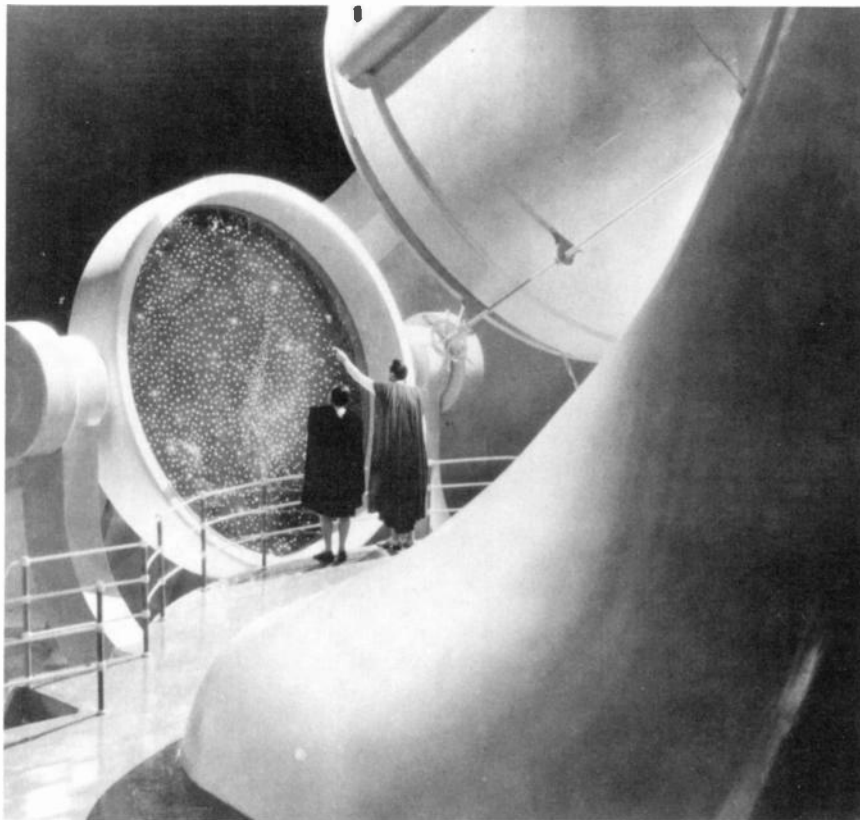


Figure 3. (Science Fiction) H. G. Wells's men of tomorrow confront the universe in *The Shape of Things to Come*, 1933, directed by Alexander Korda. National Film Archive, London/London Films.



Figure 4. (*Science Fiction*) Tom Baker as Dr. Who and Lalla Ward as Romana, in the BBC-1 series "Dr. Who." Copyright BBC (Enterprises) 1980.

reached larger audiences as films than as books, and many, like *Alien* (1979), are now written directly for the screen or, like "Star Trek" (1966–1968) in the United States and Britain's "Dr. Who" (1963–), for television (Figure 4). As film and television viewership increases, and as the problems created by science and technology grow in world consciousness, science fiction will become ever more the popular and high-culture art of our age (Figure 5).

See also MOTION PICTURES; SPECIAL EFFECTS; TELEVISION HISTORY.

Bibliography. Brian W. Aldiss, *Billion Year Spree: The True History of Science Fiction*, New York, 1973; William Sims Bainbridge, *Dimensions of Science Fiction*, Cambridge, Mass., 1986; John Brosnan, *Future Tense: The Cinema of Science Fiction*, New York, 1978; Paul A. Carter, *The Creation of Tomorrow: Fifty Years of Magazine Science Fiction*, New York, 1977; James E. Gunn, *Alternate Worlds: The Illustrated History of Science Fic-*



Figure 5. (*Science Fiction*) "Star Trek" souvenirs for sale at the Trekkies convention held in Hollywood on October 12, 1985, to celebrate the twentieth anniversary of the television series. UPI/Bettmann Newsphotos.

tion, Englewood Cliffs, N.J., 1975; Mark Rose, *Alien Encounters: Anatomy of Science Fiction*, Cambridge, Mass., 1981; Robert Scholes and Eric S. Rabkin, *Science Fiction: History, Science, Vision*, New York, 1977; Darko Suvin, *Metamorphoses of Science Fiction*, New Haven, Conn., 1979.

ERIC RABKIN

SCRIPPS, E. W. (1854–1926)

U.S. newspaper publisher. Edward Wyllis Scripps, who called himself "the damned old crank," did not invent the idea of a newspaper chain (or "group"), but he was the first U.S. publisher to make it work. It worked so well that when Scripps died he left behind the most formidable collection of chain operations then in existence. They included the Booth Newspapers of Michigan; the Scripps League of Newspapers in the Northwest; the John P. Scripps papers on the Pacific Coast; and the Scripps-Howard

chain, with its allied United Press International, besides three feature syndicates.

All this came from a man who was once known around Rushville, Illinois, near where he was born, as "the laziest boy in Schuyler County." The youngest of thirteen children, Scripps found himself in charge of the family farm when his father grew ill. He hired town boys at twenty-five cents a day to do the work while he watched from under a tree. ("Never do anything yourself that you can get someone else to do for you," he wrote in 1925 in one of his "disquisitions.") Most of Scripps's education came from his older half-sister, Ellen Browning Scripps, until he left the farm at eighteen to join his half-brother James, a Detroit newspaper editor. In 1873 James launched the Detroit *Evening News*, employing young Scripps in circulation. Ellen and another half-brother, George, also joined the *News*, which became the foundation of the Scripps empire.

In 1878, with ten thousand dollars from the family, E. W. Scripps founded the Cleveland *Penny Press*, at the same time proclaiming himself the enemy of power and privilege. Ellen Scripps's contributions to this paper, short paragraphs under the heading "Miscellany," in time grew into the Newspaper Enterprise Association, which distributed syndicated features. From this Cleveland beginning, E. W. Scripps acquired the Cincinnati *Penny Paper* in 1883, changed its name to the *Cincinnati Post*, and declared war on municipal corruption. A disruptive family quarrel in 1887 led to the firing of Scripps as president of the Detroit News Association and the Scripps Publishing Company. The break was never mended.

Joining forces then with Milton McRae, a prospering entrepreneur, Scripps made an arrangement by which he could "retire" in 1890 at the age of thirty-six and let his properties develop. Wanting to avoid the rest of humanity as much as possible, Scripps settled with his wife and three children at Miramar Ranch near San Diego, and from there he managed his enterprises and built his chains, summoning employees to him when needed. The papers Scripps established were often catchpenny affairs, but they had the advantage of Scripps's managerial genius, and some of them attracted highly talented editors and writers whom he controlled with a tight hand. He became a striking figure with bushy red beard, balding head beneath a skullcap, trousers tucked into white kid boots—hated by the rich as a renegade and by the poor for being rich.

Like fellow publishers JAMES GORDON BENNETT and JOSEPH PULITZER, Scripps loved his yacht, on which he spent much of his last six years. He died on it, of apoplexy, as it lay anchored in Monrovia Bay off Liberia, and was buried at sea. He had trained his three sons to succeed him, but only one, Robert, survived. In 1922 the name of Scripps's

combined operations had been changed from Scripps-McRae to Scripps-Howard. After Scripps's death Roy Howard, a genius in his own right who had been business manager, gradually took over, beginning a new era and a new dynasty of his own.

See also NEWS AGENCIES; NEWSPAPER: HISTORY; NEWSPAPER: TRENDS—TRENDS IN NORTH AMERICA; SYNDICATION.

Bibliography. Negley D. Cochran, *E. W. Scripps*, New York, 1933; Gilson Gardner, *Lusty Scripps*, New York, 1932; Oliver Knight, ed., *I Protest: Selected Disquisitions of E. W. Scripps*, Madison, Wis., 1966; Charles R. McCabe, ed., *Damned Old Crank: A Self-Portrait of E. W. Scripps*, New York, 1951; Kenneth Stewart and John Tebbel, *Makers of Modern Journalism*, New York, 1952.

JOHN TEBBEL

SCRIPTURE

Holy or sacred writings (holy writ); that is, books, shorter texts, or collections of texts considered to have a sacred origin and to possess religious authority, especially when they are held by believers to have been divinely revealed (see RELIGION). The manner and mechanisms of this revelation are differently conceived in different religious cultures and are generally connected with beliefs and theories concerning inspiration, prophecy, or the special circumstances in which the texts were found or "discovered" (in mysterious caves, distant mountains, etc.). The transition to LITERACY in societies is considered a revolutionary cultural change decisively affecting all areas of social life including the very nature of tradition, which is no longer only orally transmitted (see ORAL CULTURE). In the history of religions the difference between religions with or without writings is similarly crucial. Every religion is a system of communication between the gods (or God, or the "divine") and humans. In most literate societies this communication takes place—in addition to occurring through other modes (see MODE) such as RITUAL—by means of holy writings that may contain elements from earlier oral mythological traditions.

Not all WRITING arose as a secular and practical method of interhuman communication that was subsequently extended or applied to the religious sphere. There are indications that writing was sometimes primarily of a religious nature, written signs of communication between gods and humans. This seems to be true of ancient China, where these religious beginnings subsequently developed into an all-purpose script (see EAST ASIA, ANCIENT), and of some pre-Columbian American cultures, where writing retained its magical, cosmogonic, and symbolic character and bore no relation to practical needs (see AMERICAS, PRE-COLUMBIAN).



Figure 1. (*Scripture*) Arñao Guillen de Brocar, page from the Polyglot Bible, 1514–1517. PML 812–817, The Pierpont Morgan Library, New York.

Scriptural texts are literature and as such exhibit every kind of literary form and GENRE: epic, legend, mythological accounts, DRAMA (often as the script for ritual representations of mythological events), historical NARRATIVE, preaching and doctrinal and moral instruction (e.g., Buddha’s sermons, the Epistles of St. Paul; see also HOMILETICS), philosophical TEACHING (e.g., the Indian Upanishads), liturgical texts, hymns of prayer and praise and adoration (e.g., the Psalms), legal codes, and magical formulas. Some texts originate as magic incantations, whereas others exhibit the reverse development. Texts of such different character as the Bible, the Qur’an, and Buddhist sutras, because of their holiness and the cosmic power inherent in that holiness, can be used as magic formulas or as means of divination and oracle. Even a highly “philosophical” text such as the Mahayana Buddhist Sutra of the Perfection of Wisdom specifically calls its climactic message a mantra (namely, *dharani*), an incantation charged with magical power.

In religious worship holy scriptures do not always have to be read or even understood. It is enough to

physically display or handle them—for example, by turning them in so-called prayer wheels. Scriptures are always treated with extreme reverence, carried in procession (e.g., the Torah-like scroll in Jewish services or the Granth in the daily Sikh ritual at the Golden Temple) or sprinkled with incense (like the New Testament during the Catholic Mass). But as literature they can also be subjected to philological and literary analysis. Although such methods are often accepted by contemporary theologians, holy writ has historically been held—and is still in some orthodox fundamentalist circles—to be different and not analyzable by secular methods, especially when such analysis looks at holy texts as human, cultural products and comes to unorthodox conclusions regarding their AUTHORSHIP, date of composition, and dependence on various influences and sources.

The term *holy scriptures* is often used in a loose way because of its range of possible definitions. Which texts, considered to be classical, authoritative, and sanctified by age or eminence, are scripture in the narrow, technical sense? Perhaps the Qur’an comes closest to the precise definition of a holy book: it is uncreated and eternal, it was revealed to the Prophet Muhammad, and every terrestrial copy of the book is regarded as a kind of photocopy of the heavenly master copy (see ISLAM, CLASSICAL AND MEDIEVAL ERAS). Orthodox Jews consider the Five Books of Moses (the Torah) not only as verbally inspired but also as a replica of a heavenly book dictated by God to Moses (despite its historiographical and legal contents), whereas the rest of the Old Testament is believed to have been written by human beings under divine inspiration and guidance (see JUDAISM). But should the Talmud, important and authoritative as it is, be considered holy writ in the strict sense? The Confucian classics are certainly not divine revelation, but the roles of the sage CONFUCIUS and of the literature ascribed to him and his disciples qualify these texts as Chinese holy scriptures although their character is very different from the canon of Chinese Taoist or Buddhist scriptures.

Few scriptures originated as written documents. The Muslim Qur’an and the Jewish Torah are (at least theoretically) exceptions to this, as are the Sikh Granth or the Book of Mormon, “rediscovered” in the United States in the nineteenth century by Joseph Smith and engraved in a mysterious script on golden tablets. More often than not the holy teachings or revelations were communicated orally and committed to writing much later. The Old Testament tells how Barukh wrote down the utterances of his master, the prophet Jeremiah. The Gospels are an account of the life and teachings of Jesus, based on diverse oral traditions and committed to writing much later by the early Christian church. The Epistles of Paul, however, are his own exhortations and instructions



Figure 2. (Scripture) Qur'an stand (*rabla*), 1360. Carved wood. The Metropolitan Museum of Art, New York, Rogers Fund, 1910. (10.218)

to various churches, elevated to the rank of holy scripture. The Buddha's oral preaching (the *suttas*) as well as the rules (the *vinaya*) he laid down for the order of monks he founded were written down at a later date. In fact, Manes, the Persian founder of a gnostic-type religion in the third century, was clearly aware of this when he prefaced his writings with the remark that he was the first religious founder to put his revelations in written form. Muhammad's conception of the Islamic Holy Book may have been influenced by the Manichaeen precedent.

A most interesting case concerns the most ancient, fundamental, and sacred of all Indian holy scriptures, the Vedas (see SOUTH ASIA, ANCIENT). For a long

period the four canonical collections of Vedic hymns and texts were not meant to be written down: transmission from master to disciple was strictly oral. The technical term describing the Vedas is *sruti* (literally "thing heard"). Only later were these hymns committed to writing.

Sacred writings require INTERPRETATION and commentary, in part because of their often archaic style but mainly because they are considered to be of eternal validity, applicability, and relevance. Often the commentaries become so authoritative that they themselves approach the status of holy writ. In most cases the sanctity of the holy writ is connected with its age or with its attribution to venerable or sacred ancient personalities (prophets, sages, rishis). Hence many late-biblical Scriptures (called Apocrypha but more accurately termed pseudepigrapha) were fictitiously ascribed by their usually anonymous authors to well-known ancient authorities. Many biblical books (mainly extracanonical), Mahayana sutras, Buddhisto-Taoist texts, and so on are therefore called apocryphal (meaning pseudepigraphic). The aesthetic and literary evaluation of holy scriptures can vary. Islamic doctrine teaches that the perfection and inim-

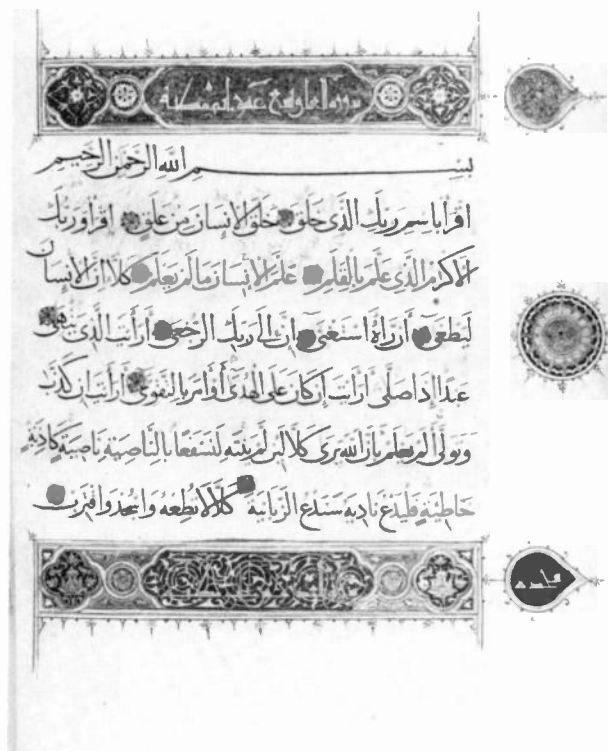


Figure 3. (Scripture) Page from a Qur'an in Jalil script, Mamluk, thirteenth century. By permission of the British Library.



Figure 4. (*Scripture*) Sutra cover from Tibet, nineteenth century. Painted wood. The University Museum, Philadelphia. Neg. 2162.

itability of the Qur'an are proof of its divine origin. Conversely, many Greek philosophers argued that the religious writings of the "barbarians" were more divine precisely because they were less refined, less polished, and therefore less "artificial" than the products of more advanced literary cultures.

No holy scripture necessarily convinces the reader of its sacred nature or divine origin. No scripture is self-authenticating and self-validating; it is regarded as holy because, from a sociological point of view, it has been previously accepted as such by those who hold authority in a given society. Thus every holy scripture presents a paradox. Theologically a text may be considered the foundation and source of tradition and of all religious authority, but it is actually the socially recognized bearers of religious authority who legitimate and validate the sacredness of holy scripture.

Bibliography. F. F. Bruce and E. G. Rupp, eds., *Holy Book and Holy Tradition*, Manchester, Eng., 1968; Gunter Lanczkowski, *Sacred Writings: A Guide to the Literature of Religions* (Heilige Schriften), trans. by Stanley Godman, New York, 1961; Johannes Leipoldt and Siegfried Morenz, *Heilige Schriften*, Leipzig, 1953; "Schriften," *Die Religion in Geschichte und Gegenwart*, Vol. 5, Stuttgart, 1961 ed.; "Scripture," *Encyclopaedia of Religion and Ethics*, Vol. 11-12, New York, 1951 ed.

R. J. ZWI WERBLOWSKY

SCULPTURE

What do works of sculpture communicate, and how do they do it? There are at least two good ways of

answering these questions. One could proceed historically and show how under varying conditions and for various purposes sculptors supply social groups, institutions, and individuals with the images of gods, saints, heroes, ideal types, or the portraits of valued persons. Another way of exploring these conditions will be taken in the following analysis of sculpture as a medium of ART. By describing somewhat systematically the physical and psychological properties of the medium, one can arrive at an understanding of the functions to be fulfilled by this particular social instrument, as distinguished from others.

All media of art have their place in space, but not all of them operate also within the dimension of time. Music and dance, theater and film accompany the happenings of life by actions of their own and thereby report, interpret, and comment in response to the human ways of handling events as they occur in time. They reflect processes of becoming and undoing. Not so the media of painting, sculpture, and ARCHITECTURE. Once made, their works display a permanent state of being. Buildings provide protective security against the vicissitudes of time and guarantee an existence continued under established and congenial circumstances of living. Paintings and sculpture extrapolate from the ever-changing spectacle of experience certain frozen states, esteemed for their validity, significance, and enlightenment (Figure 1). Outside the dimension of time, these immobile objects connect the past with the future through a permanent presence. They supply us with stable sets of images by which to orient ourselves as we navigate the stream of protean events.

Since all works of sculpture, although at different



Figure 1. (*Sculpture*) Seated Buddha, Burma, nineteenth century. Wood, heavily gilded and decorated with paste jewels. The University Museum, Philadelphia. Neg. 29-96-791.

levels of abstractness, reflect the human condition, our attitude toward them is curiously ambiguous. On the one hand, they are of our own kind, to an extent that can create close intimacy. On the other hand, they tend to lack the most material quality of life, namely motion. This chill is somewhat relieved in so-called kinetic sculpture (Figure 2). But sculptures rotating on turntables or mobiles animated by wind or water are limited to rondo patterns that keep returning in an endless, timeless state. If they were programmed to act out goal-directed plots, they would shift to the performing arts of puppet play and dance; that is, they would serve a function other than the one that distinguishes the atemporal media.

Sculptures like to be tied to permanent locations—an observation that turns our analysis to the relations of sculpture to space. Much more than framed paintings, although less radically than architecture, sculpture is rooted in the ground. A statue is more like a tree than like a star. It transmits the experience of stable grounding and is particularly suited to symbolize such foundation. The subservience of life on earth to the force of gravity is much more compellingly expressed in sculpted figures than it is in painted objects. Therefore, when sculptures do float suspended in the air, they display their anchorless freedom all the more convincingly. Examples are Ernst Barlach's soaring figure originally designed as a war memorial for the cathedral of Güstrow in Germany or the candelabralike metal clusters of the American sculptor Richard Lippold, which brighten the atriums of banks and theaters.

But when sculptures are moved around in museums and art galleries, they are being disturbed in their venerable function of holding the fort for what is immutable; and when in the pilgrimage chapel of Ronchamp the architect Le Corbusier placed the figure of the Virgin on a swiveling base, enabling her to officiate at outdoor and indoor services alike, he aroused some feeling of religious and aesthetic sacrilege.

At their most effective, then, sculptures are not handled as mobile objects but are tied to a place to which they convey meaning and which, in turn, determines theirs. Michelangelo's David loses much of its impact when today's visitors to Florence see the colossal marble figure confined to the empty rotunda of the Accademia Delle Belle Arti (Figure 3). For the past century only a copy of the statue (Figure 4) indicates its original position at the entrance of the town hall, the Palazzo Vecchio, where it had been placed in 1504 to represent, as Charles de Tolnay tells us, "the incarnation of the two principal republican civic virtues: he is a *cittadino guerriero*."

The example of Michelangelo's David demonstrates also that sculpture lives up most fully to its nature when it is monumental. Monuments are places of pilgrimage, to be sought out like the great sights

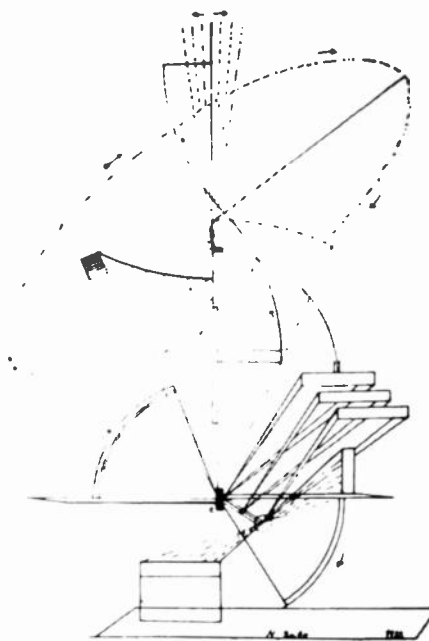


Figure 2. (Sculpture) Naum Gabo, design for *Kinetic Construction*, 1922. From *Two Kinetic Sculptors: Nicholas Schöffer and Jean Tinguely*, New York: October House, 1965, fig. 23. Exhibition catalog. Jewish Museum/Art Resource, New York.

of nature. To exert their power, they need space. They stand on public squares, in front of buildings, on the top of hills, where they concentrate the meaning of a diffuse cityscape or landscape in an articulate focus (Figure 5). This is why sculpture calls for the outdoors. Within the four walls of an interior, the compositional theme of the room's purpose organizes the architectural design and the arrangement of the furniture so compellingly that the self-centered power of a sculptural bust or figure can come as a disturbance. Tucked away in a corner or impeding the traffic as an object without practical function, it may state its message in vain.

By the same token, however, sculpture plays an essential role when it is incorporated in the architectural plan as an intermediary between the abstractness of the building and the living bodies of its inhabitants. The Parthenon was designed around the statue of Athena in the central cella, just as the Lincoln Memorial in Washington is the shell for the marble portrait of the seated president. The altar figures of saints or the Virgin Mary are focal points of chapels and churches, and in a more subordinate position the rows of religious figures in the porches of medieval cathedrals introduce the faithful to the spirit of their visit.

All these properties derive from the basic fact that sculptures are, like us, physical objects and occupy our own physical space. Whereas pictures are images detached from our world, dwelling in a space of their

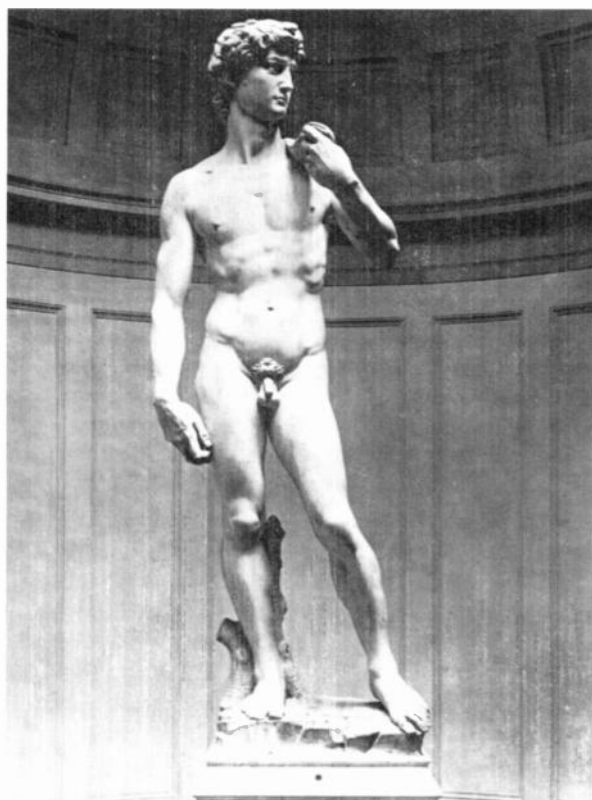


Figure 3. (*Sculpture*) Michelangelo, *David*, 1502–1504. Marble. Galleria dell'Accademia, Florence. Alinari/Art Resource, New York.



Figure 4. (*Sculpture*) Copy of Michelangelo's *David*. Marble. Near the main entrance to the Palazzo Vecchio, Florence. The Bettmann Archive, Inc.

own, into which we can look but which we cannot enter, sculptures must cope with the double function of sharing our life space as fellow inhabitants and at the same time reflecting it as an observer's interpretation. Their substantial presence invites bodily intercourse, which interferes with their appearance as images. In culture periods in which the value of the wisdom acquired through visual symbols gives way to a careless indulgence in the company of congenial bodies there are instances of disturbing intermingling, as when on the steps of the Hellenistic altar at Pergamon the marble gods fighting the Titans scramble up the steps of the sanctuary (Figure 6). Similarly, two thousand years later, Auguste Rodin proposed to place his bronze figures of the Burghers of Calais directly on the pavement in front of the town hall as though they were actually on their way to meet the conqueror. The sculptor Pygmalion's desire to make his figure come to life is, of course, the classic example of art perverted into the duplication of physical reality.

The ambiguous relation between sculpture and the visitor expresses itself also in the varying degrees of isolation manifest in their compositional form. Abstract sculpture, such as obelisks or the triumphal

columns of Rome, tends to be self-contained and without any gesture indicating an invitation to the viewer. The same is true for some modern abstractions, such as the stables of Alexander Calder. Other works, however, acknowledge their function by exposing themselves to the visitors or even addressing them. Frontality is the most effective way of showing such a response. Religious icons face the worshipper and petitioner explicitly. But even in styles that develop the body's action fully in the round, an artist like Bernini prefers to offer the essence of the message in a principal view.

In painting, the physical material of the pigments characterizes the medium but not the objects represented in the pictures. Sculptured objects possess the nature of their materials and derive effective symbolical connotations from them. Pliny reports that bowls of clay were often used to offer libations to the gods, because clay reveals to thoughtful persons "the indescribable kindness of the Earth." Through the ages, there remains a significant difference of meaning between materials manifesting the texture of natural growth and structure, such as wood or stone, and amorphous substances, such as plaster or poured metal. A carver like Henry Moore stresses

the affinity between humanity and its natural origin and habitat by giving prominence to the strains of the wood grain and representing the human figure through shapes that derive from the growth patterns of trees (Figure 7).

The preciousness of materials, such as gold, ebony, or bronze, used to reflect the social importance of the monument. Durability or the lack of it is often distinctly symbolical. A whole range of meaning leads from the porphyry and granite of Egyptian tomb sculptures in quest of immortality to the deliberately flimsy stuffs employed by some modern artists, who denounce permanence. The least tangible works of three-dimensional visual art are plays of light in space created by neon or laser beams or the fugitive spectacles of fireworks and colored searchlights.

Another decisive character trait of sculpture derives from its way of representing its subjects without their context. Comparisons with literature or paint-

ing reveal the difference. G. E. Lessing, in his classic essay on the *Laocoön*, compares the Hellenistic marble figures of the Trojan priest and his sons attacked by serpents (Figure 8) with the same episode recounted in Virgil's *Aeneid*. In a verbal narration the story is embedded in time and space: it ties the event to a chain of cause and effect by explaining how human destinies come about and what consequences they lead to. It presents the life of the individual in its physical and social setting. Something similar is the case when paintings show human actions in a landscape or city, in a palace or stable. In contrast, the marble group of *Laocoön* and his sons is extracted from space and time. It limits its statement to the struggle between the attacking beasts and the suffering of their victims. Devoid of the time dimension of action, it displays a state of affairs rather than a happening.

Even so, the *Laocoön* group is of considerable

Figure 5. (*Sculpture*) Mark di Suvero, *Mother Peace*, 1970. Steel painted orange. Courtesy of Storm King Art Center, Mountainville, N.Y.

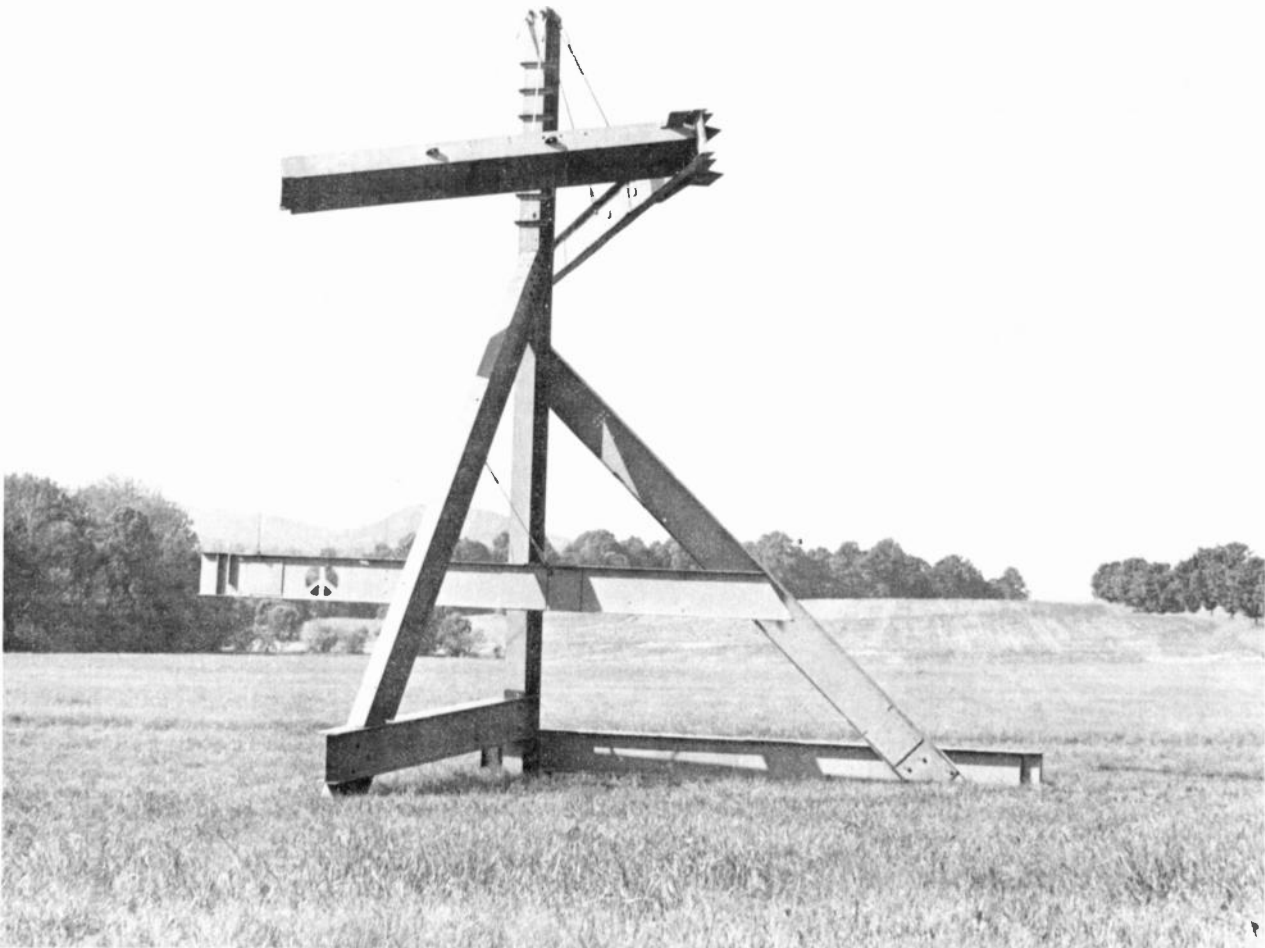
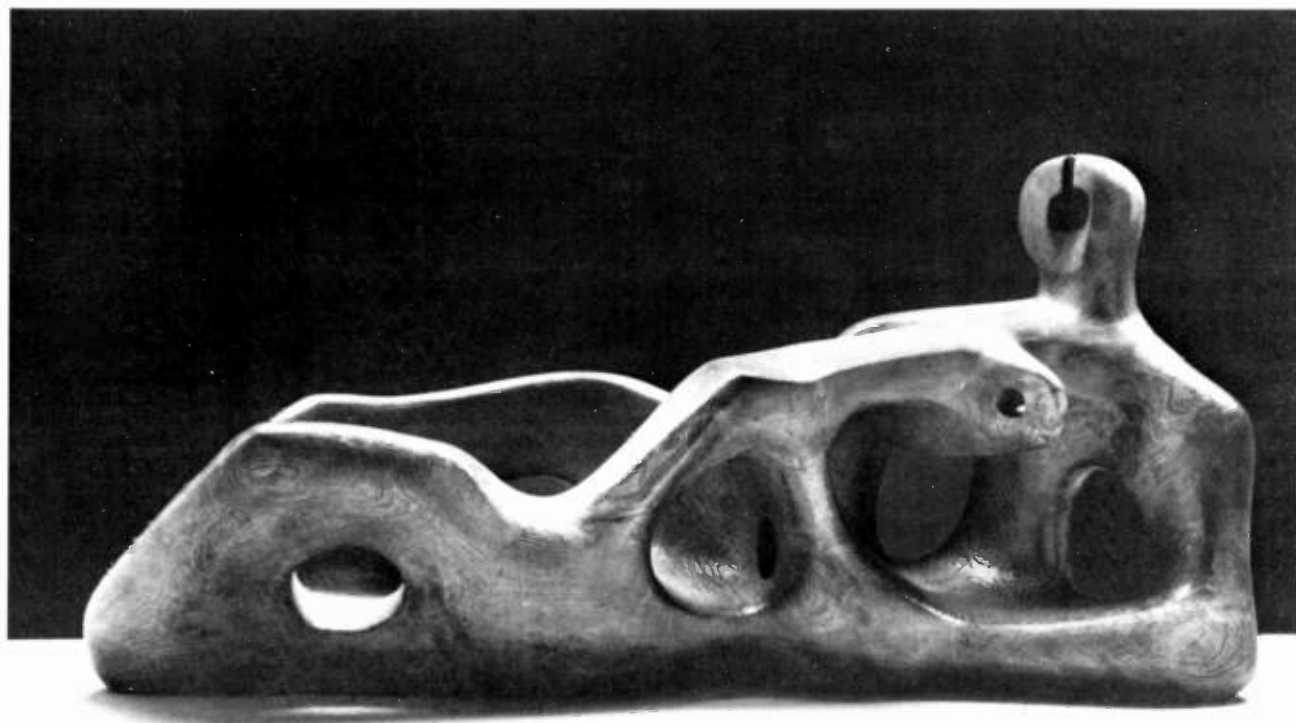




Figure 6. (*Sculpture*) Altar of Zeus and Athena, Pergamon: *The Gods Fighting the Giants* (detail), ca. 170 B.C.E. Marble. Pergamon Museum, East Berlin. Marburg/Art Resource, New York.

Figure 7. (*Sculpture*) Henry Moore, *Reclining Figure*, 1939. Elm wood. The Detroit Institute of Arts. Gift of the Dexter M. Ferry Jr. Trustee Corporation.



complexity by presenting more than one figure. When limited to a single shape, such as a single human body, sculpture often compensates the viewer for this limitation by symbolically presenting within its own orbit significant themes such as parallelism and contrast, expansion and contraction, resistance and yielding, rising and falling. In this manner, the interplay between the spatial gestures of torso, head, and limbs in a figure such as Wilhelm Lehmbruck's *Kneeling Woman* (Figure 9) adds up to a symphonic image of moves and countermoves, which reflects a whole world in a single body. Remember here that in the philosophy of the RENAISSANCE the proportions of the human body were considered a microcosmic image of the universe, whose macrocosmic structure was beyond the reach of our senses.

More radically than the other arts, sculpture is monopolized by the subject matter of the human figure. Just as the first man in the Garden of Eden was formed as a piece of sculpture from a lump of clay, human beings, once created, make their likenesses most readily from lumps of physical matter. This material affinity between the signifier and the signified expresses itself at all levels of abstraction, from the purely nonrepresentational shapes of a David Smith or the highly stylized fetishes and totem poles



Figure 8. (*Sculpture*) *Laocoön*, ca. first century B.C.E. Marble. Vatican Museum, Rome. Lauros-Giraudon/Art Resource, New York.

of early cultures to the life-sized *trompe l'oeil* casts of a Duane Hanson or George Segal (Figure 10) and the less ambitious portraits of notable contemporaries in the wax museums. The highly emotional responses to deceptively faithful duplications of the human figure are twofold. On the one hand, the public welcomes the familiar look of the figures, which may seem taken directly from the daily life of the streets. This response derives from the age-old appreciation of skillful imitations of nature. On the other hand, there is clearly discernible in the modern products the specifically surrealist shock caused by creatures that look alive but reveal the iciness of dead bodies and an absence of feeling. These dwellers in the no-man's-land between life and death descend from the wraiths and ghosts of the folk traditions, the golems and the Frankenstein robots. They symbolize the awesome ability of the creative mind to conceive artifacts that display telling attributes of life while lacking life itself.

The existential twilight in which art and life meet provides an emotional affinity that encourages identification with the graven images. Sculpted likenesses serve to pay homage to gods and heroes, they embody ideals of physical beauty, and they preserve the memory of cherished individuals. The curiously am-



Figure 9. (*Sculpture*) Wilhelm Lehmbruck, *Kneeling Woman*, 1911. Cast stone. 69½ in. high, at base 56 by 27 in. Collection, The Museum of Modern Art, New York. Abby Aldrich Rockefeller Fund.

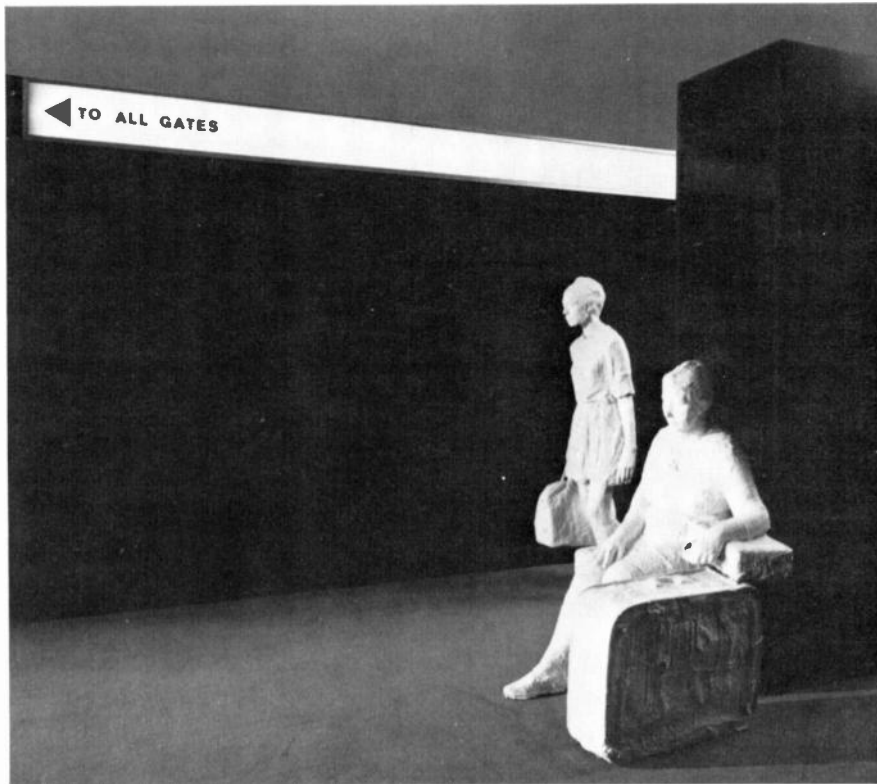


Figure 10. (Sculpture) George Segal, *To All Gates*, 1971. Plaster, wood, plastic, lights, metal. Des Moines Art Center. Coffin Fine Arts Trust Fund, 1972.

biguous reality status of such images is of psychological interest. It may seem hard to understand that, for example, in voodoo rites a physical attack on a distant enemy is thought possible by means of a mere image. Nor is it obvious that faithful believers address the portraits of gods and saints so directly as though they were appealing to a present power while knowing that the figures are made of wood or plaster. To be sure, the medium of sculpture favors such identification. The church fathers who objected to the veneration of icons worried mostly about the compelling presence of three-dimensional figures while they tended to accept paintings as nonverbal means of spreading the word of God.

But even realistic sculpture fails to deceive the common sense of the viewer. The psychological paradox inherent in the attitude toward images remains puzzling as long as one defines identity as depending upon physical uniqueness. The logic of the excluded middle seems to insist that a thing is either alive or dead, either in one place or in another, either a person or the person's image; but the human mind deals with the task of identification more interestingly. It is involved with essences or ways of being rather than with their individual material carriers. The essences of power or courage or charity or evil are the targets of human concern, and such essences can make their appearance in any number of different manifestations. They can be projected on unworthy

vehicles, such as the broomstick that serves as a hobbyhorse; they may be embodied in the countenance of expressive icons fashioned by artists; or they may present themselves most authentically "in person." Whatever the medium of incarnation, however, it is the particular spiritual quality coming across from its carrier that transmits the message and matters to the receiver.

See also VISUAL IMAGE.

Bibliography. Hans Joachim Albrecht, *Skulptur im 20. Jahrhundert*, Cologne, 1977; Kenneth Clark, *The Nude, A Study in Ideal Form*, Princeton, N.J., 1956, reprint 1972; F. David Martin, *Sculpture and Enlivened Space*, Lexington, Ky., 1981; Charles De Tolnay, *Michelangelo, Sculptor, Painter, Architect*, Princeton, N.J., 1975; Rudolf Wittkower, *Sculpture: Processes and Principles*, New York, 1977.

RUDOLF ARNHEIM

SECRECY

The deliberate concealment of information that may be private or public. Secrecy implies that the holder of the information has reasons to keep something (the secret) from the knowledge or observation of others. Secrecy is applied to and not embodied in information, and it is usually the actual or expected

added value of such information in the eyes of the holder that leads to secrecy. When individuals or private entities conceal information, they may be within their rights to PRIVACY. However, the added value of such information can be entirely subjective and may never materialize in an actual communication exchange. There are many unresolved questions about the ethics of private secrecy (which may be linked to DECEPTION) and about issues of confidentiality in relationships with, for example, doctors, lawyers, psychologists, and journalists. When the holder of information is a public entity such as a government, however, an entirely new set of issues arises. Government secrecy is a deliberate act on the part of those who govern to conceal information from the governed at a given time. The assumption is that secrecy will preserve or add to the value of the concealed information. Such secrecy can be employed by government as a whole (state secrets) or by specific public institutions, bureaus, political leaders, and administrators.

Government privilege to conceal. There is no such thing in government as complete openness—that is, a transparent governing process—but there are fundamental differences between democratic and nondemocratic systems with respect to questions of secrecy and openness. In nondemocratic regimes the government privilege to practice secrecy is usually absolute; there is no need for justification because the ruler controls the flow of public information. In a democracy, however, openness is regarded as desirable; only special circumstances are felt to justify tampering with the free flow of information. Hence the government's privilege to conceal is accepted only grudgingly—both in theory and practice—as a temporary measure that will, it is hoped, wither away with international peace and enlightened democracy.

In democratic regimes the government privilege to conceal information is defended as a means of protecting a public interest that, on balance, is judged to be more important than other public interests. In external affairs the public interest to be protected may be national security and the effective conduct of international relations. In domestic affairs the public interests requiring protection include the efficiency of the governing process; the privacy of individuals, groups, and organizations; and official information pertaining to crime prevention, prison security, commercial secrets, currency, and related financial matters. In all democratic countries there are axioms or laws or established practices legitimizing government's privilege to conceal information from the public. This privilege is applied in many ways and appears under different names—crown, state, or executive privilege; confidentiality; discretionary power; classification rights; CENSORSHIP; rules of nondiscovery in courts; and others.

The right to know. In democracies there are other axioms or constitutional provisions or laws that express the principle of citizens' sovereignty. These support the right of individuals and groups to demand and obtain information about public affairs. In order for citizens to exercise their right of autonomous participation, they need information about what the government is in fact doing. In other words, they have a right to know.

Nondemocratic regimes also have secrecy problems; otherwise there would be no need to employ a secret police. Their constitutions sometimes provide for citizens' access to information that is necessary for certain types of participation (Hungary, for instance, has such a constitutional provision). Yet regimes that do not emphasize human and civil rights are not usually concerned with freedom of information. Government secrecy is the rule in such regimes.

The people's right to know in a democracy is a prerequisite for citizens' participation. It enables them to secure information in order to formulate their preferences and choose wisely and also to ensure government accountability. The right to know is therefore part of democratic freedom, related to yet distinct from freedoms of expression, association, movement, and the press. Knowing is a prerequisite, not a guarantee, for enlightened participation. Citizens may form their preferences with or without information. Moreover, available information can be easily distorted and be in fact a shroud for secrecy.

The dilemma of secrecy. The dilemma of secrecy in democracies is a result of the contradiction between the government's privilege to conceal and the people's right to know. Secrecy is justified as a deliberate act to protect the public by withholding official information, yet one important public interest is the ability of citizens to find out what government is doing. Publicity is required to find out whether secrecy is justified. Furthermore, in exercising their privilege to conceal, those who govern may be motivated by selfish reasons that have nothing to do with protecting the public interest. Conversely, people may want information for reasons other than their desire to participate in democratic processes—for example, GOSSIP or revealing commercial secrets.

The advocates of the people's right to know do not demand complete openness. They are trying to change the existing rules so that disclosure becomes the prevailing norm and the withholding of public information must be specifically justified. The advocates of maintaining or strengthening the government's privilege to conceal do not demand complete secrecy. They argue instead that some secrecy is a necessary evil that must be borne by free citizens in a democracy because of imperfections in international relations, human nature, or the governing process. Secrecy is therefore required for security, for

the further perfection of democracy, and to enable officials to say in closed meetings what they dare not say publicly. As a result certain measures are required: classification of documents, closed sessions, civil servants' oaths of allegiance, single spokespersons for releasing information, censorship, and other restrictions on publicity and the press.

The Watergate fiasco in the United States revealed most aspects of the secrecy dilemma in modern democracies. President Richard M. Nixon claimed that no court could require him to produce his White House tapes. He argued for absolute executive privilege, that is, for the final authority of the president to decide whether government privilege applies. The Supreme Court rejected this claim; it recognized executive privilege for maintaining military and diplomatic secrecy but insisted that the applicability of the privilege is a judicial decision, not an executive one. This ruling established two important principles. First, the executive has no monopoly on determining what the public interest is and on deciding when secrecy is needed to preserve it. Second, the inherent conflict in government secrecy is between two legitimate public interests, and the delicate balance between them must be reexamined from time to time.

The way different systems deal with the secrecy dilemma is influenced by specific historical and cultural backgrounds. These backgrounds determine attitudes toward the concept of secrecy, the configuration of communication networks in society, traditions of critical or deferential attitudes toward government, the social legitimacy of secrecy, and the role played by various channels, including the mass media. The practice of secrecy is also determined by the political marketplace in which transactions of public information occur and in which information is a scarce resource. In this setting, secrecy and publicity are the result of exchanges between actors, and access to information becomes a means of power and influence.

In addition, constitutional and legal provisions provide formal rules for government secrecy and publicity and for solving conflicts between holders and requesters of information. Here, in a legal sense, information is defined as a tangible commodity: documents, memorandums, tapes, transcripts, exhibits, and so on. Access rights are consequently formulated in terms of property rights and are to be found in laws defining state or official secrets, executive privilege, document classification procedures, codes of behavior for civil servants, disclosure of evidence before the courts, censorship, and laws affecting freedom of expression and publication.

Freedom of information laws. The legal issues of freedom of information generally center around the conflict between the legal right or "privilege" of the custodian (the government) to conceal information versus the legal right or "freedom" of the claimant

(the citizen) to obtain it. In support of the former, the laws attempt to guarantee government secrecy, primarily by establishing state secrets and rules on how to prevent disclosures to unauthorized persons. In this context the burden of proof is on the citizen who tries to gain access despite specific laws and regulations aimed at protecting official secrets. A primary example of such a law is the British Official Secrets Act of 1911, which provided that all government information is secret unless specifically exempted.

The legal right of the citizen to obtain information is a much more recent principle and attempts to establish that disclosure is the rule, not the exception, and that whatever government does is in the public domain unless legally restricted. Its purpose is to legislate the people's right to know and to compel the government to justify secrecy. The first such law was passed in Sweden in 1766 and established the principle—within the framework of the freedom of the press—that every citizen shall have access to all official documents, unless specifically restricted. Subsequently it became a constitutional law specifying the types of documents to be restricted. Finland inherited from Sweden this tradition of openness, but a specific law permitting access to official documents was enacted only in 1951.

The U.S. Freedom of Information Act (1966) was more ambitious because it attempted to establish the general principle of the people's right to know and provided a legal channel for appeals to the courts when information requests were denied. The law went into effect in 1967, and it soon became obvious that there were many practical obstacles to the free flow of information: the exemptions were very broadly defined, actual access was technically impossible, and the fees were high. The law was amended in 1974, again mainly as a result of public pressure and congressional initiative, with no assistance from the executive branch (President Gerald Ford vetoed the 1974 amendments, and both houses overrode the veto). The amended law facilitated access, enabled federal judges to review classification decisions of government, restricted the language of some exemptions, and required agencies to report to Congress the number of cases and the reasons for decisions to withhold information. The Federal Advisory Committee Act of 1972, together with the Sunshine Act of 1976, further enhanced openness by prescribing open meetings of advisory bodies, congressional committees, federal regulatory agencies, and other statutory authorities. The opening of such meetings and their minutes (even though they can be closed through certain procedures) signified a real change.

A number of other democratic countries followed the Swedish and U.S. examples and enacted various freedom of information or public access laws: Den-

mark and Norway (1970); Austria (1973); the Netherlands and France (1978); Australia, New Zealand, and Canada (1982–1983). Other democracies were still without such laws. Closely related are the recently enacted privacy laws in many countries that allow citizens to inspect personal files being held on them in government agencies.

The secrecy dilemma cannot be solved by statute alone. Withholding of information is still practiced in the corridors of power despite all the legal changes. Holders of information will always find ways to exclude certain groups and individuals, particularly the weaker ones in society. Moreover, government PROPAGANDA is in many ways another form of secrecy, and no law can solve this kind of tampering with the free flow of information. The controversy continues also in democracies that have freedom of information laws, because those who oppose them argue that these laws, as practiced, cause serious damage to vital national interests, the security of the country, and the efficient conduct of government activities.

The secrecy dilemma is peculiar to democracies precisely because they aspire to be open. The details of government secrecy in a particular country are the combined result of the general social context of human communication, the constitutional and legal provisions, and the practice of politics. Changes in one or more of these attributes will also affect government secrecy. In practice government secrecy will continue to be a complex balance between the government's privilege to conceal and the people's right to know. Nevertheless, maintaining a balance that safeguards the right to know is essential for preserving democracy.

See also COMPUTER: IMPACT—IMPACT ON GOVERNMENT; GOVERNMENT REGULATION.

Bibliography. Sissela Bok, *Secrets: On the Ethics of Concealment and Revelation*, New York, 1983; T. N. Chaturvedi, ed., *Secrecy in Government*, New Delhi, 1980; Thomas M. Franck and Edward Weisband, eds., *Secrecy and Foreign Policy*, New York, 1974; Carl J. Friedrich, *The Pathology of Politics*, New York, 1972; Itzhak Galnoor, ed., *Government Secrecy in Democracies*, New York, 1977; James Michael, *The Politics of Secrecy*, London and New York, 1982; Donald C. Rowat, ed., *Administrative Secrecy in Developed Countries*, New York, 1979; Edward A. Shils, *The Torment of Secrecy*, Glencoe, Ill., 1956; David Wise, *The Politics of Lying*, New York, 1973.

ITZHAK GALNOOR

SELECTIVE RECEPTION

Selective reception subsumes two related but distinct classes of audience behavior: selective exposure and

selective PERCEPTION. What they have in common is that both behaviors change and individualize the media-use experience. When an individual elects to expose himself or herself to one medium or type of content and not another, or when an individual perceives something in a message that others do not, the media-use experience becomes less uniform.

At the heart of the issue of selective exposure and selective perception are questions and assumptions about the extent to which receivers of communication messages are active participants with some control over the process. At one extreme is the "straw man" position that receivers are completely passive, accepting messages based entirely on habit and availability and interpreting these messages in a uniform manner such that shared MEANING is universal. It is well established, however, that not everyone interprets a given message the same way, and we clearly exercise some control over what we read in newspapers or watch on television. The issues are instead questions of degree and kind of selectivity. How much control do we exercise over exposure and perception, and how often do we exercise it? Why and how are we selective? And what difference does selectivity make in the uses and effects of communication messages?

Selective Exposure

In the early 1960s a central explanation for apparently minimal effects of mass communication was that people consistently avoided messages that might change their ATTITUDES. But several years later U.S. scholars David Sears and Jonathan Freedman pointed out that people sometimes seem to prefer messages contradicting their views and other times seem to have no preference at all—in other words, the need for supportive information is not constant. Sears and Freedman substituted the more general idea of utility to argue that people select messages that will be useful to them, although specifying just what an individual will find useful is often difficult.

What is selected? Although people do not always seek supportive messages, the attitudinal character of messages is clearly one reason people select some messages over others. Those who have recently purchased a car often prefer to read or see ads about that car than ones about its competitors. Similarly, political partisans often report receiving more messages about their preferred candidate than about the opponent, or reading more about positions they favor than about those they oppose. One reason suggested for this is that because taking in messages that conflict with one's attitudes produces uncomfortable mental dissonance, such messages are avoided (see COGNITIVE CONSISTENCY THEORIES). However, selection based on attitudes seems much more likely to

be selection of supportive messages rather than attempts to avoid conflicting information.

Such selection of supportive messages requires an explanation other than simple dissonance reduction. It may be that genuine uncertainty about the correct position can also lead individuals to seek information to elaborate their attitude positions—a cognitive rather than defensive motivation. In addition, although the evidence is less direct, supportive information probably requires less cognitive effort to process than less familiar conflicting messages.

Obviously, for receivers to select messages based on attitude or IDEOLOGY, they must have an attitude toward the particular subject. This is not a trivial point, since people probably have many opportunities to receive messages on topics about which they have no prior opinion, and thus selection or avoidance for attitudinal reasons is irrelevant. Furthermore, a number of intervening or conditional variables determine whether and how much selection occurs, even for those with attitudes on a given issue. Selection seems more likely for issues more important to the individual, and there is also evidence that selectivity is complexly related to certainty about or commitment to one's attitude position. Those with little commitment to a position have no reason to be selective, and those firmly committed can afford to be liberal with their attention. However, those only moderately committed are most likely to be selective, whether to defend their position or to solidify it.

A number of other conditions and variables may make selecting supportive information more or less likely. Some personality traits may make defensiveness or ease of processing a more important instrumental goal in communication than others. Those who prefer high levels of stimulation may deliberately seek messages to conflict with their own attitudes. And any of these variables might interact with such situational factors as stress, mood, goals, and social setting.

In contrast to selective exposure based on attitudes expressed in the message, selection of a level of stimulation or of a type or genre of content seems to be more directly dependent on situational factors. Experiments by U.S. scholar Dolf Zillmann and his colleagues have shown that people bored by a monotonous task will be much more likely to choose exciting, action-packed television programs than people who have just worked at demanding tasks under time pressure. In other words, if one's level of stress or boredom is outside acceptable limits, selecting a compensating level of media stimulation seems satisfying. There is evidence that such selection works, but compensation alone does not fully explain why an individual chooses a particular level of media stimulation, since, for example, watching any kind of television program lowers the heart rate of stressed subjects. Apparently television viewing also affects

arousal by absorbing people and distracting them from their current state.

Some sort of behavioral affinity between current affective state and the content of specific programs also influences content choices independent of program pace. Manipulating subjects' moods by having them succeed or fail at a task or by praising or criticizing their performance causes variation in program selection among comedies, action dramas, and game shows. Because these variations are often among programs that seem equally arousing and because selection differences in some cases do not occur until after several minutes have passed, compensation for arousal is clearly not the process involved. Unfortunately, behavioral affinity can predict both selection and avoidance, and it is often hard to tell whether differences occur because people seek programs that contain cues reminding them of their present happy state or avoid programs reminding them of unhappy states.

Similar considerations probably influence selection of mass communication use over other activities or selection of a particular medium of communication, but the evidence so far contains some contradictions. Time-sampling studies, for example, have found that television viewing is a much more likely evening activity after a rough day at work. But some experiments have found that annoyed individuals are less inclined to select television viewing than are praised individuals. It may be that the annoyance leads to short-lived avoidance of television but that after several hours the annoyances of the workday are less immediately felt, and television viewing is then regarded as well suited to an accompanying fatigued state.

Just as attitude-based selection requires that the receiver have an attitude in the first place, selection for a level of stimulation or behavioral affinity presumes that the receiver has a learned store of knowledge or expectations about the characteristics of different media and content, particularly about their ability to arouse and their particular behavioral affinities. This store of knowledge and expectations, when available to consciousness, is often studied under the rubric "uses and gratifications" (*see also* MASS MEDIA EFFECTS). Finally, these momentary, situational selections seem to be associated with moderate levels of internal states. Extreme conditions, such as extreme fear or very strong dissonance, may simply not be resolvable by selectivity in one's communication behaviors.

What happens in selective exposure? People can deliberately select messages through conscious examination of internal states and motives or by applying well-developed expectations of media and messages to a present situation. However, much selective exposure may be carried out with little or no awareness by the person being selective. Although

some researchers limit selective exposure to "deliberate behaviors to attain and sustain perceptual control," attribution theory and research make it clear that humans are quite limited in their propensity (and perhaps even ability) for accurate introspection.

Various reflexive and automatic processes are thus likely to impinge on selection as well. Social science has learned quite a bit about the "orienting reflex," "attentional inertia," and other basic sensory constituents of the human organism. In addition, it appears that even very young children develop scanning and monitoring strategies that build on these basic reflexes with learned cue associations. Such perceptual monitoring processes quickly become highly automatic, complex, and efficient but are probably themselves influenced by moods and needs as important motivators. Thus the relatively conscious aspects of selective exposure do not occur in a vacuum; rather, they are part of a continuum that includes many simultaneously operating processes.

Selection versus habit. The idea of a continuum from reflexive to conscious action in selectivity raises the issue of activity versus passivity in audience behavior. This issue is most often viewed as a dichotomy between active and passive audiences rather than as a continuum of individuals or, better yet, of behaviors. When focused on selective exposure the debate centers on whether audiences are active and selective or passive and habitual in their communication reception.

There is much evidence to support both views. Instead of emphasizing selection, one can as easily conclude that people read or view habitually according to the time of day or the availability of messages. A more fruitful approach to such divisions is to view selection and habit as a continuum and to ask questions such as the following: What is the balance of selection and habit? When are we selective and when habitual? How do we shift along the continuum between them?

We tend to treat selective exposure as decisions about individual messages or about the choice between media at a particular moment of time. Thus the issue is always first whether or not people are selective at a given moment in their choice of messages or media. Often we discover that they are not—that the decision of the moment is no decision at all but merely habit.

Examined over a longer time frame, however, the meaning of selective exposure and its prevalence may broaden. Habits can be quite selective in effect, and selectivity, applied once or twice to the same problem, can then become habitual. Looked at this way, one research issue becomes the balance of the individual versus the social system in the initial formation of a selective habit.

Consequences of selective exposure. The original motivation for studying selective exposure was its

expected power to predict and explain a wide variety of effects of communication (e.g., PERSUASION, aggression). The perception that Sears and Freedman's conclusions cast doubt on that power probably contributed to the period of relative neglect of selective exposure studies. This changed only when selective exposure was examined as a phenomenon of interest in its own right.

When selection of supportive information occurs, either at a particular instant or as a long-term habit, reinforcement effects are of course much more likely than change effects. But the broadening look at selective exposure suggests two broader hypotheses. First, selecting to expose oneself to mass media apparently leads to absorption in the media and distraction from one's current state, which can change arousal levels and cognitive sets and thus can change traditional effects in a variety of ways. Second, messages attended to for relatively conscious reasons or behavioral affinity may be used under conditions of greater cognitive activity and effort, which should also produce large differences in the effects of those messages.

Selective Perception

Fundamentally, selective perception is simply the recognition that individuals can form different interpretations of the same message. Although selective perception is often invoked as an explanation after the fact for supposed ineffectiveness of purposive communication, meaning probably is not infinitely malleable. Most of the time most people will construct at least similar meanings from the same message. Selective perception has become a research question primarily when variation seems more likely and predictable. Thus many studies have attempted to demonstrate (some successfully) that liberals and conservatives form opposite perceptions to humor about racial or ethnic stereotypes, or that partisans of a candidate or football team see a quite different result of a debate or game than partisans on the opposing side or those with no ostensible predisposition.

The mechanism by which selective perception occurs is open to question. The fact that it seems to require strongly held attitudes or beliefs makes selective perception different from selective exposure, in which message selection is practiced mainly by those moderately committed to an issue or attitude and is not necessary for strong partisans. Nevertheless, one possible explanation for selective perception relies on dissonance theory, suggesting that interpreting situations and messages in ways congruent with one's beliefs minimizes dissonant cognitions.

A more cognitive explanation starts with a model of memory or mental representation as a kind of associative network. Within such a network, any

experience “primes” some nodes directly, and this activation will spread to other memory nodes associated (for whatever reason) with those nodes. The relevance of priming theories to selective perception is that different experiences and attitudes will lead to differences in how the associative network is structured and which nodes are primed by particular experiences. Thus the perception by a partisan that the preferred candidate won the debate may simply result from a mental structure in which the points that that candidate raised are all closely associated in memory and primed other, favorable cognitions, whereas the opponent’s points were less related to the individual’s own cognitive structure—another way of saying that the opponent’s remarks made less sense.

Priming could be involved in subliminal perception (to the extent it occurs) as well. If images can be received without our being conscious of them, the real effects may occur through the activation of neighboring nodes in the associative network.

Another point is that selective perception probably occurs in many more situations than the political, athletic, or ideological arenas in which it is usually studied. In limited ways, audience members perceive selectively all the time, and some of these individual selective perceptions probably differ dramatically. But such selective perceptions are probably too subtle or unique to be easily registered by researchers. Research on selective perception is thus largely limited to situations in which substantial portions of the audience share a predisposition that will lead them to also share a perception of the message that is different from that of the rest of the audience.

Bibliography. Charles Atkin, “Instrumental Utilities and Information Seeking,” in *New Models for Mass Communication Research*, ed. by Peter Clarke, Beverly Hills, Calif., 1973; Leonard Berkowitz and Karen H. Rogers, “A Priming Effect Analysis of Media Influences,” in *Perspectives on Media Effects*, ed. by Jennings Bryant and Dolf Zillmann, Hillsdale, N.J., 1986; David O. Sears and Jonathan L. Freedman, “Selective Exposure to Information: A Critical Review,” *Public Opinion Quarterly* 31 (1967): 194–213; Dolf Zillmann and Jennings Bryant, eds., *Selective Exposure to Communication*, Hillsdale, N.J., 1985.

ROBERT P. HAWKINS

SEMANTIC DIFFERENTIAL

One of the tools that make human communication possible is LANGUAGE, which allows people to share the MEANING of words and concepts. The semantic differential is a measurement technique developed by CHARLES OSGOOD and associates in the 1950s to assess the connotative (i.e., contextual, affective)

meaning for individuals of verbal concepts and of nonverbal signs like colors, figures, or sounds.

The technique assumes that the meaning of concepts can be “mapped” as points in what Osgood and associates called “semantic space.” This analogy has proved quite useful in different applications, for it makes possible conceptualizations of psychological objects as unidimensional or multidimensional semantic entities. The availability of sophisticated statistical analysis techniques (e.g., factor analysis) in turn permitted the identification of salient dimensions consistent across different cultural settings.

Procedure

There are two general steps to follow when using the semantic differential: (1) choosing the concept or concepts to be rated and (2) selection of the adjective pairs used for rating.

Although the first step seems self-evident, two things must be kept in mind. First, the concept or object under consideration should not elicit uniform responses from different individuals (i.e., some variance is required); second, the concepts or objects chosen must cover, even if only to a limited extent, the semantic space. The method proceeds by presenting individuals with pairs of descriptive adjectives, usually opposites, and asks them to indicate the direction and the intensity of association between the given sign and the qualifiers defining each scale. A typical semantic differential form is shown in Figure 1.

Research studies by Osgood and many others have reported three main factors of meaning, regarded as the primary dimensions that seem to organize semantic space. The three factors are commonly la-

JAPANESE		
ugly	—:—:—:—:—:—:—:—	beautiful
thick	—:—:—:—:—:—:—:—	thin
active	—:—:—:—:—:—:—:—	passive
unpleasant	—:—:—:—:—:—:—:—	pleasant
light	—:—:—:—:—:—:—:—	heavy
slow	—:—:—:—:—:—:—:—	fast
undemocratic	—:—:—:—:—:—:—:—	democratic
powerful	—:—:—:—:—:—:—:—	powerless
industrious	—:—:—:—:—:—:—:—	lazy
foolish	—:—:—:—:—:—:—:—	wise
large	—:—:—:—:—:—:—:—	small
quiet	—:—:—:—:—:—:—:—	noisy

Figure 1. (*Semantic Differential*) Example of a semantic differential scale. Respondents are to check only the space on each scale that best represents their view of the concept (here “Japanese”). Data can later be analyzed both graphically and numerically.

beled "evaluation" (e.g., good-bad), "potency" (e.g., strong-weak), and "activity" (e.g., active-passive). When a group of subjects judges a set of concepts such as "mother," the color "red," or a line form, using adjective pairs such as ugly-beautiful, thick-thin, and slow-fast (i.e., one or more pairs from each of the three dimensions), a cube of data is generated. The rows are defined by scales, the columns by the concepts being judged, and the "slices" from front to back by the subjects doing the judging. Each cell represents with a single value how a specific individual judged a particular concept using a particular scale (see Figure 2). Factor analysis and other data-reduction techniques are thus logical tools for analysis. It is possible to conduct separate analyses for single objects (e.g., to examine generality across subjects), for single concepts (e.g., to examine generality across concepts), or to collapse either the subject dimension (when the interest lies in cultural meanings) or the concept dimension (when one is interested in concept-class characteristics).

As a result of extensive cross-cultural research, covering more than thirty different language/culture communities, Osgood and associates have found that the evaluation, potency, and activity factors constantly appear, despite differences in language and CULTURE. However, it has become evident that the scale composition of semantic spaces can be modified to some extent depending on the object of judgment. Thus the relative importance of, and relationship among, semantic factors may vary with the concept class being judged. Using auditory stimuli in a cross-cultural investigation of phonetic symbolism, Murray Miron found in the early 1960s that the potency factor is most salient across both culturally and linguistically different subject groups. In another cross-cultural study Yasumasa Tanaka and others found that the affective meaning of several scales varies among concept classes, causing changes in the structure of various semantic spaces but behaving consistently across subject groups differing in both language and culture. In general, there is evidence to support the view that there is generality across cultures among affective meaning systems operating in the cognitive processes of humans.

Allocation of Affective Meanings

In order to locate the cultural meaning of a particular concept, one may proceed by asking a series of questions, each corresponding to the three main factors identified: Is this concept good or bad (evaluation)? Is it strong or weak (potency)? Is it active or passive (activity)? Thus with only three binary questions it is possible to assign a concept to one of eight octants in semantic space. If each straight "cut" representing a factor dimension is scaled into seven

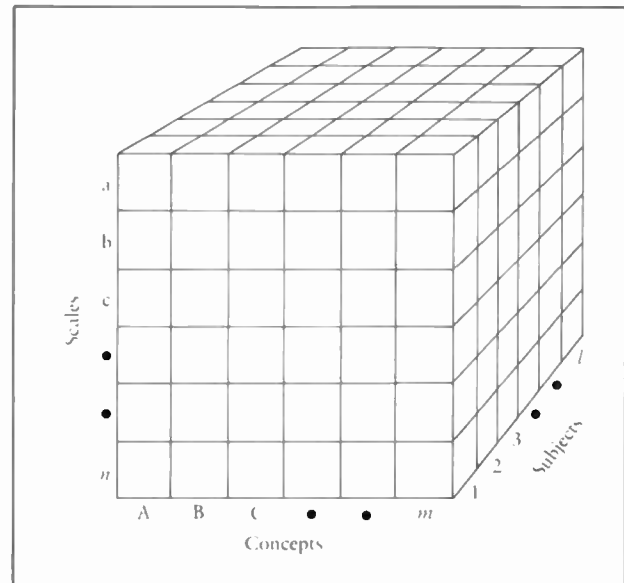


Figure 2. (*Semantic Differential*) The cube of data generated when l subjects judge m concepts using n scales.

discriminable steps (assuming a seven-point scale), then each decision reduces uncertainty by six-sevenths, and the three cuts produce a semantic space having 343 discrete regions. The cultural meaning of any concept can be represented with just one of these 343 discrete regions.

Multilingual Semantic Differentials

The multilingual semantic differential is a special form of the semantic differential used in cross-cultural research, in which the affective meaning of the scales used in the analysis must be semantically equivalent—if not identical—across different linguistic or cultural communities. Multilingual semantic differentials may be constructed either by using translated pairs of adjectives or by eliciting indigenous pairs of adjectives to define the scales.

In the 1970s Osgood and associates developed what they called "pan-cultural" semantic differentials, consisting of indigenously elicited pairs of adjectives from a common set of one hundred substantives translated into the indigenous language. Indigenous qualifier forms were collected in more than twenty-five language/culture communities, and the affective meaning equivalence of each indigenous scale was tested mathematically (through factor analysis) to compare the factor structures across communities. The semantic differential has proved to be a reliable cross-cultural research tool in disciplines such as psychology, political science, ADVERTISING, and communications research.

Evaluation in the Cognitive Process

In the general mediation theory of meaning—to which semantic differential operations belong—evaluative meanings of concepts are implicit reactions to given, learned signs. The general consensus regarding the psychological nature of the evaluative process is that (1) it is learned and implicit, (2) it is a predisposition to respond evaluatively to certain attitude objects, and (3) the evaluative predisposition may fall anywhere along a scale ranging from “extremely desirable” through “neutral” to “extremely undesirable.” From this perspective, multilingual semantic differ-

entials may tap the general but implicit evaluative framework through which people differing in language and culture experience, perceive, and judge various kinds of cognitive events. Thus the method seems to constitute a useful tool for gathering information on the cross-cultural generality and the cultural uniqueness of values and/or ATTITUDES that are part of human cognitive processes.

Incompatible value or attitude systems could become critical obstacles for INTERCULTURAL COMMUNICATION, reducing the opportunities for mutual understanding and even resulting in hostility among different language/culture communities. To the ex-

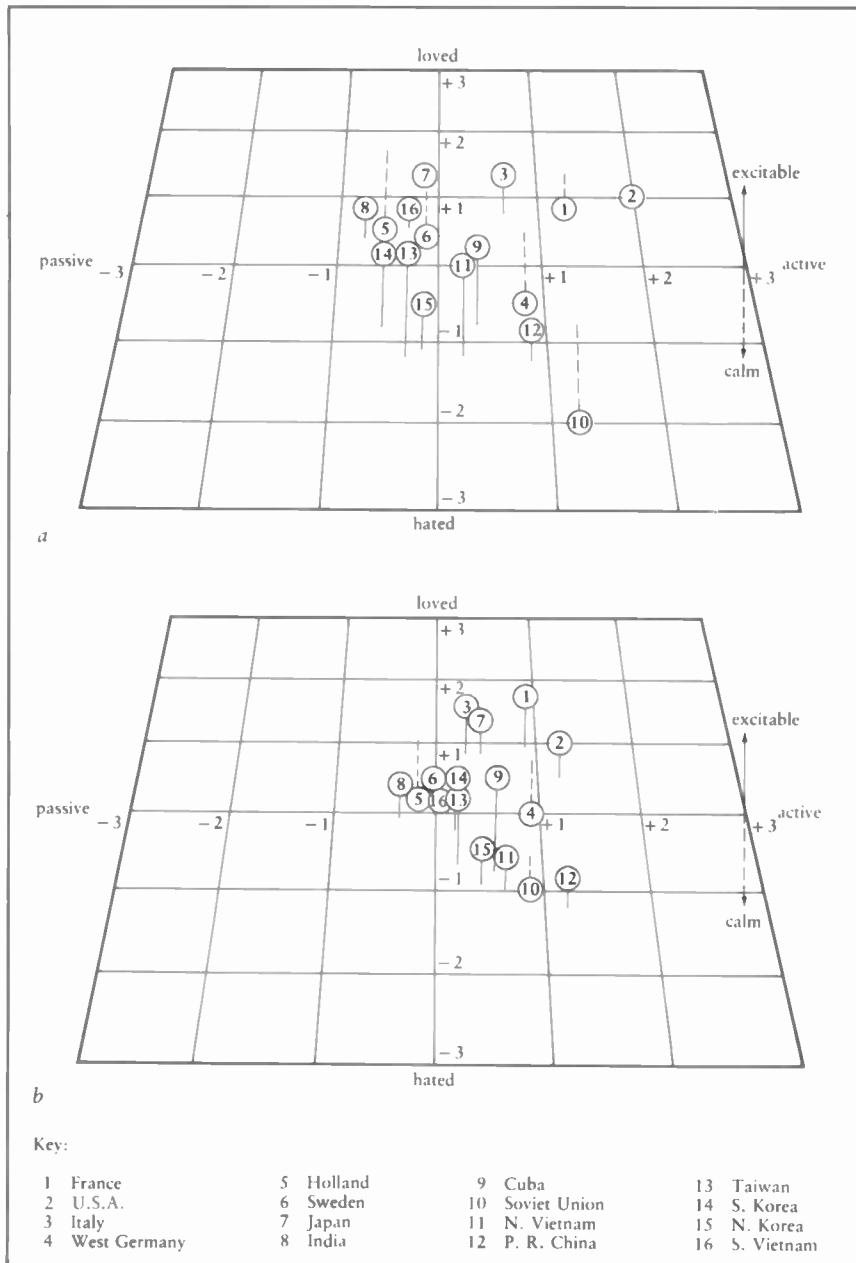


Figure 3. (*Semantic Differential*) Three-dimensional model of semantic space in a cross-cultural study of national stereotypes. Respondents were (a) Japanese college students and (b) Japanese specialists in foreign affairs. The scales are “loved-hated” (“top” to “bottom”), “passive-active” (“left” to “right”), and “excitable-calm” (“above” and “below” the imaginary plane). A solid projection indicates a rating toward the “excitable” end of the scale and a broken projection a rating toward “calm.” From Yasumasa Tanaka, *Cross-Cultural Generality of Psychologic Operating in Perceiving National Stereotypes*, Tokyo, 1970.

tent that language is a major vehicle of human thought and beliefs, peoples with incompatible value or attitude systems would soon find that, for example, the values held by one group as "good" and "moral" may be considered "bad" and "immoral" by another group, possibly leading to misunderstandings and mutual incomprehension.

Applications

From a few scattered uses in the early 1950s the semantic differential has come to play an important role in almost all areas of the behavioral sciences and many other applied fields. In communications research in particular, Percy Tannenbaum early on devised an experimental situation in which cognitive interaction between sources and messages was tested through the use of semantic differentials in a before-after experimental design. Psychologist Harry Triandis studied cognitive similarity and interpersonal communications in organizations (see ORGANIZATIONAL COMMUNICATION) and also developed the "behavioral differential," which he claims taps the behavioral component of attitudes. Triandis was able to provide cross-cultural evidence supporting the correspondence between the affective and behavioral components of attitude in complex interpersonal perception. William Mindak applied the semantic differential to marketing problems, especially the analysis of product images (see CONSUMER RESEARCH). Tanaka used the method for predicting the effects of a televised national ELECTION campaign on voting behavior, in a cross-cultural study on perception of national stereotypes (see Figure 3), and for the analysis of the negative psychological responses to anything associated with "nuclear" among Japanese people. And Patrice French, Leon Jakobovits, Hartmut Espe, and others have been active in the development of the "graphic differential," a variation on the semantic differential that attempts to make the method more "language-free."

Although the semantic differential as an analytical tool is aging, the method continues to be used extensively and still captures the imagination of many behavioral scientists and researchers in various applied areas, whose basic interest continues to be the search for answers to the age-old questions "What is meaning?" and "How can we measure it?"

Bibliography. William A. Mindak, "Fitting the Semantic Differential to the Marketing Problem," *Journal of Marketing* 25 (1961): 28-33; Murray S. Miron, "A Cross-Linguistic Investigation of Phonetic Symbolism," *Journal of Abnormal and Social Psychology* 62 (1961): 623-630; Charles E. Osgood, William H. May, and Murray S. Miron, *Cross-Cultural Universals of Affective Meaning*, Urbana, Ill., 1975; Charles E. Osgood, George J. Suci, and

Percy H. Tannenbaum, *The Measurement of Meaning*, Urbana, Ill., 1957; Yasumasa Tanaka, "A Case Study of Effectiveness of Communication: A Televised Election Campaign," in *Readings in Cross-Cultural Psychology* (proceedings, International Association for Cross-Cultural Psychology, Hong Kong, 1972), ed. by John L. M. Dawson and Walter J. Lonner, Hong Kong, 1974; idem, "Subjective Culture and Technology: A Social Psychological Examination of 'Nuclear Allergy' in the Japanese," *Annals of the New York Academy of Sciences* 285 (1977): 516-538; Percy H. Tannenbaum, *Attitudes toward Source and Concept as Factors in Attitude Change through Communications*, Urbana, Ill., 1953; Harry C. Triandis, "Cognitive Similarity and Interpersonal Communication in Industry," *Journal of Applied Psychology* 43 (1959): 321-326; Harry C. Triandis, Varso Varsilian, et al., *The Analysis of Subjective Culture*, New York, 1972.

YASUMASA TANAKA

SEMANTICS

The study of linguistic MEANING: the meaning of the expressions of a LANGUAGE and the understanding that can be derived from their communicative use. The term covers a variety of approaches to the study of the meaning, INTERPRETATION, and understanding of language that differ in focus and methodology. In contrast with SEMIOTICS, semantics focuses on languages, both natural and artificial, rather than treating linguistic meaning within a general theory of symbolic systems.

Semantics broadly construed seeks answers to three related questions: how to account for the meaningfulness of linguistic expressions, how meaning is related to grammatical structure, and how the meaning of an expression determines its use. Within this broad construal of semantics, a distinction is usually drawn between semantics in a narrow sense and pragmatics. In the terminology of CHARLES MORRIS (in *Foundations of the Theory of Signs*, 1938), semantics is the study of reference (the relation between language and the world it is used to talk about), and pragmatics deals with language use.

Approaches to the study of meaning differ in the aspect of linguistic communication that is taken as the focus: the part that varies from communicative act to communicative act or the part that remains constant. To illustrate, consider a situation in which A says to B:

(1) The book is on the table.

By saying (1), A may inform B of the location of a particular book. A's act of speaking is a communicative act of informing. The location of the book is communicated when A exploits their common knowledge of English to utter (1). A's utterance is a sentence token, a use of a sentence. Another token

of (1) might be uttered on another occasion by C to D. On such an occasion, a different book and table might be referred to, but the meaning of the sentence itself would be the same. Shared knowledge of the language determines the meaning of the sentence, which is constant from use to use, though the understandings of tokens of (1) will vary.

Semantic theory may begin with the fact that A is doing something, that communication arises through actions of the individuals involved, and work from utterance situations toward an answer to how the meaning of the sentence enables speakers of a language to use it correctly. In this view the meaning of a sentence is whatever governs its use on particular occasions.

In two utterances of (1), different books and different tables can be referred to, but at each utterance some table and some book must be referred to. The meaning of the sentence guarantees it. A speaks truthfully only if the book is on the table. What stays constant from utterance to utterance is the condition that (1) places on the world, a condition that must be satisfied for it to be used truthfully. The meaning of a sentence requires an account of the relation between language and the world, reference and truth. Principles of use must include a theory of truth conditions.

Some semantic analysis concentrates on stating principles that govern the correct use of certain constructions (e.g., John R. Searle's account of how to promise, in *Speech Acts*). Logical semantic analysis gives a theory of truth conditions abstracted away from aspects of the situation of use (e.g., Richard Montague's treatment of quantification in English, in *Formal Philosophy*). A complete account of language use also considers the psychological dimension of understanding and how principles that are peculiar to language interact with other cognitive abilities such as reasoning and general knowledge (see COGNITION).

No semantic theory gives equal consideration to all of these points, and they are not mutually exclusive. But every semantic theory should have a notion of meaning that can satisfy some general requirements.

First, it must be general enough to account for every meaningful expression in a language. It must make sense not only for declarative sentences (for acts of asserting and denying) but also for interrogative and imperative sentences (for acts of questioning and ordering). Second, it should explain how a competent user of a language is able to determine the meaning of novel utterances from the infinite range of expressions in a language. The meaning of a sentence must be related to the meanings of its constituent parts (the compositionality property of linguistic meaning). The connection between the ba-

sic linguistic units and their meanings is arbitrary, but the connection between syntactically complex expressions and their meanings is not. Lexical semantics studies relations among the meanings of words of a language. Compositional semantics provides a theory of what type of thing the meanings for various expressions are and the principles for assigning meanings to complex expressions based on the meanings of their components. Finally, a semantic theory should support an account of the semantic intuitions that the users of a language have about its sentences, including intuitions of synonymy and paraphrase, inconsistency, contradiction, redundancy, and entailment, on which a theory of reasoning can be based.

Semantic questions are among the first philosophical questions, and so the history of semantics can be traced back to ancient Greek philosophy. The development of modern semantics was influenced greatly by the work in logic and the foundations of MATHEMATICS that began in the late nineteenth century, particularly the work of German philosopher Gottlob Frege and English philosopher Bertrand Russell. They explored the advantages and problems of reference-based theories of meaning. One of Frege's most important contributions ("Über Sinn und Bedeutung," 1892) is the distinction between the sense of an expression and its reference. A name has an object as its reference, but its sense is the "mode of presentation," the guise under which the object is picked out. Two names might have the same reference but different senses, though names with the same sense cannot have different reference. This point can be illustrated with a puzzle about (2) and (3):

- (2) The morning star is the morning star.
- (3) The morning star is the evening star.

The terms *morning star* and *evening star* refer to the same object, the planet Venus. If the meaning of a term were its referent, these two terms would have the same meaning. But if these two terms are synonymous, substituting one for the other should not change the meaning of the whole sentence, and (2) and (3) should have the same meaning. But they do not: (3) is informative, but (2) is not. Frege argued that the truth value of a sentence should be considered its reference and that the sense of the sentence is the thought it expresses. Sentences (2) and (3) have different senses because their constituent terms have different senses. The distinction between sense and reference is similar to distinctions drawn by others, such as intension versus extension and connotation versus denotation (though the term *connotation* has come to be used for associations of an expression that are not considered part of its meaning).

Russell rejected Frege's distinction and in "On Denoting" (1905) considered a puzzle about (4),

which seems to be about the present king of France.

(4) The present king of France is bald.

Both the truth of (4) and its negation require that there be a king of France. Yet if no such individual exists, the subject does not have a denotation, and the whole sentence fails to have a denotation (truth value). Russell proposed that the subject-predicate form of (4) is misleadingly unlike its "logical form," which is better represented by (5):

(5) There is exactly one king of France, and he is bald.

Someone who utters (5) does two things: asserts that there is a king of France and also that he is bald. In this analysis (4) can be false for one of two reasons: either that there is no king of France or that there is, but he is not bald.

The formal approach to the analysis of language and the concentration on reference and truth continued in the logical positivist approach to language (e.g., that of Rudolf Carnap). The logical positivists attempted, unsuccessfully, to reduce sentence meaning to methods for verification. This work also sought the construction of an ideal language for philosophical discourse, one that would not incorporate the ambiguities of natural language.

The later work of LUDWIG WITTEGENSTEIN (*Philosophical Investigations*, 1953) rejects the reference-based approach and suggests that the meaning of an expression is the principles that govern its use. This idea is continued in the reaction by the "ordinary language" philosophers (e.g., John L. Austin) to the logical positivist search for an ideal language.

The importance of taking both the use of an expression and its meaning into account is demonstrated in philosopher P. F. Strawson's reply ("On Referring," 1950) to Russell's theory of definite descriptions. He argued that meaningfulness is a property of sentences, but truth is a property of uses of sentences. He claimed that "mentioning or referring is not something an expression does, it is something that someone can use an expression to do." In Strawson's view sentence (4) is true or false only if there is a king of France, but its failure to be true or false in a particular use is not a question of meaningfulness. Rather the use of the definite description presupposes that there is a king of France and asserts that he is bald. If there is no king of France, the presupposition fails, and the sentence, still meaningful, cannot be used to make a statement.

Presupposition has been given two different analyses: logical (or semantic) presupposition and speaker (or pragmatic) presupposition. Semantic presupposition is defined in a logic that allows some sentences to be neither true nor false. A formula ϕ presupposes ψ if and only if in order for ϕ or $\neg\phi$ to be true, ψ must be true. In this view presupposition is a relation

that holds between sentences and contrasts with entailment. Pragmatic presupposition views presupposing not as something sentences do but as something people do when they use sentences. What is presupposed by the utterance of (4) is not that there is a king of France but that the speaker believes that there is a king of France. In this view presupposition contrasts with assertion. Some distinction between presupposition and assertion is generally accepted.

The investigation of meaning from the point of view of use in speech act theory views every speech act on three levels: (i) what sentence is uttered and what its propositional content is (the locutionary act), (ii) the act the utterer performs in speaking (e.g., to assert, command, promise, or apologize; the illocutionary force), and (iii) the effect on the hearer (e.g., to persuade, frighten, disgust, or inform; the perlocutionary effect). Presuppositional and assertional meaning is conventionally associated with linguistic expressions; that is, it must be learned and is undetachable from a use of the expression. There are, however, aspects of meaning that can be derived from general, nonlinguistic principles. The work of British philosopher H. P. Grice ("Logic and Conversation," 1975) has been influential as an analysis of "implicative meaning." According to Grice, an utterance conveys more than the truth-conditional meaning of the sentence uttered. He distinguishes what is said from what is implicated, dividing implicatures into two types: conventional and conversational. Conventional implicatures are "backgrounded" conditions that are conventionally associated with expressions. Conversational implicatures are conclusions that a hearer can draw based on what is said and the assumption that the conversation is proceeding under a "cooperative principle" that is assumed to govern human interaction generally. This principle subsumes several "maxims of conversation" (e.g., Make your contribution as informative as is required, Do not say what you believe to be false, Be brief, and Be relevant). For example, consider (6):

- (6) A: My car is out of gas.
B: There is a garage around the corner.

B's utterance is irrelevant unless he thinks that the garage is open and can sell gas. B does not say that the garage is open, but he conversationally implies it.

Semantics is an increasingly important part of linguistic theory. The question of how the meaning of a sentence is related to its grammatical structure is given much attention when attempts are made to integrate a semantic theory with grammatical theory. LINGUISTICS has contributed to the development of semantics by broadening the range of languages and phenomena that have been analyzed and by attempting to integrate theories of meaning from philosoph-

ical traditions with the psychological orientation of its subject matter.

Bibliography. David R. Dowty, Robert E. Wall, and Stanley Peters, *Introduction to Montague Semantics*, Dordrecht, Holland, and Boston, 1981; Norman Kretzmann, "Semantics, History of," *The Encyclopedia of Philosophy*, Vol. 7, New York, 1967 ed.; Steven C. Levinson, *Pragmatics*, Cambridge, 1983; John Lyons, *Semantics*, Cambridge, 1977; Richard Montague, *Formal Philosophy: Selected Papers of Richard Montague*, ed. with an intro. by Richard H. Thomason, New Haven, Conn., 1974; John R. Searle, *Speech Acts*, Cambridge, 1969; Dan Sperber and Deirdre Wilson, *Relevance: Communication and Cognition*, Cambridge, Mass., 1986.

WILLIAM A. LADUSAW

SEMANTICS, GENERAL

A discipline proposing that the scientific method and its assumptions be applied to everyday language habits. Named and promulgated by Alfred Korzybski (1879–1950), general semantics concerns not only the relationship between words and what they stand for (conventional SEMANTICS) but also the ways in which people respond to symbols.

Korzybski, born in Poland, had studied engineering and was later an interpreter at the League of Nations. He was struck by the contrast between the scientist's use of language and that of politicians, many philosophers, and most people most of the time. Along with contemporaries such as JOHN DEWEY who were disillusioned in the aftermath of World War I, Korzybski called for a change in thought and behavior based on changes in fundamental language habits. Believing that meaningful knowledge of the world should be grounded in sense data, Korzybski felt that most people speak "non-sense." He reasoned that if a measure of sanity is one's ability to recognize and symbolically talk about reality, most people act "un-sane" and are guided by "false maps" of reality. He was one of the first to wed the twentieth-century concern over psychological health to empiricism and language behavior. Being "normal," he argued, should be determined by how closely one adheres to the communication norms of the scientist, not the traditional norms of society. Korzybski believed that most people confuse words and the "realities" they symbolize and that what causes this confusion is an internalization of classical Aristotelian deductive logic. People use words in ways that might be consistent logically but do not necessarily correspond to reality. General semantics values induction ("the natural order of abstracting"), distrusts high-level abstractions, and shows other features now associated with the school of logical positivism.

Korzybski offered a radical critique of the way people talked and thought, but his own ideas were presented in a style that was eccentric and difficult. His interpreters, in contrast, were extraordinarily successful in disseminating his concerns and in the process influencing the study of communication for decades. Stuart Chase, one of President Franklin D. Roosevelt's "Brain Trust," wrote the influential *Tyranny of Words*, and S. I. Hayakawa wrote a textbook, *Language in Action*, which helped to introduce general semantics into courses in INTERPERSONAL COMMUNICATION, counseling, speech pathology, and professional fields such as journalism. Its influence was greatest from about 1940 until the mid-1960s. During this development, theories from other disciplines that explored the possible influence of language on thought and behavior, including much of social psychology and anthropological linguistics (especially the "linguistic relativity" writings of EDWARD SAPIR and BENJAMIN LEE WHORF), were incorporated into general semantics teaching.

North American empiricism and pragmatism proved receptive to the principles of general semantics but also may have blunted the more radical goals articulated by Korzybski. His vision of a language-focused therapy called for no less than the "restructuring of human nervous systems." Thus general semantics might be identified as neurolinguistic psychotherapy as much as a practical aid to everyday communication.

In many respects general semantics follows the history of radical political and economic proposals in the United States of the 1920s and 1930s: its influence became so much a part of communication theory that it now seems unexceptional, while the system it challenged remains virtually unchanged.

See also MEANING; PSYCHOANALYSIS.

Bibliography. S. I. Hayakawa, *Language in Thought and Action*, 4th ed., New York, 1978; Alfred Korzybski, *Science and Sanity* (1933), 4th ed., with a new pref. by Russell Meyers, 1958; Anatol Rapoport, *Semantics*, New York, 1975.

JOHN CONDON

SEMIOTICS

The modern usage of the term *semiotics* can be traced to the British philosopher JOHN LOCKE, who in *An Essay concerning Human Understanding* (1690) appropriated the Greek word *semeiotiké* to designate the *doctrine of signs*, "the business whereof is to consider the nature of signs, the mind makes use of for the understanding of things, or conveying its knowledge to others." Though the notion of the SIGN has preoccupied many thinkers from early antiquity

to modern times, the idea of semiotics as an interdisciplinary matrix for a multitude of intellectual endeavors did not emerge before the late nineteenth century and was institutionalized on an international scale only in the 1960s. Semioticians do not yet agree on the definition of their enterprise, on its scope or limitations, or on a shared historical canon.

In light of such fluidity the only feature that can be said to differentiate semiotic from other scholarly discourses is the prominence within it of the concept of the sign. Yet as Locke's discussion of *semeiotiké* indicates, this concept has more than one INTERPRETATION. The various notions of the sign have led to three general, interlocking fields of semiotics.

First, a sign is a conjunction of two heterogeneous planes: a sensorily perceptible or material vehicle and an intelligible or mental MEANING. Thus *formal semiotics* (the space traditionally occupied by phonetics, etymology, or logic) is concerned with the kinds of relations between vehicle and meaning (natural versus conventional, literal versus figurative) from which it derives various sign typologies. Second, a sign is a representation, that is, an entity that stands for something else. *Cognitive semiotics* (extending over the domain of such cognitive sciences as epistemology, psychology, or AESTHETICS) studies the character of this representation and its influence on our interaction with the surrounding world. Finally, *communication semiotics* treats the sign as an instrument of exchange among its users, subsuming all the social sciences concerned with intersubjective transactions, whether anthropology, economics, or LINGUISTICS. This branch of semiotics deals with other media of communication previously neglected (GESTURE, BODY MOVEMENT, SPEECH SURROGATES) or of recent origin (film [see FILM THEORY], television) and with other modes of information transmission (ANIMAL COMMUNICATION, genetic codes, ARTIFICIAL INTELLIGENCE).

The study of signs has very ancient origins. In speculating on the origins of LANGUAGE the Socratic dialogue *Cratylus*, attributed to PLATO, describes the linkage between linguistic sound and meaning as either naturally or conventionally motivated (*physei* versus *thesei*), thus establishing one of the basic dichotomies for all subsequent discussions. ARISTOTLE's *On Interpretation* and *Rhetoric* and St. Augustine's *On Christian Doctrine* and *The Teacher* are other crucial ancient sign treatises, and philosophers Roger Bacon, Thomas of Erfurt, and William of Ockham continued the line of inquiry in medieval times. The major modern figures, besides Locke, are the philosophers and linguists Gottfried Wilhelm Leibniz, Johann Heinrich Lambert, Étienne Bonnot de Condillac, Wilhelm von Humboldt, and Bernhard Bolzano. However, two twentieth-century traditions lie behind the rich field of contemporary semiotics:

Anglo-American pragmatism and Continental structuralist linguistics.

Anglo-American Pragmatism

The most comprehensive program for the general science of signs was charted by U.S. philosopher CHARLES S. PEIRCE. His brilliant work was enormous in scope and was characterized by ever-multiplying typologies and neologisms that only recently have come under systematic study. According to Peirce, "a sign or *representamen* is something which stands to somebody for something in some respect or capacity." Hence every sign-process (or semiosis) is the correlation of three components: the sign itself, the object represented, and the interpretant. The relationship between the sign and its object (as the above definition suggests) implies a certain inadequacy between the two. The sign does not stand for the object in its entirety but merely in relation to some of its aspects. There are three basic modes, Peirce claimed, in which the sign can represent something else, and hence three types of signs: (1) A sign that resembles its object (such as a model or a map) is an *icon*; (2) A sign that is factually linked to its object (such as a weathercock or a pointer) is an *index*; or (3) A sign conventionally associated with its object (such as words or traffic signals) is a *symbol*.

The relationship between the sign and the interpretant is determined, Peirce maintains, by the sign's relation to its object, because the interpretant is supposed to stand to the object in the same relation as the sign. In fact, the interpretant of a sign is yet another sign that the original sign has evoked in the interpreter. To explain this seeming paradox one need only point out that the process of interpretation is nothing but the substitution of some signs for others. To interpret the word *table* one can resort to an icon (by drawing its picture), an index (by pointing to an actual table), or a symbol (by supplying a synonym). From this perspective, then, thought or knowledge is a web of interconnected signs capable of unlimited self-generation.

The seminal nature of Peirce's contribution to the general theory of signs was fully recognized by subsequent generations of semioticians. Among these a prominent position belongs to two British scholars, C. K. Ogden (1889–1957) and I. A. RICHARDS (1893–1979), whose *The Meaning of Meaning* (1923) provided not only a broad historical survey of various sign theories but also new insights into the structure of the sign and its functioning in different contexts (scientific, aesthetic, etc.). The Peircean legacy was most systematically developed by the Chicago philosopher CHARLES MORRIS. As he declared in his widely acclaimed *Foundations of the Theory of Signs* (1938), "Human civilization is dependent upon the

sign and systems of signs, and the human mind is inseparable from the functioning of signs—if indeed mentality is not to be identified with such functioning.”

Following the Peircean path, Morris conceived of the sign as a tripartite entity consisting of (1) a *sign vehicle*, (2) a *designatum* or referent of the sign (or *denotatum* if the referent is an actual object), and (3) an *interpretant*—the effect of the sign on someone (the *interpreter*). The relations among these components yield the following dimensions of semiosis, each governed by its own rules: *syntactic* (the sign vehicle vis-à-vis other sign vehicles), *semantic* (the sign vehicle vis-à-vis its designatum/denotatum), and *pragmatic* (the sign vehicle vis-à-vis the interpretant). It must be stressed that Morris considered this division a mere heuristic device and maintained that semiotics must be concerned with the totality. In his subsequent writings Morris remolded his semiotics according to the specifications of behaviorist psychology and treated the sign in terms of the stimulus-response sequence. Perhaps because of this limited perspective the impact of his later work has not matched that of the earlier *Foundations*.

Continental Structuralist Linguistics

In the European context the rise of contemporary semiotics is linked to the teaching of Swiss linguist FERDINAND DE SAUSSURE, whose lectures, compiled and published by his students in 1916 as the *Course in General Linguistics*, heralded the arrival of STRUCTURALISM on the intellectual scene. “A science that studies the life of signs within society is conceivable,” Saussure informed his pupils. “I shall call it semiology (from the Greek *sēmeion*, ‘sign’). Semiology would show what constitutes signs, what laws govern them. Since this science does not yet exist, no one can say what it would be; but it has a right to existence, a place staked out in advance.” Within this general science the study of language would be the branch concerned with “the most important . . . system of signs that express ideas.”

Because of his linguistic orientation Saussure perceived the nature of signs differently from Peirce and his followers. Since words are the prime example of conventional signs, he focused exclusively on the system of linguistic conventions (*langue*) that makes actual utterances (*parole*) understandable to language users. He considered *langue* a purely formal set of relations that, in the absence of other motivations, conjoins the two components of the linguistic sign arbitrarily—the sensory *signifier* and the intelligible *signified*. Accordingly, the study of the signifier was to yield a set of oppositions (the phonological system) that provides sonorous substance with linguistic form by articulating it into a limited inventory

of *phonemes*, the minimal sound units capable of differentiating words of unlike meaning in a given language (e.g., the voiceless *p* and voiced *b* in *pit* and *bit*). The study of the signified, on the other hand, would be concerned with the semantic grid that segments extralinguistic reality into meaningful linguistic units (words). The semantic value of every particular signified would be derived solely from its opposition to other signifieds coexisting within the grid. Thus English *mutton* differs from French *mouton* precisely because the meaning of the former is circumscribed by the word *sheep*, which has no equivalent in the French vocabulary.

Saussure’s fundamental insight, that behind every utterance is a linguistic CODE shared by speakers, was disseminated throughout Europe shortly after his death and provided semiotic studies with a theoretical focus. Brought to Moscow in 1917 by Saussure’s pupil Sergej Karcevskij (1884–1955), it instantly captivated the minds of young Russian linguists, partially because of its overlap with local inquiries into the phonic stratum of language. It also inspired the Russian formalists, a loose-knit group of young literary scholars, who in the 1920s applied some of Saussure’s ideas about language to POETICS. Crucial to the future development of sign theory was the critical reaction to Saussure and formalism by the Marxist followers of critic MIKHAIL BAKHTIN (1895–1975). The Bakhtinians claimed that the dichotomy between *langue* and *parole* and the privileging of the abstract system over actual speech failed to account for the communicative nature of language as a medium of exchange. For them every sign (utterance) was an ideological product, a direct or oblique reply to other signs (utterances) from alien ideological milieus in an ongoing dialogic process that is the culture of a given collectivity. Thus, the Bakhtinians argued, rather than focusing on the abstract identity of signs within a formal system, semiotics should instead study their actual changeability in concrete social contexts.

The ascendancy of Stalinism in the 1930s led to the official suppression of semiotics in the USSR. But meanwhile the Saussurian legacy had taken root elsewhere. The Prague Linguistic Circle (1926–1948) was the most important center of semiotic studies in interwar Europe. The formation of this group was stimulated to some extent by the migration of Russian scholars pursuing semiotic research. Along with Karcevskij and Petr Bogatyrev (1893–1971) was ROMAN JAKOBSON (1896–1982), vice-chairman of the circle and the most influential figure within it. Prague semiotics fused Saussure and the Russian tradition with the sign theories of contemporary German thinkers, in particular the phenomenological philosophy of Edmund Husserl (1859–1938) and the *Semmatologie* of psychologist Karl Bühler (1879–1963).

Despite the name of their association the members of the Prague Linguistic Circle did not limit their semiotic inquiries to language. This was especially true of the Czech aesthetician Jan Mukařovský (1891–1975) and his pupils, who focused on the general theory of ART, literature, THEATER, music, and FOLKLORE.

Partially in opposition to the Prague school a similar group was founded in Copenhagen in the late 1930s. While the Prague structuralists insisted on sociological and historical analyses of semiotic phenomena, the Danish glossematians (from the Greek *glossema*, “language”) strove for an algebraic formalization of semiotic codes as sets of logical functions. *The Prolegomena to a Theory of Language* (1943), by Louis Hjelmslev, the leader of this school, provides a comprehensive account of the Danish theory of signs.

World War II and Postwar Influences

The advent of World War II affected the development of semiotics in two important ways. First, this cataclysmic event shattered the borders among nations, intellectual traditions, and scholarly disciplines. The exodus of European thinkers to the United States led in 1943 to the creation of the New York Linguistic Circle, under whose aegis a most impressive theoretical cross-pollination took place. Important within this was the German neo-Kantian Ernst Cassirer (1874–1945), who directed the attention of U.S. philosophers to the suggestive semiotic category of the symbol. At the same time, the European exiles profited from their exposure to the local heritage of sign study. Jakobson, for example, incorporated some key concepts of Peircean semiotics into his structuralist linguistics. The war also changed the course of semiotics through the rapid development of new sciences and technologies. CYBERNETICS and its spin-off, the General Theory of Information (see INFORMATION THEORY), approached communication from a perspective not previously offered by the traditional disciplines and provided quantifiable methods for dealing with the sign.

The 1950s were a period of gestation. Characteristic of this decade was, first of all, concentrated research in logical syntax and SEMANTICS. Second, structuralist linguistics expanded steadily and extended its tenets to related disciplines. Most significant in this respect was the work of another former member of the New York Linguistic Circle, CLAUDE LÉVI-STRAUSS, whose *Structural Anthropology* (1958) inaugurated the subsequent structuralist revolution in France. Finally, at this time semiotics branched out into various behavioral sciences, and new fields of inquiry began to be charted: KINESICS, concerned with gestures and body movements as conduits of

information; PROXEMICS, dealing with the meaning of the SPATIAL ORGANIZATION of the human environment; and animal communication, for which the label *zoosemiotics* was later coined.

But it was the next decade that gave semiotics its intellectual respectability. From 1960 on, new centers of semiotic study began to appear around the world. The most influential in eastern Europe was the Moscow-Tartu School built around the linguist Vjačeslav Ivanov and the critic Jurij Lotman. It approached cultural phenomena as manifestations of “secondary modeling systems,” sign systems superimposed upon the primary system of language (see SIGN SYSTEM). In western Europe the spectacular rise of French structuralism extended the principles of Saussurian *sémiologie* far beyond linguistics and emphasized the analyses of semiotic codes governing such disparate phenomena as mythological thought (Lévi-Strauss), the literary process (the *Tel Quel* group, Gérard Genette, Tzvetan Todorov), fashion (ROLAND BARTHES), or the subconscious (Jacques Lacan). Elsewhere, stimulating research into the domain of signs was undertaken by the Stuttgart group headed by aesthetician Max Bense, Cesare Segre (a literary scholar from Pavia), and the chair of semiotics in Bologna, Umberto Eco. In the United States, where sign studies had been maximally diversified, an important role in the institutionalization of semiotics was performed by Thomas A. Sebeok, under whose leadership the Research Center for Language and Semiotic Studies at Indiana University (established in 1956) provided a necessary clearinghouse for the ideas emanating from so many different fields. To encourage collaboration among semioticians around the world, the International Association for Semiotic Studies was founded in Paris in January 1969 with the quarterly *Semiotica* as its official publication.

Bibliography. Henryk Baran, ed., *Semiotics and Structuralism: Readings from the Soviet Union*, trans. by H. Baran, William Mandel, and A. J. Hollander, White Plains, N.Y., 1974; Eric Buyssens, *Les langages et le discours: Essai de linguistique fonctionnelle dans le cadre de la sémiologie*, Brussels, 1943; Ernst Cassirer, *An Essay on Man: An Introduction to a Philosophy of Human Culture*, New Haven, Conn., 1944; Jonathan Culler, *Structuralist Poetics: Structuralism, Linguistics and the Study of Literature*, Ithaca, N.Y., 1975; Umberto Eco, *A Theory of Semiotics*, Bloomington, Ind., 1976; André Helbo, ed., *Le champ sémiologique*, Brussels, 1979; Roman Jakobson, *Main Trends in the Science of Language*, London, 1973; Thomas A. Sebeok, ed., *Current Trends in Linguistics*, Vol. 12, Pt. 2, The Hague, 1974; Peter Steiner, ed., *The Prague School: Selected Writings, 1929–1946* (Pražský lingvistický Kroužek), trans. by John Burbank, Olga Hasty, Manfred Jakobson, Bruce Kochis, and Wendy Steiner, Austin, Tex., 1982; V. N. Vološinov, *Marxism and the Philosophy of*

Language (Marksizm i filosofía řazyka), trans. by Ladislaw Matejka and I. R. Titunik, New York, 1973.

PETER STEINER

SERIAL

At its most technical, *serial* is a library term, referring to any publication that appears in short installments at regular intervals. By extension it refers to individual works published in MAGAZINE form, like the novels of Charles Dickens or William Makepeace Thackeray during the nineteenth century. By amplification it can be made to take in RADIO and tele-

vision SOAP OPERA, Saturday matinee film sagas, comic strips (see COMICS), Victorian novels, and medieval chansons de geste. And by association with *sequel* it may refer to any group of works in which there are recurring characters and an unfolding story that appears to last beyond the usual confines of the form. Here "serial" begins to touch on GENRE, as that term is used in the discussion of films that share common elements of plot, characters, motifs, or even directorial style. At this degree of generalization, where "serial" becomes "seriality," one might talk about the western (see WESTERN, THE) or the films of ALFRED HITCHCOCK as sharing aspects of seriality with Giovanni Boccaccio's *Decameron*, *A Thousand*



Figure 1. (*Serial*) Hablot Browne ("Phiz"), *The Shadow in the little parlor*. Etching. From Charles Dickens, *Dombey and Son*, London: The Encyclopaedia Britannica Company, ca. 1870, p. 586.

The Shadow in the little parlor.

and *One Nights*, and the adventures of Li'l Abner.

For the purposes of literary analysis, the importance of the separate episodes of a serial is in their common links of plot and character. The term generally implies a story that continues in time, usually forward but sometimes backward. Unhampered by a theory of progress, HOLLYWOOD has invented the "prequel" to open up space on both sides of the original story—although one might argue a noble precedent in the way the New Testament presents itself as a sequel to the Old and at the same time redefines its predecessor as a mere prelude to the real story. When serial episodes become less distinctive, on the other hand, seriality shades into repetition and thereby into RITUAL—that is, a story that does not continue so much as it exists outside chronological time and is restaged again and again, with different players and in different costumes, but with the same plot, the same roles, and perhaps even the same lines.

These affinities between the serial and the ritual emphasize the difference between the potentially unending pattern of the serial story and the typically end-stopped plot of the work whose aesthetic claim is to be unique and original. When originality became an essential criterion in the evaluation of artistic work, the shaped quality of those works, whether visual or literary, along with the artistic willfulness behind that shaping, became a prime focus. In contrast the serial or repetitive work came to be considered as belonging to a more primitive era or, by association, to a more primitive level of taste. Hence, seriality and genre repetition became a hallmark of popular art, and uniqueness and irreproducibility the consequent indication of high artistic intention and achievement that scorned the easy invocation of past successes in order to invent anew.

But even in the earliest days of the romantic assertion of originality and individual artistic power, writers such as William Wordsworth, Samuel Taylor Coleridge, and Lord Byron combined their commitment to what was new in their art with a return to what was deeply rooted and ancient (see ROMANTICISM). The ambiguity, if such it is, derived from the double meaning of *original*: not only never before seen but also (or because of this) a return to the beginning. At worst, then, the audience for serial works desired only debased or commercially successful "formula" art. At best, it was a folk audience, weaned on ballads, grown up with rituals, and thus more temperamentally attuned to the rhythms of familiarity than the jarring notes of the modern.

By the end of the nineteenth century this separation between popular and high culture had become more codified. With the entrance of literary and artistic study into the university, the gap widened, and the establishment of such maxims of critical modernism

as the self-contained work and the genius-artist seemed forever to banish serial form and its often anonymous creators from any serious consideration.

Serial form as an actuality, however, continued to thrive, and the energy it drew from the new media of communication was apparent because they were themselves constantly telling their unfolding story of what was happening in the world. The individual episodes told in film, on the radio, or in the comic strips pulled the reader along through a larger story whose end was never necessarily reached. For the real narrative investment was in the succession of frames themselves, which would be always present every time you looked into the newspaper, turned on the radio, or went to the movies.

The rise of television after World War II (see TELEVISION HISTORY) further consolidated the importance of serial form, if only in sheer numbers, as the dominant style of storytelling NARRATIVE. Watched primarily in private homes, often in living rooms, television programming grew to occupy virtually every hour of the day, usually with shows of predictable format and local variation—in short, the perfect serial. In such shows the basic unit of narrative construction was less the plot of the immediate episode than the relations between regular characters. In the early days of U.S. television two styles of such shows predominated: those in which the characters had a family relation (presumably like that among those who watched them) and those focusing on a single character at large in the world. Thus, as in most popular art, an identification was made between the situation of the audience (a family or an unattached person) and the situation of the continuing character or characters.

With its inclusive envelope of constant programming, television proved to be a formidable hothouse for developing its audience's awareness of conventions of serial storytelling and its desire for more elaborate forms. The family shows had a long life. But the more adventure-oriented shows that featured a lone individual—with their roots in the literary picaresque—gradually gave way to stories that focused on two or more characters without blood connection whose relationship was that of an extended family, each member representing a different character type available for the empathy of an increasingly diverse audience. Similarly, the exclusively domestic setting of the family situation comedies expanded into "workplace" shows such as "M*A*S*H," in which an army medical unit served as a surrogate family, and "Barney Miller" with its police precinct staff representing virtually every racial, religious, and ethnic type. Whether set in the present or the past, whether urban crime was tinged with sentiment or upper-class luxury with skullduggery, the common thread was the connection the

HOUDINI

LE MAÎTRE DU MYSTÈRE

GRAND ROMAN CINÉMA

Adapté par
M^r J. PETITHUGUENIN



Figure 2. (Serial) Poster for *Le maître du mystère* (The Master of Mystery), a fifteen-part Pathé serial, ca. 1910. Courtesy of the Library of Congress.



Figure 3. (*Serial*) Wendy Richard and Bill Treacher in "EastEnders," a biweekly drama set in an imaginary borough in London's East End. Copyright BBC (Enterprises) 1985.

audience had with the characters, those it detested as much as those it loved.

Formally, the development of television plots was based on the realization that, since character was the prime connection with the show, the older episodic structure was unnecessary. Daytime television, following the lead of daytime radio, had long assumed that its audience tuned in to the same show every day and that therefore no particular show had to have a plot shape of its own. Nighttime television, like nighttime radio, had in contrast been on a weekly structure and therefore tended to present a complete story in each episode. With their large casts of continuing characters, the workplace shows especially pioneered stories that ran simultaneously, although each might be stretched over a varying number of individual episodes. The episode itself might have a general theme, but there was no fit required between the theme and the beginning, middle, and end of the episode's plot. With the success of the British Broadcasting Corporation's serial dramatizations of lengthy novelistic works, the miniseries pattern, which in principle required a commitment of several consecutive days or weeks to watch, became a strong influence on the structure of the weekly shows as well. Thus, a formal evolution might be sketched in the history of television from "I Love Lucy" and "The Fugitive," with their self-contained episodes, through "Dallas" and "Hill Street Blues," with their stories that unwind unmindful of episodic structure, to "Upstairs, Downstairs" and "The Jewel in the Crown," in which formal closure of any conventional sort is no longer a major objective.

In a world of commercial media looking for ways to lure and especially to keep an audience, serials, sequels, and genres equally offer the possibility of replicating and extending familiar emotions and satisfactions. They are therefore prime ways to protect an investment that might disappear if spent on some theme or characters less presold and formulaic. But mere repetition does not guarantee the same audience appeal, as countless failed Hollywood genre films, sequels, and remakes show. From one point of view, seriality may be the ultimate example of the power of commercial considerations to dictate what films or television shows get made. But from another, it invokes the ability of the audience to step back and become aesthetically self-conscious. Because all innovations in serial form embody a shift of emphasis from the framework of plot to the armature of character, there must be something in the unfolding story that continues to keep the audience's attention, something new in the development of the characters who are at the core of the work's appeal. Knowing the forms, audience members are more in a position to distinguish and judge the success of each particular example.

As television created an environment within which the serial or soap opera form (to pay tribute to its origins) became the common mode of experiencing stories, more critical attention was given to their special characteristics. Of particular interest here were terms drawn from the study of LINGUISTICS and the study of anthropology, both areas in which the unique was less interesting than the common. The linguistics of FERDINAND DE SAUSSURE, the structural anthro-



Figure 4. (Serial) Joan Collins, John Forsythe, and Linda Evans, "Dynasty," 1986. Courtesy of Richard and Esther Shapiro Productions in association with Aaron Spelling Productions.

pology of CLAUDE LÉVI-STRAUSS, and the SEMIOTICS of Umberto Eco all emphasized the continuity as well as the repetition of forms and motifs, thereby helping to fashion a critical vocabulary more attuned to the connections between works than to their differences. Similarly, Vladimir Propp's *Morphology of the Folktale* (1928; translated into English, 1968) explored the basic motifs of character types, while Northrop Frye's *Anatomy of Criticism* distinguished the genre myths that have shaped literary forms since the classical period. At its most extreme such study promoted an intertextual approach that attempted to do away with the concept of AUTHORSHIP as an originating concept, replacing it with a literary self-generation reminiscent of the "folk process" in song composition first argued in the eighteenth century by Joseph Ritson against those who believed all songs were created by some single bard.

As part of the defense of the vitality of popular culture and an effort to dethrone the canon of great works as the only true entry to literary value (see LITERARY CANON), the critical study of seriality is a crucial element in the effort to see works of art as elements without special privilege in an entire world of communication and discourse. By focusing on character as the binder of stories rather than on stories as the shapers of character, serial forms imply an account of the scope of human will less hedged by fate (in the shape of the divine or artistic plotter) and potentially more free to explore and establish less premeditated shapes of its own (see FICTION, PORTRAYAL OF CHARACTER IN). With their equal allegiance to stories in the past as well as to character in the present, serial forms can thus raise questions of the interaction between individuality and context

that are difficult to consider within the confines of more intricately plotted works. At least as much as the works of original creation to which they have been so often contrasted, they are a crucial part of the way we tell stories to each other about the connections between ourselves and the world.

Bibliography. Umberto Eco, *The Role of the Reader*, Bloomington, Ind., 1976; idem, *Semiotics and the Philosophy of Language*, Bloomington, Ind., 1984; Northrop Frye, *Anatomy of Criticism*, Princeton, N.J., 1957; Gérard Genette, *Narrative Discourse: An Essay in Method*, trans. by Jane E. Lewin, Ithaca, N.Y., 1980; Claude Lévi-Strauss, *Structural Anthropology*, 2 vols., New York, 1963–1976; Vladimir Propp, *Morphology of the Folktale*, 2d ed., rev., trans. by Laurence Scott, Austin, Tex., 1968; idem, *Theory and History of Folklore*, ed. by Anatoly Liberman, trans. by Ariadna Y. Martin and Richard P. Martin, Minneapolis, Minn., 1984; Ferdinand de Saussure, *Course in General Linguistics*, ed. by Charles Bally and Albert Sechehaye, London, 1974, reprint 1983.

LEO BRAUDY

SEXISM

This entry consists of two articles:

1. Overview
2. Sexism in Interpersonal Communication

1. OVERVIEW

The degree to which males and females are socially unequal has varied, both cross-culturally and historically, from near equality to radical female disadvantage. Such variation is linked to the type of technology

and economy (e.g., industrial, agrarian, horticultural, foraging) and to women's role in the economy. Women's status relative to men's in a given society is closely related to that society's dominant, gender-related IDEOLOGY, whether secular, religious, or both (see GENDER). Dominant, gender-related ideology refers to the manner in which a society defines appropriate behavior, personality, interests, and so on for each sex and justifies any differences in their rights, duties, and rewards. When women are disadvantaged relative to men in their access to socially valued resources and the dominant ideology explains and justifies such disadvantage, we use the term *sexism*. Sexism in some degree is universal in contemporary societies.

There is disagreement among social scientists concerning the relative causal power of economic versus ideological factors in producing sexism. U.S. anthropologist Peggy Sanday has examined a large number of tribal societies and argues that each society produces a "sex-role plan" specifying how relationships between the sexes are to be structured. Such plans are rooted in an overarching cultural orientation manifested in creation myths. Such myths may include deities of both sexes or only one sex as original creators. When mythical creative power is attributed to males only, that sex is dominant in the secular as well as the sacred realm. The more central female figures are in such myths, the more equitable the sex-role plan and the statuses of the two sexes. Sociologists such as Rae Lesser Blumberg and Janet Saltzman Chafetz in the United States have theorized that the degree of sexism is a function primarily of the relative control each sex exercises over the economic resources of that society. When such control is vested exclusively in males, sexism is at its height. In turn, males are led to develop an ideology that legitimates their control and social advantages, which further reinforces those socioeconomic advantages.

In technologically simple, non-surplus-producing societies (horticultural and hunting-gathering) women's productive roles are usually central to the collectivity inasmuch as they typically provide from 40 to 80 percent of the food. In such societies sexism is minimal to nonexistent, and their religious imagery typically incorporates a female principle. As the technology becomes more complex the production of surplus commodities for trade and familial aggrandizement becomes a primary goal. When this happens males come increasingly to control economic resources, and RELIGION increasingly stresses the male principle.

The most extreme female socioeconomic disadvantage is found generally in agrarian and pastoral societies. Virtually all the great world religions, namely, those that spread beyond the tribal level, developed in agrarian or mixed agrarian and pastoral societies.

Those that became monotheistic (e.g., Judaism, Christianity, Islam) dropped the female element entirely from their concept of the deity and original creation. They came to view the sexes in an invidious fashion. Women were barred from formal religious roles such as the clergy, were defined as polluted or as temptresses, and were made subject to the secular as well as sacred authority of male kin. Even when monotheism did not develop (e.g., Hinduism, Confucianism), the same types of controls over women came to be justified by religion on the basis of women's supposed innate inferiority.

Such religions constitute the cultural heritage of most modern societies. With the changes wrought by advanced industrialization, women have regained some economic power. This has been reflected in ideological change, both religious and secular. Reform Judaism and many branches of Protestantism, for instance, have altered LANGUAGE and practice in their services in an attempt to reduce sexism, and they even ordain women. Secular authorities in India, China, and the Soviet Union, among many other nations, have created legal documents embodying the principle of sexual equality in their secular ideologies. Nonetheless, centuries of religious heritage constitute a powerful force shaping often unconscious images of the sexes.

One very common practice in extremely sexist societies has been much stricter control over women's sexuality than over men's sexuality. This has been done in order to ensure "proper" paternity, which in turn is linked to the intergenerational transmission of property from father to son. It takes an extreme form such as *purdah* (the total seclusion of women in Hindu and Islamic tradition) or milder forms such as chaperoning unmarried women, covering women's bodies and faces almost entirely, or simply a double standard that punishes women (either alone or more harshly than men) who lose their virginity premaritally or commit adultery. The ideological justification often stresses women's extreme sexuality and the diversion from duty this supposedly creates for men. Left unchecked, female sexuality would presumably constitute a danger to the social collectivity. In such cases the image of females is sharply bifurcated: the pure, virginal, or chaste woman who conforms to religious and social strictures (the "lady") versus the polluted, whorelike temptress, the fallen woman who has rebelled against God and society. There is no counterpart bifurcation of males on the basis of sexuality. Language often reflects this phenomenon by producing a vast terminology of "dirty words" to refer to women who step out of bounds and more generally to specific parts of the female anatomy. Women are thus defined essentially on the basis of their sexuality and sexual conduct, resulting in the irony that in attempting to repress female sexuality

women are made into sexual objects. Moreover, when the repressive aspect is removed the objectification does not quickly disappear, as manifested by contemporary ADVERTISING and PORNOGRAPHY.

Extensive control over women by men may result for many women in traits of passivity, childlike dependence, and the inability to function as responsible adults. At the very least, women come to be stereotyped in this manner. In turn, such traits and/or stereotypes further suggest the "need" for male domination. Denied the opportunity to become responsible and independent, women come to be defined as fit only for the domestic role, which is relatively devalued in surplus-producing societies. On this basis women become objectified in a second way. To the extent that they conform to their domestic role and behave in a proper manner sexually, they may be admired, even worshiped, but only as idealized mothers, a role nature has ostensibly created them for.

In the more sexist societies, masculinity and femininity are typically defined as opposites: that which is masculine is nonfeminine. If females are passive, dependent, immature, and incapable of playing societal roles outside the family, then males must be active, independent, mature people who can and should guide and control not only women but the social collectivity. U.S. anthropologist Sherry Ortner has argued that this split between masculinity/public roles and femininity/domestic roles results in an association of males with "culture" and females with "nature." The reasoning is that women play domestic roles because they bear children; they bear children because that is what they are biologically fit to do. Men do those things that involve use of their intellect and creativity; they function in the literally man-made world of ART, government, commerce, and so on. Many cultures, especially in the West, have defined the human species as superior to all others precisely because it presumably escapes from the purely natural by creating the cultural. If only half the species is perceived as producing the cultural, it will appear obvious that that is the superior, fully human half.

In controlling the cultural, public aspects of their societies, including the very institutions that produce the ideology legitimating such control, men in sexist societies become the gatekeepers who decide what is to be defined as valuable, worthy, and proper. It is their imagery of females that becomes the official, societal definition. Men define that which constitutes humanness, and, in the words of French existentialist Simone de Beauvoir, women become simply "the other." Substantial research suggests that conceptions of "human" and "masculine" tend to coincide, but they differ from those of "feminine." If a woman manages to produce a painting, a musical composition, a poem, or a scientific paper, it will be judged by the standards men have set, if indeed male gate-

keepers deem a woman's production worthy of being judged at all. Such standards are taken to be universal and unbiased, not as the products of specific people with vested interests. They assume a reality of their own that transcends their social origins and are seen as applicable across time and space. Women who would produce cultural artifacts in a sexist society are thus caught in a double bind: they can attempt to meet male standards that are defined as universal, but since they are not male they compete for recognition at a disadvantage; or they can produce according to their own experience and ideas of quality, and their products will typically be defined as inferior by societal gatekeepers. Thus, for instance, women's art in basketry, weaving, and needlework constitute only "crafts," whereas men's in paint, stone, and bronze are "fine arts."

Besides standards of judgment, male assumptions about the world, male definitions, and male perceptions of what constitute problems all become synonymous with "reality." Western science has provided numerous examples of how sexism intrudes to shape even the ostensibly most objective type of cultural production. For example, in the seventeenth century European scientists defined sperm as carrying a miniature fetus; the female provided only the environment for its growth. The resulting child "obviously" belonged to the father. As (male) medical doctors took over childbirth from (female) midwives in the nineteenth century, pregnancy and parturition became increasingly defined as a problem, even a kind of illness; after all, physicians do not treat "normal" events. Until about 1970 anthropologists largely ignored women's extensive contributions to the food supplies of preliterate societies, developing theories based on the centrality of male hunting to the survival of families and societies, and even to the evolution of the species. SIGMUND FREUD and his followers defined masochism, passivity, and narcissism as normal female traits and developed a theory to explain women's innately inferior conscience (superego). Psychologist Carol Gilligan has demonstrated that males and females employ basically different notions of moral behavior. The former tend to base morality on abstract principles, the latter on a concern with concrete relationships. Yet the field of psychology has assumed that the masculine approach is synonymous with the general concept of moral behavior and that therefore females are less moral. Work has been defined by economists and sociologists in terms of the labor force, ignoring the domestic labor of homemakers and implying that they do not "work."

The power to define the world and to define standards of judgment constitutes the power to shape the sociocultural world to one's own image and interests. Sexism, rooted in economic phenomena, legitimated and extended by ideologies, vests such power in males. In turn, definitional power reinforces sexism.



Figure 1. (*Sexism—Overview*) Billboard with graffiti. Farringdon, London, 1979. From J. Posener, *Spray It Loud*, London: Routledge & Kegan Paul Plc, 1982, p. 13.

When extensive sexism exists, women are not simply denied all manner of rights, resources, and opportunities but are denied the ability to define themselves, their experiences, and their works as worthy and valuable, sometimes even as real.

Bibliography. Rae Lesser Blumberg, *Stratification: Socio-economic and Sexual Inequality*, Dubuque, Iowa, 1978; Janet Saltzman Chafetz, *Sex and Advantage: A Comparative, Macro-Structural Theory of Sex Stratification*, Totowa, N.J., 1984; Carol Gilligan, *In a Different Voice: Psychological Theory and Women's Development*, Cambridge, Mass., 1982; Erving Goffman, *Gender Advertisements (Studies in Visual Communication, Vol. 3, no. 2, Washington, D.C., 1976)*, New York and Cambridge, Mass., 1979; Nancy M. Henley, *Body Politics: Power, Sex, and Nonverbal Communications*, Englewood Cliffs, N.J., 1977; Charlotte O'Kelly and Larry Carney, *Women and Men in Society*, 2d ed., Belmont, Calif., 1986; Michelle Zimbalist Rosaldo and Louise Lamphere, eds., *Women, Culture, and Society*, Stanford, Calif., 1974; Peggy Sanday, *Female Power and Male Dominance*, Cambridge and New York, 1981; Edwin Schur, *Labeling Women Deviant: Gender, Stigma, and Social Control*, New York, 1984.

JANET SALTZMAN CHAFETZ

2. SEXISM IN INTERPERSONAL COMMUNICATION

Sexism is reflected and reinforced by GENDER differences and inequities in LANGUAGE, language use, and NONVERBAL COMMUNICATION. Sexist elements in INTERPERSONAL COMMUNICATION vary according to CULTURE and language. Although most of the research in this area has been conducted in the West,

primarily in the United States, its findings have functional counterparts in languages and cultures around the world.

Vocabulary. The most obvious and frequently noted manifestation of sexism in communication is contained in the basic vocabulary typical of ordinary usage. Most languages conceptualize God as male and refer to the deity as *He*. The generic term most commonly employed for our species is *man*. When the sex of an individual is unknown or irrelevant, we use masculine singular pronouns and possessives: *he, him, his*. This creates a subtle mind-set that assumes maleness is the norm and femaleness deviant or invisible.

Many traditional occupational titles still widely employed convey the expectation that their incumbents will be male: *businessman, policeman, garbage man*. In contemporary bureaucratized society, leadership is commonly vested in *chairmen*. Nor are polite titles free of sexist assumptions. The proper title for almost all men is *Mr.* Exceptions convey occupation: *Doctor, Coach, Judge*. However, attachment to men has been considered the most salient attribute for women, and the common titles *Miss* and *Mrs.* convey marital status. At its extreme, a married woman loses her identity totally and becomes *Mrs. husband's first name, husband's last name*. *Ms.*, the direct feminine counterpart of *Mr.*, is uncommon usage.

Many words take on very different connotations depending on the sex of the person to whom they refer. These differences reflect social stereotypes of the two sexes. To say that a man is "aggressive," "competitive," or "handsome" is complimentary; to attribute those characteristics to a woman is derogatory. Similarly, to say that a man is "sensitive" or

“beautiful” is to belittle him, but for a woman these constitute compliments.

Many ostensibly sex-neutral, high-prestige occupational titles are simply assumed to refer to men. This is clear by the way we modify these words when a woman is the role incumbent: *lady doctor, woman lawyer, female professor*.

We also attach different meanings to supposedly parallel sex-related terms. A boy is a juvenile male. Adult males are usually insulted when called “boy,” a term commonly used for black men until the 1960s. *Girl*, however, is commonly used to refer to adult females. *Gentleman* refers to men who behave politely and/or have high status; it is used relatively infrequently. *Lady* is a virtual synonym for *woman* and, given its formal definition, is often used in patently ridiculous contexts: “ladies of the night,” “cleaning lady” (imagine “gentleman janitor”), “ladies’ basketball team.” The fact that adult males are almost always “men” but adult females are equally or more likely to be “girls” or “ladies” than “women” has been attributed to the sexual double standard. Girls are presexual, ladies are asexual, but women, like men, are sexually mature and presumably active. The terms *father* and *mother* are also parallel, but to say someone “fathered” a child is to convey a biological fact; when someone “mothers” a child, it is assumed to refer to a long-term, social relationship of a special, nurturant kind. This distinction reflects different societal expectations of the two parental roles. Bachelors and spinsters are both single, never married, but the latter term is clearly derogatory, whereas the former often connotes an envied status, reflecting the social injunction that women should be attached to men but not necessarily the opposite. “Tomboy” is often a badge of pride, “sissy” always one of shame, manifesting the greater prestige of maleness, even when exhibited by a female. *See also* LANGUAGE IDEOLOGY; LANGUAGE VARIETIES.

Speech. Early investigations focused on hypothesized inequities between female and male language usage: in the extent and emphasis of vocabulary, use of euphemism and hyperbole, and reliance on devices that preface assertions with apologies or pleas for attention (e.g., “Listen, this is interesting . . .”) or, as with the tag question, that turn a statement into a request for permission (e.g., “Dinner will be ready at six, okay?”). Many of these hypotheses were based on assumptions about the ways in which women, encouraged from childhood to be ladylike and to defer to men, tend to reduce the forcefulness and assertiveness of their SPEECH. However, most such assumptions have not been borne out by empirical research. No differences have been established between the sexes in terms of type or range of vocabulary or with respect to patterns of question asking.

What has been discovered is that speech style or

language use varies for both women and men according to situational or social context, thus opening a fruitful new field for study. In addition, researchers have found that similar speech patterns may be interpreted differently by listeners depending on the sex of the speaker—in other words, that bias may be in the ear of the hearer. Studies also indicate that although women do much of the conversational work in male-female interactions—initiating talk, asking questions, providing verbal support—men tend to control interaction by such tactics as withholding response to topics initiated by women and minimizing self-disclosure.

Substantial research suggests that when men and women converse, women support and encourage the speech of men with sounds (“uh-huh,” “mmm”) and words conveying agreement and/or interest (“right,” “really?”). Generally, this is not reciprocated by men, however. Research by U.S. sociologists Candace West and Donald Zimmerman demonstrates that men are more likely to interrupt women than vice versa, manifesting their superior power by “grabbing the floor.”

Nonverbal behavior. While people speak, their bodies are communicating as well. Women establish more eye contact with conversational partners, whereas men are more apt to look away from their partner entirely. Women are therefore more apt to perceive (even if not consciously) their partner’s body language, which may contradict the verbal message (*see* KINESICS). The information provided by this greater attentiveness to nonverbal cues may be at least part of the basis for women’s supposedly greater intuition. Those with less power must be more attentive to their superiors than vice versa, since their well-being is more contingent on the actions of the more powerful person.

Women also smile and nod more during conversation, a nonverbal form of conversational support that goes largely unreciprocated by men. The fact that women are, in a variety of both verbal and nonverbal ways, more attentive to and supportive of their conversational partner than are men reflects a fundamental gender-role difference, in addition to their differential social power. A basic component of the feminine role is nurturance and concern for human relationships. The masculine role is more instrumental or task-oriented. Through their different styles of communicating, women demonstrate a primary concern for their interactional partner, men for the actual content of the specific interactional situation.

The ways in which people arrange and move their bodies while they speak affect the forcefulness of their communication, reflecting and reinforcing power differences. Men tend to have greater “presence” and are therefore more forceful than women, not only because they tend to be larger but also because

appropriate feminine behavior entails keeping the limbs and the trunk of the body compressed. Men's arms move more when they speak; their legs splay out from their bodies when they sit (compare the way men and women typically cross their legs). Added to this is both the naturally deeper male voice and the systematic encouragement of men to "speak up" but of women to use a soft, polite tone of voice.

TOUCH constitutes a very direct form of communication, manifesting a powerful relationship when it involves people who are not intimate. According to U.S. psychologist Nancy Henley, people who initiate touch with nonintimates are demonstrating their power over the recipient. For example, adults feel few compunctions about casually touching even unfamiliar children. Men initiate most touching that occurs between nonintimate members of the sexes (e.g., a casual arm around the shoulder). Women typically shrink at such a touch, indicating acquiescence to power. *See also* INTERACTION, FACE-TO-FACE.

Communication and social change. Both verbal and nonverbal modes of communication grow out of the physical and social reality in which a group of individuals is embedded (*see* MODE). In turn, communication modes shape the ways in which people perceive, define, and react to phenomena. As the behaviors and values of women and men change, along with their relations to one another, modes of communication within each gender and between the two genders do tend to change. In formal, written language sexist modes of communication are disappearing. However, to communicate with and understand others comfortably and quickly, ordinary modes of communication must be based in habit. They are thus also relatively resistant to change.

In order to succeed in masculine contexts, women have increasingly adopted a male vocabulary and communication mode as they move into roles formerly monopolized by males in the economy, politics, SPORTS, and RELIGION, becoming, as U.S. linguist Robin Lakoff argues, bilingual. Similarly, as fathers become more involved in parental duties, they adopt a vocabulary and speech style long associated with mothering. Whereas gender differences in communication are declining, women's language is changing more rapidly than men's, inasmuch as women's social roles have been changing more rapidly. Moreover, given the lesser power and prestige associated with femaleness, males are far less motivated to learn or use feminine means of communication and are often ridiculed when they do so.

The continued use of sexist modes of communication helps to retard social change because language shapes our perceptions of the world. As CHILDREN learn sexist means of communication, they learn to assume a reality that is increasingly obsolete. It is

these very assumptions that help to perpetuate at least remnants of the old structure.

See also FEMINIST THEORIES OF COMMUNICATION.

Bibliography. Max K. Adler, *Sex Differences in Human Speech: A Socio-Linguistic Study*, Hamburg, 1978; Robin T. Lakoff, *Language and Woman's Place*, New York, 1975; Clara Mayo and Nancy M. Henley, eds., *Gender and Nonverbal Behavior*, New York, 1981; Alleen Pace Nilsen, *Sexism and Language*, Urbana, Ill., 1977; Barrie Thorne, Cheris Kramarae, and Nancy Henley, eds., *Language, Gender and Society*, Rowley, Mass., 1983.

JANET SALTZMAN CHAFETZ

SHANNON, CLAUDE (1916–)

U.S. mathematician and educator, in the field of communication known largely for his INFORMATION THEORY, which profoundly changed scientific perspectives on human communication and facilitated the concurrent development of new communication technology for the efficient transmission and processing of information. Claude Elwood Shannon's *Mathematical Theory of Communication*, first published as a Bell System Monograph in 1948 and a year later, after insightful review in *Scientific American*, as a book with commentary by WARREN WEAVER, was still in print forty years later. No single book on communication theory has so far surpassed its publication record.

Shannon's ideas did not originate in a vacuum, but none of his predecessors (e.g., Ludwig Boltzmann, Karl Küpfmüller, Harry Nyquist, Ralph V. L. Hartley, Leo Szilard, or Ronald A. Fisher) or contemporaries (e.g., NORBERT WIENER and the independently working Andrei Nikolaevich Kolmogoroff) presented such a large body of coherent concepts, abstract propositions, and theorems, along with a research agenda that could be applied to virtually any discipline concerned with knowledge, and none had the benefit of working at a time or in places so pregnant with intellectual and technological developments in communication. The completeness of Shannon's work (not a single proposition has had to be retracted) and the opportunities it promised for conceptualizing and quantifying a process so basic to human existence surprised many. Within a few years of its publication the theory provided the scientific justification for academic programs in human communication (which sprang up largely in U.S. universities), expanded communication research to new media, created novel areas of inquiry as well as two new journals, and stimulated the development of new communication technology for handling knowledge, including in computers. The theory became a milestone in communication research and marked the transition from an industrial to an information society.

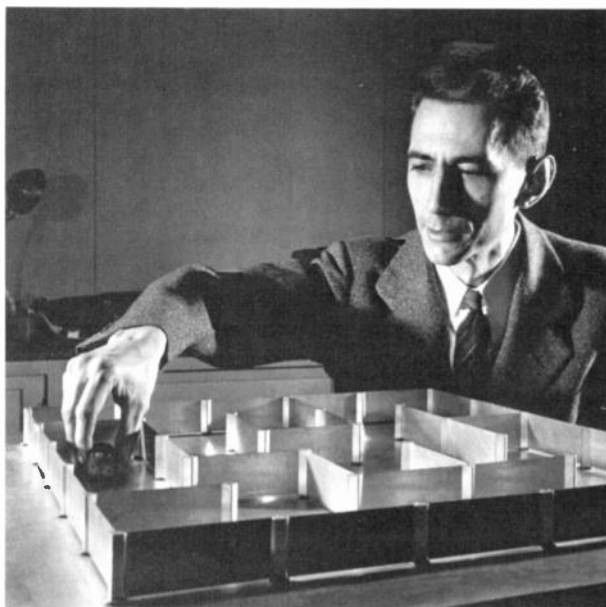


Figure 1. (Shannon, Claude) Claude Shannon demonstrating his maze-solving electrical mouse at Bell Laboratories in 1952 in an experiment to study telephone switching systems and the logical powers of computers. Courtesy of AT&T Bell Laboratories.

Born in Gaylord, Michigan, Shannon received a B.S. in electrical engineering from the University of Michigan and an M.S. and a Ph.D. in MATHEMATICS from the Massachusetts Institute of Technology (MIT), where he held the Bowles Fellowship. In 1940, the year he received both graduate degrees, he won a National Research Fellowship at Princeton University. In 1941 he joined Bell Telephone Laboratories as a research mathematician and later became executive consultant to Bell's mathematics and statistics research center. In 1956 he was appointed professor of communication at MIT, where he was given the Donner Chair of Science two years later. He remained a consultant to Bell Laboratories until 1972 and became a professor emeritus in 1979. He has received numerous awards and honorary degrees.

In a nutshell, Shannon's work established novel connections between symbolic and physical forms: Boolean algebra of switching nets, automata theory, cryptography (see CRYPTOLOGY), theory of coding (see CODE), and, above all, his communication theory (or information theory, as it is now called). Shannon's master's thesis, completed when he was twenty-one, was entitled "A Symbolic Analysis of Relay and Switching Circuits" and was published in 1938. Reputed to be the most important master's thesis of this century, it established an isomorphism between the Boolean logic of propositions and the kind of switching networks then beginning to be used in electronic machines and showed that any logical

operation that could be described in a finite number of steps could also be carried out by an appropriate switching circuit. It also suggested that the programming of computers ought to be thought of not as an arithmetical problem (then the dominant view) but as a problem in formal logic. Simultaneously Shannon provided not only a powerful tool for synthesis, analysis, and optimization of relay circuits but also the crucial link between logic—the crown of human reasoning and symbolism—and the newly emerging computing machines. He continued to explore this new synthesis, designing an electronic mouse that could learn from mistakes and find its way through a maze, editing *Automata Studies* with John McCarthy (who became a leading figure in the field of ARTIFICIAL INTELLIGENCE), and pursuing his interest in reliable machines built from unreliable components in work on chess-playing computers, for example.

Shannon's interest in cryptography began as a hobby but took on great significance during World War II, when he became associated with Bell Laboratories, where work on pulse-code modulation was in progress. His confidential monograph *Communication Theory of Secrecy Systems*, circulated in 1945 and cleared for publication in 1949, discussed cryptographic ideals—variable coding transformations that are easy to do and undo and that make the enciphered text seem random—and furnished proofs of the conditions under which cryptograms should in principle be decipherable. The work contained many of the ideas that became central to his information theory. He described communication as "the fundamental problem . . . of reproducing at one point either exactly or approximately a message selected at another point." He showed coding to be central to any communication—a message must be encoded into a medium suitable for transmission and the received signal decoded by applying the inverse of the encoding transformation—and became aware of the need for a statistical characterization of message sources and channels, including transmission errors or noise. Coding problems suddenly came to be recognized as central in research ranging from communication engineering to LINGUISTICS (e.g., in the form of LANGUAGE translation) and resulted in the notion of information processing in humans, machines, or social organizations.

By his own account, Shannon started work on his mathematical theory of communication as early as 1940 while a fellow at Princeton. Subsequent work, especially on coding problems, must have shaped its direction. One of the theory's crucial innovations was its linking of communication to the freedom of choice a sender has in selecting a message, and the constraints this imposes on the receiver. What a message is or contains, why it is selected, or how it

is coded became secondary to the choices exhausted in a communication relationship. Realizing that the very idea of communication implies that one cannot know in advance the messages chosen, Shannon decided to regard sending and receiving as a stochastic process, that is, as a process of selecting among sets of alternatives whose probabilities are somewhat dependent and knowable, at least in the long run. For this idea he acknowledged the influence of Wiener's work on statistical prediction and filtering of time series and made use of the Russian mathematician Andrey Andreyevich Markov's 1913 theory of chains of symbols in literature. However, his most consequential invention was the now famous logarithmic measuring function $-\sum p_i \log_2 p_i$ for quantifying the volume of choices available, uncertain about, consumed, or channeled. He had misgivings about assigning uncommon meanings to the word *information* and took JOHN VON NEUMANN's suggestion that this function be called *entropy* because its mathematical form resembled one known by that name in quantum physics and interpreted in that field as lack of information. The mathematical properties of this function proved to be unique and enabled Shannon to develop the theory into a full-fledged calculus for information quantities. Shannon avoided the term *information theory* in his own work, suggesting that communication across time and space was always his primary concern.

Although terms such as *freedom of choice*, *uncertainty*, *information*, *information transmission*, *channel capacity*, (*en-*, *de-*, *re-*)*coding*, *redundancy*, *equivocation*, and *noise* quickly spread into many disciplines, they also stimulated wild claims by unqualified enthusiasts who thought they had found a philosophers' stone, and harsh condemnations by equally unqualified critics who supposed an engineering bias, especially in the diagram Shannon used to depict communication processes paradigmatically.

After the early enthusiasm the limitations of Shannon's contribution can now be seen in perspective. First of all, it should be stressed that Shannon contributed a *mathematical theory*. It has a few axioms and an ever-growing number of proven theorems whose rich concepts afford many real-world applications. Like counting, in which it does not matter what one counts as long as the entities concerned are countable, information theory is applicable to any situation in which its axioms can be shown not to be violated. However, applicability does not guarantee meaningful or complete explanations of the phenomena of interest. Because of its content-independent character, information theory has been applied to many areas not directly related to communication: statistics, complexity, memory, intelligence, decision making, uncertainty analysis, self-organization.

Like the concept of energy in physics, which is defined as the capacity for doing mechanical work, information is neither MEANING nor matter but *what a message does* in the context of what is conceived as possible. The theory shifts attention from static attributes of isolated objects to processes of doing logical work in particular contexts—whether these are provided by machines, biological beings, or social organizations.

Like the laws of thermodynamics, the theorems of information theory *assert limits* on what can be done; they do not spell out how to communicate or what to design. Rather, they divide the world into two parts—that which is possible (communicable, controllable, knowable, constructable, etc.) and that which is condemned to remain fiction (like the perpetuum mobile in the physical world). Often these parts are separated by a gap of impracticality.

Like all measurement in science, the information calculus of the theory does not assert facts but enables social scientists to make heretofore unknown *quantitative comparisons* and to pursue research questions posed by the theory's new conceptual apparatus; it also shows engineers where communication resources might be used more efficiently in combating noise with redundancy, designing adaptive computers from unreliable parts, or conceiving simple controllers of complex systems.

After positing his mathematical theory of communication, Shannon worked out missing details, sampling theorems, coding theorems, and the like; invented interesting applications such as his guessing experiments with strings of text, showing that the English language is about 50 percent (later upgraded to 70 percent) redundant; and saw his theory proliferate into numerous disciplines. Despite limitations, which can be found in any theory, Shannon's theory has been neither disproved nor surpassed but has profoundly changed the world of communication.

See also CYBERNETICS; MODELS OF COMMUNICATION.

Bibliography. Colin Cherry, "A History of Information Theory," *Proceedings of the Institute of Electrical Engineers* 98 (1951): 383–393; Howard Gardner, *The Mind's New Science: A History of the Cognitive Revolution*, New York, 1985; John R. Pierce, "The Early Days of Information Theory," *IEEE Transactions on Information Theory* 19 (1973): 3–8; Claude E. Shannon and Warren Weaver, *The Mathematical Theory of Communication*, Urbana, Ill., 1949, reprint 1964.

KLAUS KRIPPENDORFF

SHIHUANG DI (ca. 259–210 B.C.E.)

Creator of the first unified Chinese empire; also known as Shih Huang Ti. After eight hundred years



Figure 1. (*Shihuang Di*) Figure from the terra-cotta army of Shihuang Di, excavated at his tomb in Mount Li, Xian. From *The Great Bronze Age of China*, a loan exhibition from the People's Republic of China. The Metropolitan Museum of Art, New York/Cultural Relics Bureau, Beijing.

of strife, the numerous feudal states that composed China had been reduced to eight by the fourth century B.C.E. The state of Qin on the strategic north-western frontier, toughened in alternating struggle and trade with the northern nomad barbarians, strengthened by adoption of their cavalry tactics, and using chariots and steel for weapons, crushed all its rivals and brought the country under unified military rule. Its third-century ruler, taking the title Qin Shihuang Di, "First Emperor of the Qin Dynasty" (221–207 B.C.E.), ended the power of the hereditary landed aristocracy by replacing its feudal fiefs with thirty-six provinces under his direct imperial administration and laws based on the principles of the Legalist school of philosophy. He expanded the borders of his centralized empire to the northern steppes and across the Yangtze River to the south sea. He promoted economic integration and fostered trade and traders by standardizing weights and measures, coinage, taxes, and axle widths to facilitate road transport.

The building of the Great Wall emphasized the unity of China under Qin Shihuang's pervasive imperial bureaucracy and armed might. It protected the

vast empire from the one great external threat, that of the northern barbarians. But the first emperor exacerbated the danger from within. He conscripted millions of peasants for his armies and for forced labor to aggrandize imperial power and to build roads and other massive public works, palaces, and even his imperial tomb at enormous cost in human life and treasure. He attempted to enforce conformity of thought by draconian methods: the massacre of Confucianists and other dissidents and the burning of their books (213 B.C.E.).

The positive impact of Qin Shihuang was massive and long lasting. He brought about a revolution in communications in a country in which the speediest means of transmitting information or things had been the signal bonfire and the horse. He set a model for all future dynasties with his express roads, post stations, canals, and other public works, and his support of the simplification and standardization of the written characters. These were powerful unifying factors. It is still not uncommon to see someone who speaks the Cantonese dialect communicating with a person from northern China by tracing characters on the palm of the hand.

Qin Shihuang's dynasty lasted a scant fifteen years, but it created a unified feudal empire that lasted over two thousand years and gave the country its name: China.

See also CONFUCIUS; EAST ASIA, ANCIENT.

Bibliography. Jack Chen, *The Sinkiang Story*, New York, 1977; René Grousset, *The Rise and Splendor of the Chinese Empire* (*Histoire de la Chine*), Berkeley, Calif., 1953; Edwin O. Reischauer and John K. Fairbank, *East Asia: The Great Tradition*, Boston, 1958.

JACK CHEN

SIGN

The process of communication consists in transmitting or exchanging messages with the use of signs, and for this reason the notions of sign and SIGN SYSTEM play an essential role in the theory of information. In discussing sign several terms come to mind: indication, index, symptom, syndrome, icon, signal, symbol (*see* MEANING; STRUCTURALISM; SYMBOLISM). Each of these words is polysemous. To CHARLES S. PEIRCE, for example, a sign is "something which stands to somebody for something in some respect or capacity." Signs for him are the *index* (a sign with an objective relationship to its object, e.g., footprints), the *icon* (a sign that in some way is like its object, e.g., image, diagram, and METAPHOR), and the *symbol* (a sign that is a sign because it is used as such, e.g., word, sentence, concept). The sign in Peirce's theory is a generic notion of very wide scope; feeling, image, conception, thought, and even a per-

son are signs. On the other hand, in philosopher Susanne Langer's theory, image, diagram, word, sentence, and proposition are not signs but symbols. Of all the above examples only the footprints are for Langer a sign, and the notions of sign and symbol are mutually exclusive in this theory. Langer's concept of sign is similar to Peirce's concept of index and not Peirce's concept of sign.

Indication, symptom, and syndrome are often placed in opposition to signs because the former are allegedly natural, unlike signs; or because the former are supposedly events, states of affairs, phenomena, or processes, and signs are things; or because the former are claimed to be wholes having signs as their essential part.

Another opposition is between signals as concrete tools produced by humans in order to transmit a message and semiotic units that do not have a human sender and are not intentional and teleologic. The sign is in this approach an element of *seme*, which is an abstract unit composed of the signifiant (i.e., a class of signals) and of the signifié (i.e., a class of messages admissible for the given signal). An entirely different notion of signal is found in the works of CHARLES MORRIS, in which it is contrasted with the notion of symbol: pulse is a signal, but the word *pulse* is a symbol. Both the signal and the symbol are signs, but the former, unlike the latter, is not produced by its interpreter and is not a substitute for some other sign with which it is synonymous. Thus the signal in Morris's treatment is neither conventional nor intentional, being related to the notion of natural indication or symptom. Yet another notion of signal occurs in Russian physiologist Ivan Pavlov's stimulus-response theory, in which every conditioned stimulus is a signal of one of the relatively few unconditioned stimuli.

Signs, indications, indexes, symptoms, syndromes, icons, signals, symbols, and also allegories, coats of arms (see HERALDRY), insignia, emblems, medals, badges—all those may occur in the process of communication (see GRAPHICS; VISUAL IMAGE). Hence the notion of sign system to be constructed should be maximally comprehensive, using the broadest possible generic concept of sign embracing all the kinds of signs listed above. Because a given occurrence of a sign is always of mixed character—that is, it symbolizes and at the same time indicates something—it would be more convenient to speak of gradable properties of the given use of something by someone at a given time as a sign of something else than to introduce kinds of signs. Each of these properties should be defined, with the definitions being adapted to the research task at hand. Next, instead of distinguishing symbols from icons or signals, the given sign use could be qualified, as, for example, symbolic to a certain degree and also as iconic to a certain

degree. This would be in accord with suggestions by Peirce, Karl Bühler, and ROMAN JAKOBSON. Peirce assigned several simultaneously performed functions to the sign, and the other two authors did so with regard to the linguistic text (see LINGUISTICS).

Token-type. A token is a particular instance of a sign, whereas a type is the overall class to which all instances of this sign belong. The distinction of token-type as applied to signs may be explained with the following example: $1 \times 1 = 1$. We have here three tokens of the sign 1. However, when asked about the number of numerals present in this sentence, the answer is that there is only one numeral, namely, 1. This latter case no longer concerns the so-called sign event but the sign design: a certain abstract pattern—a class, in the set-theoretic sense—of all the past, present, and future separate occurrences of 1. The distinction is thus reduced to the opposition between individual object and class, which, accordingly, shares with this distinction the polysemy connected with the expression *individual object*. This object may be real and concrete, occurring in a certain time and place and being used as a sign, but its role may also be performed by an individual unreal object, one not perceptible through the senses (e.g., an intentional object).

Peirce distinguished three kinds of signs in themselves, that is, with regard to their own nature: the *qualisign*, the *sinsign*, and the *legisign*. The difference between a sinsign (an individual object or event) and a legisign (a general type) is the same as that between a token and a type. For example, the sinsigns “+,” “plus,” and the sound of saying *plus*—that is, all such inscriptions and their utterings—combine to form the class termed the “plus” legisign. A qualisign is a quality that is a sign, such as the redness of the “stop” signal, the nature of its appearance—that is, the subclass composed of all the equiformal sinsigns comprising the given legisign. For instance, the sinsigns “+” and “+” do not differ as to qualisign, but the sinsigns “+” and “plus” belong to different qualisigns, being a subclass in the “plus” legisign class.

If the word *system* is used in its broad sense, the legisign can be seen as a system in which one rule distinguishes subsystems termed qualisigns and another rule distinguishes elements called sinsigns. The legisigns (i.e., types) or the qualisigns (i.e., formal types) are used as units of sign systems more often than sinsigns (i.e., tokens).

Sign vehicle—sign functions—sign. This distinction, stemming from Stoic SEMIOTICS, is in modern times linked with the theory of FERDINAND DE SAUSSURE, who characterized the linguistic sign as an arbitrary functional combination of sound-image with concept. He referred to the former as *signifiant* (signifier) and to the latter as *signifié* (signified). The

signifier and the signified are inseparably bonded to each other, as are two sides of a single page, but the relation in their case is conventional. This is indicated by polysemous expressions in a given LANGUAGE and by the symbolization of the same notion by different sounds among various languages. In this theory the sign, the signifier, and the signified are all abstract entities, with the two last-mentioned having no independent existence outside their combination within the sign. For although a concrete sound such as "bay" exists independently as a material object, it is not an element of the class called the signifiant of the sign "bay" until it is joined: in some cases with the concept of *laurel*, in other cases with the concept of *compartment*, in some cases with the concept of *bodies of water*, and in still others with the concept of *barking*. And although in every instance this will be a class of identical sounds, there will appear four different signifiants and four different signifieds assigned to them. It is thus clear that the sign vehicle understood in this manner is not identical with either the token or the qualisign.

Saussure's distinction was developed and elaborated in Danish linguist Louis Hjelmslev's glossematics, in which sign is used as "the name for the unit consisting of content-form and the expression-form and established by the solidarity that we have called sign-function." The expression-form and the expression-substance together constitute the expression-plane, and the content-form and the content-substance form the content-plane. The expression-forms are abstract phonological units, namely, cenemes and taxemes treated as a system of relations between the given phoneme and other units of the phonological system determining the place of the phoneme in this system. As for the content-form, it is a system of relations between semantic elements. The sign vehicle understood as expression-form is an element of a whole that is also composed of expression-substance and that is relativized to expression-planes of the remaining signs of the given language. The problem of content-plane as sign function is analogous. On the other hand, the sign as a described structure may be regarded as a kind of system. In such a case the sign system would be a system composed of subsystems. Also possible are systems of sign vehicles or signifiers or expression-planes separate from the content, such as an ALPHABET of an unknown writing system composed of ordered graphic signs—small and capital letters—that, however, remain uninterpreted, meaning that no sound is ascribed to each letter. Aside from these, we may also have systems of signified units or content-planes, such as the combination-theory *ars universalis* outlined by Ramon Llull (ca. 1235–1316) in his *Ars Magna*, composed of elementary concepts

and intended for proofs of the veracity of the Christian faith.

Sign versus sign use. The formulation that a sign is composed of the sign vehicle and the sign function is metaphorical. The statement that a sign means contains a personification. In reality, both in communication with the use of signs and in COGNITION of reality through them, there must be an interpreter—person, animal, or appropriately built apparatus—that at time *t* will use the given object, event, state of affairs or phenomenon, or, in general, a given *A* actually existing or only imagined as a sign of the conjectural *B*. This use consists in the interpreter performing the following reasoning. First premise: *A* takes place—or at least so the interpreter believes; second premise: there is, or at least the interpreter believes there is, a natural or conventional relation between *A* and *B* such that it may be surmised that *B* takes place; conclusion: *B* is the case. This reasoning deserves the term *semiosic inference*. In fact, the interpreter usually does not realize that he or she is performing this reasoning; it is nearly always enthymematical (i.e., it tacitly assumes premises obvious to the interpreter); and it is spontaneous and automatic, so to speak. When the interpreter is an animal, this process is not verbalized. Thanks to such semiosic inference, *A*—that is, any kind of entity—becomes, according to Edmund Husserl, semantically transparent for the interpreter. In other words, the interpreter sees *B* through it, as through a glass screen, at the same time ceasing to pay attention to *A*. At this moment *A* begins—for the interpreter—to play the role of a sign of the entity *B*, different from *A*. This conjectural *B* may be of both semantic (the sign's meaning, its extension, referent, truth value) and pragmatic character (e.g., thoughts, feelings, and wishes of the sign's sender). This is the essential part of semiosis (sign process), consisting in decoding, deciphering, interpreting, or simply understanding the sign. According to one opinion, every inference is of sign character, because the premise(s) is the sign of the conclusion, and even—as Peirce believed—every thought in general is of such character. In Peirce's view we think only with the use of signs. In certain very numerous cases this part of semiosis is preceded by the phase in which the sender transmits the sign, performing at the same time an analogous semiosic inference; namely, the sender reconstructs in his or her mind the semiosic reasoning that—according to the sender's intentions—ought to be performed by the supposed interpreter of sign *A*. However, the occurrence of a sender in the process of semiosis is not necessary for something to become at some time a sign of something else for someone; not every sign was sent by someone. On the other hand, in order for something to become a sign, it

must be interpreted by someone. There is no sign outside the use of something as a sign.

The semiosis acts are always realized in a broadly understood context; in the situational one, that is, the circumstances of time, place, and persons of sign users, amid social relations, cultural ties, and the like; and in a sign context. With respect to the last, an isolated sign must be distinguished from a sign as an element of a set of signs, of a sign sequence, or of a sign system. Both kinds of context modify the meaning of the sign. In every use of the sign its meaning is a result of, on the one hand, rules of the given sign system determining the so-called dictionary meaning of each sign and, on the other, the circumstances accompanying the given use of each of these signs. For this reason one should always view a given sign as an element of sign system, and the use of the sign should be considered in the concrete situational and sign context (e.g., a language context).

See also LITERARY CRITICISM; POETICS.

Bibliography. Karl Bühler, *Sprachtheorie: Die Darstellungsfunktion der Sprache*, 2d ed., Stuttgart, 1965; Louis Hjelmslev, *Prolegomena to a Theory of Language* (Omkring sprogteoriens grundlæggelse), 2d ed., Madison, Wis., 1961; Susanne K. Langer, *Philosophy in a New Key: A Study in the Symbolism of Reason, Rite, and Art*, 3d ed., Cambridge, Mass., 1967; Charles Morris, *Writings on the General Theory of Signs*, The Hague and Paris, 1971; Charles Sanders Peirce, *Collected Papers of Charles Sanders Peirce*, Vols. 1–6 ed. by Charles Hartshorne and Paul Weiss, Vols. 7–8 ed. by Arthur W. Burks, Cambridge, Mass., 1931–1960; Ferdinand de Saussure, *Cours de linguistique générale* (Course in General Linguistics, ed. by Charles Bally and Albert Sechehaye, London, 1959, reprint 1974), Paris, 1916.

JERZY PELC

SIGN LANGUAGE

This topic is discussed in four sections:

1. Overview
2. Alternate Sign Languages
3. Manual Language Codes
4. Primary Sign Languages

1. OVERVIEW

This term may be applied to any of several different types of communicative code in which the code elements are highly conventionalized bodily gestures, used in more or less complex organized sequences serving the same functions as spoken LANGUAGE. The best-known sign languages are those developed among

the deaf, although sign languages have developed occasionally in speaker-hearer communities.

The ability of persons born deaf to develop the use of complex systems of GESTURE has been recorded since classical times. In a community with a high proportion of deaf persons, a shared system of gestures may become established as a system of communication in the group. This may be termed a primary sign language insofar as it has been developed by those who have never had direct access to a spoken language. An example of a primary sign language is American sign language (see section 4, below).

An alternate sign language is one that has been developed in a community of speaker-hearers as an alternate to spoken language, as when SPEECH is avoided for social or religious reasons. Unlike primary sign languages, alternate sign languages show direct structural relationships with the spoken languages of the communities in which they have developed (see section 2, below). Examples here are those developed by the Aborigines of central and northern Australia or in certain monasteries in Europe. The Plains Indians of North America also used sign languages, in part as a form of intertribal communication. These sign languages appear to have been autonomous and not structurally related to any specific spoken language.

Occupational sign language is a term that sometimes has been applied to systems of gesture that develop within specific occupational settings. They have been recorded in such places as sawmills, among members of SPORTS teams, and in auction rooms. Occupational sign languages are restricted in scope and function only in the task situation.

All of these systems are to be distinguished from manual language codes, which are used in deaf education to convey a specific spoken language, such as English or French, in manual form, either by fingerspelling or by establishing distinct gestures for the words or word components (morphemes) of the language (see section 3, below).

Linguistic analysis of sign languages has been in progress since 1960, with most attention being paid to primary sign languages. This work has shown (a) a high degree of systematicity in the way signs are formed; (b) systematic features to variations in sign performance that are comparable to the morphological processes of inflection of lexical forms in spoken languages; and (c) considerable systematicity in syntax. It is also clear that although primary sign languages may not differ from one another in grammatical organization as radically as spoken languages do, they differ sharply in their lexical organization, and sign languages developed separately are mutually unintelligible. There is no universal sign language, as



Figure 1. (*Sign Language—Overview*) A child learning sign language. Courtesy of the Laboratory for Language and Cognitive Studies, The Salk Institute, San Diego, Calif.

some have thought. In short, primary sign languages exhibit the same general properties of organization as spoken languages, although they differ markedly in the actual modes of expression employed because they are organized in the three dimensions of space as well as in time.

ADAM KENDON

2. ALTERNATE SIGN LANGUAGES

Sign languages developed by speaker-hearers for use on special occasions, during periods when SPEECH is not permitted for reasons of RITUAL, or when circumstances make speech difficult. Such sign languages have been described for the Plains Indians of North America, the Australian Aborigines, and certain European monastic orders. The sign languages used by these groups have large vocabularies, show some degree of grammatical organization, and may thus be said to be complex. Sign languages of a more restricted nature (i.e., with small vocabularies and little in the way of grammar) sometimes develop in occupational circumstances in which speech is impossible. We may also include here specialized PERFORMANCE sign languages found in certain kinds of narrative DANCE, as, for example, in India.

North American Indian sign languages. European explorers from the sixteenth century onward frequently reported that Indians from northern Mexico

and the southern Plains made extensive use of conventionalized gestures, often using them to communicate with the explorers themselves (*see EXPLORATION*). The idea that there was a universal sign language throughout North America gained wide currency. Without doubt, many tribes of North American Indians, especially those of the Plains, made considerable use of complex sign languages (Figure 1). Some tribes, notably the Kiowas of the south central Plains, were considered especially adept. Sign language was used in formal ORATORY, storytelling, public performances, and dances, as well as in everyday interactions. Comparisons of the descriptions of signs provided by many different writers show great diversity in these sign languages.

However, following the introduction of the horse in the seventeenth century, groups of Indians previously not in contact with one another came to be so. Existing sign languages appear to have been adapted for intertribal communication, resulting in a convergence of sign languages in the Plains region. A survey carried out in 1956 showed that one form of sign language was widely shared in the northern Plains, although in the more northerly reaches of this area (in Alberta and Saskatchewan) a different form prevailed. The widely shared form appears not to have been structured in relation to any specific Indian language, and it showed properties in many ways quite similar to those found in primary sign languages. See section 3, below.

Australian Aboriginal sign languages. Complex sign languages in Aboriginal Australia have been reported from southern, central, and western desert regions, from Arnhem Land, the western side of Cape York, and the islands of the north coast and the Torres Strait, but not from the eastern and southeastern regions. In the far northwest (the Kimberleys) only a simple sign language is evident. The complex sign languages of central Australia probably developed in association with the custom of women remaining silent as a sign of mourning. A woman bereaved of spouse or child, her immediate sisters, and certain other female relatives of the deceased sustain periods of silence—in the case of the bereaved spouse or mother, for as long as two years. Study of the sign languages of central desert Aborigines (such as the Warlpiri and the Warumungu) shows that they are structurally very dependent on the spoken language. Signs match words, and signed sentences are close manual renditions of spoken sentences, although tense and grammatical markers are not transposed to SIGN and some use is made of expressive processes found in primary sign languages (e.g., spatial inflection of verbal signs to “incorporate” subject and object of the sentence and the modification of verbal sign performance to express aspect). Among the Warlpiri only women use sign language, but in other parts of Australia sign languages are or were used by men—for example, during male initiation ceremonies or in hunting. Comparison of sign language vocabularies shows that there are considerable differences from one group to the next, although these differences are not always coordinate with differences in spoken languages.

Monastic sign languages. Several monastic orders, including the Cistercian and Trappist orders, follow a rule of silence and use speech sparingly or not at all during most parts of the day because they believe that speech distracts from religious devotion. To meet essential communication requirements, a limited official list of signs is sanctioned, but additional vocabularies of signs have come to be established so that in some monasteries quite complex communication can be carried out by means of signs (Figure 2). There is no single monastic sign language. Each monastery tends to have its own system. A linguistic study of the sign system in a Cistercian monastery in the United States, published in 1975, showed that, apart from the official signs, the sign language in use there is structurally highly dependent on English. Because its vocabulary is fairly limited, however, many things are expressed by means of combinations of signs. For example, the sign for “freeze” may be made up of the signs for “arrange,” “hard,” and “water.” Some signs also make direct reference to the sounds of English words, as in the sign for

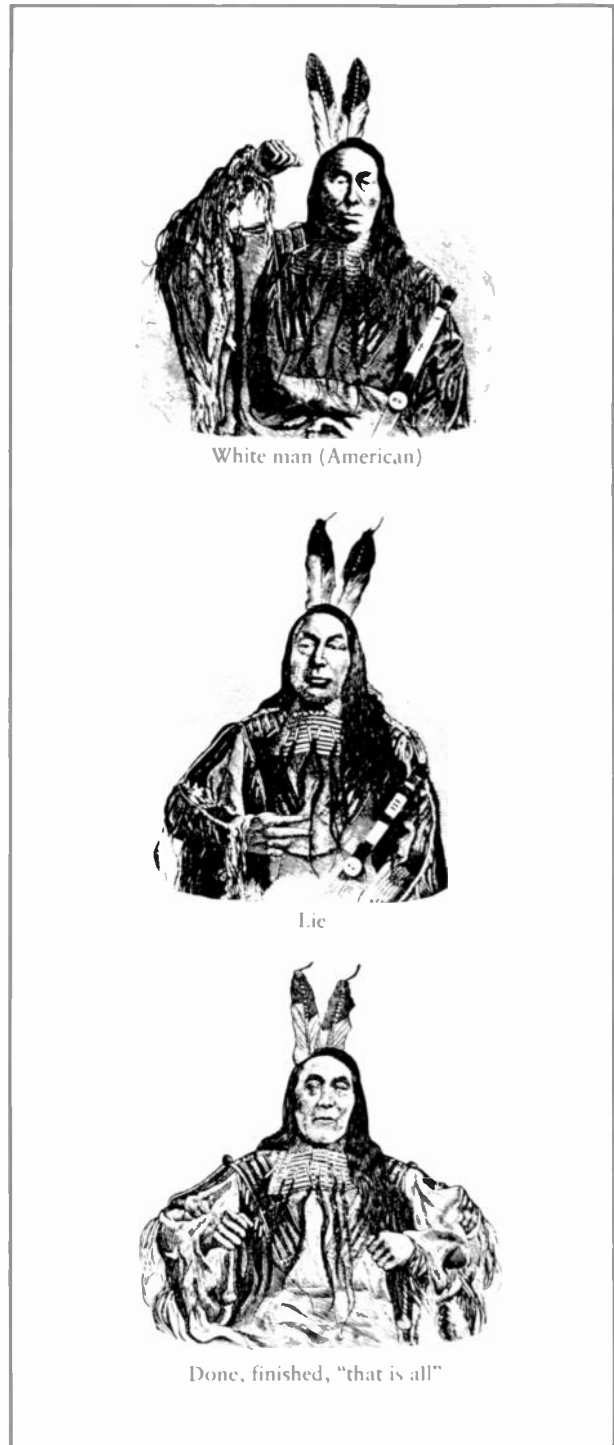


Figure 1. (*Sign Language—Alternate Sign Languages*) Tce-caq-a-da-q-a-qic (Lean Wolf), chief of the Hidatsa Indians of Dakota Territory, who visited Washington, D.C., in 1880. From Garrick Mallery, *Sign Language among North American Indians*, The Hague and Paris, 1972, pp. 282, 284. Copyright 1972 Mouton Publishers. Reprinted by permission of Mouton de Gruyter, a division of Walter de Gruyter & Co., Berlin, Amsterdam, New York.

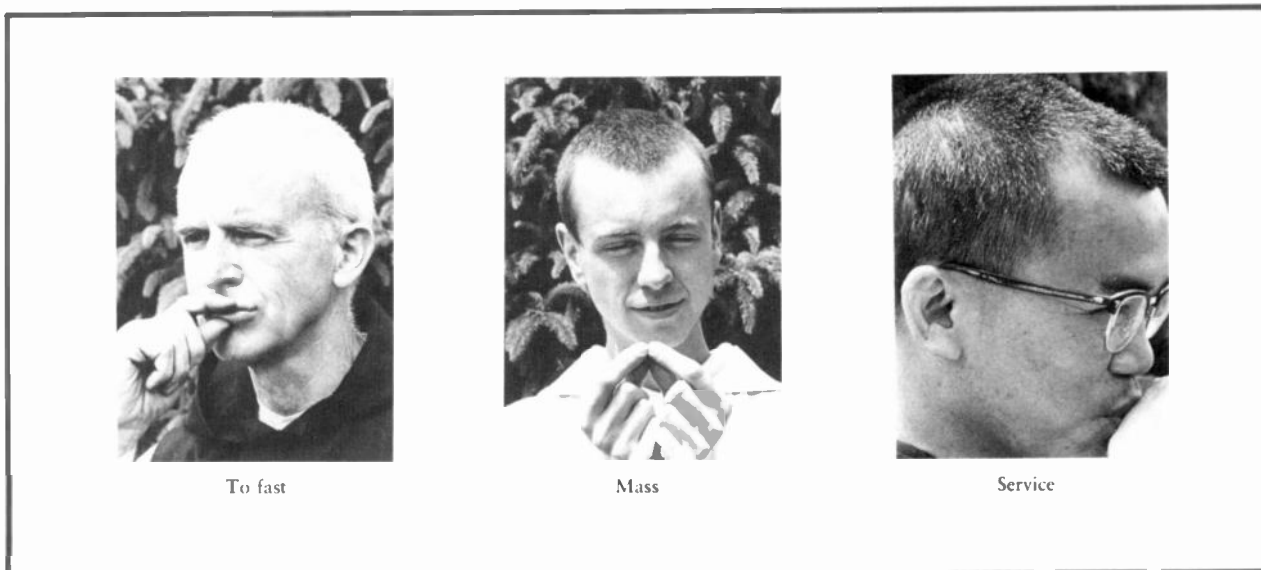


Figure 2.. (*Sign Language—Alternate Sign Languages*) Cistercian Order: examples of basic signs. From Robert A. Barakat, *The Cistercian Sign Language: A Study in Non-Verbal Communication*, Kalamazoo, Mich., 1975, pp. 104, 111, 120. Copyright Cistercian Publications, Kalamazoo, Mich.

“Cincinnati,” which is reported to be signed as “sin sin A T”; the sign for “cookie” is reported to be the sign for “cook” followed by the sign for “key.”

Performance sign languages. The most complex performance sign language is the one developed in the classical Hindu dance tradition of southern India,

in which stories are told with the use of an extremely detailed vocabulary of gestures. Treatises dating from the fifth century C.E. present a gesture system with the systematicity of the early Sanskrit grammarians. Gestures were constructed with actions using all articulable body parts, often with complex forms being



Figure 3. (*Sign Language—Alternate Sign Languages*) Auxiliary police-woman halting traffic to let school-children cross the street, New York, ca. 1910. The Bettmann Archive, Inc.

built up out of elaborate combinations of hand, arm, FACE, eye, neck, and foot action. Less complex systems of GESTURE have been developed in the classical ballet tradition of Europe, perhaps from a tradition that can be traced back to the theatrical pantomime of classical Rome. *See also* DRAMA—PERFORMANCE.

Occupational sign languages. Occasionally these develop in task situations in which communication by speech is difficult or impossible because of distance or noise level. The most complex system described is that developed by sawmill workers in the northwest United States and western Canada. In some cases these sawmill sign languages expanded to allow communication beyond the narrow requirements of the task. Other examples of occupational sign languages are those used by traffic police (see Figure 3), orchestra conductors, topographers, and baseball players. Most occupational sign languages are quite restricted in the functions they serve, however, and usually have quite small vocabularies.

See also LANGUAGE; SIGN SYSTEM.

Bibliography. Robert Barakat, *Cistercian Sign Language*, Kalamazoo, Mich., 1976; Russell M. Hughes [La Meri], *Gesture Language of the Hindu Dance*, New York, 1941, reprint 1964; Garrick Mallery, *Sign Language among North American Indians Compared with that among Other Peoples and Deaf-Mutes*, Washington, D.C., 1881, reprint The Hague, 1972; Nandikeśvara, *Nandikeśvara's Abinayadarpanam: A Manual of Gesture and Posture Used in Indian Dance and Drama*, 3d ed., trans. and ed. by Manomohan Ghosh, Calcutta, 1975; D. Jean Umiker-Sebeok and Thomas A. Sebeok, eds., *Aboriginal Sign Languages of the Americas and Australia*, 2 vols., New York, 1978.

ADAM KENDON

3. MANUAL LANGUAGE CODES

An invented system of manual gestures by which a spoken LANGUAGE may be transmitted. Such a CODE is to be distinguished from a primary sign language (such as American Sign Language), which is a language transmitted gesturally by deaf people and which is not a representation of a surrounding spoken language (see section 4, below). A manual language code is also to be distinguished from an alternate sign language, which is a gestural system developed by speaker-hearers for use as an alternative to SPEECH when speech cannot be used, either for environmental or RITUAL reasons (see section 2, above). Alternate sign languages may or may not represent a spoken language. Manual language codes have been devised specifically for such representation.

There are two different types of manual language codes: fingerspelling and a signed form of the spoken language.

Fingerspelling. Fingerspelling is a procedure whereby each letter in the spelling of a word is represented on the hand(s). In order to use the fingerspelling ALPHABET, both the sender and the receiver must know the spoken language and how each word is spelled. In the United States, the fingerspelling alphabet is one-handed and consists of twenty-six different handshapes (see Figure 1), one for each letter of the written alphabet. In England, although the spoken language is also English, the fingerspelling alphabet is two-handed (see Figure 2). Related two-handed forms are also used in Australia, Scotland, and Indonesia. The fingerspelling alphabets used in France, Italy, and other European countries are similar to that used in the United States. This similarity led to the adoption of the International Fingerspelling Alphabet by the Fourth Congress of the World Federation of the Deaf in Stockholm in 1963. The International Fingerspelling Alphabet, although not truly international, has gained some small acceptance in Europe, with its use at congresses of the World Federation of the Deaf and at the Deaf Olympics. In China a fingerspelling procedure consisting of thirty hand configurations has been developed; it corresponds roughly to the recently developed pinyin, a phonetic alphabet using roman letters (see WRITING). A book of charts of forty-three fingerspelling alphabets used in forty-six countries has been published.

Skilled fingerspelling can provide very rapid transmission of a message. In natural conversation between deaf people using fingerspelling, familiarity with the context allows some letters/handshapes to be slurred or omitted (in some respects similar to shorthand, abbreviations, or rapid speech) without loss of intelligibility. In the United States, fingerspelling and speaking at the same time is sometimes used in the education of deaf children and is referred to as the Rochester Method.

Signed form of a spoken language. Signed forms of spoken languages have been developed primarily for educational purposes. Speaking and signing at the same time is often called *simultaneous communication*. To use the signed form of a spoken language, the sender and the receiver must know both the spoken language being transmitted and the signs being used to do the transmission. Signs may be borrowed from the sign languages used by deaf people or they may be invented; or, most frequently, a combination of both may be used. Occasionally invented signs are in turn adopted by the deaf community and become part of the sign language itself.

Signs used in natural sign languages differ from fingerspelling in a number of respects. Each fingerspelled letter consists of a handshape and, in some alphabets, a small movement. Signs are composed of handshape, place of formation, movement, point of contact, orientation of the palm and fingers, direction

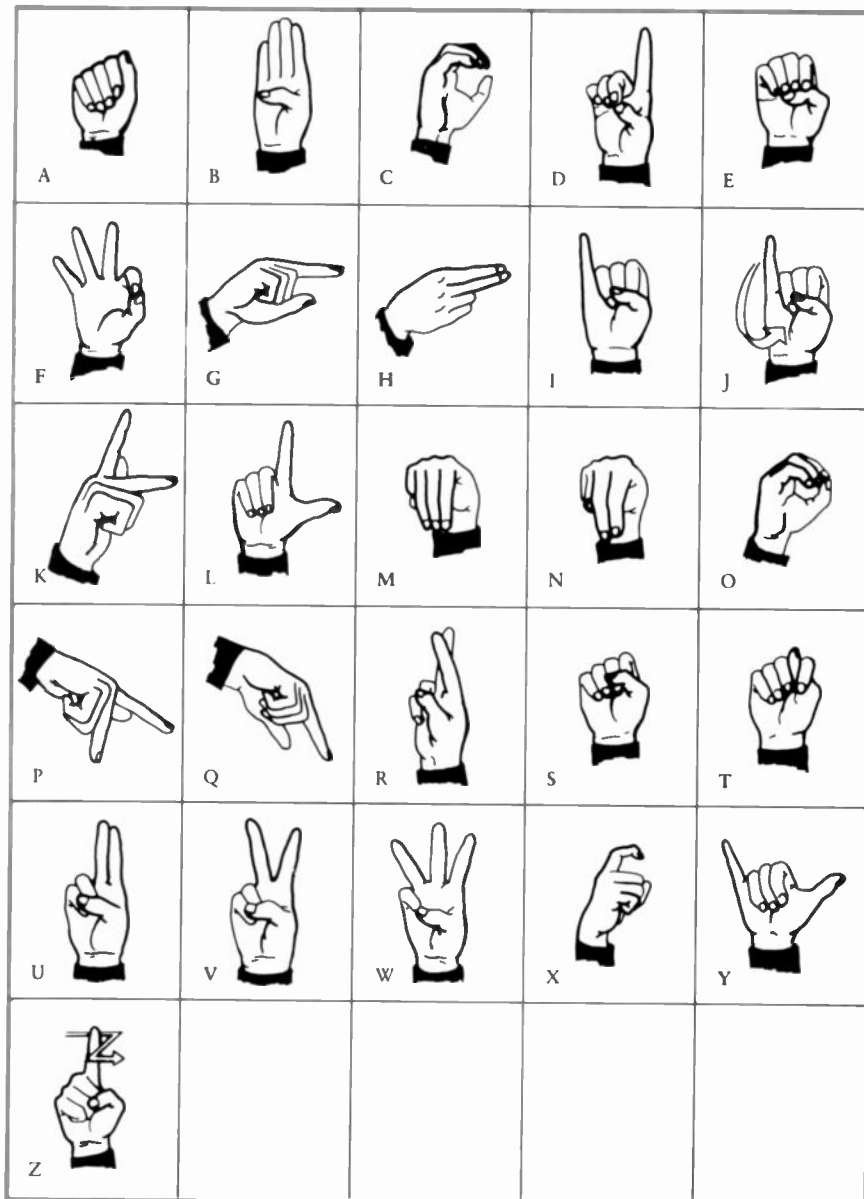


Figure 1. (*Sign Language—Manual Language Codes*) United States: American hand alphabet. Redrawn after S. J. Carmel, *International Hand Alphabet Charts*, Rockville, Md.: Studio Printing, 1982, p. 77.

of movement, and other dynamic and spatial characteristics. Each fingerspelled *letter* refers to one written letter; to represent a whole word, all of the letters must be fingerspelled in the proper order. A *sign* used in a natural sign language represents a meaning or concept. When signs from a natural sign language are chosen to represent spoken words for educational purposes, a problem of translation may arise (see *TRANSLATION, THEORIES OF*). A single spoken word may require more than one sign to translate it; a single sign may require more than one spoken word to translate it. This translation problem is no different from the problem of translating from one spoken language to another. Because of the mismatch prob-

lems, educators have sometimes chosen to invent new signs to improve the match between the spoken language and its signed representation and, in some cases, new rules for deciding how to match signs with spoken words.

Extensive use of invented signs and rules for matching signs to spoken words results in a signed form known as a *SIGN SYSTEM*. The use of sign systems is generally restricted to educational settings; they are not considered to be languages in their own right because their grammar is that of the spoken language being transmitted. In the late 1700s, Abbé de l'Épée constructed a system of "methodical signs" that were meant to make sign structure more parallel



Figure 2. (*Sign Language—Manual Language Codes*) Great Britain: British hand alphabet. Redrawn after S. J. Carmel, *International Hand Alphabet Charts*, Rockville, Md.: Studio Printing, 1982, p. 27.

to that of spoken French. In England a system called the Paget Gorman Systematic Sign (PGSS) was constructed for educational purposes independently from British Sign Language. In the United States, signed representations of English are called signed English or manually coded English (MCE). Within this generic category are several sign systems: Seeing Essential English (SEE I), Signing Exact English (SEE II), Linguistics of Visual English (LOVE), Manual English, and Signed English. These systems differ in (1) their rules for representing English words and inflectional endings (e.g., past tense, plural, progressive), (2) their use of signs from American Sign Language as opposed to invented signs, and (3) the amount of

fingerspelling used in addition to signs. Two systems, Signing Exact English and Signed English, are more widely used than the others. The degree of success in teaching the grammar of English to deaf students through manual codes is controversial and not well researched.

Bibliography. Simon J. Carmel, *International Hand Alphabet Charts*, 2d ed., Rockville, Md., 1982; Harlan Lane, ed., and Franklin Philip, trans., *The Deaf Experience: Classics in Language and Education*, Cambridge, Mass., 1984; Ronnie B. Wilbur, *American Sign Language: Linguistic and Educational Dimensions*, 2d ed., San Diego, Calif., 1986.

RONNIE B. WILBUR

4. PRIMARY SIGN LANGUAGES

Primary sign languages differ from spoken languages in that gestural instead of vocal activity is their primary mode of expression (see GESTURE). They are like spoken languages in almost all other linguistic respects: phonological, morphological, and syntactic; that is, the elementary gestural signals obey rules for selection and combination just as do sounds in spoken languages. For example, *blick* is not a word in English though its pronunciation follows English rules, but *bnick*, another nonword, breaks those rules; just so, a user of a primary sign language can produce well-formed signs that are not words of the LANGUAGE but are possible by its rules, and other signs that break the rules (see SIGN).

Signs and Combination Rules

The nonvocal material on which the rules of primary sign languages operate is certain activity, especially of the EYES, FACE, head, arms, and hands. This order reflects the importance of the signaling source for communication, but because hand gestures appear most salient to nonsigners and are the easiest of sign language phenomena to study, much research on sign languages has concentrated on what the hands do; in fact, both students and opponents of primary sign languages sometimes refer to them erroneously as manual languages (see section 3, above).

Like spoken languages, primary sign languages have rules for making the products of element selection and combination into higher-level forms. For example, if *blick* should be adopted as an English verb, the rules of English ensure that whatever it is to *blick*, doing it will be *blicking*. Similarly, certain semantic features are signed in primary sign languages by regular formal changes in a sign, that is, by inflections or modulations. In American Sign Language (ASL), perhaps the most studied of primary sign languages, such features as negation are expressed with many verbs not by adding an adverbial sign to a sign verb but by changing one of the elements of the sign verb's formation; the inflection is more akin to English *think-thought* than to *link-linked*.

From the perspective of a user of a spoken language the syntactic as well as the morphological rules of primary sign languages appear to generate fewer signs than spoken words to express the same proposition, but much of this apparent economy may simply be due to difference in the human visual and auditory systems. Early in the study of ASL, researchers reported that subject and object pronouns were often "omitted" in ordinary CONVERSATION; a performance of the verb sign *look*, for example, would be all that the researcher could find when one signer

of ASL was saying to another, "He kept on looking at me." Later research showed that all the elements of this meaning were indeed signaled: the particular position and direction of the hand making *look* in this performance indicated a third person (already identified) as agent of looking and the speaker as the one looked at; the slight circling action of the hand (not used for simple *look*) and possibly the backward inclination of the head indicated that looking was sustained and continuous; the FACIAL EXPRESSION of the signer also may have indicated some of the affect. In short, the whole picture made by the signer in the addressee's field of vision constitutes the carrier of information in a primary sign language, not a single stream of sequentially produced sounds.

Besides compression, poverty in vocabulary has been charged against some primary sign languages. For instance, it has been claimed that in Spanish Sign Language there is but one (manual) sign to mean *brother* and *sister*. To understand what is being signed here, one must look at the signer's face as well as the hands. While signing *sister* the Spanish deaf signer also is shaping the mouth into the position for pronouncing "ah" (the end of the word *hermana*), and for *brother* the mouth takes the shape for pronouncing "oh" (*hermano*).

This, of course, reveals that primary sign languages can be affected by contact with spoken languages, but at the same time it indicates how small and subtle such influences may be. On the other hand, the effect of primary sign languages on each other is likely to be as great as the actual contact of their users allows. For example, since the 1950s the sign names for nations and peoples in ASL have changed as more and more ASL users have traveled abroad and discovered the signs that deaf people use for themselves and their countries.

Relationships among Sign Languages

Are all primary sign languages varieties of one universal sign language, or are the similarities found in them due to cultural contact? If the former, then psychophysiological constraints must make all sign language basically alike; if the latter, then primary sign languages are related, as are other languages, because of MIGRATION and cultural contact. It is too early for a definitive answer to these questions, but so far research seems to show some truth in both answers. It is certainly true that for deaf participants to understand the proceedings of international conferences each national group needs its own sign language interpreter. For example, in Rome in 1983, Italian, U.S., British, French, Danish, Swedish, Norwegian, Finnish, Dutch, German, and Thai sign interpreters worked simultaneously. Research by Robbin M. Battison and I. King Jordan has shown that there

is little mutual intelligibility among primary sign languages of national deaf groups and also that deaf persons nevertheless show remarkable ability to communicate with deaf persons from other nations. Thus it appears that unlike speakers, who usually are hampered severely when they try to communicate without a common spoken language, deaf signers can much more easily set aside temporarily the rules of their primary languages and communicate gesturally because they are both familiar with the multi-channel visual cues and highly skilled in gestural production. Again, this is not to say that sign language is universal; everything discovered in research points to the structural similarity of spoken language and primary sign language. The Battison and Jordan findings do affirm, however, that persons skilled in gesture by virtue of their competence in a primary sign language are often able to communicate effectively across language barriers. It should also be noted that the informal communication within groups of deaf persons meeting at an international conference allows for improvisation and ad hoc signing, while those attending formal sessions on research demand skilled interpreters' services so that the presenters' spoken messages can be fully comprehended.

Semiotic Issues

The semiotic differences between signing and speaking as between seeing and hearing also need to be considered; that is, there is a fundamental difference between signs to be heard and signs to be seen (*see SEMIOTICS*). From the action of actual drinking, for example, to a miming of that action to a conventionalized sign for drinking is a direct and seemingly simple progression in a primary sign language. The path from actions to representation in words is not so clear. Psycholinguists since FERDINAND DE SAUSSURE have made much of the completely arbitrary relationship between a MEANING and a spoken word, sometimes even arguing that unless the relationship is arbitrary a sign cannot be a linguistic sign. But this ignores the semiotic difference. To distinguish in a primary sign language the signs designating the action of drinking, a drink, and a drinking vessel calls upon not the resemblance of gesture to act but the rules of that language. In ASL, as Ted Supalla, a linguist and a native ASL signer, has pointed out, the gestural difference between noun and verb is regular and unmistakable. The same kind of signing action that separates *to drink* from *a drink* also separates *sit* from *chair* and *fly* from *airplane* (which except for this difference look alike).

Individual signs of a primary sign language, like individual words of a spoken language, permit all kinds of testing and speculation, some of which may draw attention from the fact that a language is a

system. Undeniably many more words of a primary sign language than of a spoken language are iconic (with meanings easily guessed when the sign is seen) or translucent (with meaning and form obviously related once the relationship has been pointed out). This does not mean, however, that phrases and sentences in a primary sign language are by any means translucent or transparent; it means simply that the difference between vision and hearing distributes iconicity unequally in spoken and signed languages. However iconic an individual word of a primary sign language may be, there is no predicting its morphological features or how it can or cannot be combined with other words in that language.

See also MIME.

Bibliography. Charlotte Baker and Dennis Cokley, *American Sign Language: A Teacher's Resource Text on Grammar and Culture*, Silver Spring, Md., 1980; Robbin M. Battison and I. King Jordan, "Cross-cultural Communication with Foreign Signers: Fact and Fancy," *Sign Language Studies* 10 (1976): 53-68; William C. Stokoe, Dorothy Casterline, and Carl G. Croneberg, *A Dictionary of American Sign Language on Linguistic Principles*, 2d rev. ed., Silver Spring, Md., 1976; William C. Stokoe and Virginia Volterra, eds., *SLR '83: Proceedings of the III International Symposium on Sign Language Research*, Silver Spring, Md., and Rome, 1985.

WILLIAM C. STOKOE

SIGN SYSTEM

The expression *sign system* may refer not only to a system of signs but also to SIGN as a system, and not only to a system of sign uses or a system of SPEECH acts but also to sign use as a system or speech act as a system. The notion of system has diverse applications in the analysis of the notion of sign, as well as of the notions of CODE, GRAMMAR, and LANGUAGE. *See also* SEMIOTICS.

In what follows, the term *system* will mean an ordered set composed of at least two elements. The relations binding these elements are such that the structure of which the elements are a part has different properties from these elements themselves. In addition to elements and relations between them, the states and/or modifications determined by these relations are also seen as parts of the system. The system is usually a closed whole, isolated from other sets but functionally connected with them by the tasks set up for the entire system.

Sign as System

Most of the theories treating the sign as a kind of system are theories of natural language signs, espe-

cially theories of terms included in referential SEMANTICS.

Early writings. Thinking about signs as sign systems has a long history. In the *Cratylus* PLATO said that corresponding to every name (common noun) is an ideal name that is a concept of the form of the named object. According to ARISTOTLE (*On Interpretation*), the written word is a conventional sign—a symbol—of the spoken word, and the latter is a natural sign—a symptom—of a presence of mental modification in the speaker's mind and at the same time a symbol of this modification. The relationship between the written word as a symbol and the spoken word is analogous to that between the spoken word and the modification corresponding to it, which in turn is an iconic sign or likeness of a thing outside language. Hence in this conception the sign was treated as a system having as its elements the graphic symbol, the acoustic symptom (and symbol at the same time), and the mental iconic sign, all bound by antisymmetric relations of three kinds: the referring, the indicating, and the representing.

The Stoics distinguished two corporal entities within the sign as a system: the speech sound and, at the opposite end of the sign relation, a real object or real event. Intermediate stages were two immaterial entities; the sign's subjective content in the mind and the *lekton*, a MEANING objectivized as a result of rational justification of the nature of the denoted object. When the sign is a word, the *lekton* corresponding to it is incomplete; when it is a sentence, the *lekton* is complete. The same sentence may perform various pragmatic functions, such as question, predication, or command.

In Chinese logic of the third century B.C.E. (*Moist Canons*) the name refers to one of its standards, that is, patterns, either in the mind of the speaker or in the speaker's surroundings. If some extralinguistic object satisfies this pattern, it may be named with this name.

In the early and late MIDDLE AGES in the West ideas about signs were found in the works of religious thinkers. Important writings by St. Augustine were *Principia dialecticae*, *De Trinitate*, *De doctrina Christiana*, and *The Teacher*. St. Augustine saw the word as a four-element system: *verbum*, "word," is an articulated sound; *dicibile* or *locutio* is the word of mental speech corresponding to a given *verbum*; *dictio* is the use of the word that includes joining *verbum* and *dicibile* and furnishing them with *vis*, "force," that is, pragmatic function; finally, *res*, "thing," is a concrete or abstract object to which this word refers. A similar sign-meaning-referent scheme is found in the writings of St. Anselm, who maintained that the name per se signifies a property and *per aliud* a person or thing. The medieval doctrine of properties of terms, and especially of their

suppositions, is an example of sign use as a system. It dealt with subjects and predicates of proposition. Each term of this kind has a broadly understood meaning called *significatio*, which—together with the verbal context (especially the verb or copula in a given proposition), the speaker's intention, and other pragmatic circumstances—determines what the given categorematic expression refers to in each separate case. Depending on these factors governing referential use, the noun or pronoun has a certain *suppositio* and *appellatio* and the verb or adjective a certain *copulatio*.

With the exception of those used metaphorically, terms had proper supposition, in which material supposition (i.e., metalinguistic use), for instance of the word *man* in the sentence "Man is a noun," was distinguished from formal supposition, for instance of the word *man* in "Man is a rational being" (simple formal supposition) or "This man is writing" (personal formal supposition). In turn, the so-called *appellatio* of a noun consisted in a limitation of its applications to objects occurring in the time indicated by the tense of the verb in the sentence. The doctrine of term properties may be treated either as a theory of referential uses of a term, elaborated to form a system, or as a system of semantic categories and thus a system of signs.

Modern theories. The most elaborate modern semiotic system is the so-called pragmatism of CHARLES S. PEIRCE. This theory may be regarded in two ways, either as one treating sign use as a dynamic system or as a most comprehensive system of signs occurring within the process of semiosis. Unlike the medieval doctrine of supposition, Peirce's theory does not confine itself to terms but deals with all kinds of signs, giving special prominence to the use of propositions. Peirce said:

A *sign*, or *representamen*, is a First which stands in such a genuine triadic relation to a Second, called its *object*, as to be capable of determining a Third, called its *interpretant*, to assume the same triadic relation to its object in which it stands itself to the same object. The triadic relation is *genuine*, that is its three members are bound together by it in a way that does not consist in any complexus of dyadic relations. . . . The Third . . . must have a second triadic relation in which the representamen, or rather the relation thereof to its object, shall be its own (the Third's) object and must be capable of determining a Third to this relation. All this must equally be true of the Third's Third and so on endlessly.

. . . [S]igns require at least two *quasi-minds*, a *quasi-utterer* and a *quasi-interpreter*; and although these two are in one (i.e. *are* one mind) in the sign itself, they must nevertheless be distinct. In the sign they are, so to say, *welded*. Accordingly, it is not merely a fact of human psychology but a necessity of logic, that every logical evolution of thought should be dialogic. . . . [B]eing dialogical it [thought] is essentially composed of signs. . . . [T]he purpose of signs—which is the purpose of

thought—is to bring truth to expression. The law under which a sign must be true is the law of inference. . . .

As we see, Peirce's sign-as-a-system is a logical reconstruction of the process of semiosis consisting of a series of hierarchical triads. In reality the scheme of each of these triads has additional branches, because the representamen is relativized not only to its object and interpretant but also to its ground, namely, the idea with regard to which this representamen stands for its object. Moreover, the representamen stands for two kinds of objects: the immediate object, that is, as it is represented by a given sign, and the dynamic object, occurring outside the sign and determining the immediate object, which in its turn determines the sign. There are also three kinds of interpretant: the immediate interpretant (the effect "the sign . . . may produce upon a mind, without any reflection upon it"), the dynamic interpretant ("that which is experienced in each act of interpretation and is different from that of any other"), and the final interpretant ("the effect the sign would produce upon any mind upon which circumstances should permit it to work out its full effect"). This is merely a skeleton of the system, a system not so much of a static sign as of the possible activity of an abstract mind in an idealized process of semiosis that consists in drawing consequences from subsequent abstract thoughts by means of gradually self-correcting possible conditional predictions. Because the interpretant of a given sign triad becomes a sign in the next triad, and so on, we may speak of both the sign-as-a-system and a system of signs in discussing Peirce's doctrine.

Systems of Signs

The expression *system of signs* is polysemous not only because of the polysemy of its words. In addition, there is disagreement about whether it is a system of instruments of intentional communication only or whether it is also a system of, among others, natural means for cognizing reality.

Classification of signs as systems of signs. Peirce's doctrine features a classification of signs arising from the intersection of three trichotomies: the one regarding the nature of the sign itself divides signs into the qualisign, the sinsign, and the legisign; the one regarding the sign's relation to its object distinguishes the icon, the index, and the symbol; and the one regarding the sign's relation to its interpretant distinguishes the rheme (or predicate), the dicent (or proposition), and the argument. There is ordering within each of these trichotomies according to the triad of ontological categories: of firstness, "the being of positive qualitative possibility"; of secondness, "the being of actual fact"; and of thirdness, "the being of

law that will govern facts in the future." There is also ordering according to the triads of the gnoseological categories and kinds of relations corresponding to them. Thus qualisign, icon, and rheme belong to firstness; sinsign, index, and dicent to secondness; and legisign, symbol, and argument to thirdness. In the resultant system the description of each sign is composed of three parts; for example, the sentence as a type is at once a legisign, a symbol, and a dicent. In this way the place of a sign in a system is settled. This is an important determinant of the sign's communication function. Signs of like form may perform different functions depending on their place in the system. This principle is exemplified by the localization of the same musical note in various places on the staff, by the same rendering of a person in different parts of a medieval altar, by the same emblem in different fields on a coat of arms (see HERALDRY), and by the same words in different contexts.

Examples of systems of signs. Systems of signs are exemplified by natural languages; artificial formal languages; writing systems composed of pictograms, ideograms, hieroglyphs, or ALPHABET signs (see AMERICAS, PRE-COLUMBIAN—WRITING SYSTEMS; EGYPTIAN HIEROGLYPHS; SYMBOLIC LOGIC); systems of phonograms; the International Phonetic Alphabet; systems of phonemes (see PHONOLOGY); systems of road signs and clock chimes (see SIGNAGE); systems of etiquette composed of human behaviors; systems of different culture units; medieval systems of gestures such as St. Bede's counting on fingers or the *Indicia monasteralia* of Cotton Tiberius devised to enable monks who took vows of silence to communicate with gestures (see SIGN LANGUAGE—ALTERNATE SIGN LANGUAGES); the sign language of deaf-mutes (see SIGN LANGUAGE—PRIMARY SIGN LANGUAGES); the so-called flower language created in 1819 by Charlotte de Latour (Louise Cortambert); Peirce's existential graphs; the system of goods in economic exchange; the Morse code (see MORSE, SAMUEL F. B.) and that of flag signaling; the system of symptoms or syndromes of illness or meteorological situations; the system of information transmitted by genes; systems of ANIMAL COMMUNICATION; and so on.

Some see codes and languages as distinct among the systems of signs. Others regard all systems of signs, including languages, as codes. Still others consider every system of signs to be a language. These categorizations depend on the definition of the terms *code* and *language*, and the selection of a definition depends on the research task and discipline of study or on the individual preferences of the selector.

Code. The word *code* serves either as a name of some system of signs in which all the separate signifiers were assigned their values or as a set of rules determining this assignment. More important than

this difference is whether uninterpreted signs of another system are also among those regarded as values of signifiers. If so, then, for example, the mutual assignment of signs of two alphabets, or what is often called a cipher (*see* CRYPTOLOGY), will be recognized as a code despite the fact that the phonetic value of each of these signs remains unknown; that is, we cannot read any one of them aloud.

Most often, however, code is regarded as a system in which to every signifier—treated as a type (or, in INFORMATION THEORY terminology, a signal type)—is assigned its signification, that is, the signified (known in information theory as the message or, strictly speaking, as a class of messages). This assignment is a semantic relation between the signifier and its signified. The domain of this relation is the set of all signifiers of the given code, and its counterdomain is the set of all its signifieds. Two subsets may be distinguished in the domain of a given code: the set containing one element only—the given signifier—and the complementary set. The code's rules assign to the division of this domain a suitable division of its counterdomain, namely, into the subset with the signified of the signifier from the previous subset as the sole element and into the complementary set. The ordered signifier-signified couple constitutes a sign, termed *seme* by some authors.

Some signs consist of components. For example, the NUMBER 91 consists of two components, 9 and 1, and each one is a correlation of its signifier with the signified corresponding to it. Both the signifier and the signified of a composite sign are logical products of, respectively, the signifiers and the signifieds of all the components of this sign. The relation between the signifier and the signified of every component of the composite sign is of the same type as the relation between the signifier and the signified of the entire sign built up of these components.

The code embracing signs thus composed is subject to the first articulation. On the other hand, the code belongs to the second articulation if it is one having the first articulation in which signifiers of the components of a given sign can be decomposed into so-called *figurae*, that is, second-order members that have no signifieds. The codes subject to both articulations must be distinguished from so-called two-class systems of signs, for instance, ones including expressions belonging to such separate semiotic categories as words and sentences.

Codes can be classified from several viewpoints:

1. Codes in which the signifieds of the separate signs are mutually exclusive (e.g., the code of railway signals) and all the others;
2. Codes consisting of only one sign (e.g., the code of the white cane carried by the blind) and all the others;

3. Codes in which the absence of a sign is a sign (e.g., the code of automobile turn signals) and all the others;
4. With regard to articulation, codes are divided into
 - (a) those devoid of articulation (e.g., the code of traffic lights at road intersections),
 - (b) those with second articulation only (e.g., the code of naval flag signaling),
 - (c) those with first articulation only (e.g., decimal numeration),
 - (d) those with double articulation (e.g., some systems of telephone numeration), and
 - (e) digital and at the same time discrete codes (i.e., ones with a finite number of signs, for example, 4a, as distinguished from analog codes, such as the code of the potentiometer in a radio).

Language. In discussing language as a system of signs one has to decide whether to deal with a general notion of language or with any of the special notions, such as the notion of natural language.

In a general notion of language encountered, for example, in information theory, language is being defined as any system of information conveyance between people or between parts of a biological organism or between fragments of a machine, the system being an infinite set of sounds or inscriptions, each of which is a combination of a finite number of symbols of a fixed alphabet. A set of rules called the grammar of this language serves to distinguish well-formed from badly formed sentences of the given language. Such a notion of language is used, for example, in constructing the intermediate language for machine translation.

The description of a formal system, namely, an idealized abstract artificial language, and especially of a deductive system, reveals significant structural properties of a language. A formal deductive system is constructed by giving a list of symbols (variables, logical constants, individual constants, predicates, brackets), rules of sentence formation (i.e., the system's grammar), and axioms selected from among the logically correct sentences, as well as the rules of their transformation (i.e., the deductive apparatus of the system). The system's grammar (its syntactic part) is interpreted with the use of the model (its semantic part). It consists of a universe of discourse, that is, an arbitrary, nonempty set of objects of any kind and of distinguished elements of the model denoted by individual constants according to a specific function. The notions of logical validity and logical consequence are defined using the notion of satisfaction relativized to the given model. Every sentence of the given system that is formally deducible from the set of its hypotheses is also a consequence of this set.

This framework is constructed in abstraction from the peculiarities of the various languages.

A similar idea of that which is common to all languages and hence also common to thought guided the medieval *modistae* as authors of speculative grammar based on Aristotle's distinction of ontological categories—especially of substance, matter, form, quality, and quantity—and on the Arabic commentaries of Aristotle's work, in particular on the *Philosophia Prima* and *Logica* of Ibn Sīnā (Avicenna). The speculative grammarians and philosophers, such as Roger Bacon, John of Salisbury, Petrus Helias, Robert Kilwardby, and Siger de Courtrai, aspired to formulate a science of *modi significandi*, or modes of meaning, in both verbal and mental speech. They held that the relation of grammar to ordinary speech is analogous to that between logic and internal speech. Grammar is thus an indirect reflection of thought structure.

The speculative grammar system was continued in different variants of universal grammar constructed as a system of words representing the system of ideas in the mind. For example, according to *Grammaire générale et raisonnée* (1660), by French theologians Antoine Arnauld and Claude Lancelot, grammar gives a primary division of the art of thinking; and according to French philosopher Étienne Bonnot de Condillac (*Essai sur l'origine des connaissances humaines*, 1746), the use of signs reveals the source of all our ideas, and the analysis of thoughts becomes complete in discourse. Finally, U.S. linguist Noam Chomsky believes that universal grammar determines the essential nature of human language because it is a system of principles to which any grammar must conform as a matter of biological necessity.

The present-day categorial grammars formulated by logicians and philosophers may be regarded as a variant of universal grammar. Similarly, as speculative grammar these grammars, such as the system of Stanisław Leśniewski (1930), go back to Aristotle's conception of categories, and as universal grammar they go back to the concept of part of speech or, as in Edmund Husserl, to the medieval distinction of categorematic and syncategorematic expressions. Both the conception of categorial grammar and the distinction between categorematic and syncategorematic expression occur in Kazimierz Ajdukiewicz's system of categorial grammar, which employs a special notation that makes possible the checking of the syntactic connection of a sentence and a compound expression.

The idea of symbolic notation is already present in the Middle Ages, for example, in scholasticism in the logical square and names of syllogistical moods as a system of iconic-symbolic signs intended for classificational and mnemotechnical purposes. In

modern times the idea of symbolic notation is connected mainly with Gottfried Wilhelm Leibniz. In the nineteenth century it was realized by George Boole in his book *An Investigation of the Laws of Thought* (1854), which contained an exposition of a symbolic algebra formally representing the necessary operations of thought. Continuations of this idea were William S. Jevons's tables, John Venn's diagrams, Peirce's existential graphs, and the so-called Polish notation in logic devised by Jan Łukasiewicz.

Most of the universal grammars and systems of symbolism are generative, as are, among others, phrase structure grammars (e.g., that of U.S. linguist Paul Postal) and the generative grammars superimposed on the former (e.g., that of Chomsky), and finite-state grammars such as the ones of Yehoshua Bar-Hillel and E. Shamir. They are composed of a vocabulary (a finite set of initial strings) and a set of grammatical rules, usually of substitution. Despite being grammars of individual natural languages, they share with universal grammar the assumption that the so-called deep structure of a sentence reflects the structure of thought.

A distinction must be made between universal grammar on the one hand and universal language—or, rather, according to French philosopher René Descartes's distinction, two of its kinds—on the other. These two kinds are the a priori universal language (i.e., the philosophical), which is to serve clarity of thinking, and the a posteriori universal language based on greatly simplified vocabulary and syntax of natural languages intended for facile international communication. An example of an a posteriori language is Esperanto. An a priori language—a schematic language—is the so-called Real Character of Bishop John Wilkins (*An Essay towards a Real Character and a Philosophical Language*, 1668), allegedly reflecting the arrangement of the world and hence based on the differentiation of ontological categories. Francis Bacon (*Advancement of Learning* and *De Augmentis Scientiarum*) postulated that the universal language contain as many arbitrary real characters as there are real words and that these radical characters denote notions and things without the mediation of words.

A similar desire guided Leibniz as the author of *characteristica universalis*, akin to an alphabet of human thoughts, an artificial ideal language patterned after the mathematical symbolic notation in which ideas are unequivocally and mechanically represented logically and things are not represented figuratively. The language was to serve as a pattern against which theorems of all sciences would be measured. Leibniz's artificial language was not intended for recording and communicating knowledge, as was Descartes's a priori language; it was to serve

heuristic purposes. It was to mirror the operations of the mind as well as the structure of the world, both of the empirical world and of the possible worlds. Leibniz wrote that although characters are arbitrary, the relations between characters are not; they reflect relations occurring between things denoted by these characters, and this in fact is the foundation of truth. Just as an integer is uniquely decomposable into its prime factors, Leibniz maintained that a composite concept is analyzable into simple concepts that may be denoted with prime numbers. In order to determine if a given sentence is true, it is enough to calculate whether the product of prime factors connected with the predicate divides the product connected with the subject. In devising his universal language Leibniz anticipated categorial grammar and the idea of semantic universals, and by regarding the verb as a representation of the proposition, he outlined the concept of propositional function.

All artificial languages stem from verbal human language, often called natural language. According to FERDINAND DE SAUSSURE (1916), language is a system of signs expressing ideas and thus is comparable to WRITING, the alphabet of deaf-mutes, ceremonies, etiquette, military signals, and so forth. It is only the most important of these systems. Saussure distinguished *langue* (language system), *parole* (individual concrete act of speaking), and *langage* (speech as a set of acts of speaking).

There is agreement that natural language is a system serving broadly understood communication. The following functions of language are mentioned (by Karl Bühler) in this context: the expressive, the impulsive, and the representative, all performed by every utterance. According to ROMAN JAKOBSON, on the other hand, an utterance performs one or a combination of the following functions: referential, emotive, imperative, phatic, metalinguistic, and/or poetic. Some of these functions, especially the representative (i.e., referential) in combination with the expressive, consist not only in reflecting reality but also in treating it in a way peculiar to the given language.

According to Wilhelm von Humboldt, each natural language is an "*energeia*," that is, a dynamic system furnished with an inner form unique for it, namely, a set of grammatical categories analogous to Immanuel Kant's a priori forms and categories of mind. A reference to this is the hypothesis of EDWARD SAPIR and BENJAMIN LEE WHORF that every language is not only a means of communicating experiences but also (to a certain degree) a determiner and shaper of the experiences of people using the language. Ideas in a sense similar to those of von Humboldt may be found in Condillac's *Essai sur l'origine des connaissances*

humaines, a conception of innate language, "language of actions"; according to Condillac, the elements of this language are natural and spontaneous organs serving the expression of emotions and are capable of being transformed by analogy into conventional signs or "signs of institution."

Most of the enumerated functions and features of natural languages are shared by all systems of signs as communication systems, or at least they are common to all human systems of communication including artificial systems of signs created and used by humans. This may also be said of such structural properties of natural language as the fact that the language systems consist of vocabulary and grammar; that the constant units of the vocabulary are combinable into compound units; that natural language is context dependent and that, for example, the situational or verbal context turns a general symbol into an individual symbol; and that natural language is linear and hence successively and discursively understood. Some of these structural properties belong either to all other systems of signs or at least to those used by humans and not only to natural language.

According to Chomsky, the characteristic features of natural language include, among others, an infinite number of functionally distinct expressions and a finite number of grammatical rules. It is thus a system for the infinite use of finite means. Speakers of natural language make use of modality, propositional attitude, description, presupposition, aspect, anaphora, and quantification. Natural language serves to tell a story, to express an opinion, to enhance understanding. Finally, natural language is acquired effortlessly.

The distinction of natural language from code, especially when the latter is regarded as a human system of signs, has aroused controversy. According to one distinction, code is a communication system with a finite number of signal types or a finite number of ways of interpreting them; language, on the other hand, is a communication system containing jointly an infinite number of signal types and an infinite number of ways of interpreting them. Thus, in addition to natural language, the following are included among languages: the artificial or partly artificial languages of the various sciences, the so-called analog systems of signs belonging to the same syntactic-semantic category, and systems of composite signs being logical products of an infinite number of sign factors belonging to the same syntactic-semantic category.

A second distinction is that a code is a system of signs containing one basic syntactic-semantic category, whereas language is a system of signs with two basic syntactic-semantic categories, namely, names

and sentences; in other words, to use Bühler's term, it is a two-class system. This distinction leaves among codes such systems of signs embracing an infinite number of signal types as analog systems with one basic syntactic-semantic category or systems of signs that are logical products of an infinite number of factors belonging to the same syntactic-semantic category. On the other hand, what remains in the group of languages in addition to natural language are all artificial systems of signs decomposable into two syntactic-semantic categories. Thus the division of systems of signs made by this distinction partly overlaps the previous one.

According to a third distinction, included among codes are all systems of signs produced or intentionally used by humans, but language is a code characterized by a double articulation. The first articulation is the segmentation of text into morphemes, termed also monemes (i.e., the smallest meaningful sound units—roots and affixes). The second articulation involves the segmentation of morphemes into phonemes, that is to say, minimal abstract constituents of the former. Thanks to first articulation an infinite number of meaningful morpheme combinations may be formed out of their finite number, and second articulation makes it possible to split every meaningful element into meaningless constituents. This distinction enables the separation of natural language among codes because it refers to notions characteristic of this language: morpheme and phoneme. The description of a natural language is sometimes augmented by the indication that the second articulation of this language is incomplete because elements of intonation cannot be split into constituents deprived of the semantic function, that the most relevant—and perhaps characteristic—feature of language is the fact that some linguistic signifieds are classes between which there occurs the relation of inclusion or intersection, that only in language may a given message be transmitted with different signs, and consequently that in languages there are synonyms as well as an identity of meaning between an individual word and a certain combination of words, which fact enables defining. Natural language is related with such codes—or, according to some opinions, languages—as the mimic, the gestural, the intonational, and so forth.

According to a fourth distinction, languages are seen to include systems of signs characterized by first articulation regardless of whether or not the second articulation belongs to them. It is only in the systems with first articulation that we find grammar. The systems of signs that are not articulated or those that are characterized by second articulation only are not regarded as languages because they lack grammar. In agreement with this distinction, the languages

include (in addition to natural language), for example, the system of signs used by arithmetic or algebra enabling the formulation of an infinite number of propositions out of a finite number of signs.

Finally, according to a fifth distinction, every system of signs is regarded as a language, with the term *code* being reserved for the set of rules according to which in the given language signifieds are ascribed to their signifiers. The range of the term *language* depends in this case on the range of the term *system of signs* and indirectly on the range of the term *sign*, for the object of consideration may be only signs occurring in the process of communication between people, emitted intentionally or unintentionally; or those in communication between animals, both intentional and unintentional; or those in the process of information flow between parts of an animate organism; or, finally, between parts of a machine.

This is connected with the possible narrower or broader understanding of the word *communication*, in particular with whether in addition to exchange of messages we include in communication the COGNITION of reality with the use of signs, in the broadest sense of the latter word.

See also POETICS.

Bibliography. Kazimierz Ajdukiewicz, *The Scientific World-Perspective and Other Essays, 1931–1963*, ed. by Jerzy Giedymin, Dordrecht, The Netherlands, and Boston, 1978; Antoine Arnauld and Claude Lancelot, *General and Rational Grammar: The Port-Royal Grammar* (in French), ed. and trans. by Jacques Rieux and Bernard E. Rollin, The Hague, 1975; Karl Bühler, *Sprachtheorie: Die Darstellungsfunktion der Sprache* (1934), 2d ed., Stuttgart, 1965; Noam Chomsky, "Human Language and Other Semiotic Systems," *Semiotica* 25 (1979): 31–44; Jean-Louis Gardies, *Rational Grammar* (Esquisse d'une grammaire pure), trans. by Kevin Mulligan, Washington, D.C., and Munich, 1985; Louis Hjelmslev, *Prolegomena to a Theory of Language* (Omkring sprogteoriens grundlaegelse), rev. ed., trans. by Francis J. Whitfield, Madison, Wis., 1961; Wilhelm von Humboldt, "Über die Kawi-Sprache auf der Insel Java" (Vols. 1–3, 1830–1835), in *Gesammelte Schriften*, 17 vols., ed. by Albert Leitzmann, Berlin, 1903–1936; Susanne K. Langer, *Philosophy in a New Key: A Study in the Symbolism of Reason, Rite, and Art*, 3d ed., Cambridge, Mass., 1967; Gottfried Wilhelm Leibniz, "Nouveaux essais sur l'entendement" (1698), in *Die philosophischen Schriften*, ed. by C. J. Gerhardt, Berlin, 1882, reprint Hildesheim, FRG, 1960–1961; Stanisław Leśniewski, "Über die Grundlagen der Ontologie," *Comptes rendus des séances de la Société des Sciences et des Lettres de Varsovie* 23 (1930): 111–154; André Martinet, *La linguistique synchronique*, Paris, 1970; Charles Morris, *Writings on the General Theory of Signs*, The Hague and Paris, 1971; Charles Sanders Peirce, *Collected Papers*, Vols. 1–6 ed. by Charles Hartshorne and Paul Weiss, Vols. 7–8 ed. by Arthur W. Burks, Cambridge, Mass., 1931–1960;



Figure 1. (Signage) Las Vegas, 1978. Courtesy of Venturi, Rauch, and Scott Brown.

Luis J. Prieto, *Messages et signaux*, Paris, 1966; Ferdinand de Saussure, *Cours de linguistique générale* (Course in General Linguistics, ed. by Charles Bally and Albert Sechehaye, London, 1959, reprint 1974), Paris, 1916.

JERZY PELC

SIGNAGE

Signs are an essential part of the modern urban and roadside environment. They inform, guide, and influence. Related to the messages conveyed explicitly through written and graphic signs are messages implicit in the appearance and location of buildings in the environment.

Urban Messages

In cities messages are communicated to people as they move about on the street. There are three message systems available for urban communication: (1) *heraldic*, written and graphic signs of all types (see *HERALDRY*); (2) *physiognomic*, messages implicit in the facades of buildings (e.g., columns and pediments on a neoclassical bank, evenly spaced windows and balconies on a modern high-rise hotel); and (3) *locational*, messages implicit in the location of urban landmarks (e.g., the corner store, the railroad station at the end of a main street, the monument overlooking a public square).

The three systems are closely related in the city. For example, the city hall may have broad stairs, a monumental entrance, a tower, and flags, to herald its importance and evoke associations with the past. The sign that says "City Hall" may evoke classical Rome through the style of its lettering. The city hall may be located on a public square, but it may as easily sit on a city block, cheek by jowl with small-scale, commercial concerns. In either case the city hall's civic importance is accentuated symbolically through the use of a "civic" architectural style and applied civic signs and symbolic decoration. Relations and combinations in most modern city streets among signs and buildings, *ARCHITECTURE* and symbolism, and civic pride and honky-tonk express the vitality and complexity of modern urban life.

Roadside Signs

In many countries the signs and billboards we see as we drive along streets and highways are mostly commercial advertisements (see *ADVERTISING*). Their words and symbols attempt to inform and persuade the potential customer in the automobile. These signs are designed to be seen across vast distances and at high speeds; the big roadside sign must leap out at the driver, directing him or her to a particular store. The products in the store are also advertised on the

highway, on billboards sponsored by their national manufacturers. On the suburban strip, buildings are small and cheap, signs large and expensive. The graphic sign in space has become the architecture of the highway landscape.

Most strip signs are composed of “high readers,” which communicate eye-catching and evocative images, and “low readers,” which give specific information (“Over a billion sold”) and directions (“Park here”). Seen from afar the high reader suggests we slow down; the low reader tells us why we should stop and where to go. The McDonald’s arches on the strip and the wagon wheel on the suburban front lawn serve much the same purposes. Each identifies its owner and refers symbolically to the owner’s aspirations, commercial in one case, personal and communal in the other. However, the glowing, soaring, parabolic arches of McDonald’s have become an international symbol. They signify the same hamburger wherever you are and suggest a familiar location for fast food for the traveler in any town. Strip signs differ from city signs in that the latter are, with the exception of traffic signs, nearly always attached to buildings.

Historical Perspective and Recent Trends

Nineteenth- and early twentieth-century commercial signs were extravagant and abundant. They were placed in windows, above windows, and high on building facades, with little regard for structural niceties or relation to architectural decoration but with close attention to visibility from the sidewalk and the mass transit system. Victorian signs were cluttered and ornate. Ornate letter types, often gilded, crowded the available space. Signs were wordy. Extensive use was made of representational images: traditional striped barber’s poles, eagles, clocks, faucets, eyeglasses, and store Indians. Most signs were made of painted wood or baked enamel.

Such famous emblems as the Coca-Cola sign and the Mobil flying red horse date from the first part of the twentieth century, as does the use of neon. Neon reached its highest artistic expression in Las Vegas, but thousands of brightly colored store-window signs remain as local souvenirs of this almost bygone art. Today commercial signs are frequently made of backlit plastic or metal. They are usually placed over store windows, perpendicular or parallel to the facade. The nineteenth-century practice of attaching signs high on the walls of buildings has stopped, except where occupants make decorative use of window lighting in tall buildings at night. Big signs may be placed on the tops of buildings, where they are visible from afar, but this form of advertising is restricted in most cities to the largest corporations.

Modern signs are less assertive in style than their



Figure 2. (*Signage*) Baker’s shop, Switzerland. The Bettmann Archive, Inc.

Victorian counterparts. Modern taste dictates “Swiss” graphics, single words rather than complicated messages, and the use of abstractions rather than representational images (*see* TYPOGRAPHY). Some high-class stores have barely visible signs or no signs at all. These stores cater to “discriminating tastes” and also attract attention by looking different.

Architects in the past made more use of signs on buildings than do architects today. Building names figured prominently on facades and were incorporated into decorative panels. For important buildings, mottoes and hortatory texts might be extended across facades in the classical Roman manner—as, for example, on the Pantheon. Architects considered these inscriptions part of the decoration of buildings.

Architects continued to give signs pride of place on the facades of buildings into the 1930s. However, as public revulsion against the “vulgar” and commercial grew, building signs were often reduced in size until they were almost imperceptible, sometimes appearing to have been afterthoughts.

A half-century ago a driver could maintain a sense of orientation on the highway. At a crossroad a small arrow directed traffic right, left, or straight ahead.



Figure 3. (*Signage*) Sign at a gunsmith's shop. The Bettmann Archive, Inc.



Figure 4. (*Signage*) "Tail o' the Pup" hot dog stand, Los Angeles, 1975. Courtesy of Venturi, Rauch, and Scott Brown.



Figure 5. (*Signage*) Aquarium, Central Pier, Atlantic City, New Jersey, 1980. Courtesy of Venturi, Rauch, and Scott Brown.

Today the crossroad is a cloverleaf. To turn left, one must turn right. The driver has no time to ponder the paradox involved in this maneuver but must rely on signs for guidance—large signs seen at great distances and at high speeds.

Today as we drive the interstate we see signs that tell us where to eat, sleep, and get gas. Billboards and high readers tell us whose gas, food, and lodging is available. The false fronts of a nineteenth-century frontier main street in the United States performed much the same function. They were wider and taller than the stores behind to accommodate signs and signal the stores' importance. They also enhanced and unified the street front. False fronts were effective on a main street scaled to the horse and buggy. With the advent of the car, however, the need for parking forced buildings to separate and recede from the street. False fronts were disengaged and moved down the highway to the exit, where they became billboards.

The big sign—*independent of the building and made up of three-dimensional sculptural or two-dimensional pictorial elements*—calls attention to itself by its position, perpendicular to and at the edge of the highway, and by its scale and shape. Signs use mixed-media words, pictures, and SCULPTURE to persuade and inform.

Signs work as polychrome sculpture in the sun and as silhouette against it; at night they must reflect or become a source of light. A sign might revolve by

day and become a play of light by night. It might contain six-inch-high words to be read close up and ten-foot-high words to be read at a distance.

Signs can communicate through the use of a representational image that stands for a trade or product—for example, a hammer for a hardware store, a spigot for a plumber, or a bib and tucker for a clothing store (*see REPRESENTATION, PICTORIAL AND PHOTOGRAPHIC*). They can also communicate in a purely descriptive, usually terse manner (e.g., "EAT," "GAS," "VACANCY"). The message can be evocative or humorous.

The representational signs of the recent past increasingly are being abandoned for abstract logos and "corporate identification systems." Signs that are a rich mixture of symbols, words, and pictures are becoming less fashionable than "modern" signs that sacrifice evocative imagery for the sake of "boldness," "clarity," and "good taste."

See also ICONOGRAPHY; POSTER; VISUAL IMAGE.

Bibliography. Paul Hirshorn and Steven Izenour, *White Towers*, Cambridge, Mass., 1979; Chester H. Liebs, *Main Street to Miracle Mile*, Boston, 1985; John S. Margolies (photos and text), *The End of the Road*, ed. by C. Ray Smith, New York, 1981; Robert Venturi, *Complexity and Contradiction in Architecture*, 2d ed., New York, 1977; Robert Venturi, Denise Scott Brown, and Steven Izenour, *Learning from Las Vegas*, 2d ed., Cambridge, Mass., 1977.

STEVEN IZENOUR

SILK ROAD

For nearly two thousand years the chief trade route between Europe and China. It was not known as the Silk Road until German geographer Ferdinand von Richthofen named it so in the nineteenth century, but the name was appropriate. The most prized goods that passed over the road were silks from Shantung and Honan. Silk was very popular in Greece and Rome. A chronicler of the times says that Cleopatra, to dazzle her banquet guests, "appeared in a silk gown." The Romans called the Chinese "Seres," which comes from the word for silk, and China was "Serica," the "silk country." Tiberius (42 B.C.E.–37 C.E.) prohibited Roman men from wearing silk so that there would be enough for the women who craved it. So Chinese silk, along with lacquer ware, rode westward, and in return gold and silver articles, precious stones, glassware, and wine rode back to China.

It was a very long and dangerous ride from Antioch, Alexandria, or other ports on the Mediterranean to Chang'an (modern Xian), the first great city that eastbound travelers reached in China. Much of the middle part of the journey was threatened by the Huns from Mongolia, bandits from both the deserts and the mountains, and the Parthians, who were determined not to yield sovereignty over the road to either Rome (i.e., Europe) or China. Therefore, be-

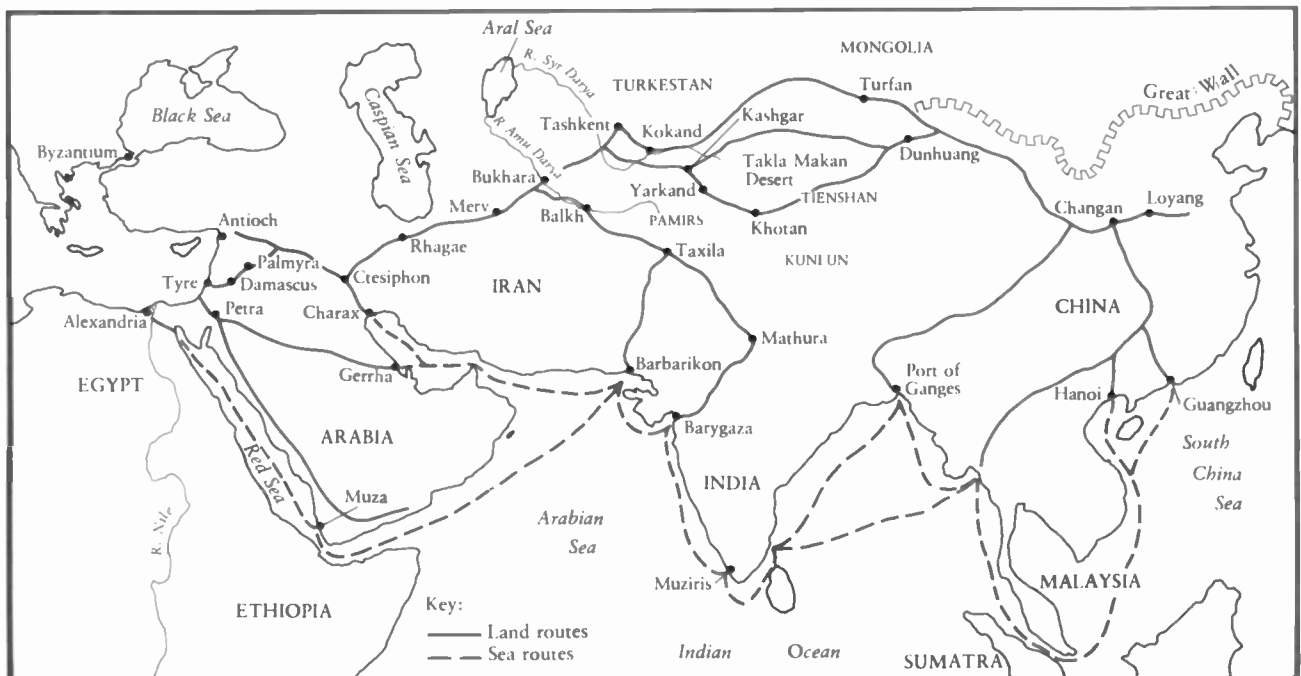
fore the Mediterranean travelers had gone very far they handed over their goods to Iranian merchants, later to Uighur traders from Turkestan. When the road reached the site of present Sinkiang (Xinjiang), China's farthest northwest province, travelers were most likely to be attacked or embattled. Here the road forked into northern and southern branches at the base of the mountain ranges, along a line of oases at the base of the northern mountains or another at the base of the southern mountains. Rich towns had been built on these oases, which were often the scene of hostilities between the Chinese and the Huns. Once through the Sinkiang region, the eastward travelers were in China and could advance beside the Great Wall as they made their way to Xian. The farther east they went, the lower the chances that their load would be taken away from them, though they still had a return trip to make.

West of Sinkiang another road branched off to the south. It was the route by which Alexander invaded India. More important, it was the road by which Buddhism came from India to China.

In the thirteenth century the Chinese emperors reestablished their power in Sinkiang. This enabled MARCO POLO, among others, to ride the Silk Road to China before sea travel between China and the West became more frequent.

See also EAST ASIA, ANCIENT; EXPLORATION; ROMAN EMPIRE.

Figure 1. (*Silk Road*) Major East-West trade routes by land and sea. Redrawn after J. E. Vollmer, E. J. Keall, and E. Nagai-Berthrong, *Silk Roads, China Ships*, Royal Ontario Museum exhibition catalog, Toronto, Ontario, 1984, p. 26.



Bibliography. Ryōichi Hayashi, *The Silk Road and the Shoso-in* (Shiruku Rōdo to Shōsōin), trans. by Robert Ricketts, New York, 1975.

WILBUR SCHRAMM

SIMMEL, GEORG (1858–1918)

German sociologist and philosopher, analyst of small-group interaction and hierarchies. Georg Simmel was one of the founders of modern sociology. He declared that sociology could not pass judgment on the meaning of society as a whole but must describe and analyze individual forms of human interaction—those patterns of communication that constitute society in its most basic sense. He spent most of his career as a popular lecturer at the University of Berlin, but a combination of anti-Semitism at the university and suspicions of dilettantism kept him from any tenured academic rank until 1904, and a full professorship was not granted him until 1914, when he was already fatally ill. But through his many books and articles and widely publicized lecture series on such subjects as the outsider and the power of money, Simmel had an influence far beyond his academic circle. At the time of his death in 1918 Simmel was ranked alongside his most famous sociological contemporary, MAX WEBER.

Probably Simmel's most important contribution to the emerging study of society was his focus on the small group. He began his most famous study by asking, "What is needed for interaction to take place?" A dyad, or set of two people, constitutes a form of society that, Simmel believed, is not conducive to interaction. Between two people only limited forms of interaction are possible: they either agree, disagree, or do not communicate at all. In none of these cases does full social interaction take place. But the introduction of a third person creates conditions leading to complex social interaction: hierarchies (which Simmel was the first to study in depth), majority power, enforcement problems, unstable coalitions, and possibilities for SECRECY and fraud (*see also* DECEPTION). In the group of three, or triad, Simmel found all the same social phenomena that his contemporaries were analyzing in mass social settings.

Simmel's research into the group led him to study the possible victim of group dynamics, the outsider. Interaction between an established social group and an outsider who attempts to gain entrance into it constitutes one of the most fascinating topics in GROUP COMMUNICATION. Among the topics Simmel studied were strategies used by the outsider to gain acceptance, tests established by the group for admission, and the means by which the group signals the outsider's progress. He even extended his study, in

The Metropolis and Mental Life (1903), to include the plight of those members of society who, unable to cope with the conflicts and demands of contemporary urban existence, become outsiders—what more recent observers call alienation.

Perhaps the most stimulating of Simmel's observations for later theorists was his idea that conflict was not necessarily a destructive force. Especially in modern societies, in which conflict is intellectual and verbal rather than emotional or physical, conflict can be an integrative force, ensuring that issues are not apathetically left to the dictates of the few but are resolved through the active engagement of society as a whole. Simmel's speculations on the place of conflict and the status of the outsider have formed the basis for a number of contemporary psychological and sociological theories, such as role analysis and behaviorism.

Bibliography. David Frisby, *Georg Simmel*, London and New York, 1984; Rudolph H. Weingartner, *Experience and Culture: The Philosophy of Georg Simmel*, Middletown, Conn., 1962.

HARTLEY S. SPATT

SLAVE TRADE, AFRICAN

The transatlantic slave trade effected one of the largest population movements in history, dispersing black peoples of Africa among European and Native American peoples of the New World and ultimately leading to the DIFFUSION of elements of African CULTURE. The 10 to 11 million victims of this forced MIGRATION were drawn mainly from western Africa, in the area extending from the Senegal River to the southern limits of Angola. Representing many groups and cultures of Africa, they became concentrated particularly in Portuguese Brazil, the multinational Caribbean, and the Spanish-settled areas of the mainland. About 6 percent landed in the present-day United States.

Interrelated with the commercial and industrial revolutions, the slave trade linked Africa with Europe and the Americas for three and a half centuries (*see* COLONIZATION). European nation-states and private venturers sought products for Europe—precious metals and tropical staples. Several considerations led to the resort to African labor. The cultivation of tropical staples, notably sugar, required many hands and hard labor over a long growing season. The hot climate deterred white workers, and the Native American population suffered huge losses from exposure to new diseases brought by the Europeans. From the beginning of the encounter between Europe and Africa whites held prejudicial attitudes toward black-skinned people that were used to justify enslavement.

Moreover, blacks had a high degree of immunity to tropical diseases. African officials and traders were willing to exchange laborers for European products, especially textiles, metal wares, liquor, and guns.

The conjunction of sugar and slaves goes far to explain the existence of the African slave trade. A luxury in the sixteenth century, sugar was a common household commodity by the nineteenth. Planters in tropical America wrung great fortunes from the sweat and mortality of a labor supply furnished by the African slave trade. Blacks also produced gold, tobacco, coffee, rice, indigo, and cotton, thereby contributing to the vast expansion of international commerce.

Reaching into the African interior from a long stretch of coastline, the slave trade drew into its network disparate peoples, divided in RELIGION, political organization, and social and economic arrangements (*see* AFRICA, PRECOLONIAL). The ethnic and geographic sources of slaves shifted over the long span of time, responding to variables in availability and national carriers. These factors complicated the pattern of cultural survival and diffusion in the Americas.

Evolution of the Trade

The African slave trade began with Portuguese EXPLORATION of Africa. At first Africans were imported into the Iberian Peninsula, where they intermingled with the white population. In early years drawing heavily on West Africa and the Guinea Coast, the Portuguese came to depend especially on Angola, where they established colonies and their agents married African women. The Portuguese provided slaves to Spanish America as well as to the Portuguese possessions in Brazil, where the trade responded in turn to the expansion of the sugar industry in Bahia, the discovery of gold in the Minas Gerais, and the development of coffee, sugar, and gold-mining operations in the hinterland of Rio.

The slave trade to Spanish America had its own character. The Spanish, owners of nearly all the New World except Brazil, were barred by a papal decree from owning the source of slaves—Africa. They therefore relied on others—first the Portuguese, then carriers of various other nations—to import slaves for their possessions in Mexico and later in the West Indies, as Puerto Rico and Cuba participated in sugar cultivation.

The Dutch broke the Portuguese monopoly and in the seventeenth century became the second most important carrier for other nations. Their sources in Africa shifted from a heavy dependence on the Slave Coast in the seventeenth century to the Ivory Coast and Angola in the eighteenth. In addition to providing slaves to others the Dutch established three major markets under their own flag in the Caribbean—

Curaçao, Saint Eustatius, and Surinam—and these ultimately received the bulk of the African cargoes.

From small beginnings the French trade soared in the decade after the American Revolution, when departures from France averaged over a hundred vessels a year, and continued as a large illegal trade in the first half of the nineteenth century. In Africa, France early established an interest in Senegambia and later drew heavily from the Bight of Benin and Angola. In the Caribbean, after exploiting Guadeloupe and Martinique, France turned to developing the rich sugar potential of Saint Domingue.

The British trade rose to preeminence by the second third of the eighteenth century and became immense in the last two decades of the century. At first in the hands of a royally chartered monopoly, the trade passed to private merchants in London, Bristol, and Liverpool who plied the business with great efficiency, selling to all buyers. Until British abolition of the trade in 1807, the Bight of Biafra furnished the largest number of slaves, the Gold Coast the next largest, and the Congo-Angola region the third largest. The sugar islands of Barbados and Jamaica were the main markets in the British West Indies.

British North America was slow to be involved in the slave trade. Not until the 1730s did it take an active part, with Rhode Island dominating the colonial-based trade. The slaves came directly from Africa—not from the West Indies, as has been thought—and were imported mainly from Senegambia, Angola, the Bight of Biafra, and the Gold Coast. Four of the thirteen colonies were the destinations of most of these Africans: in 1780 Virginia led in the number of blacks, followed by South Carolina, North Carolina, and Maryland. The United States outlawed the foreign slave trade in 1807.

Effects of the Trade

In the diffusion and retention of African culture resulting from the transatlantic slave trade, four factors have had special significance: the African region from which the slaves came, the culture of the region to which they were taken, the persistence pattern of the slave trade with its effect of renewing the African heritage, and the density of the transplanted population.

The slave trade was a great diaspora, transporting millions to a doubly alien environment—another hemisphere dominated by another race. The trade made its impact on American regions in an uneven chronological pattern: for example, continuously in Brazil over several centuries, but in changing portions of the country; briefly in North America, for about one century and mainly in four colonies; and briefly also in Cuba, where three-quarters of the slaves arrived in the nineteenth century. Moreover, slaves formed differing proportions of American popula-

tions, comprising nearly the whole in some communities and small percentages in others. Blacks in Latin America, themselves from different African ethnic groups, often mixed with Indian and white races.

This kaleidoscope had its significance for the cultural legacy it left to the Americas. Survival of African culture appears to have been strongest among early generations, diminishing as creolization occurred and being reinforced as successive generations of Africans joined earlier arrivals. Survivals are more elusive in the United States than in the Caribbean and Latin America.

The Caribbean, holding no fewer than fifty insular societies, has a diversity that almost defies generalization. Each society has developed its own pattern. In the search for African survivals scholars have turned away from specific examples to an emphasis on the process by which African culture underwent change, responding to new circumstances and forming a new culture neither African nor American but Afro-American.

In Brazil the matter of African cultural survivals is complicated by the high degree of race mixing. Although Brazil imported nearly 4 million slaves over a span of three and a half centuries, in 1890 its black population numbered a little more than 2 million, and the mulatto population stood at twice that figure. Brazil practiced a less formal kind of segregation than did the United States, offering an escape hatch through intermarriage. For many Afro-Brazilians the goal was not to retain African culture but to cross racial barriers and pass as white.

Contrasting with miscegenation was the creation of Maroon societies in Brazil where African runaways lived apart from white domination. The most famous was Palmares, far in the interior of Pernambuco. Its government, a centralized kingdom, appears to have been modeled on several central African sources. For most of the seventeenth century Palmares demonstrated that an African political system could be successfully transplanted. It vigorously resisted efforts to subdue it until in 1694–1695 a force of Portuguese-Amerindian métis and frontier settlers destroyed Palmares in hand-to-hand combat.

Another form of assertion of African identity and unity was rebellion, particularly in the long series of rebellions in Bahia in the first third of the nineteenth century, initiated by newly arrived Africans with a common and uneradicated heritage. The high incidence of slave revolts in Brazil, in contrast to the low incidence in the United States, is partly attributable to the persistence of the Brazilian slave trade, which reinforced the African heritage generation by generation.

Africans imported into what is now the United States arrived over a short period of time and lived in a region where they were often a numerical minority. There was little race mixing or rebellion. In

the nineteenth century African culture was threatened with near eradication. Many blacks in the United States and elsewhere sought to adopt white culture.

In the twentieth century black consciousness developed in the Americas as well as in Africa. Emerging black leaders made appeals for black consciousness and black unity. The search for African survivals quickened. The consensus has been that survivals are most clearly discernible in LANGUAGE, FOLKLORE, and music (see MUSIC, FOLK AND TRADITIONAL).

African language survivals are readily traceable in a few instances, such as the Twi language among Jamaican Maroons and Gullah among South Carolina Sea Islanders and some inhabitants of Caribbean and South American communities. More common has been the development of pidgin languages, mixing together West African and European languages. The Portuguese began this process, creating a trade pidgin; other nations made similar adaptations, with Africans inserting native words that were familiar and meaningful to them. A rich and varied pidgin grew because West Africans spoke many languages. See LANGUAGE VARIETIES.

Similarly, folklore represents an interaction between African and American sources. U.S. folklorist Richard M. Dorson found that only about 10 percent of over a thousand oral narratives told by Afro-Americans in the southern United States were known in West African folktales. African folklore had drawn on such sources as Aesop, whose influence—and the popularity of his animal fables—was widespread. See FOLKTALE.

In music the story has again been one of interaction of African and other elements. Afro-American spirituals and blues reflect the outlook of an oppressed people rather than an expression of African survivals. In jazz, which traveled back across oceans to become a part of world culture, traces of West African rhythms can be found, but also much else, echoing generations of interaction, creation, and renewal.

Bibliography. Roger Bastide, *African Civilizations in the New World* (Les Amériques noires, les civilisations africaines dans le nouveau monde), London, 1971; Margaret E. Crahan and Franklin W. Knight, eds., *Africa and the Caribbean*, Baltimore, Md., 1979; Philip D. Curtin, *The Atlantic Slave Trade: A Census*, Madison, Wis., 1969; Carl N. Degler, *Neither Black nor White: Slavery and Race Relations in Brazil and the United States*, New York, 1971; Sidney W. Mintz, ed., *Slavery, Colonialism, and Racism* (*Daedalus* [Spring 1974], *Journal of the American Academy of Arts and Sciences*), New York, 1975; Richard Price, ed., *Maroon Societies: Rebel Slave Communities in the Americas*, 2d ed., Baltimore, Md., 1979; James A. Rawley, *The Transatlantic Slave Trade: A History*, New York, 1981.

JAMES A. RAWLEY

SLEEPER EFFECT

An effect observed in social psychology experiments that suggests how ideas can eventually take hold, whatever their source. Tending to confirm more casual observations, the findings have important implications for communication generally, but especially in such areas as DISINFORMATION, PROPAGANDA, ADVERTISING, and media ethics (see ETHICS, MEDIA).

During World War II, and later at Yale University, CARL HOVLAND and his associates studied the effect of a communicator's perceived credibility or prestige on the persuasive power of a message (see PERSUASION). It had been demonstrated that when a message is attributed to a source considered untrustworthy, the message has little or no effect on the audience. After several weeks, however, the negative effect of the source's perceived lack of credibility seems to disappear and "positive" attitude changes occur; by that time there is actually little difference between the ATTITUDES of people who had been exposed to a message attributed to a high-credibility source and people exposed to the same message attributed to a low-credibility source. This unexpected change in the attitudes of persons who had been exposed to messages from low-credibility sources was called the "sleeper effect."

How did this change come about? Obviously, some kind of forgetting was involved. Hovland and his colleagues found that when the audience was reminded of the untrustworthy source of the message, the "sleeper effect" vanished and attitudes returned to their previous unfavorable level. By manipulating the research design Hovland was able to show that the audience had forgotten neither the message nor its attributed source, but rather the relationship between the two. It was all too easy to forget where the message had come from.

See also CONSUMER RESEARCH; MASS MEDIA EFFECTS; POLITICAL SOCIALIZATION; PUBLIC RELATIONS; RUMOR.

Bibliography. Carl I. Hovland, Irving L. Janis, and Harold H. Kelley, *Communication and Persuasion*, New Haven, Conn., 1953.

WILBUR SCHRAMM

SLIPS OF THE TONGUE

Normal (i.e., nonpathological) SPEECH errors characterized by a clear violation of the speaker's intention. Common categories of slips include phonemic reversals, or "spoonerisms" (e.g., *barn door* for *darn bore*), anticipations (*barn bore*), perseverations (*darn door*), additions (*darn bore*), and deletions (*dar bore*). Also included are word reversals (*ringing sirens and*

wailing bells), blends (*splisters* for *splinters* and *blisters*), and malapropisms (*magician* for *musician*). Other categories have been identified as well. Definitions usually exclude common dysfluency phenomena (hesitations, false starts, vocalized pauses, etc.), as well as violations of intended receiver effects (ambiguity, impoliteness, social blunders, etc.).

Linguistic interest in slips began with Austrian psychologists Rudolf Meringer (around 1895) and SIGMUND FREUD (around 1901) but was generally dormant until the 1970s, when linguistic research began to focus on cognitive language-production processes. Research methods have included laboratory elicitation of slips as well as the collection of natural slip data. Research questions generally have concentrated on two areas: discovery of the cognitive operations for speech production and discovery or confirmation of the linguistic rules governing component operations.

Certain phonemic and morphemic patterns are common to slips, while others are unheard of. For example, of the many patterns allowed by a random phonological rearrangement of, say, *tongue slips*, those patterns found in verbal slips (e.g., *slung tips*, *tongue lisps*) are common to the English language. The fact that anomalous possibilities (e.g., *tlung sips*) never occur is taken as evidence that cognitive rules exist to indicate the allowable and/or disallowable phoneme patterns within the language. Similarly, evidence of morpheme rules is obtained by the fact that error morpheme segments, though accidentally rearranged, do maintain the common construction patterns found in legitimate utterances (e.g., *evidencingly* for *evidently*) but almost never manifest anomalous possibilities (e.g., *ingidencively*).

Findings from verbal slip research have increased our understanding of cognitive processes involved in speech production, providing evidence against one-word-at-a-time processing, evidence for a prearticulatory editing operation, and evidence that verbal slips may be caused by nonlinguistic factors independent of the impending speech message, as in "Freudian slips."

Of the theoretical accounts for the causes of verbal slips, the most precise hypotheses blame competition between viable alternative versions of the impending speech plan. For example, the error *motherpie and applehood* may be explained as the result of competition between, or indecision over, the message choices *motherhood and apple pie* versus *apple pie and motherhood*. In a variation of the competition hypothesis, the direction of the slip is seen as subject to influence from other kinds of associations. For example, greeting a competitor with *Pleased to beat* (for *meet*) *you* can be accounted for by recognizing that *beat* might be chosen both as a phonological associate of *meet* and as a semantic associate of the

competitive context. Liberally interpreted, competition can account for most slips of the tongue.

See also HUMOR; SPEECH PLAY.

Bibliography. Victoria A. Fromkin, *Speech Errors as Linguistic Evidence*, The Hague, 1973; idem, ed., *Errors in Linguistic Performance*, New York, 1980.

MICHAEL T. MOTLEY

SMELL

The sense of smell is often considered a minor element in human communication, even though scents perceived as arising from other people may have significant interpersonal consequences. The conscious "meanings" or significance people attach to different scents varies depending on context, cultural values, and taboos. Students of NONVERBAL COMMUNICATION have been increasingly interested not only in conscious awareness of scents but also in the importance of nonconscious olfactory signaling.

The study of smell. The scientific study of the sense of smell has dealt largely with how individuals perceive test odorants and fragrances presented to them. Interpersonal communication through the sense of smell consists mainly of the signaling of sexual and social status by the use of perfumes and by culture-bound habits of personal hygiene. Throughout human history perfumes have had religious, medical, and hygienic uses. Nonetheless the main purpose of perfume has always been as an aphrodisiac acting through the sense of smell. The original species-propagating function of perfume materials in plants (insect attraction) and in animals (sexual attraction) is recapitulated in humans.

Odors continue to frustrate all attempts at chemical explanation, scientific classification, or correlation with other chemical properties. The smell of an individual odorant cannot be predicted from its chemical structure, nor can the attractiveness of a perfume be predicted from the individual scents that compose it. Perfumery remains more an art than a science.

Though perfumers have accumulated a large body of technical rules and scientific data on human responses to fragrant substances, no overall synthesis of these findings has emerged. It is clear that different perfumes, in different situations, have certain sexual and other interpersonal connotations. But whether responses to perfumes vary consistently with personality factors and the extent to which such variations are genetically or environmentally induced have not been determined. It would seem reasonable to assume, pending further evidence, that the response to any given blend of odorants is determined by an interaction of four elements: the composition of the

perfume, the personality of the wearer, the personality of the perceiver, and the social circumstances in which the interaction occurs.

Smell in social communication. Failure to self-regulate olfactory emissions can lead to serious interpersonal problems. For example, some psychotic persons are described as emitting a cacophony of unusual or taboo nonverbal messages that the recipient does not consciously identify one by one but that on the whole produce a negative reaction, sometimes described as *Praecoxgefuehl*. Olfactory signals play an important role in evoking such rejections and counteraggressions.

In the rest of the animal kingdom the role of the sense of smell in social communication, particularly in eliciting attraction and revulsion, is much more clear-cut. It is obvious to any owner of a cat or a dog that these animals, at least, use olfactory cues to transmit to each other news on sexual status, aggressive mood, and territorial claim. Psychological data on such signals in pets remain anecdotal, but rodents in the laboratory have provided confirmation of the existence of these three types of signals. Chemical messengers in mice also transmit information on endocrine status, social status, and dominance as well as individual and group identity. Active substances serving as olfactory chemical messengers in these animals have been isolated. In addition, the following series of experimental discoveries has served to stretch our imagination concerning the possible range of olfactory messages:

1. Pregnancy block (Bruce effect): The rate of pregnancy failure in female rodents impregnated by one male increases sharply when they are exposed to olfactory stimuli from another male (this effect occurs at a distance and does not require the physical presence of the second male).
2. Adult male effect (Whitten effect): Puberty is slowed down in juvenile male mice when they are exposed to odors of adult males; in juvenile females, the same odor speeds up the development of puberty.
3. Genetic signals from lethal genes: About one in three wild house mice carries lethal alleles (half-genes). When males and females carrying the lethal alleles are mated, those offspring that receive lethal half-genes from both parents die during early fetal development. Carriers of the lethal allele are normal in appearance and behavior. They can be distinguished only retrospectively, by observing the outcome of matings. But female mice can recognize (and tend to avoid mating with) male carriers by odor alone.
4. Olfactory signals of genetic relatedness: Mice tend to select mates of different kinship genes from their own. This selection appears to be mediated

by olfactory chemical messengers that give information about the degree of similarity of the genetic makeup of the individuals. Such mate selection helps to improve the survival fitness of a mouse population by reducing inbreeding.

5. Olfactory signals from tranquilizer recipients: Male mice treated with diazepam are attacked more viciously by other mice because of an increased production of aggression-inciting urinary odors by the drug recipient's sex glands.
6. In groups of rhesus monkeys, mate selection is affected by chemical messengers (copulins) present in vaginal secretions. These substances provide the male with information about the hormonal status of the female.

Conscious and nonconscious perception of smell.

Studies on rhesus copulins have served to stimulate research on analogous processes in humans. The nose and its brain connections, like all sense organs, accept some signals that are consciously perceived and others that are not. The entire system is best termed *olfaction*, divided into two functions: (1) the conscious sense of smell, and (2) out-of-awareness or nonconscious olfactory perception.

Humans possess a variety of secretory and excretory output systems and of brain circuits linked to olfactory input, which provide a rich substrate for olfactory emission and reception. These anatomical elements were formerly thought to be vestigial, but it is now understood that for us, as for our phylogenetic ancestors, meaningful olfactory communication may have a significant role to play.

Investigation of nonconscious human olfactory communication has been guided by two different but somewhat overlapping ideas: the pheromone hypothesis and the exohormone hypothesis. Experimental evidence tends to argue against the notion that humans emit species-specific substances that produce simple, clear-cut, reproducible behavioral responses (pheromones). But it is possible, though not proven, that there is a *complex* system of chemical emission and olfactory reception. These chemicals (exohormones or external chemical messengers) may be similar in nature and function to the many olfactory communicative substances found in lower animals.

Some phenomena have been observed in humans that are most simply explained by the presence of chemical-olfactory communication:

1. Menstrual synchrony. Groups of women living together at close quarters tend to show similar menstrual rhythms.
2. Alteration of menstrual timing by exposure to musk-type substances or to human armpit secretions.
3. Identification, on the basis of olfaction alone, of babies by their mothers and mothers by their babies.

4. The correct recognition of T-shirts of siblings and offspring on the basis of olfactory cues alone.
5. Mood changes. In young women olfactory exposure to the mammalian pheromone androstrenol increases self-reports of irritability during menstrual periods and causes shifts in self-rating of moods from aggressive to submissive.

These phenomena are not, by themselves, of great moment. The auditory, visual, and motor channels carry interpersonal signals of far greater significance. What, then, explains the growing interest in research in olfactory signaling? Many important behavioral effects ascribable to olfactory communication have been identified in social mammals other than humans. If a number of these should in the future be discovered in our species as well, our understanding of human behavior and human communication could undergo profound change.

See also ANIMAL COMMUNICATION; ANIMAL SIGNALS.

Bibliography. Richard E. Brown and David W. McDonald, *Social Odours in Mammals*, 2 vols., New York, 1985; Richard L. Doty, "Olfactory Communication in Humans," *Chemical Senses* 6 (1981): 351-376; Trygg Engen, *The Perception of Odors*, New York, 1982; William McCartney, *Olfaction and Odors*, Berlin and New York, 1968; Harry Wiener, "Human Exocrinology: The Olfactory Component of Nonverbal Communication," in *Nonverbal Communication*, 2d ed., ed. by Shirley Weitz, New York, 1979.

HARRY WIENER

SOAP OPERA

Pejorative term coined in the United States in the 1930s for serialized DRAMA broadcast over RADIO in daytime hours, aimed at an audience of women, and in most cases sponsored by soap companies (see SPONSOR). The term was later applied to daytime television series and still later to prime-time serialized features such as "Peyton Place," "Dallas," and "Dynasty," although the GENRE underwent changes during these transitions. As the nighttime features won international distribution, the term acquired worldwide currency and was applied to programs in many countries, such as Britain's perennial "Coronation Street," India's "Hum Log" (We People), Italy's "Casa Cecilia," and Peru's "Simplemente María." *Soap opera* gradually lost its sardonic thrust and became merely the popular name for the genre, although networks and sponsors prefer to speak of "serial drama" in referring to their offerings. True soap operas, or "soaps," are designed to last as long as audiences and production budgets remain available. Thus they are distinguished from miniseries and from *telenovelas* that are serially presented but involve

structured dramatic action leading to a final resolution.

History. Although SERIAL narrative has a long history in diverse media, early radio programmers tended to doubt its applicability to broadcasting on the ground that intermittent listening would negate the impact. The explosive success in the United States in the late 1920s of "Amos 'n' Andy" in a daily early evening spot on the NBC network scotched this notion. This series, which followed the tragicomic vicissitudes of two blacks on the south side of Chicago but was performed and written by two whites, not only proved the feasibility of radio serials but established techniques that became part of the genre. Its writers learned to devote weeks of programming to a single intensifying dilemma, such as a breach-of-promise suit brought by the Widow Parker against Andy. Day after day the impending trial was discussed, issues argued, advice given, daring stratagems weighed, perils assayed, threats made, lawyers consulted. Dramatic developments were few and could have been spanned in one half-hour drama. Far from losing listeners, the series showed that long sequences built around intractable dilemmas could actually increase audiences. They thus became a basic element in soap opera construction.

The success of "Amos 'n' Andy" precipitated daytime experiments, particularly by manufacturers of soap and other household products. Such sponsors favored time periods when many women were likely to be at home and in control of the radio dial. Several of these experiments, such as "Betty and Bob" and "Ma Perkins," soon won intensely loyal followers. By 1938 thirty-eight such offerings were on U.S. networks, all fifteen-minute serials broadcast five days a week.

Their merchandising function influenced soap operas from the start. Plots focused on human relations problems and glorified the woman's role. In this respect they paralleled and harmonized with the COMMERCIALS. Some of the series, such as "Ma Perkins," were built around helping-hand figures, towers of strength who saw other people through their problems. Other series, such as "Young Widder Brown," focused on characters who were themselves beset by afflictions but struggled through them. Still other series were built around relationships involving built-in, essentially insoluble tensions. "Backstage Wife" looked at marriage from the point of view of a woman whose husband moved in more glamorous circles than she did, always meeting women who represented potential threats. Would she remain interesting to him? In some series the dichotomy was a social one. The formula of "Our Gal Sunday" was articulated on each program. It asked, "Can a girl from a little mining town in the West find happiness as the wife of a wealthy and titled Englishman?"

Prominent among soap opera pioneers was Irna

Phillips, a former schoolteacher who took up serial writing in the early 1930s and soon proved able to write several series simultaneously. In 1937 she started "The Guiding Light," which turned out to be almost indestructible. In 1941 it was discontinued but was then reinstated, reportedly in response to seventy-five thousand letters to its sponsor, Procter and Gamble. It remained on the radio until 1956, and meanwhile, in 1952, a television version was begun that proved even more durable than the radio series.

Of greater influence on soap opera production methods was the remarkable team of Frank and Ann Hummert, who at various times had twelve series on the air simultaneously. They outlined the action of each series in detail and hired free-lance writers, who remained uncredited, to "fill in the dialogue." The writers received their instructions in memorandums, by phone, or in meetings with assistants, but supervision was rigorous. These series were often called fantasy, but the Hummerts described them as true reflections of small-town American life and successful for that reason.

Impact on listeners. In the late 1930s researchers began to take an interest in soap operas and their audiences (see COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT). Social psychologist Herta Herzog interviewed regular listeners to learn the kinds of satisfactions they derived from soap operas and was surprised at the number of listeners who spoke of the characters as though they were real people. The more complex a listener's own problems, the more serials she tended to follow. Many spoke of planning the day around their programs. Some looked to the series for guidance. An unmarried woman said, "I want to get an idea of how a wife should be to a husband." Other viewers offered help. Every series received letters addressed to the characters, giving advice or warning against other characters.

During World War II the U.S. government tried to channel soap opera loyalty into war needs. An envoy from the Office of War Information visited the Hummerts and discussed the anxieties of mothers who pictured their sons suffering under ruthless sergeants. The Hummerts cooperated by creating the series "Chaplain Jim," about a helping-hand figure in uniform ready to solve the problems of servicemen.

Transitions. There was widespread doubt that soap operas and their popularity could be transferred to television. Yet efforts began as television broadcasting resumed after World War II (see TELEVISION HISTORY). Early ventures seemed unpromising, but during the 1950s a number of series won a firm foothold in daytime schedules: "As the World Turns," "Search for Tomorrow," and "Love of Life," in addition to "The Guiding Light." By the mid-1960s television serials appeared to be an addiction comparable to the radio serial addiction at its zenith. An important step had been taken in the mid-1950s,

when the fifteen-minute period of radio serials was expanded to a half hour. In the mid-1970s some serials shifted to a one-hour format, and most soon followed. These longer time periods necessitated more elaborate plotting and brought changes to the form. The serials also reflected the changing social milieu. Topics taboo in the puritanical world of prewar radio—divorce, illicit sex, illegitimacy—became staples of television soap opera.

In the complex hour-long serial, several interweaving sequences were constantly maintained, with the spotlight shifting from one to another. As one was resolved, another headed for a climax. In place of the small cluster of characters inhabiting a radio serial, the world of a television serial was likely to include as many as several dozen forming a community of innumerable relationships. A character might be husband to one, lover to a second, business rival to a third, threatened with blackmail by still another. Intrigue moved back and forth between home and business settings, with the serial seeming to proclaim the impermanence of all relationships. Business and professional occupations predominated in the often urban, primarily middle-class soap opera world (see PROFESSION).

The new complexity posed severe organizational challenges. A head writer was pivotal on most series, outlining action and commissioning further work from free-lance writers. Most series maintained a "bible" to keep track of the lives and interrelationships of characters. Occasional viewers were updated about important developments through information embedded in emotional passages of exhortation, re-priming, wooing, remorse, or threat. An additional device became available as soap operas switched from live broadcast to production on videotape, which became standard in the 1970s. This made it feasible to use flashbacks of key scenes, sometimes using shots with different camera angles. Another aid was provided by newspapers and magazines featuring summaries of soap opera events. Some periodicals were established solely for soap opera viewers, often including GOSSIP and profiles of soap STARS in addition to plot summaries.

With the soap opera invasion of the television evening, in most cases on a weekly basis, action moved into a milieu of still greater affluence, a world of power and family dynasties with sex and money as constant motifs. Vicious rivalries, blackmail, and double-dealing were pervading themes. A great diversity of products now sponsored the "soap" operas, reflecting advertiser awareness of their broader audience.

The adaptation of the soap opera format to prime time involved another significant shift, from videotape to production on film. This facilitated international distribution via dubbed versions in diverse

languages, and many nations became familiar with U.S. prime-time soap operas. The wide distribution of these melodramatic, steamy depictions of U.S. life has had various ramifications. In the 1970s "Peyton Place" became one of the most popular series on Yugoslavia's state-controlled television. Its broadcast appeared to serve several Yugoslav purposes, indulging popular taste (see TASTE CULTURES) and at the same time permitting officials to point to the series as illustrative of the degradations produced by capitalism. A decade later "Dallas" won distribution and popularity in diverse cultures, including such places as Saudi Arabia.

Such developments have provided researchers with unique opportunities to study not only the effects of the genre (see MASS MEDIA EFFECTS) but also how mass media messages are translated across cultures (see INTERCULTURAL COMMUNICATION). The popularity and durability of the form has also drawn attention to the structure and function of soap opera NARRATIVE; to the genre's antecedents in nineteenth-century FICTION, particularly the so-called domestic novel (see LITERATURE, POPULAR); and to the relationship of soap opera themes and content to those of other fictional forms directed at female audiences, such as the romance (see FOTONOVELA; ROMANCE, THE).

Bibliography. Robert C. Allen, *Speaking of Soap Operas*, Chapel Hill, N.C., 1985; Erik Barnouw, *A History of Broadcasting in the United States*, 3 vols., New York, 1966–1970; Muriel G. Cantor and Suzanne Pingree, *The Soap Opera*, Beverly Hills, Calif., 1983.

ERIK BARNOUW

SOCIAL COGNITIVE THEORY (SOCIAL LEARNING THEORY)

Because of the influential role the mass media play in society, understanding the psychosocial mechanisms through which symbolic communication influences human thought, emotion, and action is of considerable import. Social cognitive theory explains psychosocial functioning in terms of triadic reciprocal causation. In this model of reciprocal determinism, behavior, cognitive and other personal factors, and environmental events all operate as interacting determinants of one another (Figure 1). Interacting factors work their mutual effects sequentially over variable time courses. Reciprocal causation provides people with opportunities to exercise some control over events in their lives, but also sets limits to self-direction.

Mediating mechanisms. In analyzing the personal determinants of psychosocial functioning, social cognitive theory accords a central role to cognitive,

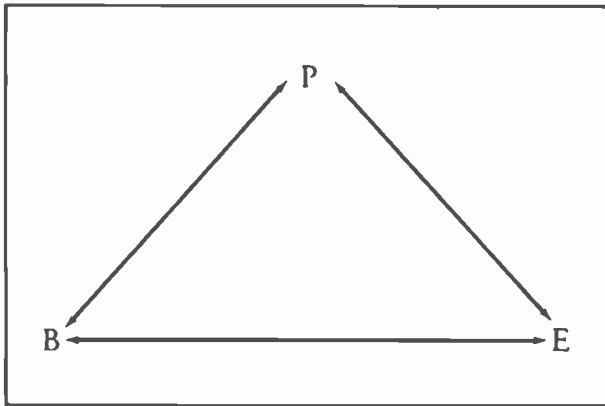


Figure 1. (Social Cognitive Theory) Schematic representation of reciprocal determinism. *B* signifies behavior, *P* the cognitive and other internal events that can affect perceptions and actions, and *E* the external environment.

vicarious, self-regulatory, and self-reflective processes. Symbolization provides people with a powerful instrument for comprehending their environment and for creating and regulating environmental events that touch virtually every aspect of their lives. It is with symbols that people process and transform transient experiences into internal models that serve as guides for future action. Through symbols people give meaning, form, and continuity to their past experiences. However, in keeping with the interactional perspective, social cognitive theory devotes much attention to the social origins of thought and the mechanisms through which social factors exert their influence.

People are not only knowers and performers. They are also self-reactors with a capacity for self-direction. The self-regulation of motivation and action operates partly through internal standards and evaluative reactions to one's own behavior. Discrepancies between behavior and personal standards generate evaluative reactions, which serve as motivators and guides for action. The capability of forethought adds another dimension to the process of self-regulation. Most human behavior is directed toward goals and outcomes projected into the future. Because future events have no actual existence, they cannot be causes of behavior. However, by being represented cognitively in the present, conceived futures can have causal impact on current behavior.

The capacity to reflect on one's own thinking and personal efficacy is another dimension that receives prominent attention in social cognitive theory. In verifying thought by introspection, people monitor their ideas, act on them, or predict occurrences from them; they then judge from the results the adequacy of their thoughts and change them accordingly. People's judgments of their efficacy to exert control over events that affect their lives play a central role

in human agency. People's belief in their personal efficacy influences what courses of action they choose to pursue, how much effort they will invest, how long they will persevere in the face of difficulties, their thought patterns, and their emotional reactions in transactions with the environment.

Psychological theories have traditionally emphasized learning through the effects of one's actions. Humans have also evolved an advanced capacity for observational learning that is better suited for expeditious acquisition of competencies and survival than is learning solely from the consequences of trial and error. Numerous studies have shown that virtually all learning phenomena resulting from direct experience can occur vicariously by observing people's behavior and its consequences for them. The capacity to acquire by observation the conceptions and rules of behavior portrayed symbolically enables people to transcend the bounds of their immediate environment.

Processes governing observational learning. Observational learning is governed by four component processes, which are depicted in Figure 2. *Attentional processes* determine what is selectively observed in the profusion of modeling influences and what information is extracted from ongoing modeled events; people cannot be much influenced by observed events if they do not remember them. A second major subfunction governing observational learning concerns *retention processes*. Retention involves transforming and restructuring information about events for memory representation in the form of rules and conceptions. In the third subfunction in modeling—the *behavioral production process*—symbolic conceptions are translated into appropriate courses of action. This is achieved through a conception-matching process in which behavior patterns are altered until they reflect the internal conception.

The fourth subfunction in modeling concerns *motivational processes*. Social cognitive theory distinguishes between acquisition and performance because people do not enact everything they learn. Performance of observationally learned behavior is influenced by three major types of incentive motivators: direct, vicarious, and self-produced. People are more likely to exhibit modeled behavior if it results in valued outcomes than if it has unrewarding or punishing effects. The observed costs and benefits accruing to others influence the performance of modeled patterns in much the same way as do directly experienced consequences. Personal standards of conduct provide a further source of incentive motivation. The evaluative reactions people generate to their own behavior regulate which observationally learned activities they are most likely to pursue. They express what they find satisfying and reject what they personally disapprove of.

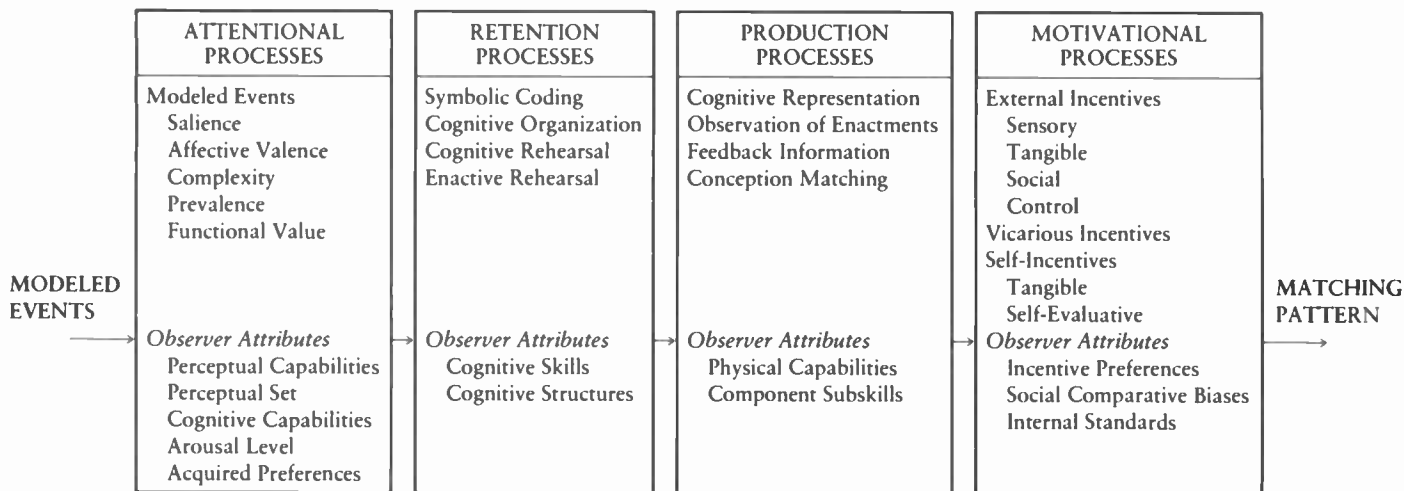


Figure 2. (Social Cognitive Theory) Subprocesses governing observational learning.

Modeling is not merely a process of behavioral mimicry. Highly functional patterns of behavior, which constitute the proven skills and established customs of a culture, may be adopted in essentially the same form as they are portrayed. However, modeling influences convey rules for generative and innovative behavior as well. Through the process of abstract modeling, observers extract the rules underlying specific activities for generating behavior that goes beyond what they have seen or heard. Acquiring rules from modeled information involves at least three processes: extracting relevant attributes from social exemplars, integrating the information into composite rules, and using the rules to produce new instances of behavior. By this means, people acquire, among other things, judgmental standards, linguistic rules, styles of inquiry, information-processing skills, and standards of self-evaluation. Evidence that generative rules of thought and conduct can be created through abstract modeling attests to the broad scope of observational learning.

Multiple functions of modeling. Social cognitive theory distinguishes among several modeling functions, each governed by different determinants and underlying mechanisms. In addition to cultivating new competencies, modeling influences can strengthen or weaken inhibitions over behavior that has been previously learned. The effects of modeling on behavioral restraint rely heavily on the information conveyed about the performability and probable consequences of modeled courses of action. The impact of such information on personal restraint depends on several factors: observers' judgments of their ability to accomplish the modeled behavior, their perception of the modeled actions as producing favorable or adverse consequences, and their inferences that sim-

ilar or unlike consequences would result if they themselves were to engage in analogous activities. Inhibitory and disinhibitory effects of modeling have been studied most extensively in relation to transgressive, aggressive, and sexual behavior.

The actions of others can also serve as social prompts for previously learned behavior that observers can perform but have not done so because of insufficient inducements, rather than because of inhibition. One can get people to behave altruistically, to volunteer their services, to delay or seek gratification, to prefer certain foods and apparel, to converse on particular topics, to be inquisitive or passive, to think innovatively or conventionally, or to engage in almost any course of action by having such conduct exemplified. Such social facilitation effects are distinguished from observational learning and disinhibition because no new behavior has been acquired, and disinhibitory processes are not involved because the elicited behavior is socially acceptable and unencumbered by restraints. The actions of models acquire the power to activate, channel, and sustain behavior when they are good predictors for observers that positive results can be gained by similar conduct.

Social interactions commonly involve displays of emotion. Seeing models express emotional reactions tends to elicit emotional arousal in observers. If the emotional expressions of others aroused observers only fleetingly, it would be of some interest but of little psychological import. What gives significance to vicarious influence is that people can acquire enduring attitudes and emotional dispositions toward places, persons, and things associated with the model's arousal. They learn to fear the things that frightened the models, to dislike what repulsed them, and to enjoy what pleased them. Fears and intractable pho-

bias are ameliorated by modeling influences that convey information about coping strategies for exercising control over threatening events. Values can be both developed and altered vicariously through the evaluative reactions modeled by persons who wield social influences.

Because of severe constraints of time, mobility, and resources, people have direct contact with only a small sector of the vast collection of physical and social environments. In their daily routines they travel the same limited routes, visit the same familiar places, and see the same groups of associates. As a result, people form impressions of many social realities, with which they have little or no contact, from symbolic representations of society, mainly by the mass media. To a large extent, people act on their images of reality. Because of its appeal and pervasiveness, televised modeling has become an influential acculturator (*see* CULTURAL INDICATORS).

In sum, modeling influences serve diverse functions: as tutors, inhibitors, disinhibitors, facilitators, emotion arousers, and shapers of values and images of reality. Although the different modeling functions can operate separately, they often work concurrently. Thus, for example, in the spread of new styles of aggression, models serve as both teachers and disinhibitors. When novel modeled conduct is punished, observers learn the conduct that was punished as well as the restraints. A novel example can both teach and prompt similar acts.

Social diffusion through symbolic modeling. Symbolic modeling can transmit knowledge of wide applicability to vast numbers of people simultaneously. Social cognitive theory analyzes social DIFFUSION of new behavior patterns in terms of three constituent processes and the psychosocial factors that govern them: the acquisition of knowledge about innovative behaviors, the adoption of these behaviors in practice, and the social networks through which they spread.

Symbolic modeling is often the principal conveyer of innovations to widely dispersed areas, especially in the early stages of diffusion. It has been commonly assumed in the theory of mass communication that modeling influences operate through a two-step diffusion process. Influential persons pick up new ideas from the media and pass them on to their followers through personal influence (*see* OPINION LEADER). Evidence reveals no single pattern of social diffusion. Analyses of the roles that the mass media play in social diffusion must distinguish between their effect on learning and on adoptive use, and examine how media and social influences affect these separable processes. In some instances the media both teach new forms of behavior and create motivators for action by altering people's value preferences, perceptions of personal efficacy, and outcome expectations.

In other instances the media teach, but adopters provide the motivation for others to perform what has been learned observationally. In still other instances people who have had no exposure to the media can be influenced by adopters who have had the exposure and then, themselves, become the transmitters of the new ways. Within these various patterns of social diffusion, the media can serve as originating as well as reinforcing influences.

The acquisition of knowledge and skills regarding new forms of behavior is necessary but not sufficient for their adoption in practice. A number of factors determine whether people will act on what they have learned; environmental inducements serve as one set of regulators. Adoptive behavior is also highly susceptible to incentive motivators, which may involve social and monetary benefits or self-satisfactions derived from the new activity. Innovations spread at different rates and patterns because they differ in the skills and resources they require for successful adoption. Such prerequisites serve as additional determinants of the diffusion process.

The third major factor that affects the diffusion process concerns social network structures (*see* NETWORK ANALYSIS). People are linked to each other directly by personal relationships or indirectly by interconnected ties. Information regarding new ideas and social practices is often conveyed through multi-linked relationships. People with many social ties are more apt to adopt innovations than those who have few ties to others. Adoption rates increase as more people in one's personal network adopt an innovation. The effects of social connectedness on adoptive behavior may be mediated through several processes. Multilinked relations can foster adoption of innovations because they convey more factual information and mobilize stronger social influences; or it may be that people with close ties are more receptive to new ideas than those who are socially estranged. Moreover, in social transactions people see their associates adopt innovations as well as talk about them. Multiple modeling alone can increase adoptive behavior.

The course of diffusion is best understood by considering the interactions among psychosocial determinants, properties of innovations, and network structures. While structural interconnectedness provides potential diffusion paths, psychosocial factors are likely to determine the fate of what diffuses through those paths. Structural and psychological determinants of adoptive behavior should be included as complementary factors in a theory of social diffusion, rather than be cast as rival theories of diffusion.

See also CHILDREN—MEDIA EFFECTS; MASS COMMUNICATIONS RESEARCH; MASS MEDIA EFFECTS; PERSUASION; VIOLENCE.

Bibliography. Albert Bandura, *Aggression: A Social Learning Analysis*, Englewood Cliffs, N.J., 1973; idem, *The Self and Mechanisms of Agency*, Englewood Cliffs, N.J., 1982; idem, *Social Foundations of Thought and Action: A Social Cognitive Theory*, Englewood Cliffs, N.J., 1986.

ALBERT BANDURA

SOCIAL INSECTS. See INSECTS, SOCIAL.

SOCIAL SKILLS

Those patterns or styles of social behavior that produce some degree of effectiveness in making friends or in achieving other social goals. Individuals vary in all aspects of social PERFORMANCE, but in particular they vary in effectiveness. While some are brilliant orators, therapists, or managers, others are lonely, shy, or have great difficulty in coping with some situations or relationships. The concept of social skill developed as an analogy with motor skill; in each case there is feedback leading to corrective action and to attainment of goals. The additional implication in the social skill model is that social performance could be made more effective by social skills training.

The Meaning and Assessment of Social Competence

By social competence is meant the ability to cope successfully with social situations and relationships. One's goals may be personal, such as making friends and influencing people, or professional, such as more effective TEACHING, selling, or interviewing. The best way of assessing social competence is in terms of results—patients cured, productivity of group, total sales, popularity—keeping in mind, of course, that the people being assessed may be in somewhat different situations (e.g., selling different kinds of goods). Role-played tests have been found to be rather unreliable. Some police departments have made use of reactions to videotaped vignettes. Ratings of one's own performance are useful, as are lists of situations that trainees rate for degree of difficulty or discomfort. These methods can be followed by interviews to find out more about the nature of the inadequacy. In social skills training in clinical settings it is usual to agree on goals for training, for example, to stop quarreling or to make a friend.

In order to carry out social skills training one must know what skills to teach. The traditional strategy has been to compare groups of effective and ineffective performers, discover how their social behavior differs, and teach effective skills to those who lack

them. However, the differences may be quite subtle, and causes and effects may not be so obvious.

Research on Social Interaction Related to Social Skills

Several areas of social interaction research bear directly on issues of social competence and have implications for how social skills training should be done.

Handling difficult situations. Schemes of social skills training are often built around the range of situations found most difficult by the client involved. Some situations are quite commonly found difficult, such as making complaints or dealing with conflict, difficult superiors, or public performances. Situations can be analyzed using the analogy of games. In order to cope with them effectively, the necessary goals, rules, and other properties must be understood, and special skills must be learned.

The *rules* are behaviors that should or should not be performed. They are functional in relation to situational goals, as, for example, in the case of the rule of the road. Some rules are fairly general, such as "Be friendly"; others are specific to particular kinds of situations, such as "Keep to cheerful topics of CONVERSATION." The *goals* are central to situations, as are the relationships between them, how much they interfere with or enhance one another. People who undergo social skills training often do not understand what the goals of situations are. The *physical environment* is the aspect of situations that can be changed most easily.

Social skills training can be situationally focused if a group of clients finds the same situations difficult. This is done in intercultural learning; it often focuses on the main situations in the other culture that cause problems, such as shopping or dealing with women.

Nonverbal communication. Patients with social difficulties smile, look, and GESTURE less than others. In order to make friends it is necessary to send positive nonverbal signals. The FACE and the voice are the most important channels for signaling emotions and ATTITUDES to others. Studies of distressed marriages have found that it is usually husbands who are bad at sending positive signals. Teachers, nurses, and others in social service professions have to control their true emotional states and to avoid revealing their true emotions through voice or body. Training for INTERCULTURAL COMMUNICATION must take into account different gesture repertoires, INTERPERSONAL DISTANCE rules, and other nonverbal markers. For example, Arabs and Latin Americans stand closer, at a more direct angle, and talk and touch more in face-to-face interaction than northern and western Europeans do. See also BODY MOVEMENT; FACIAL EXPRES-

SION; INTERACTION, FACE-TO-FACE; NONVERBAL COMMUNICATION; PROXEMICS.

Conversational skills. Some socially unskilled people cannot sustain a conversation at all. Some have special ways of killing conversation, such as giving short answers to polite questions and not reciprocating or leading the conversation forward. One approach to learning these skills has been to point out principles on which good conversation is based, such as those put forward by the philosopher H. Paul Grice as conversational maxims. Some of these are "Be relevant to what has been said before," "Be responsive to previous speaker," and "Make your contribution no less and no more informative than is required." Others that can be suggested are "Don't monopolize the conversation," "Be polite," and—once again—"Be friendly."

Specialized conversation sequences can be learned, for example, for teaching, sales, and management-union negotiation (see also BARGAINING). HUMOR is an important conversational skill; it can avert conflict and soften criticism by discharging tension and redefining the situation as less serious or threatening.

Long-term relationships. Most social behavior takes place with friends, kin, and workmates, and many difficulties arise in connection with these relationships. They are important because happiness, health, mental health, and even length of life are improved by strong, supportive relationships. Relationships either buffer the effects of stress or have direct positive effects.

Generally accepted *informal rules* develop for each relationship to contain the main conflicts. For neighbors these can be about noise, fences, and pets, while for marriage there can be rules about faithfulness, creating a harmonious home atmosphere, engaging in sexual activity, and being tolerant of each other's friends. Collapse of friendship is attributed to the breaking of friendship rules, particularly those about rewardingness (see below), and third-party rules, like keeping confidences, standing up for the other in his or her absence, and not being jealous. The rules do not entirely include the *skills* of handling relationships.

A correct *understanding* of the basic properties of different kinds of relationships is important. Sometimes the problem is not a deficiency in social skills but unrealistic expectations about what a relationship will provide. For example, a high level of conflict can be normal in marriage and can be perfectly compatible with a high level of satisfaction. Friendship is not just about receiving rewards from others, as children and disturbed adolescents without friends think. Friendship involves loyalty, commitment, and concern for the other.

Men and women typically have different needs for

social skills training. Women are usually more socially competent than men in a number of areas: they are more sensitive to nonverbal signals and more skilled in managing them, they are more rewarding and polite, they are likely to reveal more about themselves and form closer friendships, and they are better at reducing the loneliness of others. However, it is mostly women who seek assertiveness training. In addition many studies have shown that women like to form close friendships with equals but are less able or willing to cope with hierarchical, structured groups engaged in joint tasks and rarely emerge as leaders of such groups.

Self-presentation and self-disclosure. The sending of information about the self is done partly through words, though there is a taboo on making any positive claims too directly. It is also done through choice of CLOTHING, together with other aspects of appearance, speech style, and general social manner. Self-presentation can go wrong in various ways, especially by projecting an inappropriate image. *Self-disclosure*—revealing information about oneself to others—is normally gradual and reciprocated; the most common failure is not disclosing enough. Recent research suggests that some lonely people spend as much time with friends as do people who are not lonely; the difference is in their lower level of self-disclosure. They also lack other social skills; for example, they are less rewarding to others.

Rewardingness. Being rewarding to others is one of the main ways of influencing them during social interaction, such as showing interest and approval when a particular topic is mentioned. It is also one of the main sources of popularity.

Rewardingness is very important for friendship. The rewards that are needed include being affectionate, helpful, sympathetic, interested, cheerful, and fun to be with. One of the main problems in disturbed marriages is the lack of rewards and the high level of negative messages, such as criticism, which tends to be reciprocated. Rewardingness is important in all professional skills, including supervision of others.

Perception of nonverbal communication. In order to respond effectively to others it is necessary to perceive them correctly, including their emotions and attitudes. Socially skilled individuals are more accurate decoders, whereas anxious persons overestimate signs of rejection. Sensitivity can be measured by tests in which photographs, films, or audiotapes are presented, as in the PONS test developed by U.S. psychologist Robert Rosenthal. There can be problems detecting DECEPTION on the part of others; the face is particularly well controlled and can be misleading. Whereas women are somewhat more accurate decoders than men, they also attend more to

faces and perceive what others intend them to; men attend to the "leakier" channels of voice and body. Training can be given in decoding by studying photographs and audio recordings of the voice.

In addition the socially unskilled are often very bad at assessing the thoughts or emotions of others. Training can include role-reversal exercises or simple interviewing to discover another's ideas and point of view.

Methods of social skills training. Social skills training has many applications. It is used with certain kinds of mental patients, and it is widely used in the training of teachers, managers, doctors, and others who have to deal with people. Some forms of training are becoming available to the general public, such as assertiveness training, marital therapy, and instruction in cross-cultural skills for those who are going to work abroad. The most widely used method at present is an elaborated version of role playing. There are three or four phases:

1. Explanation and modeling, live or from VIDEO
2. Role playing with other trainees or stooges
3. Comments from trainer and playback of videotape
4. Repeat performance (optional)

A serious problem is how to generalize from role playing to real-life situations. For those not inside institutions, homework is often used: trainees are asked to repeat the exercises (e.g., to make someone else talk more, or less) between sessions in real-life settings and to report back. However, for some professional skills, like those of managers and police officers, role-played sessions are too far removed from reality, so there has been a growth of on-the-job training.

Some of the research described has led to suggestions for specific forms of training apart from role playing. Examples are (1) nonverbal communication training using mirrors and audio and video recorders to train face and voice; (2) role reversal to improve ability to see others' viewpoints; (3) situation analysis to deal with specific difficult situations; (4) self-presentation to try to change appearance, accent, and the like; and (5) conversational analysis to correct errors by detailed observation of conversational style.

Lecture and discussion methods were abandoned long ago as methods of social skills training because they were found to be ineffective and also because motor skills cannot be learned this way. Conversational, intercultural, and relationship skills involve some understanding of the principles of conversational structure. In all these cases direct teaching may be the best method.

Bibliography. Michael Argyle, *The Psychology of Interpersonal Behaviour*, 4th ed., Harmondsworth, Eng., 1983; Michael Argyle and Monika Henderson, *The Anatomy of Relationships*, London, 1985; Stephen Bochner, ed., *Cultures in Contact*, Oxford, 1982; Paul Ekman and Wallace V. Friesen, *Unmasking the Face*, Englewood Cliffs, N.J., 1975; C. R. Hollin and P. Trower, *Handbook of Social Skills Training*, Oxford, 1986; Robert Rosenthal, ed., *Skill in Nonverbal Communication: Individual Differences*, Cambridge, Mass., 1979; William T. Singleton, P. Spurgeon, and R. B. Stammers, eds., *The Analysis of Social Skills*, New York, 1980; Sue Spence and Geoff Shepherd, *Developments in Social Skills Training*, London and New York, 1983.

MICHAEL ARGYLE

SONG

The term *song* is both elusive and enigmatic when considered cross-culturally. Birds, porpoises, and other animals have "songs"; does this mean that they are "singing"? And what of such creatures as the sirens of Greek mythology who were said to be able to lure sailors to their destruction through song? Is song, then, unlike spoken LANGUAGE, not a basically human activity, characteristic, and preoccupation? See ANIMAL SONG.

Do songs have to have music? There are numerous examples of books that have not one note of music in them yet are called *cancioneros*, *chansonniers*, or *canzonieri*. For the most part, however, it can be assumed that songs do have music and are usually intended to be sung. Singing can take place with or without instrumental accompaniment, alone or in groups, and with many different kinds of audience. See MUSIC PERFORMANCE; PERFORMANCE.

Language and song. It is axiomatic that both the SPEECH and the song of a society will be largely in the same language. That language, in turn, can logically be expected to have an effect on both types of vocal production.

Two major varieties of SOUND organization in language—pitch and tone—directly influence the nature of song. For example, aspects of song such as melodic contour, monotone (repetition at a single tonal level), vocable (the use of vocalized nonlexical syllables), scale type, and ambitus (pitch range) all vary according to whether the language is a tone language (e.g., Chinese) or a pitch language (e.g., English).

In speech, pitch languages may use any vocal frequency (fundamental) to generate the formants (resulting pitches) that create vowels in words. Although there are particular conventions for speaking, any pitches may be used in any sequence without altering the lexical MEANING of words. Pitch languages use

variation of the fundamental to modify, clarify, or amplify the lexical content of sentences. This conventional pitch fluctuation is called intonation, and it comprises a complex system of speech melodies or intonation contours.

Tone languages, in contrast, use the fundamental frequency in two ways for speech. The fundamental generates the formants of which vowels are composed in both pitch and tone languages. However, the relative pitch of the fundamental is also varied in tone languages, so that the tone also assumes a phonemic (meaningful lexical) value. As described by U.S. linguist Kenneth Pike, some tone languages, the *register languages*, distinguish various high and low levels of tonemes (significant tonal levels). Others, the *contour languages*, employ tonemes with ascending and descending portamento (continuous gliding motion between tones).

The special language of song. Song melodies must at least partially reflect the tonemes of speech intonation in both pitch and tone languages. But the phonemic importance of tone may have a greater effect on melodic contour of songs in tone languages than it would in pitch-language songs, making cross-cultural comparison of vocal genres hazardous.

Thus the intonation patterns of the spoken language must be followed in song to a certain extent so that song texts may be understood by the audience. But music often requires alterations in normal speech patterns, or special language usage.

For example, Elsdon Best, writing about Maori music, notes the alteration of words in song texts for the sake of euphony: "Vowels may be inserted, elided, or altered, or an extra syllable may be added to a word. . . . not only do song makers employ archaic expressions and resurrect obsolete words, but they also sometimes coin a word." Another example is the Cherokee, who employ three main alterations from normal conversational speech: (1) aphaesis, the loss of unstressed initial vowels or syllables; (2) syncope, contraction by omitting something from the middle of a word; and (3) apocope, the omission of the last part of a word. In addition, there is both prefixing and infixing of vocables, primarily the vowel *ah*, the use of archaic Cherokee word forms, and cryptic referents to generalized areas of meaning.

The use of archaic words and phrases in song might logically be expected in the context of religious music, especially when words are carefully retained over long periods of time and are thought to carry power. Although this is a common instance in which archaic words are found, they are equally likely in children's songs. Maltese children's songs, for example, seem to be retained over long periods of time. They may use styles and forms no longer current in adult music. In addition to using a special "children's

language," texts often refer to archaic, historical systems of weight, measurement, or money. For example, one children's song refers to a *habba* (worth about one-twelfth of a penny), which has not been a Maltese coin in over a hundred years.

Boundaries and varieties of speech and song. Most cultures identify speaking and singing as two distinct forms of vocal production. Yet between these two terms can lie a multitude of indeterminate forms. Attention must be paid both to contextual, locally meaningful emic definitions and to aural commonalities in order to account for all the different forms of singing that occur.

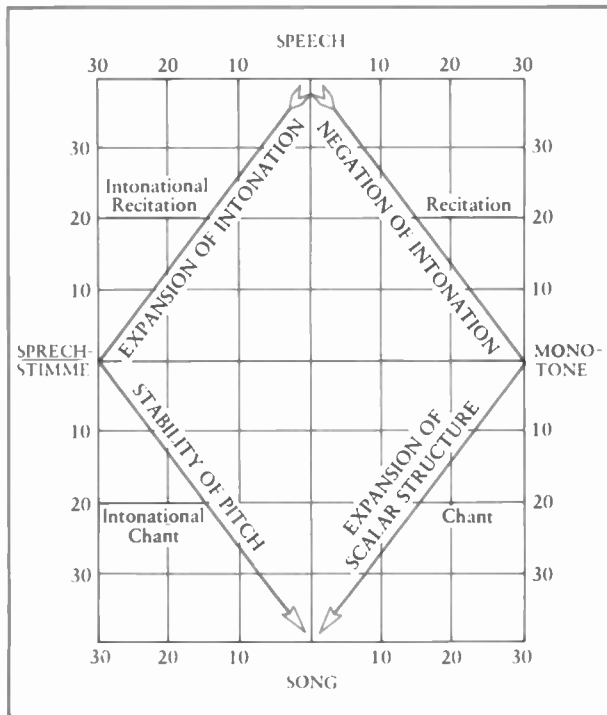
U.S. ethnomusicologist George List's seminal 1963 article, "The Boundaries of Speech and Song," proposes a continuum for which the poles are speech and song. Recognizing all vocal production as musical, List attempts to establish a means of classifying those forms falling between the two polar boundaries. In Table 1, the top line represents speech intonation, which is gradually negated until a stabilized pitch is reached in the monotone zone of the continuum, followed by a gradual expansion of scale structure approaching song. The bottom line represents the gradual expansion of speech intonation toward the *Sprechstimme* zone of the continuum, followed by an increase of pitch stability as one moves toward song.

This continuum is useful, but it does not account for all types of song. List requires that any member of the song category have relatively stable pitches, a scalar structure at least as elaborate as the heptatonic (with seven notes), and little or no melodic influence from speech intonation (see MUSIC THEORIES—TUNING SYSTEMS). Further, he excludes all forms that are composed entirely of vocables and therefore lack "meaningful" text. These restrictions, if employed in a definition of song, would effectively eliminate much of what is recognized as song by societies throughout the world.

Perhaps more useful is a distinction between speech and song that examines intonational phenomena. Noting that speech melody must use a fundamental to produce the formants, or tone harmonics, that differentiate vowels, U.S. linguist Dwight Bolinger asserts that whereas in speech the fundamental communicates the notions of syntax and affect in pitch languages and defines one dimension of lexical meaning in tone languages, it is of secondary importance to the formants produced. Song melody, on the other hand, emphasizes the fundamental, whereas the formants produced—although important to understanding the text itself—are of secondary importance in song.

With this distinction it becomes possible analytically to account for the variety of vocal phenomena

Table 1. Chart for Classifying Forms Intermediate to Speech and Song



Redrawn after George List, "The Boundaries of Speech and Song," *Ethnomusicology* 7 (1963): 9.

that lie between speech and song based on the relative degree of emphasis on formant or fundamental. This is of primary importance if comparative work is being undertaken, but it is also useful in dealing with ambiguous or mixed forms.

For example, performers of country-and-western songs in the United States may use a technique of vocal production in which lyrics are recited, not sung, but which nevertheless feels more melodic than spoken, more intoned than enunciated. In this technique, in which an instrumental accompaniment plays the harmony and melody of the song, performers abandon the production of fundamental frequencies in a fixed sequence in favor of loose connection to the musical accompaniment. The result, analytically, is not quite song but is more clearly related to the French *diseuse* technique of vocal production.

Awareness of the varieties of vocal production is not limited to scholarly analysis. The Cherokee, for example, distinguish a continuum of four modes of communication: thinking, muttering, speaking, and singing. The sung form is thought to carry the greatest amount of power and is only used when a high degree of power is needed to balance a particular situation.

Verbal performance and cultural expression. The varieties of verbal performance, performance contexts, and modes of aesthetic evaluation are all con-

text sensitive. Types of vocal expression have a central role in folk and popular culture.

Areas of conflict, for example, exist among all people and are often solved ritually (see RITUAL). Whether conflicts have arisen inadvertently or have been deliberately sought, song or other types of verbal performance are likely to be involved.

Patriotic songs are often used to get youths to join the cause of war. The Germans in World War I were enjoined to "Keep Watch on the Rhine." The United States at the same time sang about going "Over There" and knew that it was a "Long, Long Way to Tipperary." In World War II emotions in the United States were stirred by a song enjoining everyone to "Remember Pearl Harbor as We Did the Alamo." Indeed, war-oriented songs are commonplace in state-mobilized societies. In contrast, the absence of such songs in the United States during the Korean and Vietnamese conflicts may underscore reasons for lack of public support.

War cries heard in combat zones and commands shouted on military parade grounds, although not song, possess many of the characteristics of song. Often the words themselves are not distinguishable, but the interval patterns are sufficient for clarity.

Verbal combat is found in many parts of the world in the form of the song duel. Some societies use it for entertainment or for the release of aggression, but others use it to settle legal disputes. In most instances the song duel involves two people singing to each other within a formal system, each attempting to compose and perform a verse to INSULT, belittle, ridicule, or devastate the other.

Song may also be used to prepare individuals and groups for combat or conflict or to urge them on to greater efforts. The Cherokee, for example, make heavy use of songs to transform people who are headed for conflict from the "white" (everyday) to the "red" (aggressive) condition; after the conflict is over, songs are again used to reverse the transformation. In other tribal groups boasting songs may be used as an acceptable means of presenting information that otherwise would be taboo. A related form of verbal performance is the cheering at football games and other formalized conflicts.

Song is also heavily used in connection with ceremonies and ritual acts promoting well-being, restoring balance, or curing illness. This may be seen as yet another kind of conflict resolution because two opposing forces are usually thought to be at work.

These kinds of verbal performance range widely in length, complexity, and intention. In all cases, however, song may be said to sacralize time, space, and being, creating an atmosphere in which paranormal acts can be performed and opposing forces brought to a point of resolution.

Those points in the human life cycle that are

recognized as important in a given society will be marked by song and ceremony. In this instance song marks and gives protection in the liminal phase of a rite of passage.

As a form of cultural expression, song is associated with marked events, transformations, and the resolution of conflict. It serves to create special kinds of temporal-spatial continua as well as to signal the support of the social system. Those more ambiguous forms of verbal production falling in between speech and song serve similar but less marked purposes.

See also MUSIC, FOLK AND TRADITIONAL; MUSIC, POPULAR; MUSIC HISTORY.

Bibliography. Elsdon Best, *The Maori*, 2 vols. (Memoirs of the Polynesian Society, Vol. 5), Wellington, New Zealand, 1924; Dwight Bolinger, ed., *Intonation*, Baltimore, Md., and Harmondsworth, Eng., 1972; Marcia Herndon, "The Cherokee Ballgame Cycle: An Ethnomusicologist's View," *Ethnomusicology* 15 (1971): 339–352; idem, "Sound, Danger, and Balanced Response," in *Essays on Anthropology and Music*, ed. by Charlotte Frisbie (Detroit Monographs in Musicology, No. 9), Detroit, 1986; George List, "The Boundaries of Speech and Song," *Ethnomusicology* 7 (1963): 1–16; Alan P. Merriam, *The Anthropology of Music*, Evanston, Ill., 1964; Kenneth Pike, "General Characteristics of Intonation," in *Intonation*, ed. by Dwight Bolinger, Baltimore, Md., and Harmondsworth, Eng., 1972; idem, *Phonemics*, Ann Arbor, Mich., 1968.

MARCIA HERNDON

SOUND

The term *sound* suggests a wide range of related communications phenomena in natural and human history. Although *sound communications* is often used specifically with regard to audio technologies, the auditory channel, or the perceptual mechanism involving the ear and brain, one might better use the phrase to refer to the overall study of articulation, production, interpretation, and value judgments that relate sounds—natural and human, face-to-face or mass-mediated—to their social meanings. In this sense sound communications parallels the study of visual communications; each of these areas of communications research addresses a variety of contexts, cultures, media, and codes, and each builds data and theory on disciplinary perspectives from the physical, natural, and social sciences, the humanities, and the fine arts.

Traditional approaches to sound focus on the intertwined yet analytically separable facets of acoustic production and aural reception. Production and the material properties of any natural or human sound are generally studied from the standpoint of acoustics, physics, and engineering. In this domain emphasis is placed on the determination and measurement

of patterned pressure waves and on the delimitation of frequency, intensity, and quality. Reception and the processes of auditory sensation, perception, and COGNITION are studied from the perspectives of physiology, psychology, and psychoacoustics (see PERCEPTION—MUSIC). Here emphasis is placed on the delimitation and measurement of auditory sensations of pitch, loudness, and timbre; on the physical mechanism of the ear; on hearing and auditory theory; on phenomena such as masking, echo and reverberation, Doppler and binaural effects, and localization; as well as on SPEECH and music learning, memory, and general cognitive processing.

Although these areas involve primary scientific research of a very significant nature, their centerpiece has been neither the question of communication per se nor of sound and social MEANING. The production and perception of sound tend to be described in ahistorical and culture-free terms, independent of issues of interpretation. Yet when a sound is made, and when it is heard, more than a chain (object → channel → sense organ → neural impulse → brain state → perception) is set into operation. A pair of ears connected to a brain, subjected to and perceiving stimuli, is a necessary but not a total model of the production and reception of sound. It is merely a skeletal model of human sound communications, because the enormous variety of adaptive and learned overlays that we call CULTURE provides the concepts through which humans transform, experience, and interpret perceptions as situated, historically and socially meaningful symbols; hence the rationale for studying acoustic production and aural reception in a broader biosocial, communicational framework.

Animal sound communication. Another significant component of this biosocial, communicational framework is zoological and evolutionary. Here we attempt to distinguish innate from learned abilities, species-specific from pan-species sound patterning, and sound signals and channels from olfactory, visual, and tactile-gestural ones. Research in evolutionary biology and psychology has greatly expanded our understanding of the evolution of the ear from a simpler organ of balance to a more complex one for information processing. And more recent ethological research has clarified how sound plays a very significant role in animal interaction (see ANIMAL COMMUNICATION; ANIMAL SIGNALS—AUDIBLE SIGNALS).

Studies of coordinated exchanges in the avian world, for example, have led to an understanding of functional differences between nonvocal and vocal sounds. Although nonvocal sounds may be either incidental (as in feeding, flying, or swimming) or deliberate and communicative (as in the different rates of tapping beats per second distinguishing species of woodpeckers or wing beats per second distinguishing species

of hummingbirds), vocal sounds exhibit much more complex patterns. *See also* ANIMAL SONG.

Two delicate issues highlight potential differences between animal studies and similar behavioral-ethological approaches to human social interaction and communication. (1) The observer is an outsider to the system observed; researchers cannot ask questions of apes, birds, or other animals. It is therefore sometimes difficult to speak of animal communication at the level of intentional or meaningful articulation. (2) A related problem, anthropomorphism and the problem of "Clever Hans" effects (witting and unwitting cues and deceptions, expectation effects, and unconscious experimenter bias), may create other difficulties. Recent research with chimpanzee and ape vocalization and signing have produced cautionary tales about equating problem solving or task learning with "language" and operant conditioning with "communication."

Human sound communication. Human communication is transacted through modes of symbolic behavior, and these modes (visual, gestural, verbal, musical) provide culturally variable systems of codes and conventions through which objects and events can be perceived, conceived, and organized into forms that can be understood by others who possess knowledge of those codes and conventions (*see* CODE; MODE). The verbal and musical modes, both primary universal modeling systems, are each logically organized through symbols that pair sound and social meanings, and this factor suggests the fundamental importance of sonic-acoustic media, channels, and codes in human evolution.

In the case of languages, the general study of the variety of possible speech sounds is called phonetics. For any given LANGUAGE the subset of possible sounds that make up a regular inventory of systematically contrasting elements is called phonemes, and these are further analyzable in terms of their phonetic features. The branch of LINGUISTICS that describes the sounds of a language, their phonetic features, and the patterns governing their distribution and ordering is called PHONOLOGY. Those acoustic phenomena that accompany speech, such as voice set, quality, speed, rhythm, and intensity, are known as paralinguistic and prosodic features. In musical sound structure the general study of pitch inventories and tone systems is analogous to the realm of linguistic phonetics, and the relationship of tones, scales, modes, and tuning is more similar to the analysis of phonemes and phonetic features (*see* MUSIC THEORIES—TUNING SYSTEMS), whereas the analysis of timbre and texture has parallels with paralanguage and prosody.

Beyond this clear analogy in the realm of linguistic and musical sound organization is also an inevitable comparison of the variety of ways in which sonic

media, channels, and codes are meaningfully interpreted. Both language and music can be approached along acoustic, psychoacoustic, and evolutionary lines, yet both clearly require a human-social, cross-cultural perspective, one that takes into account the forms and varieties of speaking and music making in human communities and the ways in which linguistic and musical means serve social ends, accomplishing real outcomes of personal and interpersonal meaning for participants.

The uniqueness of the verbal and musical modes goes beyond the notion that similar sensory apparatuses are involved or that production and reception of various stimuli characterize both. Although these two modes are unique and completely distinct from each other, they overlap considerably in communicative means and economies. Four dimensions of this overlap can be specified for acoustic and cultural comparison and contrast. (1) Throughout the world tunes are accompanied by texts, whether or not the society in question is characterized by adjacent or dominant traditions of instrumental music or verbal arts. Hence studies of *language in music* concern the fit between verbal artistry, musical melody and rhythm, and styles of sung vocalization, particularly as they contrast with other types of speech and oration. (2) In a complementary manner studies of *music in language* concern the melodic, metric, and timbral dimensions of speech varieties. Primary studies here concern dimensions of patterned sentence intonation, prosody, and vocal affect, as well as studies of how pitch and tonal patterns determine lexical meanings in some languages. All of this research on the overlaps between language and music contributes to our understanding of the boundaries of speech and SONG in acoustic, artistic, and cross-cultural perspective.

A parallel yet more abstract set of interrelations concerns cross-modal symbolization. (3) *Language about music* or, more generally, verbal discourse that prescribes or describes some dimension of musical experience points on the one hand to the systems and codifications of knowledge in culture-specific music theories (*see* MUSIC HISTORY) and on the other to the very fact that music is not linguistically translatable and that there are enormous cross-cultural and intracultural variations in discourse on musical experience and societal emphases on verbalization about music. Although both scientific and humanistic models of sound depend largely on visual recoding and notation systems for rational explication, they also depend on verbal descriptions of three types: (a) narrative of experience relating sound, source, and environment; (b) onomatopoeia/mimesis/imitative words; and (c) technicalized lexicon or metalanguage. The musicologist Charles Seeger wrote in detail about the "distortions" (overemphasis on space, underemphasis on time, overemphasis on event and

product over process and tradition) produced by discussing the musical mode in these varieties of the verbal; in remembrance of his zeal researchers often use the phrase "Seeger's dilemma" to refer to the problem of using language to discuss music.

It is often said—as an admitted oversimplification—that in music sounds stand for nothing but sounds, and in language sounds stand for ideas, but the case of (4) *music about language*, or perhaps more accurately language through music, provides an interesting exception. Speech surrogates substituting for vocalizations are most commonly found when variations in linguistic tone level are a significant part of speech communication. In surrogate systems instrumental (commonly drum, gong, xylophone, or flute) or organic (commonly whistling, humming, or falsetto) sounds correspond to natural language sounds. In other words, linguistic tonal contours are directly transposed to other media in such a way that the sound patterns reflect sound patterns in the language.

Theodore Stern identified the two major kinds of speech surrogates: abridgment systems, in which a limited number of phonemic elements of the base language are evoked or imitated by the surrogate; and logograph or ideograph systems, in which the surrogate sound symbolizes a concept, making no reference at all to the phonemic structure of the base language. Moreover, at least throughout Africa, where "talking drums" are widespread as instrumental speech surrogates, it is possible to distinguish a signal mode (stereotypic texts and formulas) from a speech mode (creative and novel linguistic messages); sometimes these modes alternate with each other, or additionally alternate, even quite rapidly, with the use of the same instrument for purely musical PERFORMANCE bearing no referential or connotative message.

Sounds and meaning. Turning now to the question of how sounds relate to meaning, there are varying ways to approach the communicative properties and potentials of both language and music. Some traditional perspectives view languages as basically referential and predicative, denoting or reflecting objects or events in a nonlinguistic real world. Other perspectives, generally anthropological in orientation, view speaking as a more active construction and implementation of realities, placing more emphasis on the creative investments and pragmatic concerns of speakers and societies than on the formal linguistic code. A perspective associated with the linguist ROMAN JAKOBSON, later elaborated by others, mapped the communicative relationship among factors in a speech event (addresser, addressee, context, message, contact, code) and the multiplicity of functions and meanings (emotive, conative, contextual, referential, poetic, metalingual) that might be focused by shifts in emphasis or orientation to any one of those fac-

tors. This perspective has provided a sensible corrective to views of linguistic SEMANTICS more exclusively focused on the nature of denotation and reference.

Because musical sounds are not building blocks of word or sentence units, the patterns of musical sounds and rhythms are not interpreted as meaningful in reference to a nonmusical world. In various traditions composers express or depict emotions with materials that then come to have a conventional denotative character. Such is the case in the western European tradition with some of the devices of orchestral program music or with varieties of film music. At the same time, however, it is important to emphasize that such conventions are culturally grounded; they are not the result of an understanding by composers and listeners that a group of notes or chords or a rhythm in all cases and musical settings will represent a specific meaning or communicate a certain thought (see SOUND EFFECTS).

Some phenomena often labeled as musical reference or denotation are perhaps more like linguistic onomatopoeia, exploiting a variety of abstract principles of mimesis. The cuckoo calls of Ludwig van Beethoven's Sixth Symphony, the turtle dove of J. S. Bach's *Gott ist mein König*, the insects or water references by Béla Bartók and Maurice Ravel, or the birds of Olivier Messiaen's many works involve musical transformation to evoke the character of a natural sound. Such devices are transparent to listeners with knowledge of the natural sources but may be inaccessible or purely musical to other listeners. Similarly, the multiphonic growls and drones of an Aboriginal Australian didgeridoo may evoke the sounds and motions of animals such as a dingo, brolga, kookaburra, or emu to listeners with prepared ears; to others these sounds are perceived purely as structured pulsations of the music.

What, how, or whether music can communicate concepts or images is an old issue, often referred to as the absolutist/referentialist debate. The central problem here is whether, in addition to abstract intramusical meanings, music also refers to extramusical concepts or actions. Most contemporary treatments of musical meaning and communication build on this debate, tending to acknowledge that although referential meanings can and do exist, they are not strictly denotative, natural, or transparent. Moreover, as references can be apprehended only through a more thorough understanding of the historical and cultural contexts in which musical practices and ideas are situated, work on musical meaning at this level has fallen largely into the hands of anthropologists and ethnomusicologists, somewhat removed from formal musicological concerns with inherent musical structure (see ETHNOMUSICOLOGY).

No contemporary work on musical communication has more significantly extended this debate, or

stimulated more general discussion and reflection on it, than Leonard B. Meyer's *Emotion and Meaning in Music* (1956). This important work argues that meaning is not uniquely a property of things, located in a stimulus, or a property of what a stimulus refers to; rather meaning is to be understood as a relationship between the interaction of these two and the conscious observer. Putting aside designative meanings, those meanings relating to nonmusical domains, Meyer concentrates on what he calls embodied meaning, namely, the meaning of musical activities in terms of the unfolding structure of a work. The implications of a work's structural features and the listener's developing expectations about them based on immediately and remotely past musical experiences provide the basis for Meyer's theory. Grounded in Gestalt psychology and JOHN DEWEY's theory that emotion is a product of frustration, Meyer shows how the delay or fulfillment of structural tensions creates patterns of suggestion and resolution and argues that emotional values and meanings are a result of the drama experienced in listening.

Recent researchers in the anthropology and sociology of musical communications have attempted to expand and develop Meyer's position to address a greater variety of musical traditions, processes, and performance practices and the more explicitly socio-cultural dimensions of listening experience. Their work moves the emphasis from the specific structural features of drama and tension that might arouse the listener to the range and variety of musical feelings that are socially constituted through musical experiences. Common concerns in this new work on musical communication include the importance of texture and timbre in relation to melodic-rhythmic syntax; distinguishing the meaning of one musical piece from another; addressing the meaning of specific pieces and performances rather than music in general; exploring musically meaningful evocations not directly linked to drama and tension; and probing the varied meanings of pieces to different listeners as well as to the same listener over time. The communications epistemology that results enlarges the description of the musical encounter from the text-processing-interaction level to one relating the intertwined experiences that are drawn on in the listening process.

Sound technology. Given the universal importance of language and music it is not surprising that the proliferation of mass-mediated technologies for the transmission and reproduction of sound have been major forces in twentieth-century history. The TELEPHONE, RADIO, phonograph, and tape recorder and the sound systems of film (see MOTION PICTURES) and television have proliferated to become features of the daily life experiences of peoples all over the globe. These technologies continually create new patterns of listening, new listening communities, and

new challenges to the conventions of recording realism and fantasy. They are also intimately connected to a history of mechanical-electric-electronic musical technologies from music boxes to digital sampling keyboards (see MUSIC MACHINES). In the last hundred years sound technology has gradually evolved to a point at which the entire range of human hearing can be fully recorded and reproduced (see SOUND RECORDING). Indeed, recording and reproduction have moved into a surreal dimension, presenting the possibility of ultrarealistic listening experiences with special phasing equipment, headphones, and digital delays—listening whose realism is impossible to experience with as much clarity in live settings. And in the latter part of the twentieth century almost every musical style in the world is available on radio, tape, or record virtually everywhere in the world. This fact has, particularly in the last thirty years, tended to increase world musical homogenization and the appropriation of musics. It has also certainly changed the nature of many oral traditions and the fixity of regional folk and traditional repertoires (see MUSIC, FOLK AND TRADITIONAL). At the same time, it has promoted an extraordinary creative synthesis among world musical traditions and has brought increasing varieties of musical knowledge and experience to ever-growing numbers of people. In many musical traditions it is no longer possible to analyze stylistic stability and change without examining the local circulation and consumption of recordings. On a mass scale urban Afro-American and Afro-Latin musics have become increasingly African, and urban popular African styles have become increasingly Afro-American and Afro-Latin. The circulation of recordings and radio broadcasts is largely responsible for this extensive set of new influences.

Music was once defined—for example, by the nineteenth-century German physicist Hermann von Helmholtz—in contrast to noise; Helmholtz meant to distinguish regular vibrations with harmonics proportionate to the fundamental frequency from non-periodic or irregular oscillations. Similarly, many discussions of sound started with a diagram of the range of human audibility, in hertz (Hz) and decibels (db), bounded by the thresholds of hearing and pain (see Figure 1). Within this range several smaller circles were drawn, indicating the range of noises, speech, vocal music, and orchestral music. Language, music, and noise were thus conceived as overlapping subsets within the range of audibility. With the proliferation of sound technologies, the ranges of noise, music, speech, and audibility are potentially identical and entirely within the control of musicians and audio engineers. See Figure 2.

Current research. In the 1970s there was an increasing awareness of the importance of sound in human affairs, stimulated no doubt by the worldwide

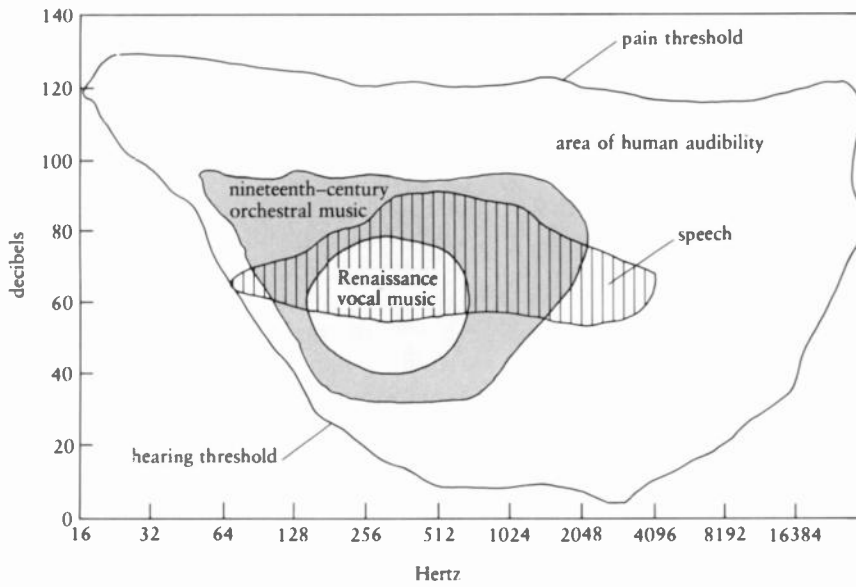
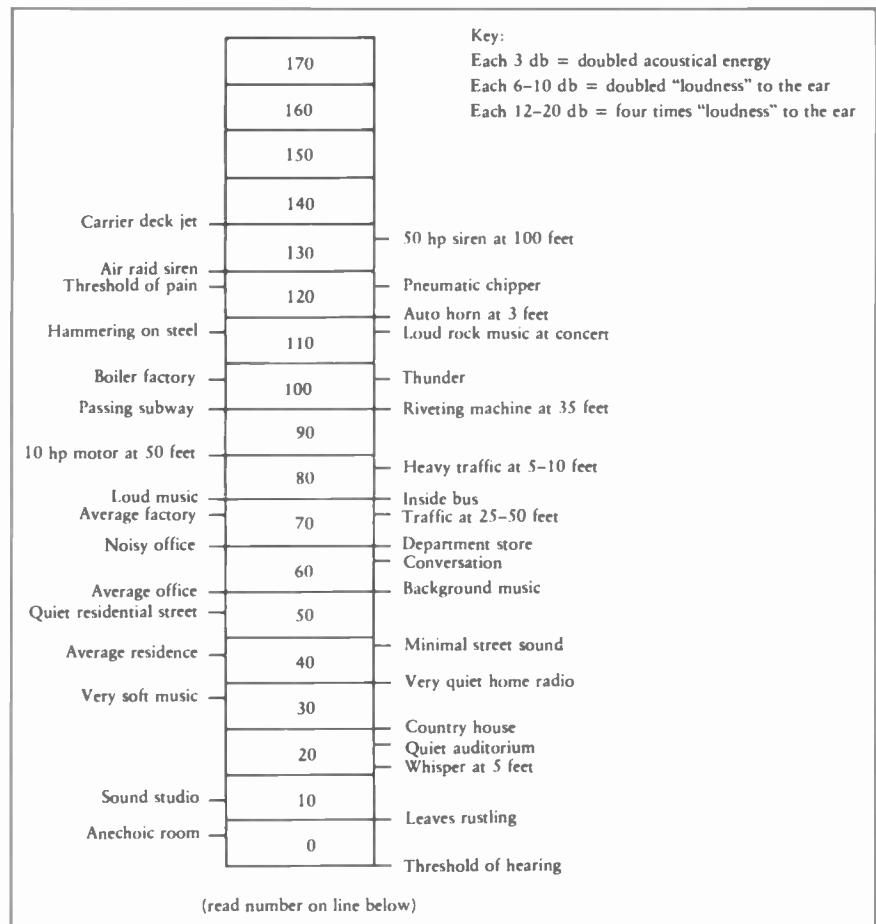


Figure 1. (Sound) Range of various sounds in relation to hearing.

Figure 2. (Sound) Decibel levels of some common sounds.



rise of popular musics and the rapid evolution of electronic technologies of music making and music reproduction. Two key synthetic books appeared and have since inspired a new generation of researchers: Peter F. Ostwald's *The Semiotics of Human Sound* (1973) and R. Murray Schafer's *The Tuning of the World* (1977).

Trained as both a psychiatrist and a musician, Ostwald studied a wide variety of noise, speech, and musical codes in terms of their communicative functions. For example, he developed diagnostic studies of speech for mood and personality assessment, studied schizophrenic speech pathologies, outlined the critical paralinguistic characteristics of the ways patients communicate with doctors, developed techniques for the analysis of newborn infant cries and sounds, enumerated the varieties and meanings of whistling, and investigated the relationship between physical and emotional disturbance and musical creativity, particularly in the case of the composer Robert Schumann. Major themes in Ostwald's work concern the uniqueness of sound as a resource in human emotional expression and the importance of a broadly biobehavioral approach to the physical and mental vicissitudes of sound making.

Schafer's writing builds on his background as educator and composer and as director of the World Soundscape Project, a research group devoted to community studies of soundscapes. Schafer coined the term *soundscape* to refer to the sound environment, and his work traces natural primitive, rural, town, city, industrial, and electric transformations in human history, showing how sounds and what he terms *schizophonia* (the splitting of an original sound from its source, brought about by electroacoustic reproduction) have played an important role in human invention. Some of his work in this area develops themes suggested by Edmund Carpenter and MARSHALL MCLUHAN, particularly concerning how electrically amplified sounds transform space to contain listeners. Schafer and his coworkers produced an elaborate series of notations, classifications, and measurements to describe the morphology and symbolism of sound environments. He also devoted particular attention to the study of noise; the nature of "hi-fi" and "lo-fi" soundscapes (environments with favorable and unfavorable signal-to-noise ratios); the problems of legislating the sound environment and devising creative approaches to what he terms *acoustic design*, namely, improvement of the aesthetic qualities of acoustic environments (see MUZAK); and acoustic ecology, that is, studies of the impact of soundscapes on the behaviors and outlooks of their inhabitants.

Another recent synthetic work about sound communications, integrating environmental, natural historical, linguistic, and musical concerns, is Steven

Feld's *Sound and Sentiment* (1982). This anthropological study of sound as a symbolic system reports on the Kaluli, a remote rain-forest tribe in Papua New Guinea, and shows how patterns of adaptation to an environment in which sound is more important than vision permeates social and aesthetic communications. The Kaluli in good part encounter their world by sounds, reflected nowhere more importantly than in their classification of birds, which are believed to be their own spirit reflections. Bird sounds are transformed into the tonal materials of songs and weeping, two kinds of expression through which the Kaluli express sadness over death and loss. The texts of these are formed by special poetic codes called "bird sound words," and the songs are sung in a plaintive bird voice by a dancer costumed as a bird; the performance thereby moves an audience to cry, as if they had become birds as well. This symbolic circle linking birds, humans, death, life, nature, culture, language, and music is further rationalized in Kaluli mythology.

These works indicate that the study of sound communications in human social life increasingly integrates acoustic, psychological, cognitive, ecological, evolutionary, behavioral, historical, ethnographic, technological, institutional, humanistic, and artistic perspectives. That so many perspectives contribute to our understanding of sound communications is at once an indication of the extraordinary depth and complexity of sound phenomena in nature and culture and of the thoroughness with which they have captured human imagination.

Bibliography. Edmund Carpenter and Marshall McLuhan, "Acoustic Space," in *Explorations in Communication: An Anthology*, ed. by Edmund Carpenter and Marshall McLuhan, Boston, 1960; Robert Erickson, *Sound Structure in Music*, Berkeley, Calif., 1975; Steven Feld, "Communication, Music, and Speech about Music," 1984 *Yearbook for Traditional Music* 16 (1984): 1-18; idem, *Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression*, Philadelphia, 1982; Hermann von Helmholtz, *On the Sensations of Tone as a Physiological Basis for the Theory of Music* (4th German ed., 1877), 2d ed., rev. and trans. by A. J. Ellis, New York, 1954; Roman Jakobson, "Linguistics and Poetics," in *Style in Language*, ed. by Thomas A. Sebeok, Cambridge, Mass., 1960; Charles M. Keil, "Motion and Feeling through Music," *Journal of Aesthetics and Art Criticism* 24 (1966): 337-349; Leonard B. Meyer, *Emotion and Meaning in Music*, Chicago, 1956; Peter F. Ostwald, *The Semiotics of Human Sound*, The Hague, 1973; idem, *Soundmaking: The Acoustic Communication of Emotion*, Springfield, Ill., 1963; R. Murray Schafer, *The Tuning of the World*, New York, 1977; idem, ed., *The Vancouver Soundscape*, Vancouver, B.C., 1973; Charles Seeger, *Studies in Musicology, 1935-1975*, Berkeley, Calif., 1977; John Shepherd, Phil Virden, Graham Vulliamy, and Trevor Wishart, *Whose Music?: A Sociology*

of *Musical Language*, New Brunswick, N.J., 1977; Theodore Stern, "Drum and Whistle 'Languages': An Analysis of Speech Surrogates," *American Anthropologist* 59 (1957): 487–506; Yoshihiko Tokumaru and Osamu Yamaguchi, eds., *The Oral and the Literate in Music*, Tokyo, 1986.

STEVEN FELD

SOUND EFFECTS

Sounds used by a storyteller to represent activity in a world created through a NARRATIVE presentation, or "story world." Their use exemplifies a form of SOUND symbolism in which a direct or metaphorical similarity is asserted between a sound effect and a story world sound. Sound effects can be used by the individual creator or collective creators of such narrative presentation forms as orally related tales, puppet shows, stage plays, films, and RADIO and television programs. See also MOTION PICTURES; ORAL CULTURE; PUPPETRY; THEATER.

Sound effects are distinct from other types of sound symbols in that they represent story world sounds considered nonlinguistic and nonmusical by storyteller and audience—so-called natural sounds—and they are modeled *in* natural sound. In the jargons of particular narrative presentation forms the term *sound effect* may be restricted depending on whether a sound is created live or played back from a recording, simulated or not, recorded synchronously with or separately from visual images, produced on- or off-stage. However, *sound effect* is used here in a general sense to denote all natural sounds that are made available to an audience so that the term can be applied systematically in a discussion of how natural sounds are represented in a variety of storytelling forms.

Early history. The history of sound effects is part of the general history of DRAMA as a human communication mode. Some theorists, most notably ARISTOTLE in his *Poetics*, have identified the fundamental importance of imitation of reality, or mimesis, in dramatic art. Indeed, the human impulse to mimic the sounds of nature has figured in speculation on the origins of other communication modes such as LANGUAGE and music (see MODE).

The imitation of animal sounds as a hunting technique may have been one of the first impulses toward mimicry; it was incorporated into rituals during which spiritual aspects of the hunted animals were represented. Environmental sounds are also commonly associated with supernatural ritual. In many traditional cultures the sound made by a bullroarer, a small wooden object attached to a cord, when whirled is associated with thunder, perhaps the most universally awesome environmental sound. It has been thought that dramatic art forms may have developed from such imitative rituals.

The term *sound effect* was not coined until the silent film era, but the imitation of natural sounds has always been a potential part of narrative presentation. The first mention of a specialized sound effect device comes from the Greek scholar Pollux in the second century C.E., who counted the bronteum ("thunder machine") among the machinery used in Greco-Roman stage production. It produced a thunderlike sound, apparently by bouncing stones noisily against tightly stretched drum skins, and was used at appropriate points in the PERFORMANCE, such as the entrance of a god.

Sound effects were most certainly a part of prehistoric storytelling—in oral narratives (see ORAL POETRY), ventriloquism, and perhaps even puppetry—long before the appearance of human actors on stages. The human vocal tract is an extremely flexible sound effect device and is used to imitate sounds in many oral storytelling traditions, even in everyday informal conversation. A person may say, "Then the bomb exploded: (*sound effect*)!" to illustrate the sound of the impact. The hands may also be used to extend the range of vocal sounds, as in whistling, or to provide percussive sounds, such as clapping.

Ventriloquistic performances, like oral storytelling, can incorporate vocal sound effects. But although in the latter they are used primarily to illustrate and supplement verbal narration, they are often the sole means by which the story is presented in ventriloquism. The performer may create an illusion of reality, as when making an audience believe that there is a fly buzzing around the room by projecting, or "throwing," a vocally produced buzzing sound, usually while maintaining the appearance of noiselessness. Aural illusions of long, complex sequences of activity, such as the butchering of a calf accompanied by the shoptalk of butchers, the barking of a dog, and the sharpening of a knife, have been created by virtuoso ventriloquists.

In puppetry the audience's attention is drawn to the visual space in which the puppets move, and the puppeteer is commonly hidden from the audience by a screen. Sound effects can thus be provided offstage by the puppeteer or by an assistant or musician. In the Indonesian *wayang kulit* silhouette puppetry tradition the puppeteer, or *dalang*, operates both the puppets and a simple percussion instrument used to provide sound effects. In the Japanese Bunraku puppet theater, sound effects, including realistic rain and wind effects, are provided by the musician on an instrument called a *samisen*, in addition to nonrepresentational musical accompaniment. Vocal modification devices held in the puppeteer's mouth, such as the *swazzle* in Punch and Judy shows or the *boli* in the Rajasthani *Kathputli* string puppet tradition, are often also used to create sound effects.

Little is known of the use of sound effects on

Western stages until the late MIDDLE AGES, when popular mystery plays depicting biblical stories were presented through both puppetry and acted productions, at first in churches and later on both movable and permanent outdoor stages. These stages were typically large enough to permit teams of backstage technicians to operate the "secrets," or special effects machines. The elaborate visual effects that portrayed the descent of the Holy Ghost from heaven or that of the devil into hell were accompanied by appropriately loud and awesome sound effects, including earthquake and thunder noises produced by rolling a barrel half filled with stones, small gunpowder explosions that accompanied the appearance of a devil, and the metallic clashing of pots and pans to represent the aural environment of the nether regions.

During the European RENAISSANCE large permanent stages such as Shakespeare's Globe Theatre were built that could accommodate bulky sound effect machinery. The top story of the Globe, the "tiring house," provided an area for the musicians and sound effects operators to work. Thunder effects were most likely produced by the barrel and stones device or by the newer method of rolling a cannonball down an inclined wooden trough, called a "thunder run." Sound effect devices also included bells, loaded guns, drums, horns, and a machine for imitating galloping horses.

Increased control over the sound environment provided by indoor theaters allowed the modification of devices used in outdoor theaters to achieve more subtle and varied effects suited to the unique structures and acoustics of different playhouses. In order to add the realism of an overhead sound source, thunder runs were occasionally built into the ceiling spaces over the audience that caused the audience enclosure to vibrate. The thunder sheet, a thin sheet of iron and steel plate suspended and shaken to produce a thunderlike sound, was used in other theaters.

The trend toward illusionistic realism in eighteenth- and nineteenth-century Western stage productions in scenic design and visual effects was accompanied by the development of more realistic sound effects. Until this period a relatively limited number of stock effects had represented a wide range of offstage aural phenomena. Devices were now built to produce more of the unique sounds associated with particular kinds of activity, such as storms. The sound of wind could be produced with a hand-cranked paddlewheel device that rubbed against ribbed cloth stretched taut over the top of the wheel. The sound of rain was imitated by rotating a hollow wooden cylinder, fitted inside with rows of wooden cleats and partially filled with small pellets such as dried peas. Types of storms could be differentiated by adding the groaning sound of trees bending in a

fierce windstorm or the clicking sound of freezing snow driving on walls and windows. Although sound effect technology remained relatively unchanged until the end of the nineteenth century, methods were developed to represent new sounds, such as railroad noises, that were continually being introduced into the Western soundscape.

During the nineteenth century slapstick COMEDY skits on vaudeville stages made use of exaggerated sound effects, a practice that had been characteristic of comedies and farces for centuries. The pit orchestra drummer, in addition to playing straight musical accompaniment, used a variety of drumrolls and cymbal crashes to accompany the blows and pratfalls of comedic performers. Slapstick comedy is named after a device used to produce an exaggerated slapping sound, made out of two strips of wood held parallel to each other by a handle or hinge at one end. It was operated by knocking the two strips together, and the loud effect was often augmented by placing a small percussion cap between them.

Early twentieth century. Silent films, introduced to the public as a new storytelling form at the turn of the century, were nearly always provided with music and sound effects as an aural accompaniment to the visual images. The first presentations were vaudeville theater attractions, so music and sound effects were added by the pit musicians, especially the drummer, whose "traps" included a large repertoire of sound devices. As special movie houses were developed for the presentation of silent films, some kept the vaudeville arrangement and others provided space for sound effects operators behind the screen. By the end of the first decade of the twentieth century equipment had been invented by which several such devices could be operated with levers or keys, a development that by the end of the 1920s had seen large pipe organs able to operate all sorts of sound effect devices from the keyboard and pedals via pneumatic connections. See MUSIC MACHINES.

Drama in radio offered sound effects a much more important role in storytelling than ever before. Unlike stage and screen presentations, radio provided no visual information to aid the understanding of a narrative. Sound effects had to help constitute the narrative, not merely illustrate or accompany it. Radio drama made use of sound effects from its very beginnings in the early 1920s, and their first documented use was in a simulation of the 1921 World Series. A SPORTS writer at the game telephoned a running description to a studio announcer, who relayed it over the air as if he were actually present in the ballpark. Two sound effects were used: the sound of the bat hitting the ball was simulated by snapping matches close to the microphone, and a group of people outside the studio window were signaled to cheer at appropriate moments.

In time it became clear that to help carry the action



Figure 1. (*Sound Effects*) "Fire!" The crackling of cellophane. Radio drama, 1930s. Courtesy of Erik Barnouw.

of a radio story a complex of sound effects needed to be performed simultaneously. To establish a location and thus take over the function of stage scenery, sound effects of the sea, barnyard, or traffic, for example, would be performed at a relatively low-volume level. To convey the specific activity of a character, rustling of clothing, footsteps, and gunshots would be provided at a higher level. The relative distances between objects and the listener could be represented by placing the sound sources closer to or farther from a microphone. Thus radio storytellers could represent activity in a story world through strictly aural means.

Radio drama found sound effect production into the sound studio. Free from the necessity of working in a backstage area, sound effects operators took advantage of radio's microphone technology, which processed sound as electrical signals that could be increased or decreased in intensity or filtered to emphasize certain frequencies. By "mixing" signals from several microphones, dialogue, music, and sound effects could be subtly juxtaposed in volume as well as through time.

Because early microphones were highly susceptible to damage from extremely loud noises, sound production techniques had to be redesigned for the studio. Radio made the first wide use of electromechanical soundmakers such as buzzers, doorbells, and telephone bells, as well as the phonograph. Sound effect records were manufactured and sold to radio studios to make available thousands of sounds that were difficult to simulate, especially more complex ones like those of train crashes, orchestras tuning up, maternity wards, and bowling alleys.

Unrestricted as well by visual imagery, radio drama created fantasy sound effects to represent all kinds of unusual events. Arch Oboler's "Lights Out," a U.S. horror series of the late 1930s and early 1940s, was noted for its imaginative use of sound effects, such as that of a person being turned inside out that was created by slowly peeling a damp rubber glove off a hand close to the microphone while a berry basket was being crushed. Many of the fantasy sound effects familiar today in radio, television, and film have their origins in radio SCIENCE FICTION, fantasy, and horror programs (see HORROR FILM).

Early sound film production (ca. 1930) required that all dialogue, music, and sound effects be recorded simultaneously with the visual images. At first sound effect performers were stationed at off-camera microphones and worked much as they would in a radio studio. But within a few years the practice of optically recording sound effects on film separately from visual images allowed sound effects to be taken from both actual and simulated sources, edited together, or "dubbed," by rerecording onto a master sound track in a studio, and finally merged with the visual elements to produce a complete sound film. The use of magnetic tape as a recording medium began in the late 1940s; it permitted increased control over the collection and manipulation of sound effects by allowing immediate playback, erasure, and rerecording. See SOUND RECORDING.

The most recent development in studio-produced sound effect technology is digital sound synthesis, which received its initial impulse not from sound effect technicians but from Western avant-garde composers who wanted to use "nonmusical" noises as an extension of the sound palette at their disposal. In the early 1910s the Italian futurist painter and instrument maker Luigi Russolo designed various mechanical noise-producing devices called *intonarumori* ("noise intoners"), which were to be played by musicians positioned onstage like a traditional Western orchestra. Russolo's compositions were not accepted as music by the concertgoing public of the time, but he continued to develop his *intonarumori*, which were adopted by theaters as sound effects devices.

The interest in natural sounds as musical material taken up by the musique concrète tradition in the late 1940s, with concurrent developments in electronically generated music, led by the 1960s to the design and use of sound-synthesizing devices, called synthesizers, that could produce a wide range of unusual sounds for musical composition and performance (see ELECTRONIC MUSIC). In the mid-1970s computers able to store and manipulate digital representations of sound waveforms and convert them into acoustical signals were incorporated into synthesizers, enabling musicians to custom design the waveforms of interesting sounds. By the early 1980s



Figure 2. (*Sound Effects*) Walt Disney's sound men preparing a sound effect to accompany Dopey's movements in *Snow White and the Seven Dwarfs*. The Museum of Modern Art/Film Stills Archive.

digital synthesizers were built that could accept any acoustical signal for digital analysis and synthesis. Sound effect designers have begun to apply this new technology to the creation of a virtually infinitely graded continuum of realistic to nonrealistic sounds.

Conventions and genres. A storyteller must decide which story world sounds to represent, how they should be represented, and how they are to be juxtaposed to one another as well as to any SPEECH, music, and visual images. They can be simulated or prerecorded, realistic or fantastic, visually identified or unseen. A variety of narrative art form genres can be identified by their use of distinct sets of conventions for using sound effects.

Conventions of realism suggest a close relationship between sound effects and the everyday aural experiences of the audience. Realistic sound effects are

desired in many fictional live action and nonfictional DOCUMENTARY genres, typically to further the presentation's illusion of reality. Nonrealistic sound effects may be motivated in a variety of ways. They may be exaggerated for comedic effect, as in slapstick comedy and cartoons. They may be designed realistically to represent sounds that are not available in everyday experience, such as dinosaur vocalizations, or are known not to exist at all, such as the "sound" of a spaceship traveling through the vacuum of outer space. Or they may be used to suggest metaphoric associations between visually represented activity and an accompanying sound effect, as when a cartoon character shown falling from a great height is provided with the sound of a slide whistle moving from a high pitch to a lower one.

The HOLLYWOOD storytelling conventions in ra-

dio, television, and motion picture fictional presentations mix realistic and nonrealistic sound effects. The majority are realistic, but certain classes of activity are typically portrayed by nonrealistic effects. In police and detective programs, for example, the sounds of gunfire, explosions, and fistfights are routinely exaggerated. Since these sound effects represent ritually important activities in these genres that are likely to be outside the everyday aural experience of many audience members, such nonrealism is perhaps easily accepted within the general realistic framework. The alternation between raising and lowering the intensity of environmental sounds, not to signal movement with respect to the audience but to refocus attention on simultaneously presented linguistic or musical material, is another example of nonrealism within Hollywood conventions of realism.

Another set of conventions relates the status of the sound effect to associated visual images on film or television. Two genres of documentary film can be distinguished on this basis. The *NEWSREEL*, which used location film footage with interviews and dramatizations, made heavy use of simulated or asynchronously recorded sound effects in its interpretive presentations of the "real world." The *CINÉMA VÉRITÉ* documentary genre, in order to depict reality in a "truer" fashion, often uses only sounds synchronously recorded with the visual images. Aural and visual elements are edited in tandem so that together they integrally constitute a record of the represented event.

A third set of conventions governs the representation of offstage and offscreen sounds. In the silent cinema the majority of sound effects were cued to the onscreen presence of the sound source, such as a bird. Bird-song effects would be halted as another image filled the screen even if the scene clearly remained in the vicinity of the bird. Radio drama developed the practice of allowing continuous sounds to go on as long as they were motivated by the activity in the story world, so that bird-song effects would continue as long as a bird in the story world kept singing. This practice was adopted by sound film, allowing sounds realistically expected in a given story world location to continue even though the image was not continuously onscreen. Indeed, one technique to build suspense in film is to cue the audience to the presence of a threatening object or activity by sound effects, such as the creak of a door accompanying the visual image of a frightened person in a dark room, and to delay revealing the source of the sound until an appropriate moment.

Knowledge of differences in sound effect conventions may serve to cue the audience to the genre of a narrative presentation. A cartoon is recognized aurally in part by the kind of sound effects that are

used. The power of mixing genres was demonstrated by ORSON WELLES's 1938 "The War of the Worlds" broadcast in which realistic and fantasy sound effects, such as ray guns, were used in a program that conformed very closely to contemporary conventions of live radio news reporting from the scene of an unfolding disaster. Many listeners took the drama to be an actually occurring event, and the few fantasy sound effects were made plausible in the context of the otherwise realistically performed story.

Sound symbolism in language, music, and culture. Sound *SYMBOLISM* may be modeled in language and music as well as in natural sound. Program music,



Figure 3. (*Sound Effects*) Onomatopoeia in comic strip illustration. From Stan Lee, *Origins of Marvel Comics*, New York: Simon and Schuster, 1974, p. 173.

such as Ludwig van Beethoven's *Pastoral Symphony* and Paul-Abraham Dukas's *The Sorcerer's Apprentice*, is intended to suggest a narrative through the presentation of a series of musical images. Natural sound is symbolized in such works by representational music, which gives clues to the proper interpretation of the musical narrative; composers often provide other clues with suggestive titles or explanatory texts. Arthur Honegger's *Pacific 231*, which imitates the sounds of a locomotive, was originally used as representative music in the score to a silent film in the early 1920s. Composed in the same period, Ottorino Respighi's programmatic *Pines of Rome* incorporated a phonograph recording of nightingales in the orchestral performance, suggesting the close affinity of sound effects and representative music.

The representation of natural sound through language is called onomatopoeia, which in English includes words like *crash*, *boom*, and *biss*. Such words are formed from the sounds of a given language arranged according to grammatically allowable sequences (see LINGUISTICS). In the sentence "Then the bomb exploded:_____!" the onomatopoeic word *boom*, constructed out of the English-language sounds /b/, /u/, and /m/, could be used in the indicated position to imitate the sound of the explosion. Onomatopoeia is one of the most direct means to represent sounds in literature and is of particular importance in some comic book genres.

Sound symbolism through natural, linguistic, or musical sound usually asserts some similarity between the story world sound and its representation. But this similarity is not wholly intrinsic to the sounds themselves; it is a perception shared by storyteller and audience and is likely to reflect cultural specificity. This is clear in the cases of onomatopoeia and representative music, in which quite different iconic representations may be used around the world for the same class of natural sound. And because the perception and meaningful interpretation of natural sound is not an objective, acultural process, it is likely that cultures provide patterns for modeling story sounds in natural sound as well.

Since boundaries between sounds that are considered language, music, or natural sound may not be the same for every human community, the tripartite division of the aural elements of storytelling into language, music, and sound effects adopted here itself reflects a culture-specific way of understanding the kinds of sound that are available to storytellers and that exist in the story worlds they create. But regardless of the categories used for analysis, it appears that culture-specific storytelling practices for representing culture-specific perceptions of sound by imitation are universal in human communication.

See also MUSIC PERFORMANCE; MUSICAL INSTRUMENTS; SONG.

Bibliography. E. G. M. Alkin, *Sound with Vision: Sound Techniques for Television and Film*, London, 1973; Rudolf Arnheim, *Radio* (in German), trans. by Margaret Ludwig and Herbert Read, London, 1936, reprint New York, 1971; Raymond Chapman, *The Treatment of Sounds in Language and Literature*, Oxford, 1984; Mark Ensign Cory, *The Emergence of an Acoustical Art Form: An Analysis of the German Experimental Hörspiel of the 1960's*, Lincoln, Neb., 1974; Robert Ten Eyck Hanford, *The Complete Book of Puppets and Puppeteering*, New York, 1981; Allardyce Nicoll, *The Development of the Theatre: A Study of Theatrical Art from the Beginnings to the Present Day*, New York, 1966; Frances Ann Shirley, *Shakespeare's Use of Off-Stage Sounds*, Lincoln, Neb., 1963; Elisabeth Weis and John Belton, eds., *Film Sound: Theory and Practice*, New York, 1985.

MICHAEL WILLMORTH

SOUND RECORDING

This entry consists of the following articles:

1. History
2. Industry

1. HISTORY

Sound recording is widely used in mass communications. Its techniques are basic to the recording industry and also have many applications in MOTION PICTURES, RADIO, and television (see TELEVISION HISTORY). Furthermore, sound recording has applications to the TELEPHONE industry, business communications in general, and other forms of communication and information storage. There are three main techniques for recording and reproducing sound in analog form: mechanical, magnetic, and optical. Since the 1970s, digital (as opposed to analog) recording has also been developed.

Mechanical recording. In the simplest form of mechanical recording, sound vibrations are transformed directly into mechanical energy by means of a vibrating diaphragm and are then engraved with an attached stylus into a material support such as a wax cylinder or a disc. In order to reproduce the recorded sound, however, the engraved patterns must be transformed back to sound vibrations.

The principle of sound recording was first demonstrated in 1857 by Léon Scott de Martinville, the inventor of the phonograph, but the first device that could actually record and reproduce sound was the phonograph, invented by THOMAS ALVA EDISON in 1877. In France, Charles Cros independently designed a somewhat different instrument the same year, but it was never actually constructed.

Edison's phonograph recorded sound on tin foil wrapped around a spirally grooved metal cylinder. The stylus embossed the vibrations perpendicular to

the surface, producing a “hill-and-dale” groove. In 1885 Chichester A. Bell and Charles Sumner Tainter improved the phonograph by introducing wax as the recording medium. Other improvements were added by Edison and others, and in the 1890s the cylinder phonograph was marketed widely as a dictation machine, for home entertainment, and for other purposes. Most owners used the phonograph to make their own recordings, but prerecorded wax cylinders were also duplicated by a simple copying process.

Meanwhile, in Washington, D.C., in 1887, Emile Berliner modified the invention by using a disc with laterally etched grooves instead of a cylinder. Berliner also originated the idea of mass-producing sound recordings by using the original master recording to make a stamper to press records, first from hard rubber, later from shellac. Berliner’s gramophones and discs were sold regularly after 1895. The sound was considerably improved after Berliner’s partner, Eldridge Johnson, perfected the wax process for disc recording.

Around 1900 Edison and other cylinder manufacturers introduced a process of molding cylinders, thus making mass production possible, and the cylinder continued to compete with the disc for at least a decade. In 1906 the French company Pathé Frères (see PATHÉ, CHARLES) developed an alternative system of “hill-and-dale” disc recording that consisted of dubbing the recording from master cylinders. Edison himself introduced another vertical-cut disc in 1913, but Berliner’s lateral-cut disc became the industry standard when Edison withdrew from the record business in 1928. But while Berliner’s gramophone had prevailed, the word *phonograph* persisted and in many countries became the general term for a disc player.

All these recordings had been made acoustically, without any electrical amplification, which limited both the dynamic and the frequency range of the recordings. There had been experiments in electrical recording since 1919, and the method was finally perfected by Western Electric in 1925. Soon after that date all recordings were made electrically, using a microphone, amplifier, and recording head to record the sound. All-electric record players also became available, with magnetic or crystal pickups and amplifiers, although portable acoustic models continued to be used until the 1950s. Electrical reproduction also speeded the development of jukeboxes, coin-operated automatic record players.

After the introduction of electrical recording and reproduction, the main limitation of the disc was its short playing time, a maximum of five minutes per side for twelve-inch 78-RPM records. There had already been attempts to lengthen the playing time by reducing the speed or by using finer grooves in the late 1920s, but these long-playing discs were

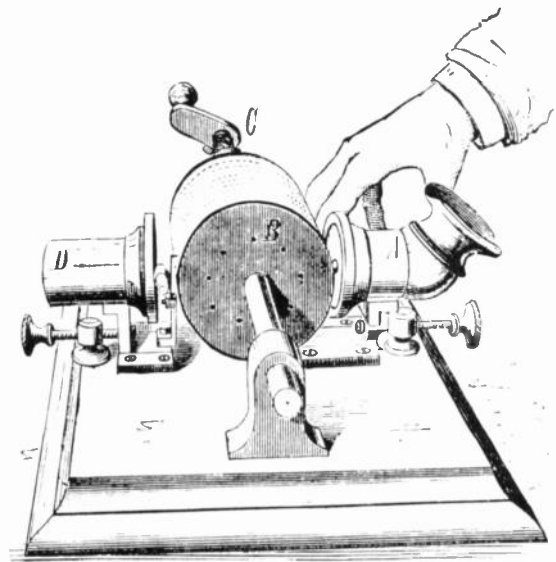
[DECEMBER 22, 1877.]

THE TALKING PHONOGRAPH.

Mr. Thomas A. Edison recently came into this office, placed a little machine on our desk, turned a crank, and the machine inquired as to our health, asked how we liked the phonograph, informed us that *it* was very well, and bid us a cordial good night. These remarks were not only perfectly audible to ourselves, but to a dozen or more persons gathered around, and they were produced by the aid of no other mechanism than the simple little contrivance explained and illustrated below.

The principle on which the machine operates we recently explained quite fully in announcing the discovery. There is, first, a mouth piece, A, Fig. 1, across the inner orifice of which is a metal diaphragm, and to the center of this diaphragm is attached a point, also of metal. B is a brass cylinder supported on a shaft which is screw-threaded and turns in a nut for a bearing, so that when the cylinder is caused to revolve by the crank, C, it also has a horizontal travel in front of the mouthpiece, A. It will be clear that the point

Fig. 1.



on the metal diaphragm must, therefore, describe a spiral trace over the surface of the cylinder. On the latter is cut a spiral groove of like pitch to that on the shaft, and around the cylinder is attached a strip of tinfoil. When sounds are uttered in the mouthpiece, A, the diaphragm is caused to vibrate and the point thereon is caused to make contacts with the tinfoil at the portion where the latter crosses the spiral groove. Hence, the foil, not being there backed by the solid metal of the cylinder, becomes indented, and these indentations are necessarily an exact record of the sounds which produced them.

Figure 1. (Sound Recording—History) “The Talking Phonograph.” From *Scientific American*, December 22, 1877. Courtesy of the Library of Congress.



Figure 2. (*Sound Recording—History*) Emile Berliner, ca. 1875. Courtesy of the Library of Congress.

technical and commercial failures. The problem was finally solved by CBS engineers under the leadership of Peter Goldmark, who introduced the microgroove 33-RPM long-playing disc in 1948. A similar seven-inch disc using the 45-RPM speed was introduced by RCA in the following year, and both speeds soon became standard. The new records were basically similar to earlier discs, but owing to the use of vinyl instead of shellac, improved manufacturing processes, and soon also the use of magnetic tape to make the original recordings, the new records had a considerably improved sound.

Two-channel stereo recording was introduced in 1958. In this system, which was originally developed by A. D. Blumlein in 1931, two channels are engraved in the same groove at a forty-five-degree angle. Although there have been other improvements in the mechanical recording and reproduction of sound since then, the basic principle has remained the same.

Throughout its history mechanical recording was used mainly for the mass production of sound recordings; it became the basic technology of the recording industry. However, wax cylinders could be

used for private recording, and cylinder phonographs continued to be manufactured for office dictation into the 1950s. (In the 1930s home disc-recording machines were also available.) Mechanical recording was also widely used in broadcasting in the 1930s and the 1940s. Acetate discs were used for the instantaneous recording of programs, while large pressed sixteen-inch discs were used to distribute syndicated radio programs to local stations. The first sound films also used mechanical recording processes: Kinetophone (ca. 1913) with cylinders; Vitaphone (1925–1927) with discs.

Magnetic recording. In magnetic recording, sound vibrations are first transformed into electrical impulses and then stored on tape or other material by means of magnetized particles. The principle was first demonstrated in 1898 by Danish engineer Val-



Figure 3. (*Sound Recording—History*) Early gramophone on a richly carved stand, 1903. The Bettmann Archive, Inc.



Figure 4. (*Sound Recording—History*) French musicians during a recording session, ca. 1905. The Bettmann Archive, Inc.

demar Poulsen. His telegraphone used steel wire to record sound magnetically. It was not practical because suitable amplifiers were not yet available, and the telegraphone fell into oblivion until the 1930s, when similar wire recorders were used mainly as dictating machines.

A magnetic recorder that used steel ribbon was invented in 1929, and it was used by some broadcasters and telephone companies. In 1935 the German company AEG (*Allgemeine Elektrizitätsgesellschaft*) introduced the magnetophon, a recorder that used paper or plastic tape coated by iron oxide as the recording medium. This recorder was used experimentally by several European radio stations. The sound quality was considerably improved by the invention of high-frequency bias during the war. The improved tape recorders were introduced in the United States in 1948, and they were soon adopted by radio stations and recording studios. Smaller units for home use became available in the 1950s, and they opened new uses for sound recording, such as FOLKLORE and ORAL HISTORY studies. There were some attempts to

market prerecorded tapes, but owners of tape recorders used them mainly to make their own recordings.

In 1963 the Dutch company Philips introduced a new cheap tape recorder that used a tape encased in a cassette. A similar cartridge system was developed in the United States. Cassette and cartridge recorders became popular from the late 1960s. Cassettes were also successfully used to market prerecorded music, and soon record companies started publishing their new releases also on cassette or cartridge. In many developing countries cassettes practically replaced discs. For popular music devotees, the portable cassette player tended to become a constant companion. Cassette recorders brought the ability to record sound to practically everyone. In many industrialized countries the majority of homes have tape recorders. They are used not only to play prerecorded cassettes, but to record broadcasts, to make home recordings, to receive telephone messages, and so on. In business, cassette recorders and specially designed smaller tape recorders replaced stenographers.

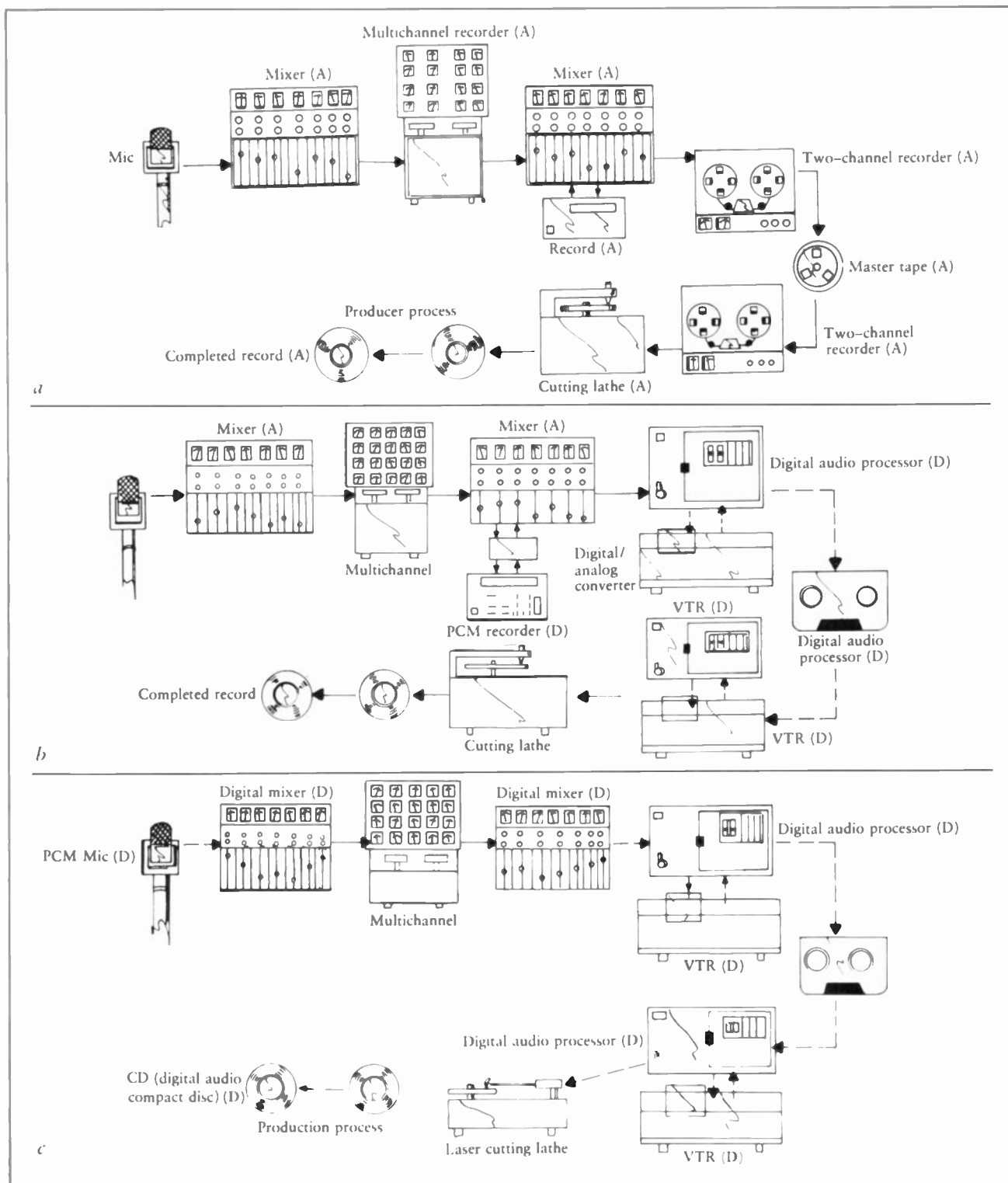


Figure 5. (Sound Recording—History) The record production chain. (a) Conventional system; (b) Mixed analog-digital system; (c) Full digital system. Redrawn after H. Nakajima, T. Doi, J. Fukuda, and A. Iga, *Digital Audio Technology*, Blue Ridge Summit, Pa.: Tab Books, 1983, pp. 42, 43, 44.

Meanwhile, other types of tape recorders were developed for professional sound recording. Tape had been introduced in recording studios in the late 1940s, and it soon changed the character of recording. Cutting, multiple recording, and complex sound editing became possible. Since the mid-1960s professional sound-recording equipment developed rapidly as a response to the expansion of the recording industry. "Hi-fi" became a focus of record enthusiasts. Multiple-track tape recorders, noise-reduction systems, and other new inventions expanded the possibilities of manipulating sound.

Magnetic recording in the form of a magnetic strip added to film was used for film sound, especially for 8- and 16-mm film. Magnetic recording is also used for VIDEO recording and for many computer information storage systems.

Optical recording. The first attempts to add sound to film were based on synchronized cylinders or discs, but the inadequacy of such systems directed research to optical sound recording. In 1919 Jo Engl, Joseph Massolle, and Hans Vogt of the German company Triergon developed a complete optical recording and reproducing system. In it sound waves were represented as varying degrees of black in the film soundtrack. A similar system was developed by LEE DE FOREST in 1923 in the United States. In 1927 the Triergon system was sold to Fox Movietone News, and the principle of optical recording soon became standard in the film industry.

Optical recording had few uses outside the film industry. In the late 1920s at least one record company used the method to make studio recordings, which were then transferred to disc masters. There was also an attempt in Europe in 1937 to introduce a home entertainment device based on optical sound. The cellophone played music recorded on film strips, but it was a commercial failure.

The Philips-Miller system was a hybrid system developed by Philips, based on an invention by J. A. Miller in the United States. Sound was recorded mechanically, using a cutting stylus to remove varying areas of a blackened filmstrip, which was subsequently read photoelectrically as in ordinary optical sound film. The system was used in broadcasting after 1935 until it was replaced by magnetic recording about 1950.

Digital recording. All techniques described above are based on analog recording, in which changes in the vibrations of sound are matched by analogous changes in the excursion or depth of a groove, in magnetism, or in light. Although these methods have proved satisfactory for a wide variety of uses, analog recording has certain limitations. Extremes of dynamics and frequency are difficult to reproduce, some background noise is almost inevitable, and the possibilities of manipulating the sound are limited.

In digital recording the sound is transferred into numerical symbols. The sound is typically sampled 44,100 times per second, and each sample is transformed to a sixteen-unit number. Extra bits (units) can be added to the encoded signal as an error-correction system. Thus it is possible to restore the original data even if some information is lost during the processing or reproduction of the recording. Digital recording makes possible an expanded frequency and dynamic range, and it is also possible to add other types of information, such as text or visual images, to the sound recording.

Digital recording can in principle use all three methods described above: mechanical, magnetic, and optical. The digitalized signal is usually first recorded on magnetic tape, for instance, by using an analog-digital converter and a videotape recorder. The first application of digital recording in mass production was the compact disc, which was introduced by leading record companies worldwide in 1983. In the compact disc the information is recorded with a laser beam on a glass disc coated with a photosensitive layer. The signal is stored in a series of pits, and in reproduction it is read with a laser beam. The original master is used to make stampers for the mass production of discs.

In recording studios digital recording encouraged the return to earlier ideals for realistic sound reproduction, away from multitrack recording. Digital recording also offers great possibilities for the manipulation of sound and for the restoration of historical recordings.

See also MUSIC, POPULAR; MUSIC MACHINES; MUSICAL INSTRUMENTS; MUZAK; PERCEPTION—MUSIC; SOUND; SOUND EFFECTS.

Bibliography. Paul Charbon, *La machine parlante*, Rosh-eim, France, 1981; V. K. Chew, *Talking Machines*, London, 1981; Journal of the Audio Engineering Society, *Centennial Issue: The Phonograph and Sound Recording after One-Hundred Years*, Vol. 25, nos. 10–11, 1977; Allen Koenigsberg, *Edison Cylinder Records, 1889–1912, with an Illustrated History of the Phonograph*, New York, 1969; Daniel Marty, *The Illustrated History of the Talking Machine*, Lausanne, Switzerland, 1981; Oliver Read and Walter L. Welch, *From Tin Foil to Stereo: Evolution of the Phonograph*, 2d ed., Indianapolis, Ind., 1976.

PEKKA GRONOW

2. INDUSTRY

After its invention in 1877, sound recording was initially viewed as a medium for personal communication such as dictation or recording TELEPHONE messages. However, in the 1890s demand gradually grew for sound recordings as a form of home entertainment. The mass production of sound recordings

developed into an industry, and recordings became a medium of mass communication. By 1910 the recording industry had been established worldwide. By the 1980s, at least in the United States, the recording industry had approximately the same economic significance as RADIO and film (*see* HOLLYWOOD).

The early years. The recording industry was created mainly by companies that had played an active part in the development of sound recording. In the United States the three leading companies were Thomas A. Edison, Inc., founded by the inventor of the phonograph (*see* EDISON, THOMAS ALVA); the Victor Talking Machine Company, which held the patents of Emile Berliner, who had invented the gramophone, in which discs replaced the cylinders originally used by Edison and others; and the Columbia Phonograph Company, the outgrowth of a former Edison distributor. In Europe the leading companies were the British Gramophone Company, with close ties to Victor; the French Pathé Frères (*see* PATHÉ, CHARLES); and the German Lindstrom concern. There were some smaller companies, especially in the United Kingdom, Germany, and Russia, but the three major companies in the United States effectively limited competition through their control of the basic sound-recording patents until the late 1910s.

In the decade between 1900 and 1910 these companies grew into multinational enterprises. They built factories and studios at their home offices and in a few major markets. They established subsidiary companies or agencies in as many countries as possible. Traveling engineers were sent on recording expeditions around the world. These recordings were processed at the factories and the finished pressings and record players shipped to agents. Within a decade the industry was established worldwide, and in 1912 it was already suffering its first crisis from overproduction.

There are few statistics from the early years of the industry, but a rough picture can be reconstructed from various sources. In the United States the annual production of phonographs (cylinder and disc players) grew from 150,000 in 1899 to 500,000 in 1914; in 1910 at least 20 million records were sold. In Germany in the same year sales have been estimated at 10 million copies. In the United Kingdom, France, and Russia records also had a mass audience, and there was an established market for records in all industrialized countries. In the developing countries (then mainly colonies) only a privileged minority had access to sound recordings, but in India alone about one million records were sold annually.

In the 1890s the limitations of technology determined what could be recorded. Brass instruments and loud voices were preferred. By 1905 most sounds could be recorded reasonably well, although symphony orchestras still caused insurmountable difficulties. Record companies then tried to issue recordings

by famous actors, authors, and politicians, but these recordings had little success. It was obvious that record buyers were interested mainly in music.

The best-known recording artists of this era were OPERA singers. Italian tenor Enrico Caruso became an internationally successful recording artist, and other illustrious singers helped to raise the image of the new invention. However, record companies recorded practically any type of music that showed commercial promise on the concert stage, in sheet music sales, or otherwise. They recorded well-known brass bands such as John Philip Sousa's band; stars of vaudeville, musical comedy, and minstrel shows; whistlers, accordionists, and banjo players; Gregorian chants; and hymns.

By World War I commercial recordings had been made in almost every part of the world. In such markets as the United States, Russia, and India, with ethnically mixed populations, the music of most ethnic minorities was issued on recordings. In the United States alone, more than a thousand new recordings were issued annually in the 1910s. The most popular recordings sold hundreds of thousands of copies, but to attract new audiences the companies were also willing to issue recordings selling only a thousand copies or less. Since few of the early recordings were collected in public ARCHIVES, many are probably lost forever.

The 1920s and 1930s. In the United States World War I did little harm to the recording industry. Wartime shortages curtailed production, but after the armistice sales took a sharp turn upward. In 1919, 2.2 million record players were produced. About 140 million records were sold in 1921, the first year for which we have such statistics. In the mid-1920s the industry was already suffering from a minor recession, but in the late 1920s sales picked up again.

Of the established companies, Victor and Columbia retained a strong position, but as the market grew many new companies entered the field. In the 1920s there were close to a hundred record companies in the United States, although many of them were short-lived. Some were one-person operations initiated by record-shop owners or individual performers, but several offered considerable competition to the established companies. Important new labels of the 1920s included Brunswick, Vocalion, Okeh, Cameo, Perfect, Banner, Grey Gull, Paramount, and Gennett.

In Europe the war had hurt the industry badly, and it took several years to recover, but after 1925 production increased rapidly. Not only in Europe but all over the world, 1928 and 1929 were boom years, and stock-market speculators invested heavily in record companies. The Gramophone Company, issuing records under the "His Master's Voice" trademark, retained a leading position. The British

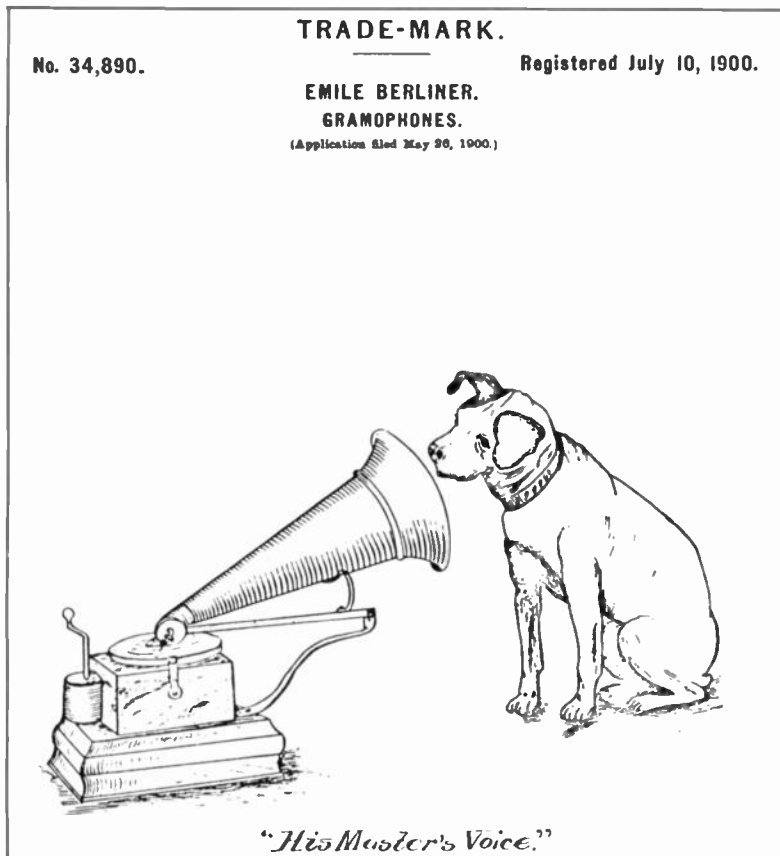


Figure 1. (*Sound Recording—Industry*) "His Master's Voice": Emile Berliner's gramophone trademark. Courtesy of the Library of Congress.

branch of Columbia had become independent in 1922, and in 1925 it was able to acquire the German Lindstrom concern as a result of German inflation. Other important European companies that were active in several countries included Deutsche Gramophon-Polyphon, Pathé, and Ultraphon. But here, too, the expanding market encouraged the development of numerous smaller firms, and local record companies were also founded in several Asian and Latin American countries. As cheap, portable wind-up record players put recorded music within the reach of an increasing number of people, over 50 million records were sold in Britain in 1929 and nearly 30 million in Germany.

After the introduction of electrical recording in 1925 it became possible to record even symphony orchestras faithfully. Complete symphonies were soon routinely issued in album sets, but the most typical recordings of the late 1920s were made by dance orchestras and by popular vocalists who quickly learned to use the microphone to bring out the personal qualities of their voices. Gene Austin's "Ramona" sold more than a million copies. However, record companies continued to record practically any type of music that could conceivably attract a thousand buyers. In the United States record companies produced recordings for at least thirty ethnic minorities, and black music became an important market under the title "race records." Hillbilly music, the

predecessor of country music, also emerged as a distinct market.

The economic depression of the early 1930s hit the recording industry harder than many other industries. Talking pictures had just become popular, and radio provided an inexpensive source of music. Record sales fell to one-tenth of 1929 levels. Companies were sold or went bankrupt. In a few years there were only two significant companies left in the United States: Victor, which was sold to RCA, and the Columbia-Brunswick-ARC (American Record Company) group. In Europe, Gramophone and Columbia merged as Electric and Musical Industries (EMI), and only a few local companies offered any competition. The number of new releases was drastically limited, and the future of the record industry looked bleak.

However, after 1935 sales increased again. Singing stars from radio and films, such as Bing Crosby, also became popular on records, and in the United States the swing bands of Benny Goodman, Artie Shaw, and others sold millions of records to youthful buyers. Decca (U.K. and U.S.A.) and Telefunken (Germany) emerged as new powers in the industry. Record-pressing plants were now opened in many smaller European countries, and new local companies were started. Even in the Soviet Union, where record production had remained insignificant for many years after the Revolution, the industry was reorganized

and soon was reaching impressive production figures.

Postwar expansion: United States. In the United States record sales continued to grow slightly throughout World War II despite material shortages and industrial disputes. In 1946 sales doubled, and in 1947 about 300 million records were sold in the United States. In 1949 there was already a recession, which was probably deepened by the competition among new microgroove systems, "the war of the speeds," but in the mid-1950s sales turned upward again and continued to grow until the late 1970s.

New record companies had continued to enter the market from the late 1930s, and by the mid-1950s there were almost a thousand companies in the United States. Independent studios and pressing plants made it possible for almost anyone to start a record company. The growth of television had forced radio stations to rely more on recorded music in their programming. The smaller companies were quicker to adapt to new modes of production and promotion, and when black music ("rhythm and blues") was appropriated and modified to become a national trend under the name of rock and roll, established major companies lost a considerable share of the market. However, they regained much of their former position in the 1960s.

Record companies no longer attempted to produce recordings for all possible markets. The major companies concentrated on a number of nationally and internationally known artists in both the popular and the classical fields. They abandoned the production of record players and other related equipment and instead became part of multimedia communications and entertainment conglomerates.

It is an indication of the continuity in the recording industry that two of the three largest record companies in the United States in the 1970s were direct descendants of the founders of the industry: RCA Records, which had taken over Victor, and CBS Records, a successor of Columbia. The third was Warner, which had acquired a number of successful independent companies. Along with the industry leaders there existed a number of medium-sized companies and an indeterminable number of small enterprises. Most of the smaller companies focused on the production of popular music, hoping to create a hit record that would be played by radio stations and distributed by independent distributors or by one of the major companies. Some were satisfied to serve local or ethnic audiences such as the Mexican-American market in the Southwest. Others specialized in musical genres such as avant-garde concert music, historical jazz reissues, or polkas. Some small companies served simply as promotion vehicles for individual performers. In the 1970s more than ten thousand new records were issued annually in the United States, although the exact number is not documented anywhere. Average annual sales were

about 600 million records and prerecorded tapes.

Worldwide expansion. The European record industry was again hurt badly by World War II, but by the mid-1950s it had fully recovered. Recording industries in Britain, the Federal Republic of Germany, and France entered a twenty-year period of expansion. By the 1960s other western European countries caught on. The introduction of cheap cassette players expanded the audience for recorded music, and although European radio broadcasting was still dominated by the public service ideal, there were more commercial stations and more programs based on recorded music. By the mid-1970s record sales in many European countries had grown three- or fourfold. The growth in Japan, Canada, and Latin America was equally rapid, and record production also increased considerably in eastern European countries, although the speed was slower.

EMI (U.K.) and Polygram (a Dutch-German company) became the leading European companies, with worldwide interests that rivaled the three leading U.S. companies. The general development of the industry also followed the U.S. model: in addition to a few major and medium-sized companies a large number of small companies also appeared on the market, ranging from successful regional companies to recordings published by individual performers.

In most parts of Asia and in the Arab countries the development took a different course. Here, too, cheap cassette recorders increased the market for recorded music dramatically in the 1970s. Since the duplication of cassettes is considerably easier than the pressing of discs, and many of these countries had not signed or were not able to enforce international COPYRIGHT conventions, the market was supplied with locally produced cassettes or imports from other noncopyright countries—often unauthorized copies of foreign products. As a result, multinational companies lost most of their foothold in these markets.

In the early 1950s half of all the recordings produced in the world had been sold in the United States; in the 1970s the U.S. share fell to one-fifth. Recorded music had become commonplace practically everywhere, and even small Third World countries like Papua New Guinea could develop local record industries that produced a hundred or more new cassettes annually. Although the United States still had the biggest record market in the world, many European countries sold as many or more recordings per capita. Exact figures are not available from many countries, but it can be estimated that about 2,500 million recordings were sold in the world annually in the late 1970s.

There had emerged a truly international music market, in which the dominant idiom was English-language popular music based on American idioms but often produced in Europe. A smaller but equally

international market consisted of the standard classical repertoire recorded by internationally known conductors and soloists. In addition there were innumerable regional and local idioms. French recordings had a strong influence in the whole Mediterranean area. Latin America was another large regional market. Japan, Italy, the Soviet Union, and many smaller countries had strong national idioms, although the international idiom also had a strong influence. There were also smaller local, ethnic, or subcultural markets.

The 1980s. In the last years of the 1970s the sales of recordings were no longer increasing, and in many countries there was a slight recession. The reasons for this change are not clear. Youth unemployment and the economic recession, as well as the emergence of competing new media such as home VIDEO, are possible explanations. In some countries the illegal production of recordings continued to be a problem. The recording industry also blamed home taping, the practice of copying recorded music from radio or recordings for personal use.

In the early 1980s, however, there were signs that the industry was restructuring itself. Some of the new trends were the compact disc, new sources of income for the recording industry, and the growth of the music and home video markets. The compact disc was introduced in 1983, opening a way for further adaptations of digital technology. As sales of records stopped expanding, secondary sources of income became more important for the recording industry. In countries that had signed the Rome Convention for the Protection of Performers, Producers of Phonograms, and Broadcasting Organizations, record companies received royalties for the use of their recordings in broadcasts and public performances. Some countries introduced compensation for home taping. Income from music publishing subsidiaries also became increasingly important. Finally, as video became important as a medium for promoting recordings, many record companies entered video production, music television, and other new media. As a result, the largest record companies increasingly became multimedia companies. By the 1980s the recording industry had become one of the most important branches of mass communications worldwide.

See also MUSIC, FOLK AND TRADITIONAL; MUSIC, POPULAR; MUSICAL, FILM; MUZAK.

Bibliography. Kurt Blaukopf, ed., *The Phonogram in Cultural Communication*, Vienna and New York, 1982; Gillian Davies, *Piracy of Phonograms*, Oxford, 1981; R. Serge Denisoff, *Solid Gold: The Popular Record Industry*, New Brunswick, N.J., 1975; Roland Gelatt, *The Fabulous Phonograph, 1877–1977: The Story of the Gramophone from Tinfoil to High Fidelity*, 2d rev. ed., New York, 1977; Charlie Gillett, *The Sound of the City: The Rise of Rock and Roll*, New York, 1970; Pekka Gronow, "The Record

Industry: The Growth of a Mass Medium," in *Popular Music 3: Production and Markets*, ed. by Richard Middleton and David Horn, Cambridge and New York, 1983; idem, "Sources for the History of the Record Industry," *Phonographic Bulletin* 34 (1982): 50–54; Oliver Read and Walter L. Welch, *From Tin Foil to Stereo: Evolution of the Phonograph*, 2d ed., Indianapolis, Ind., 1976; C. A. Schicke, *Revolution in Sound: A Biography of the Recording Industry*, Boston, 1974; Dietrich Schulz-Kohn, *Die Schallplatte auf dem Weltmarkt*, Berlin, 1940; Roger Wallis and Krister Malm, *Big Sounds from Small Peoples: The Music Industry in Small Countries*, London and Pendragon, N.Y., 1984.

PEKKA GRONOW

SOUTH ASIA, ANCIENT

Geographically the region of South Asia consists of the Indo-Gangetic Plain, peninsular India, and Sri Lanka. India, Pakistan, Nepal, Bhutan, Bangladesh, and Sri Lanka are within this region. The ethnic and linguistic diversity of South Asia is one of its most fascinating features and is partly the result of an accident of geography. Although the Central Asian mountain ranges, in particular the Himalayas, have in one sense inhibited MIGRATION into and out of the subcontinent, historically the primary direction of migration has been from the relatively arid regions of Central Asia through mountain passes into the fertile, subtropical Indo-Gangetic Plain. Within the subcontinent people have tended to migrate eastward and southward. There is some evidence to suggest that prehistoric migrations into the subcontinent may have been under way as early as thirty thousand years ago. More plentiful archaeological evidence from about 2500 B.C.E. on (supplemented by later textual, epigraphic, and other historical evidence) confirms that ethnic, linguistic, and cultural diversity are long-standing characteristics of South Asian societies. The Indian government, for example, officially recognizes fifteen regional languages, but the actual number of languages and dialects spoken on the subcontinent is well over one thousand. See also LANGUAGE; LINGUISTICS.

The vast and multifaceted topic of the flow of information and ideas in South Asia before 1500 C.E. can be divided into five broad categories: the Indian epics, the influence of the Indic (or Indo-Aryan) languages, the caste system, pilgrimage, and monastic and cultural institutions. These topics are designed to evoke general issues about how people communicate (through language, social codes, stories, and ceremonies), what they typically communicate (social, political, and religious ideas), and when they are likely to share the ideas that characterize their distinctive cultures (on pilgrimages, in schools, and during festivals).



Figure 1. (South Asia, Ancient)
 Head of a Bodhisattva or Crowned
 Buddha, ninth to tenth century. In-
 dian, Bihar, Pāla Dynasty (730–
 1197). The Nelson-Atkins Museum
 of Art, Kansas City, Missouri (Nelson
 Fund).

The Indian epics. The circulation of the ethical, philosophical, religious, legal, and social ideas contained in the pan-Indian epics, the Mahabharata and Ramayana, attests to both significant media of communication in ancient South Asia (bardic storytelling, plastic and THEATER arts) and significant ideas (the epic tales) that have had an abiding impact at many levels of CULTURE throughout South Asia. *See also* MUSIC THEATER—ASIAN TRADITIONS.

The Mahabharata, familiar in modern times as the world's longest epic, is the product of eight centuries of compilation (ca. 400 B.C.E.–400 C.E.). Sometimes described as an encyclopedia of Indian civilization, its stories were circulated orally for centuries

throughout the Indo-Pakistan subcontinent when recited by bards or performed in puppet shows, stage dramas, and folk dances (*see* DANCE; DRAMA; PUPPETRY). Professional reciters with distinctive repertoires, the bards are thought to have transmitted a vast store of ballads, tales, folk stories (*see* FOLKTALE; ORAL CULTURE; ORAL POETRY), and fables that were often interwoven in their accounts of the great Bharata war. The Mahabharata continues to provide a common store of myths, legends, and didactic tales that transcend religious boundaries of Hindu, Sikh, and Jain in India.

The Ramayana is a considerably shorter epic and a much more homogeneous one. It is thought to have

been composed about 200 B.C.E.–200 C.E. by the author Valmiki. The Ramayana's story concerns the exiled prince Rama who engaged in heroic exploits to rescue his abducted wife, Sita. Told and retold for centuries in dance, theater, and puppet plays, its appeal throughout South Asia remains largely undiminished.

For many years historians generally agreed that commercial and economic interests were the main stimulus for contacts beyond the Indo-Pakistan subcontinent. The view holds that Buddhism, India's seminal contribution to China and Southeast Asia, was carried to China across overland trade routes through Central Asia. In recent years, however, opinion has become somewhat divided on the causes for Indian influence in Southeast Asia and the way it spread. Some have argued that perhaps traders were not the primary agents of Indian influence; missionaries may have been more instrumental in initiating the contacts.

By whatever means communications were established, the appeal of the Indian epics in ancient South Asia is amply documented and still very evident in modern times. Major scenes from both epics are magnificently carved in two seven-row panels in one of the Ellora caves, the Kailasa temple (of the Hindu god Śiva), which was excavated between the eighth and ninth centuries C.E. From about 100 to 1000 C.E. epic stories were widely represented in dance and drama throughout Southeast Asia, and epic themes

were permanently assimilated into the subject matter of the performing arts. The Ramayana was the topic of shadow-puppet plays as well as dance. In Kampuchea the popularity of both the Ramayana and the Mahabharata is documented in ancient inscriptions. Stories from the Mahabharata are illustrated in bas-reliefs in the temple of Angkor Wat.

Influence of the Indic languages. Ideas communicated throughout South Asia before the thirteenth century C.E. were primarily transmitted through the medium of the Indic (or Indo-Aryan) languages, a branch of the Indo-European language family. Originally brought into the subcontinent from Central Asia by the Aryan invaders (ca. 1500 B.C.E.), Vedic Sanskrit (its earlier form as distinguished from classical Sanskrit) is the language of India's most ancient sacred literature, the Vedas, whose compilation began about 1300 B.C.E.

In subsequent centuries the language of the Aryan invaders developed into two branches—Sanskrit and Prakrit. The very meaning of the words helps to explain the distinction between them: Sanskrit (“cultured, refined”) was the language of learning, and Prakrit (“uncultured, natural”) the ordinary spoken language. A generic term for Middle Indic languages (usually excluding Apabhramsa), Prakrits were used to record inscriptions from the third century B.C.E. to the fourth century C.E.—including those of AŚOKA (d. 232 B.C.E.)—as well as literatures. The Buddhist and Jaina canons, themselves recorded in Prakrits,



Figure 2. (*South Asia, Ancient*) Angkor Wat, Kampuchea: North gallery, western half; embattled gods and demons, from the Mahabharata. From Heinrich Zimmer, *The Art of Indian Asia: Its Mythology and Transformations*, ed. by Joseph Campbell, Bollingen Series 39. New York: Bollingen Foundation, 1955, vol. 2, plate 545. Copyright 1955, © 1960 by Princeton University Press.



Figure 3. (*South Asia, Ancient*)
Figure of Vajragarbha Lokeshvara: detail from the Prajñā Paramita sūtra. Buddhist palm-leaf manuscript, Bengal or eastern Bihar, ca. 1085–1090 C.E. Ms. Sansk.a.7(R), fol.92v. The Bodleian Library, Oxford.

respectively recommend using the dialects to communicate the teachings of Buddha (ca. 563–ca. 483 B.C.E.) and his contemporary, the Jain leader Mahāvīra.

However, this branching of the language did not limit the use of Sanskrit, which has a preeminent position as the language of composition and transmission of the Hindu religious tradition. Before WRITING was introduced around the fourth century B.C.E. Vedic literature was communicated exclusively by oral means. Writing was only slowly adopted to record religious material, in part because of entrenched beliefs about the power of the words spoken during the Vedic sacrifice and in part because access to Vedic learning was by that time strictly regulated.

The priestly tradition of Vedic composition had a profound impact on Hindu South Asia. The separate bardic tradition of oral composition had an equally enduring but broader impact. India's epics were eventually written down in Sanskrit (and much later in India's regional languages), but as noted earlier their stories have been told in virtually every South Asian language to virtually anyone who cared to listen, regardless of class or RELIGION.

The composition of remembered and recorded religious literature in Sanskrit does not exhaust the significance of that language. In the early centuries of the common era a formidable corpus of scientific, technical, philosophical, medical, and political literature in Sanskrit began to be written. During that period in northern India Buddhists also began to use Sanskrit to compose their texts, just as the Jains would do much later. The evidence of inscriptions has enabled scholars to trace the history of Sanskrit as a medium of governmental administration. It became the official vehicle of administrative documents at different times in different regions of the Indo-Pakistan subcontinent, but by the Gupta period (fourth and fifth centuries) its use was widespread.

Why did the use of Sanskrit eventually so predom-

inate over the Prakrits on the subcontinent? Scholars have suggested that there are two possible reasons. First, the close association of Sanskrit with Vedic religion is thought to have greatly benefited Sanskrit when Hindu orthodoxy, which had developed out of Vedic religion, gained influence in many parts of the subcontinent after the second century C.E. Second, the differences between local dialects steadily increased through the centuries, hampering local and regional communications. By contrast with the Prakrits, Sanskrit was a language codified (ca. fourth century B.C.E.) and therefore protected from excessive internal change. In this respect Sanskrit was both a convenient and a practical candidate for the subcontinent's "national" language.

The influence of Sanskrit and Prakrit in South India was more limited than in the central and northern regions because the native Dravidian languages dominated in the south. Nevertheless, these languages (except Tamil) tended to borrow heavily from the vocabulary of the Indic languages, and inscriptions document the use of Sanskrit and Prakrit by various dynasties for administrative purposes. For example, records of the influential Satavahana (or Andhras) dynasty, whose power waxed and waned from around the first to the third century C.E., are in Prakrit.

Buddhism was the primary vehicle by which the Indic languages spread across Central Asia along with other elements of Indian culture such as painting and SCULPTURE. In the early centuries C.E. vigorous trade between the Indo-Pakistan subcontinent and Southeast Asia facilitated the introduction of Buddhism and Hinduism there. Numerous Sanskrit inscriptions dating from the third century on have been found throughout Southeast Asia, extending as far as Campa in Indochina. South Indian kings sponsored much of the cultural expansion that left enduring traces on the literature, theater, and dance of Southeast Asia. Indigenous rulers adapted Indian

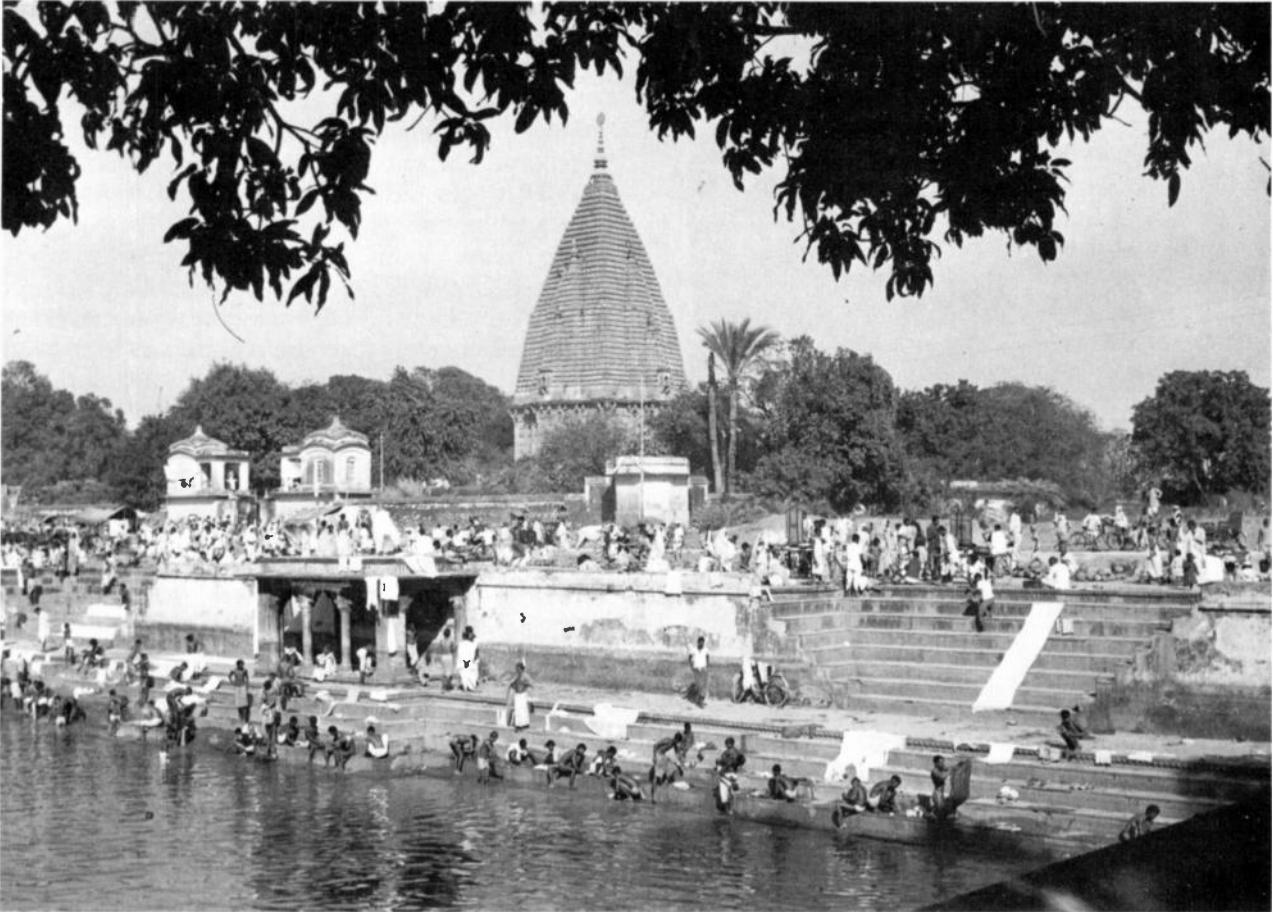


Figure 4. (South Asia, Ancient) Bathing pool and Hindu temple at Ramnagar. Banaras (Varanasi), India. The Bettmann Archive, Inc.

techniques of political organization, also spreading Indian notions of statecraft beyond the subcontinent.

The caste system. In order to understand how people communicate day to day in any age one must of course consider the language or languages they speak. However, when people talk with one another they do so within the context of a web of social rules that pattern the form, the content, and the occasions on which they communicate. Caste systems have pervaded societies throughout South Asia for much of its recorded history and are therefore a crucial aspect of INTERPERSONAL COMMUNICATION in the region. More than four-fifths of the people in South Asia are villagers; the outsider seeking to understand the network of communications within and among those villages could hardly find a better set of rules for the social, RITUAL, economic, and political relations than the caste system. Although most commonly associated with Hindus, caste and comparable hierarchical social systems can be observed among Nepalese Buddhists, Pakistani and Bangladeshi Mus-

lims, Sikhs and Christians in India, and Sri Lankans.

The beginnings of the caste structure in India can be traced to the centuries following the close of the Vedic period (ca. 600 B.C.E.). The Greek ambassador Megasthenes observed some of the formative principles of social grouping in India about 300 B.C.E.: endogamy (marriage within one's group), occupational specialization, and hereditary membership. Although there has been a tendency to portray the Indian caste system as static, it was not until the tenth or eleventh century that the system familiar in later centuries had fully developed. The waves of ancient migration and conquest had a role in shaping social hierarchies and caste systems.

The rules and regulations of caste (*jati*) traditionally determined whom one could eat with, whom one could marry, and which occupations were permitted and which forbidden to an individual. Because the concept of hierarchy is basic to the system, Hindu groups were ranked by criteria of ritual pollution and purity determined by the group's practices. Con-



Figure 5. (*South Asia, Ancient*) Khasarpana. Chaudar, Orissa-Ganga dynasty, India, twelfth century. 41-23-1 Philadelphia Museum of Art: Purchased: Joseph E. Temple Fund.

temporary studies indicate that other criteria such as power and wealth were also taken into consideration in determining caste ranking. Important as the caste system was in structuring individual and group relations in South Asia, it never entirely determined with whom and how people communicated. *Jati* restrictions were often very much relaxed, for example, when villagers harvested crops and in certain recreational activities. However, the network of relations that extended from the joint family through local caste affiliations and beyond to the regional level was

a primary mechanism through which cultural identity was fostered and maintained.

Pilgrimage. Pilgrimage has been a characteristic of religious practice among Hindus, Buddhists, and Jains in the region since the early stages of their self-definition. For Hindus in particular the length and breadth of the subcontinent is sacred territory demarcated by holy places of almost every imaginable kind: remote mountain temples, rivers, trees, caves, and city shrines. Whereas some pilgrimage sites are only locally known and frequented by members of one religious sect, others attract pilgrims from every corner of the subcontinent—every caste group, religious organization, and ascetic order. The sacred places at Banaras (now Varanasi), Brindavan, and Prayag are examples of the latter type.

A primary function of pilgrimages is to educate persons about theological, ritual, and mythological matters at the core of their religions. The urban centers of Banaras (Uttar Pradesh), Mithila (Bihar), and Taxila (Pakistan) were cherished sites of specialized education as well. Students from all over India lived there while enrolled in courses of Vedic study that might include logic, GRAMMAR, and astronomy as well as memorization of specific ritual material. However, introduction to new ideas was also likely to occur when pilgrims visited pan-Indian sites. Buddha, Mahāvīra, and the great Hindu philosopher-theologian Śāṅkara (ca. 788–820 c.e.) all visited Banaras to teach. At such major pilgrimage centers individual Hindus, Buddhists, and Jains not only would encounter fellow believers from other regions in whom they might observe many differences of languages, dress, and behavior; they also were likely to meet a variety of religious specialists and believers previously unimagined who were nevertheless united in their acknowledgment of the sanctity of the place. Because it was common practice for pilgrims to travel long distances in groups, undoubtedly the journey also served to strengthen local and regional identities in the face of such great diversity. Once contacts were established between India and China and between India and Southeast Asia, the circulation of religious ideas was maintained in part by pilgrims, particularly Buddhists, who traveled from various regions to Indian religious centers.

Monastic and cultural institutions. The major pilgrimage sites of India are one model of centers for the communication of important ideas; monastic and cultural institutions are another. Buddhist monasteries (viharas) were established throughout the subcontinent over the centuries following Buddha's death and functioned, in the words of one scholar, as "networks of acculturation and contact within the Indian subcontinent." The Buddhist monastic community (sangha) initially dwelled in small groups in cave hermitages that tended to be on major trade

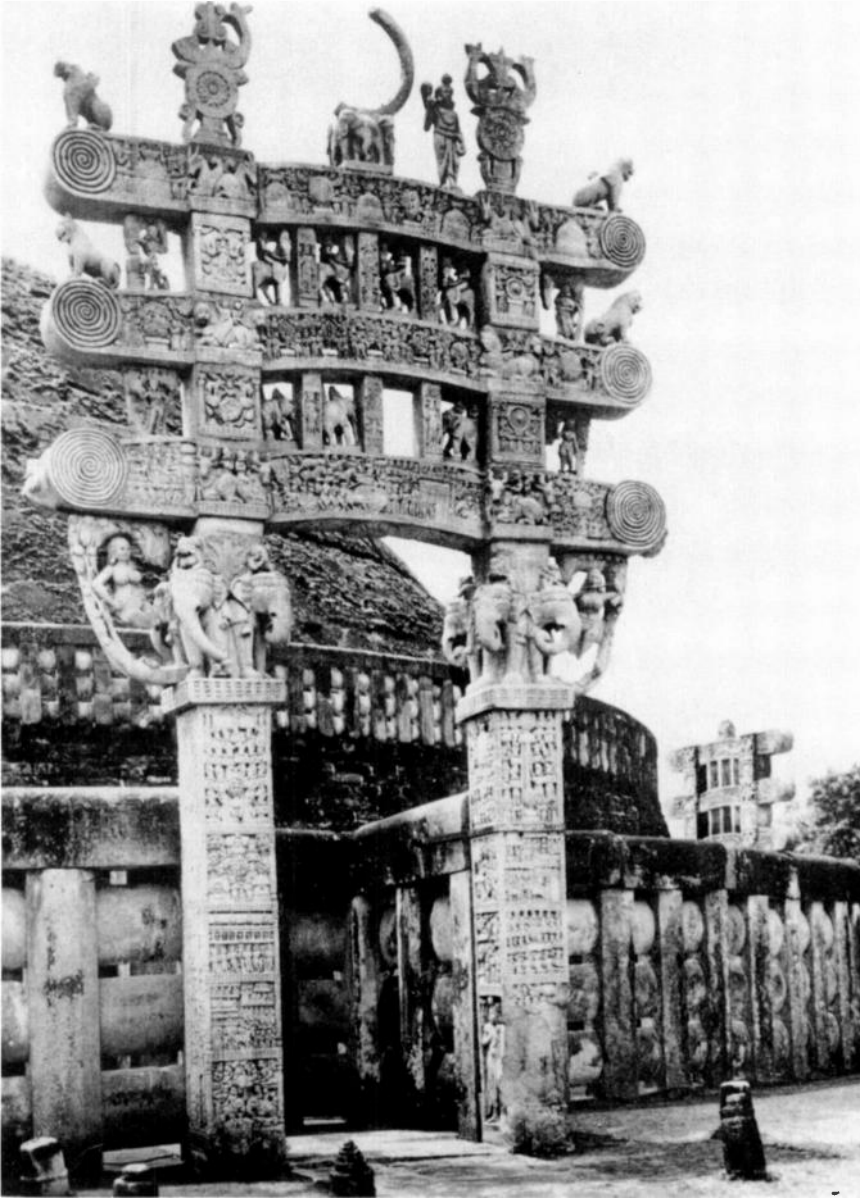


Figure 6. (*South Asia, Ancient*) Sāncī, India: The Great Stūpa. North gate, early first century C.E. From Heinrich Zimmer, *The Art of Indian Asia: Its Mythology and Transformations*, ed. by Joseph Campbell, Bollingen Series 39. New York: Bollingen Foundation, 1955, vol. 2, plate 7. Copyright 1955, © 1960 by Princeton University Press.

routes or near towns rather than in isolated areas. One famous example of these communities is the Ajanta caves in Maharashtra. A complex of some thirty caves hollowed out of granite cliffs between the first century B.C.E. and the seventh century C.E., Ajanta is treasured for several reasons. It is a valuable record of Buddhist architecture, sculpture, and painting over many centuries and a particular example of places in ancient South Asia where commercial, artistic, and religious enterprises intersected. Reciprocal relations among monks, nuns, and the laity are at the heart of Buddhist ethics and practice; therefore, through study of the growth of Buddhist monasticism and the activities of its members one important

dimension of communication in ancient South Asia emerges.

Eventually the monasteries developed into educational institutions as well as community centers of artistic and intellectual life. The Buddhist monastery at Nalanda in Bihar was perhaps the most widely renowned. Historians have described it as a thriving center of intellectual activity whose curriculum included philosophy, RHETORIC, and medicine. Most students at Nalanda were monks, some of whom had come from as far away as Java and China to study there.

Cultural relations between India and China from approximately the third to the eighth century C.E.

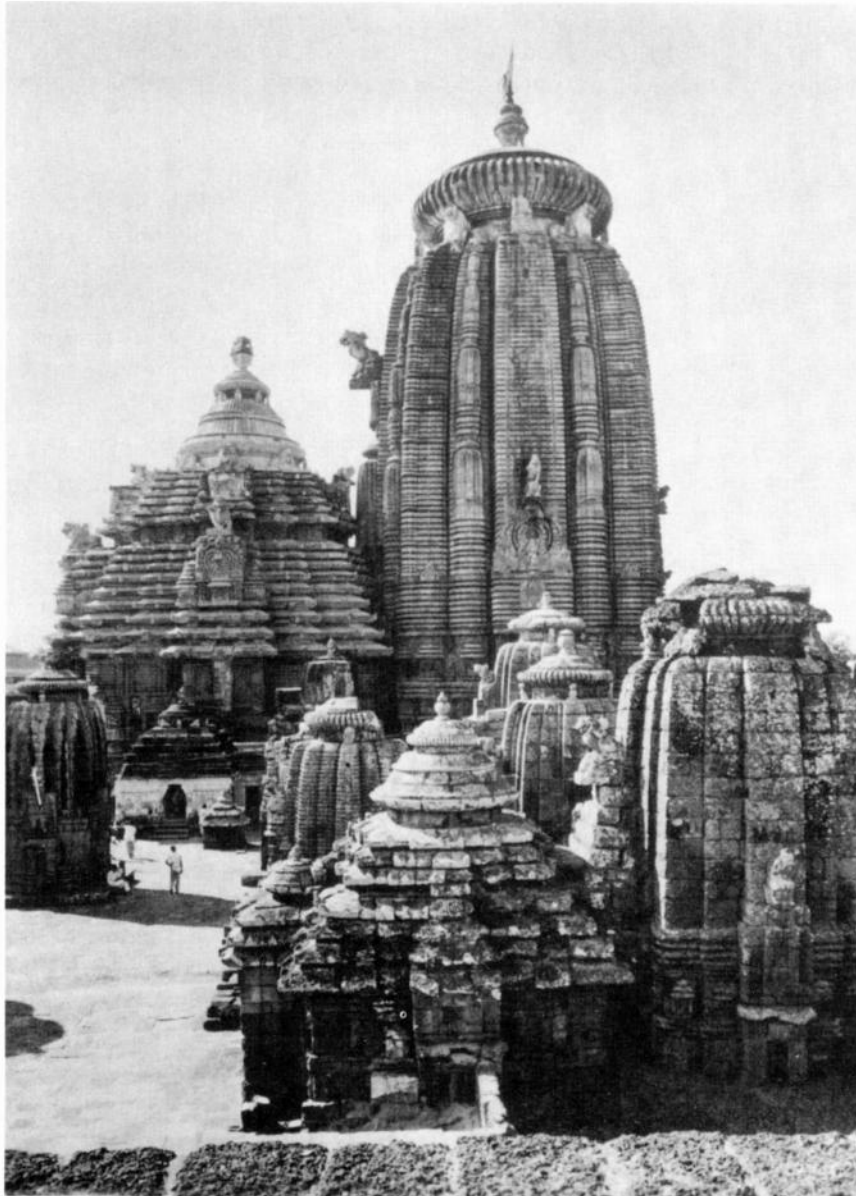


Figure 7. (*South Asia, Ancient*) Bhubaneswar, India: The Lingaraja Temple, ca. 1000 C.E. In the foreground are the gatehouse and assembly hall (Jagmohan), in the background a 180-foot tower (shikhara) over the shrine of the Tribhuvanavar. From Martin Hürlimann, *India*, New York: The Viking Press, 1967, plate 256. © Thames and Hudson, 1967.

were largely maintained by Chinese and Indian Buddhist monks. (Knowledge about the movements of Buddhist nuns during this period is too limited to allow historians to assert much about them.) Their spiritual and intellectual common interests carried them back and forth across overland trade routes through Central Asia and across sea routes between China's southeastern provinces via Indonesia and Sri Lanka to India's eastern coast. Records of travels kept by some of the Chinese pilgrims are invaluable sources of historical knowledge about ancient South Asia.

In a nation that is predominantly Hindu (about five hundred million in a 1983 population of some seven hundred million), Hindu temples have func-

tioned as important cultural centers since about the fourth century. In addition to being a chief center of the performing arts, the temple grounds often served as a sort of community center. During religious festivals people would congregate for performances of well-known story cycles by itinerant bards. On a more regular basis people might spend their leisure evening hours listening to a local temple priest recite and expound popular religious stories. *See also* ARCHITECTURE; ART; FESTIVAL.

When construction of brick and stone Hindu temples began (earlier sanctuaries had presumably been built from perishable materials) there was a corresponding development in the production of sculptural representations of divine and semidivine

beings for the shrines and exterior walls of the temples. As one scholar has noted, the images were both "visual theologies" and "visual scriptures" in which Hindus could read religious doctrines and myths.

Other art forms also flourished, in part through royal patronage. Acts of devotion, for example, might include music and dance performances to entertain a deity. Religious festivals remain the most important public occasions for the theatrical and dance performances that with each new performance ensure the continuity of these ancient means of communicating cultural values.

The art forms and stylistic conventions nurtured in the temples (and the courts) of ancient India spread throughout South and Southeast Asia in ancient times. Their creative stimulus precipitated the development of some of the world's artistic masterpieces; the architectural monuments at Borobudur (Java) and Angkor (Kampuchea) are only two spectacular examples among many of the worldwide impact of South Asian forms and concepts.

Bibliography. Brenda E. F. Beck, *The Three Twins: The Telling of a South Indian Epic*, Bloomington, Ind., 1982; Surinder Mohan Bhardwaj, *Hindu Places of Pilgrimage in India: A Study in Cultural Geography*, Berkeley, Calif., 1973; T. Burrow, *The Sanskrit Language*, 3d ed., London, 1973; Edward C. Dimock, Jr., et al., eds., *The Literatures of India: An Introduction*, Chicago, 1974; Diana L. Eck, *Banāras: City of Light*, New York, 1982; John S. Hawley, *At Play with Krishna: Pilgrimage Dramas from Brindavan* (trans. from Braj), Princeton, N.J., 1981; R. C. Majumdar, ed., *History and Culture of the Indian People*, 11 vols., London, 1952–1965; David G. Mandelbaum, *Society in India*, 2 vols., Berkeley, Calif., 1970.

BARBARA GOMBACH

SPACE, PERSONAL. See INTERPERSONAL DISTANCE.

SPATIAL ORGANIZATION

The influential work of U.S. psychologists Roger Barker and Herbert Wright, published in 1955, has inspired a considerable amount of theoretical, experimental, and observational research on relationships between the environment and behavior. These studies have been carried out within the frameworks of human ETHOLOGY, social and environmental psychology, PROXEMICS, and the sociology of face-to-face interaction (see INTERACTION, FACE-TO-FACE), as well as environmental design and ARCHITECTURE.

ERVING GOFFMAN observed that everyday social occasions involve a number of static and mobile participants and have a distinct spatial organization. These occasions can include such events as dinner

parties, lectures, church services, court proceedings, weddings, demonstrations and riots, football matches, and parliamentary sessions. The spatial patterning observable at these events is a result of the intricate coordination of participants' placements, locomotory movements, interpersonal orientations and spacings, and postures and territorial claims. Individual and group spatial behaviors are not arbitrary or haphazard. They depend on the nature of the social occasion and the number of participants in it. In addition the spatial organization of social encounters reflects the spatial patterning of the physical context.

Hierarchical Structure of Spatial Contexts

Human affairs commence, unfold, and conclude in spaces with marked hierarchical organization. Whatever people do in one another's presence is always situated within an elaborate framework of nested environmental contexts. The most prominent of these is the *setting*, or that portion of the environment immediately accessible to its users' unaided senses and ordinary locomotory movement. Gardens, streets, supermarkets, airplane cabins, kitchens, and bedrooms are all examples. Settings usually acquire their own characteristic clientele and their own repertoire of usual behaviors. Thus parks in Australian cities tend to be entered by groups consisting mostly of females, whereas downtown pedestrian plazas tend to be frequented by individuals, the majority of whom are men. Further, roughly similar numbers of park users sit, stand, and walk, but over two-thirds of the people in plazas are walking, and the remainder consists of equal numbers of those sitting and standing.

Within a setting one can distinguish several *locations*. For instance, people at a swimming pool may place themselves around the pool or in the water, near its edges or away from them. The choice of a location within a setting often influences both the adopted INTERPERSONAL DISTANCE and the nature of the individual and group activities. Thus in Australian urban parks people on and around the benches tend to converse, eat, and drink, whereas those on the unfurnished lawns play games, sunbathe, and read. In both types of locations separate groups of people are usually distributed well apart, whereas in the parks' paths and roads—that is, locations used exclusively for walking—the space between groups of strangers is not as great.

Within each location a whole range of possible *placements* can be distinguished. For instance, a pair of students who decide to sit at a rectangular table in a library reading room may choose among chairs that provide different types of interpersonal orientation (face-to-face, side-by-side, corner, diagonal, distant). Again the choice of placement within a

location is often highly significant. For example, U.S. psychologist Robert Sommer has found that people sitting side by side or at a diagonal or distant arrangement are less likely to enter a sustained CONVERSATION than ones in a corner or face-to-face arrangement. Furthermore, people who sit far apart from each other are less likely to initiate conversational exchanges than those who sit at a shorter distance.

Types of Environmental Features

The size, shape, and functional properties of settings, locations, and placements are delineated and signaled by three types of environmental features. Some of these features (e.g., trees, fences, curbs, walls) are *fixed*. They constitute a well-defined and rather unmovable boundary. Other environmental features, such as furniture, floor coverings, curtains, and screens, are *semifixed*. Usually they are left undisturbed, although they can be rearranged in the course of a given interaction. Finally, pools of light and darkness, the flow of passersby and vehicles, and the spatial claims and placements of gatherings and individuals represent *dynamic* and negotiable features of the environment.

Environmental features impose some form of sensory and locomotor restrictions: a theater curtain usually restricts visual contact between the stage and the audience, although it may allow some passage of sound. Other features, such as a garden fence, ha-ha (concealed) walls, and bushes, may permit a relatively easy flow of sensory data yet still limit a visitor's access. In other words, settings, locations, and placements are defined by various artificial and natural structures that restrict the flow of sensory data among the interacting parties and by the distances that render such a flow ineffective. Boundaries impervious to human senses form areas that can be used for separate occasions and activities. On the other hand, permeable boundaries allow gatherings to maintain separate integrity and yet retain communication with the surrounding environment.

Behavioral Properties of Environmental Features

Environments thus tend to differ in textures, firmness of boundaries, shape, and size as well as furnishings, ambience, and decor. These differences have consequences for the kinds of human activities that are preferred in such spaces.

Firm floor surfaces (e.g., pavements, parquet floors, concrete slabs) are viewed as congenial to walking, manual work, and sport exercises. Soft textures (e.g., carpets, grass, or beach sand) are preferred for sitting and lying down. Rough surfaces (e.g., rockeries, flower

beds, or plowed fields) tend to act as obstacles to movement, though they are quite acceptable for manual work, play, or exploration.

In terms of shape, narrow spaces (e.g., doorways, corridors, staircases, paths, bridges, and pavements) are associated with passage. Broad areas, on the other hand (e.g., theater foyers, lecture rooms, and pedestrian plazas), are associated with stationary and relatively sustained gatherings. As Sommer pointed out, the shape of a setting can influence the way people orient themselves in it. Thus in round or squarish spaces (e.g., chapels, circuses, and sport arenas) people tend to place themselves around the perimeter and orient their bodies toward the center so that they create a joint focus of attention for all participants in the social occasion (sociopetal space). However, in irregular or rectangular spaces (e.g., lecture rooms, churches, or cinemas) people often occupy the center and orient themselves away from one another toward various objects placed throughout the area (as in a sculpture gallery) or structures (e.g., a rostrum, altar, screen) at one end of the setting (sociofugal space).

The size of a setting is significant. Small, confined spaces (e.g., telephone booths, toilets, and elevators) discourage both the movement of users and the formation of sustained face-to-face encounters. Social transactions initiated there tend to be transferred to more spacious places. However, very large areas are equally discouraging to social interactions. Thus people prefer places whose dimensions do not exceed the upper limits of comfortable and casual visual and acoustic monitoring of other people's presence. The attractiveness of a setting depends also on the relative number of people within a given area. One study has shown that pedestrians avoid outdoor spaces that, because of size or small number of users, offer more than three hundred square feet per person. Spaces with greater densities are entered on a frequent and regular basis.

The spatial arrangements of objects such as chairs and tables in restaurants; pews in a cathedral; and armchairs, coffee tables, and television set in a suburban living room are also influential. These fixed and semifixed arrangements of furniture act as templates that impose a definite spatial order on the occasionally spontaneous and thus unpredictable events that occur around them. For example, thick and meandering queues become straight and reduced to a single file as soon as they enter narrow passages formed by railings and walls. People who are equals in their interactional roles (e.g., those in conversational gatherings or card games) spontaneously create circular and square arrangements. Their equality may be reinforced by the presence of chairs spaced evenly around a square or round conference table,

or, alternatively, it may be attenuated or destroyed by placing people at rectangular or horseshoe-shaped tables.

The impact of environmental features on people's spatial distribution within a place can be seen in less obvious situations. When people enter public settings, they usually cluster close to fixed features (no further away than a couple of feet) and avoid placing themselves in the middle of an open area or near other gatherings. Furthermore, features of the environment seem to affect the size of territorial claims. Stationary gatherings tend to appropriate larger interactional areas in places with relatively few users than in more densely occupied places or places close to fixed environmental features. It appears that walls, trees, and litter bins as well as stationary gatherings are used as indicators of the perimeter of the interactional territories people claim for the duration of a given social occasion. They seem to help people reach tacit agreement on how much of the setting is currently available for their use and movement, thus reducing stressful misunderstandings about the proxemic rules applicable to a given location and setting.

Transformations of the Spatial Contexts

Spatial contexts not only are complex but also change continuously. In the course of social occasions people have a tendency to modify, redecorate, and rearrange at least some of the physical features present. Even small children playing quietly in a schoolyard are capable of transforming that homogeneous space into an elaborate world of mazes and hopscotches created with ordinary chalk. This redefined space can enforce a tight control on the children's spacing and movement for the next hour or so.

Although fixed and semifixed environmental features are the most visible and tangible ones, the majority of transformations in the structure of the environment are caused by the way people distribute themselves within it. Thus at Sydney's Bondi Beach four occupancy zones are regularly established in the otherwise uniform expanse of sand. Young male surfers routinely occupy one of the ends of the beach. Next to them young to middle-age male and female swimmers sit, sunbathe, and enjoy the water. In the next area topless young women sunbathe. The remainder of the beach is populated by families with small children and the elderly.

In fact all environments are subject to explicit and implicit negotiation about their segmentation into bounded areas. Such subdivisions not only regulate patterns of human spacing within the setting and within the location but also serve an important communicational role. The various subdivisions of a setting and a location supply the interacting parties

with a rich range of contextual and indexical information necessary for the smooth functioning of any social occasion.

Conclusions

Spatial contexts of human interactions are seldom inert, simple, or inflexible. They are influenced, structured, and defined by countless human actions through which some type of territorial and behavioral relationship between a given set of users and their physical and human context is claimed, marked, respected, challenged, defended, or otherwise acknowledged. Thus every place derives its unique appearance, layout, and character from patterns of events that occur there most often. Yet simultaneously, spaces invariably influence, structure, and define the anticipations, perceptions, and actions of people present there. Therefore, the spatial organization of interpersonal events is always anchored in the patterns of space surrounding those events. The extent to which there is congruity and scope for mutual support and reinforcement between the two is, according to Christopher Alexander, the ultimate measure of the environment's quality.

Bibliography. Christopher Alexander et al., *A Pattern Language: Town, Buildings, Construction*, New York, 1977; Roger G. Barker and Herbert F. Wright, *Midwest and Its Children*, New York, 1955, reprint Hamden, Conn., 1971; Erving Goffman, *Behavior in Public Places: Notes on the Social Organization of Gatherings*, New York, 1963; idem, *Relations in Public: Microstudies of the Public Order*, New York, 1971; Edward T. Hall, *The Hidden Dimension*, New York, 1966; Harold Proshansky, William H. Ittelson, and Leanne G. Rivlin, *Environmental Psychology: People and Their Physical Settings*, 2d ed., New York, 1976; Amos Rapoport, *Human Aspects of Urban Form: Towards a Man-Environment Approach to Urban Form and Design*, Oxford and New York, 1977; Albert E. Schefflen and Norman Ashcraft, *Human Territories: How We Behave in Space-Time*, Englewood Cliffs, N.J., 1975; Robert Sommer, *Personal Space: The Behavioral Basis of Design*, Englewood Cliffs, N.J., 1969.

T. MATTHEW CIOLEK

SPEAKING, ETHNOGRAPHY OF

An approach to the relationship among LANGUAGE, CULTURE, and society that includes both theoretical and methodological perspectives. It is a description in cultural terms of the patterned uses of language and SPEECH in a particular group, institution, community, or society that includes native theories and practices of speaking, both as overtly articulated by

individuals and as enacted by them in a range of activities, situations, and interactions.

More specifically the ethnography of speaking is concerned with

1. The sociolinguistic resources available in particular communities. Such resources include not just GRAMMAR in the conventional sense but rather a complex of linguistic potentials for social use and social MEANING, among which are linguistic variables, styles, terms of reference and address, and words and word relations.
2. The use and exploitation of these resources in discourse (speech acts, events, and situations) and in social interaction (agreeing, disagreeing, showing deference or respect, greeting, cajoling).
3. The patterned interrelationships and organization of the various types of discourse and social interaction in the community.
4. The relationship of these patterns of speaking to other aspects and domains of the culture of the community, such as social organization, RELIGION, economics, and politics.

A complete ethnography of speaking would deal with each of these topics. Most research and publications, however, tend to focus on particular ones: the description of linguistic resources, organized as styles or ways of speaking (men's versus women's speech, baby talk); the analysis of particular speech events (greetings, drinking encounters); or the role of speaking in a particular segment of social or cultural life (politics, religion).

Origins. The ethnography of speaking as an approach began in the early 1960s when U.S. linguistic anthropologist Dell Hymes published a series of papers calling for ways to study language and speech that dealt with aspects of language use that fall between or otherwise escape established disciplines such as anthropology, LINGUISTICS, and sociology. Essentially his argument was that language and speech have a patterning of their own, as do social organization, politics, religion, and economics, and therefore merit attention by anthropologists. This patterning is not identical to the grammar of a language in the traditional sense, yet is linguistic as well as cultural in organization and thus merits attention by linguists.

Hymes introduced the notion of the speech event as central to the ethnography of speaking and argued that analysis of speech events requires study of the interrelationships among a number of components or factors: settings, participants, purposes, verbal or textual organization in terms of constituent acts, key or manner of delivery, linguistic varieties used, norms of interaction, and genres. The careful study of these components of speaking in their own terms, with regard to both terminology and patterned organization, and of the relationship between the functions

of speech and these components leads to a description that captures each society's unique cultural organization of language and speech.

Collections of papers published in the middle and late 1960s and early 1970s helped to develop this field. These papers described aspects of language and speech typically overlooked or treated as secondary or marginal by anthropologists, sociologists, and linguists. Some of their titles are indicative of their focus: "Baby Talk in Six Languages," "How to Ask for a Drink in Subanon," "Sequencing in Conversational Openings," "Signifying and Marking: Two Afro-American Speech Acts," and "Social Meaning in Linguistic Structures: Code-Switching in Norway."

In the 1970s a new group of researchers focused their attention on particular societies around the world with the specific goal of conducting research in the ethnography of speaking. This research has led to a number of dissertations, articles, and books. Once again, some titles are illustrative: *A Musical View of the Universe: Kalapalo Myth and Ritual Performances*, *Kuna Ways of Speaking: An Ethnographic Perspective*, *Let Your Words Be Few: Symbolism of Speaking and Silence among Seventeenth-century Quakers*, *Portraits of "The Whiteman": Linguistic Play and Cultural Symbols among the Western Apache*, *Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression*, and *The Invisible Culture: Communication in Classroom and Community on the Warm Springs Indian Reservation*.

Characteristics and foci of research. While research in the ethnography of speaking continues to be based on its original assumptions and goals, certain specialized foci have also emerged. These include intercultural and interethnic communication and miscommunication, the traditional verbal art of non-literate peoples, the relationship between oral and written discourse, the acquisition of communicative competence, and language use within modern complex societies and in such institutional settings as education. See also LANGUAGE ACQUISITION; LANGUAGE VARIETIES; ORAL CULTURE; ORAL HISTORY.

The research methods of the ethnography of speaking integrate those of sociolinguistics and those of social and cultural anthropology. From sociolinguistics is borrowed the assumption of a heterogeneous speech community and the concern with collecting and analyzing a selection of representative forms of speech within this heterogeneity. From social and cultural anthropology is adopted the assumption of cultural relativity, the concern with discovering an *emic* or native insider's point of view, and the need to elicit and analyze native terms and concepts for ways of speaking. Also anthropological is the ethnographic method of constant INTERPRETATION, of relating ways of speaking to each other and situating

them in social and cultural contexts from which they derive meaning and to which they contribute meaning.

One special feature of the ethnography of speaking is that it is discourse centered. It studies the speech acts, events, and situations—everyday and informal as well as formal and RITUAL—that constitute the social, cultural, and especially verbal life of particular societies. This involves attention to the relationship between text and context and among transcription, translation, analysis, and theory. Discourse is considered the focus of the language-culture-society-individual relationship, the place in which culture is conceived and transmitted, created and re-created.

The basic theoretical contribution of the ethnography of speaking is the demonstration that there are coherent and meaningful patterns in language use and speaking practices in societies around the world and that there are significant cross-cultural differences in these patterns. The role of language in society cannot be taken for granted, intuited on the basis of one's own experience, or projected from a single language, culture, or society onto others.

Bibliography. Ellen B. Basso, *A Musical View of the Universe: Kalapalo Myth and Ritual Performances*, Philadelphia, 1985; Keith H. Basso, *Portraits of "The Whiteman": Linguistic Play and Cultural Symbols among the Western Apache*, Cambridge and New York, 1979; Richard Bauman, *Let Your Words Be Few: Symbolism of Speaking and Silence among Seventeenth-Century Quakers*, Cambridge and New York, 1983; Richard Bauman and Joel Sherzer, eds., *Explorations in the Ethnography of Speaking*, Cambridge, 1974; Steven Feld, *Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression*, Philadelphia, 1982; John J. Gumperz, *Discourse Strategies*, Cambridge, 1982; John J. Gumperz and Dell Hymes, eds., *Directions in Sociolinguistics: The Ethnography of Communication*, New York, 1972; idem, *The Ethnography of Communication* (special publication), *American Anthropologist* 66, no. 6, pt. 2 (1964); Dell Hymes, *Foundations in Sociolinguistics: An Ethnographic Approach*, Philadelphia, 1974; Susan U. Philips, *The Invisible Culture: Communication in Classroom and Community on the Warm Springs Indian Reservation*, New York, 1983; Joel Sherzer, *Kuna Ways of Speaking: An Ethnographic Perspective*, Austin, Tex., 1983.

JOEL SHERZER

SPECIAL EFFECTS

Nonroutine photographic and mechanical techniques used to produce motion picture images that are too costly, too difficult, too time-consuming, too dangerous, or simply impossible to achieve by means of conventional CINEMATOGRAPHY (Figure 1). Applications of these techniques are numerous and are lim-

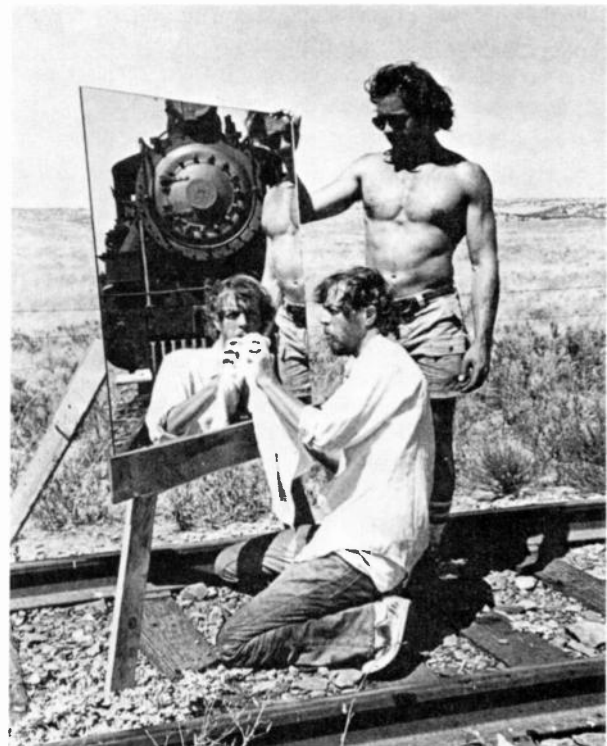


Figure 1. (*Special Effects*) In the television-film production of *Cosmos* (1980) a locomotive seems to run directly into the camera but actually is driven into a large mirror positioned at a forty-five-degree angle to the train tracks and to the optical axis of the camera. Raymond Fielding Collection. Courtesy of American Cinematographer.

ited only by imagination and the requirements of a particular film production. The effects produced may be as simple as the fade-ins, fade-outs, dissolves, wipes, and other transitions that are used to indicate changes in time and place. Or they may be as complicated as the destruction of a building or of an entire city; the addition of a vaulted ceiling to a ballroom scene; the removal of trees, buildings, or other background detail from a cluttered picture; the addition of clouds or architectural detail to enhance a dull scene; the jigsawing of an actor who is photographed on the sound stage into a background scene that has been photographed many miles distant; the production of gunshot bullet hits, explosions, rain, fog, mist, snow, and ice; the creation of phantom images of people or objects; the sinking of a full-scale naval vessel during a storm at sea; the levitation of solid objects in defiance of the law of gravity; or the re-creation of seventeenth-century London. These and other kinds of assignments call for the use of so-called special effects, the general term embracing photographic effects (sometimes called visual effects, special cinematographic effects, or process photography), mechanical effects such as the use

Table 1. Visual Effects Techniques

<i>In-the-Camera Techniques</i>
Basic effects
• Changes in object speed, position, or direction
• Image distortions and degradations
• Optical transitions
• Superimpositions
• Day-for-night photography
Image replacement
• Split-screen photography
• In-the-camera matte shots
• Glass shots
• Mirror shots
Miniatures
<i>Laboratory Processes</i>
Bi-pack printing
Optical printing
Traveling mattes
Aerial-image printing
<i>Combination Techniques</i>
Background projection
• Rear projection
• Front projection

of reduced-scale models, and effects made possible by VIDEO and computer technology.

Visual Effects

Visual effects techniques can be classified as comprising (1) in-the-camera effects, whereby all the components of the final scene are photographed on the original camera negative; (2) laboratory processes, whereby duplication of the original negative through one or more generations is necessary before the final effect is produced; and (3) combinations of the two, some of the image components being photographed directly onto the final film composite while others are produced through duplication procedures (see Table 1).

Special effects cinematography has been employed since the earliest days of motion picture production. Some techniques, such as split-screen, photo-matte, and double-exposure, were adapted from nineteenth-century still PHOTOGRAPHY. Shots such as these appear in Edwin S. Porter's 1903 classic, *The Great Train Robbery*, in which, first, a locomotive train is seen through a window from the interior of a train station's office as the train pulls into the station, and, second, an exterior wooded scene is seen through an open door in a baggage car. In the language of the

special effects worker, the images of the locomotive and wooded background were "matted into" the areas of the train station's window and the baggage car's door.

Other techniques, such as stop-motion photography, were intrinsic to the filmic process and were discovered by different workers throughout the world. Just before the turn of the century, Alfred Clark in the United States and Georges Méliès in France were among the first to discover that by alternately stopping and starting the camera they could achieve mysterious appearances and disappearances of people and objects in the frame, as well as to make inanimate objects move across the frame of their own volition, the objects being moved incrementally by the filmmakers between the exposure of individual frames of film. This technique, known as stop-motion or single-frame cinematography, was also the technique that would be employed after the turn of the century to produce the first animated cartoons. See ANIMATION; MOTION PHOTOGRAPHY; MOTION PICTURES.

Many early filmmakers photographed primitive miniature shots, employing reduced-scale models of ships, harbors, volcanoes, cities, buildings, and the like, for exciting, albeit crude, scenes of disaster and destruction. From the beginning special effects techniques were called upon to produce spectacular, fantastic, and obviously impossible scenes of the imagination. With the passing of time, however, they were just as often used to produce believable but difficult-to-photograph scenes at a lower cost or with less time and effort than would have been involved by conventional cinematographic techniques.

Modern high-quality special effects techniques can be said to have originated with the work of U.S. filmmaker Norman Dawn, who was the first known cinematographer to produce high-quality glass shots. This technique calls for certain aspects of the finished scene (such as the roof or upper stories of a building) to be painted onto a large sheet of glass that is positioned in front of the camera. The full-scale sets and the live-action performers seen *through* the glass and the painted elements on the *surface* of the glass are photographed simultaneously. If the painting is artfully executed, the two elements will fit as if they belong together. This technique was used by Dawn as early as 1907 for his production of *Missions of California*. Dawn also invented, patented, and popularized the so-called in-the-camera matte shot (also known as a painted matte), which requires successive exposures of matted-out areas of the image. He employed it for the first time in 1911 on his production of *Story of the Andes*.

Optical printing, the process of rephotographing a strip of film optically, frame by frame, did not become feasible until the introduction of modern fine-

grain duplicating film stocks in the late 1920s and early 1930s. In time the optical printer became the most versatile of all special effects tools, allowing for an unlimited number and variety of image modifications and time-space distortions. Prominent in the development of this technology were engineers like Cecil Love and special effects supervisors such as Linwood Dunn, who created many of the astonishing special effects for *King Kong* in 1933 (Figure 2) and *Citizen Kane* in 1941.

The introduction of sound to film in the late 1920s placed a premium on special effects techniques that would allow one to photograph actors within an acoustically isolated sound stage and then to insert their images into background scenes that had been photographed elsewhere. The technique of rear projection, although used in crude fashion at least as early as 1913 by Dawn, could not be developed in any practical way until the introduction in the late 1920s and early 1930s of modern, relatively high-

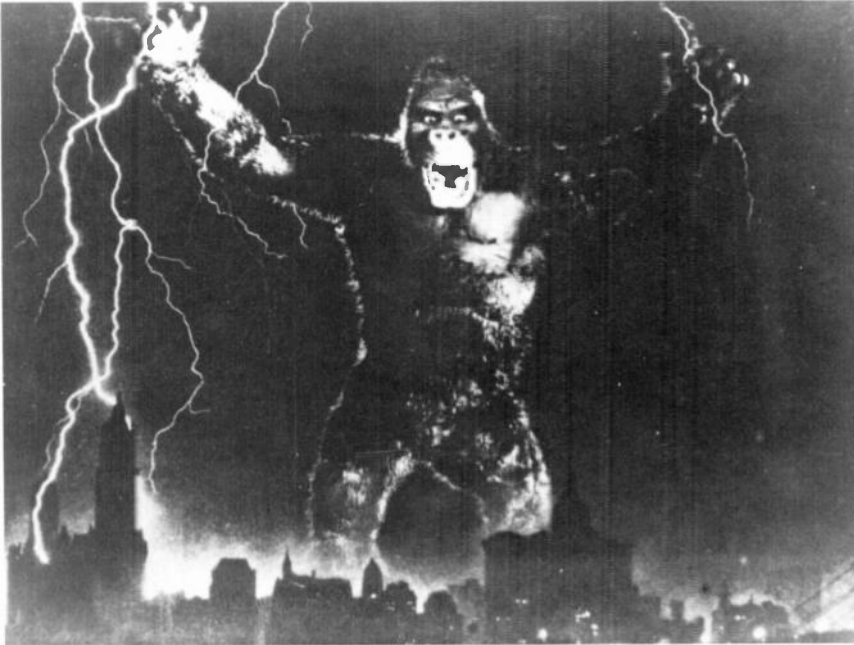


Figure 2. (*Special Effects*) Merian C. Cooper and Ernest B. Schoedsack, *King Kong*, 1933. Courtesy of the Amos Vogel Collection/RKO Pictures, Inc. Copyright © 1933, renewed 1960 RKO Pictures, Inc. All rights reserved.

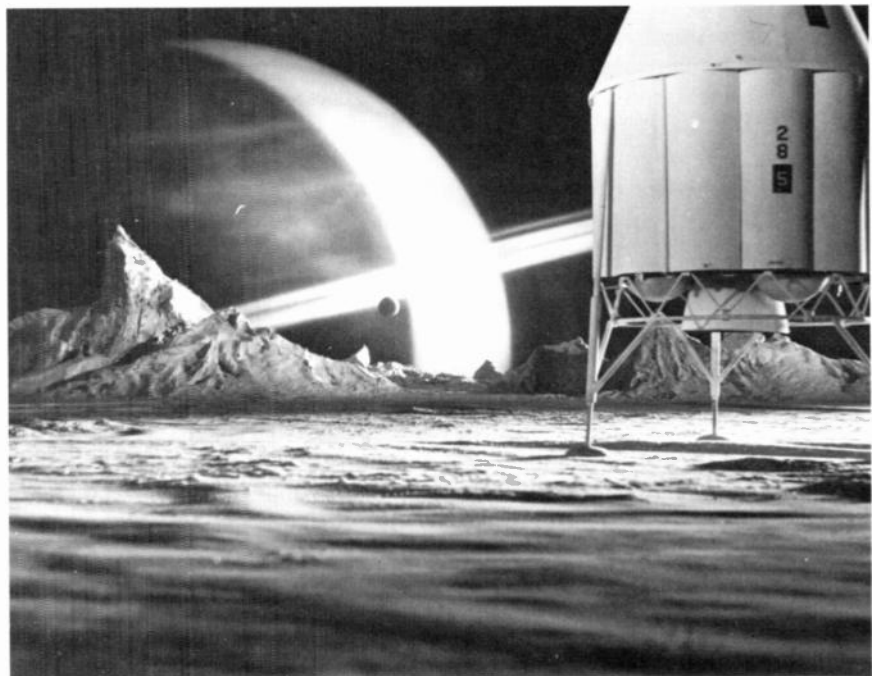


Figure 3. (*Special Effects*) A composite of miniatures and a rear-projected background. Raymond Fielding Collection/National Film Board of Canada.

speed panchromatic stocks and electrically interlocked motors. Over the years and through the efforts of workers such as Farcior Edouart at Paramount, the process was refined to the point that Technicolor film productions like *Dr. Cyclops* (1940) employed as many as three interlocked background projectors. After World War II a variation of the system called front projection was introduced by the Motion Picture Research Council in association with the Minnesota Mining and Manufacturing Corporation. Today both front- and rear-projection techniques are commonly used to solve a variety of production problems (Figure 3).

Still another technique for inserting actors into background scenes, the traveling matte, became available in crude form in the late teens and early twenties and has been continuously developed since that time. It requires photographing the actor in front of a white, black, or blue backing and the subsequent production of various strips of film that either obscure or reveal particular parts of the background and foreground images during successive duplications on an optical printer (Figure 4). The technique is extremely complicated but can produce filmic and dramatic effects that are impossible to produce by other means.

Electronic, Computerized Effects

The availability of sophisticated computer technology and the gradual marriage of film and video technique during the 1970s and 1980s have provided special effects workers with an entirely new set of techniques and tools. So-called motion-control systems allow for rephotographing, on separate strips of film, the various components of a composite image by a camera capable of being moved repeatedly through complicated maneuvers. The various camera movements are controlled by computers, and the separate strips of film are later composited through optical printing. Such equipment made feasible the production of immensely successful science fiction films such as *2001* (1968; Figure 5), *Star Wars* (1977), and *Close Encounters of the Third Kind* (1977).

A set of even more electronically sophisticated tools, which became available to filmmakers in the 1980s, enables filmmakers to combine computerized, animated graphic images with live-action scenes. Technologically important films of the 1980s, such as *Tron* and *The Last Starfighter*, incorporated hundreds of shots whose fantastic images were either partly or completely produced by computers. Television commercials and music videos soon began to make wide use of such techniques. By this time prototype electronic optical printers had begun to appear that were capable of achieving the high image quality associated with film production while offer-



a



b



c

Figure 4. (*Special Effects*) The traveling-matte technique. (a) An actor is photographed so as to allow for production of a traveling matte of his figure. (b) A background printing mask, or counter-matte, is prepared through step-contact or step-optical printing. (c) During composite optical, the separate foreground and background images are combined. This shot involves miniatures, a static matte-painting, a partially completed full-scale set, a foreground actor, and a traveling matte. Raymond Fielding Collection/National Film Board of Canada.

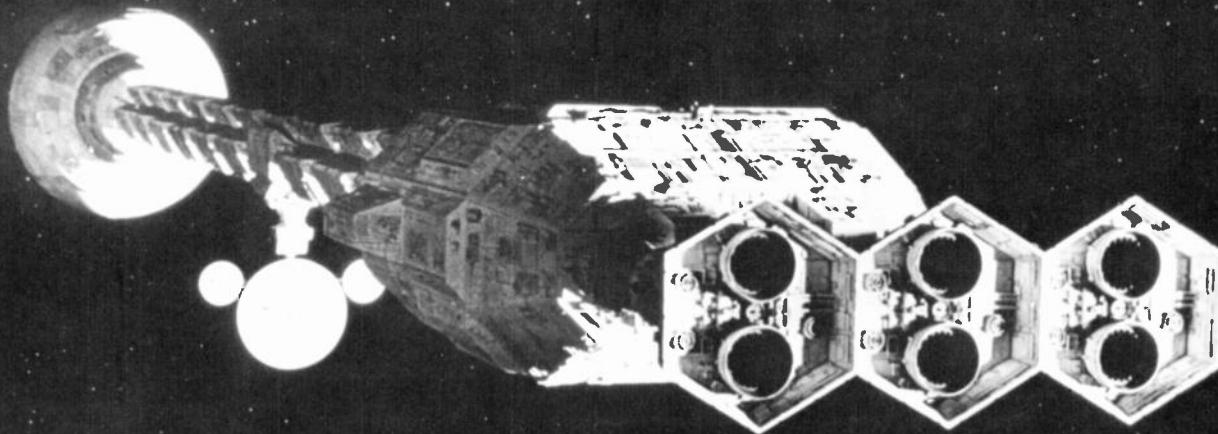


Figure 5. (*Special Effects*) Stanley Kubrick, 2001: *A Space Odyssey*, 1968. National Film Archive, London/Turner Entertainment.

ing the convenience, flexibility, and speed of operations associated with video production.

See also FILM EDITING.

Bibliography. Linwood Dunn and George Turner, *The ASC Treasury of Visual Effects*, Hollywood, Calif., 1983; Raymond Fielding, *The Technique of Special Effects Cinematography*, 4th ed., London and Stoneham, Mass., 1985; Christopher Finch, *Special Effects: Creating Movie Magic*, New York, 1984.

RAYMOND FIELDING

SPECTACLE

A large-scale, extravagant cultural production that is replete with striking visual imagery and dramatic action and that is watched by a mass audience. The spectacle is especially characteristic of modern societies, socialist and capitalist, but is also found in traditional societies significantly affected by modern influences. It is arguable that spectacle has surpassed religious RITUAL as the principal symbolic context in which contemporary societies enact and communicate their guiding beliefs, values, concerns, and self-understandings (*see also* RELIGION).

The repertoire of spectacles is vast, but the most familiar examples come from the field of SPORTS. The greatest of all spectacles is probably the Olympic Games, which attract tens of thousands of participants, live audiences of two to three million persons, and media audiences estimated to number a third of the world's total population. World Cup soccer matches also draw huge live and television audiences, as do, in the United States, championship and other

"classic" games in professional baseball and football, college football, and various other sports ranging from golf through horse and stock car racing. When the magazine *Sports Illustrated* was started in 1954, it included a photographic section called "Spectacle," which in its prospectus stated, "Sport . . . is magic to the eye. It lingers in the life-long treasury of vision."

Other cultural productions commonly described as spectacle include various festivals (carnivals; *fast-nachts*; saint's-day fiestas; ethnic, regional, and national celebrations), public entertainment extravaganzas (rock concerts, country music jamborees), exhibitions (national and world's fairs, action-centered theme and amusement parks), civic and political ceremonies (presidential inaugurations, royal coronations, party leadership conventions, opening of Parliament, Soviet May Day parade), and special religious events (papal visits, pilgrimages, large evangelical crusades). A common feature of these phenomena is that the central dramatic event is surrounded by other events and attractions that are seen as significant components of the total occasion: pomp and pageantry, parading and partying, sideshows of all kinds—including CROWD BEHAVIOR. It is for this reason that spectacles typically take place, in whole or in part, outdoors. Indoor settings are spatially too restrictive to allow sufficient ancillary activities. Notable exceptions include the three-ring circus, where the "stage" is designed to encompass a varied assortment of visual attractions. *See also* FESTIVAL.

Etymologically, the English word spectacle derives from the Latin *spectare*, "to look." In general, dictionaries define the term as (1) a sweeping, visually impressive public event, and (2) a person or thing

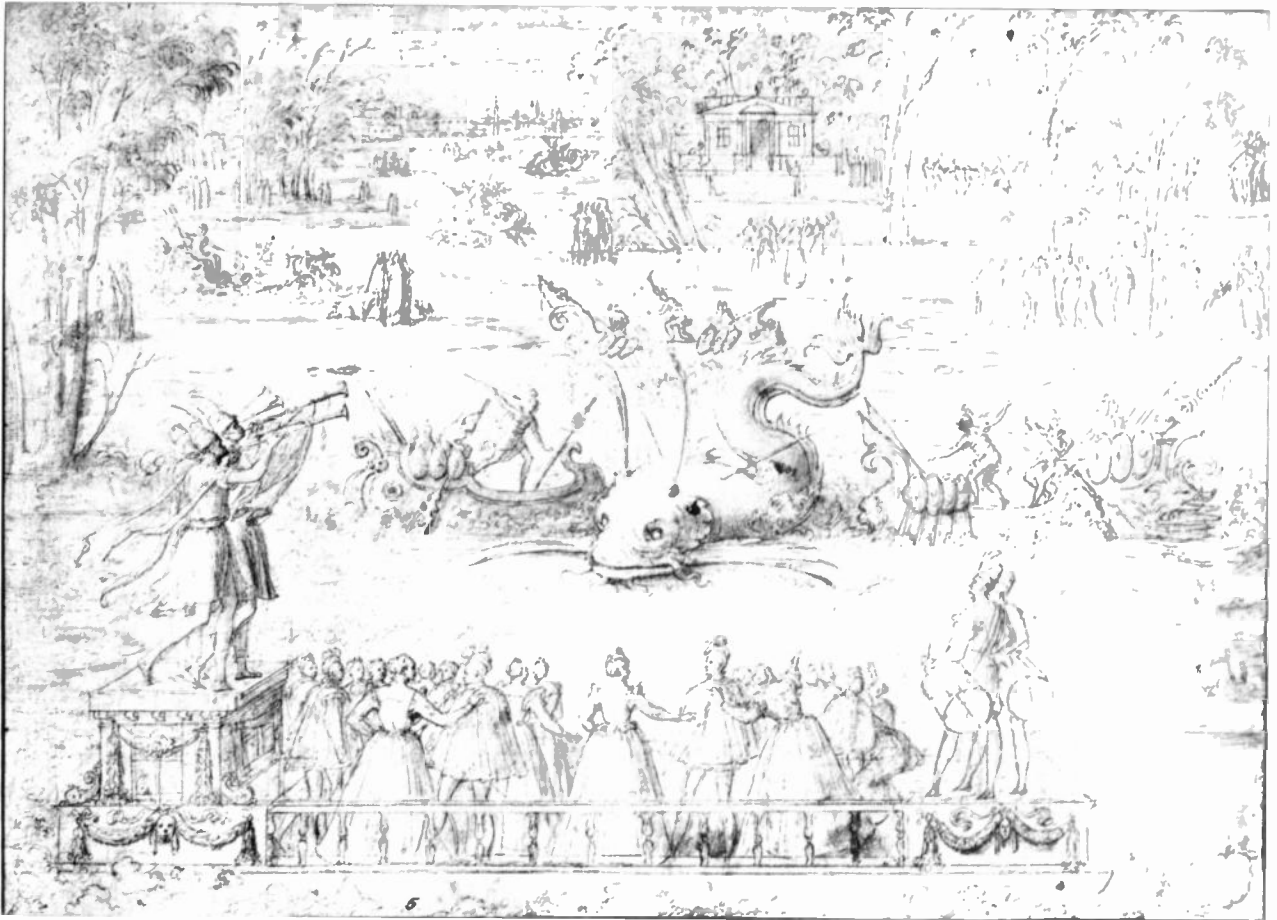


Figure 1. (Spectacle) Antoine Caron, *Festival at Bayonne, 1565, Catherine de' Medici's Water Fête*. Drawing. The Pierpont Morgan Library, New York.



Figure 2. (Spectacle) Dinagyang festival, Iloilo City, Philippines. Courtesy of the Philippine Ministry of Tourism—New York.

put on display that evokes responses ranging from admiration through curiosity and contempt. While the first definition most closely approximates the current meaning of spectacle in connection with cultural productions, the second reveals a basic ambivalence about the value and efficacy of spectacle. When spectacle was used in relation to THEATER—a meaning it acquired in the mid-eighteenth century—the negative valence prevailed. A theatrical spectacle was seen as “mere” stage display or pageantry, as contrasted with “real drama.” The association of spectacle with conventional theater is now uncommon in English. In French, however, the cognate word *spectacle* is still used in connection with film, theater, and various other stage presentations, where its meaning is neutral, and in connection with “making a spectacle of oneself” (*se donner en spectacle*), where its meaning is derogatory. See DRAMA.

Spectacle as Performance Genre

The study of spectacle has been fostered by a growing interest in large-scale symbolic forms among a variety of social scientists and humanities scholars. Other contributing factors have been the diversification of anthropology to include the cultures of modern as well as traditional societies and the extension of concepts from literary and linguistic analysis to the analysis of popular performances. Among the more prominent influences are anthropologists Clifford Geertz and Victor Turner. Geertz, using Balinese cockfighting as an example, proposed the METAPHOR that this sort of PERFORMANCE (which, in Bali, is very much a spectacle) is a collectively authored “text” about Balinese society, a story the Balinese “tell themselves about themselves.” Turner saw spectacles as one of the many performance genres in which modern peoples playfully but reflexively symbolize the assumptions, norms, and conventional roles that govern their ordinary lives. He claimed that these genres are the surrogates of religious ritual in traditional societies but emphasized that they have a greater potential for creativity and change. Whereas traditional ritual temporarily suspends but ultimately validates the principles of social structure, modern performance genres have the capacity to subvert the system and formulate alternatives. Such phenomena as spectacles impose their symbolism on social processes and often exert a major influence on the direction of those processes. Life follows performance.

U.S. anthropologist John MacAloon makes perhaps the first systematic attempt to examine spectacle as a distinct performance GENRE in his book *Rite, Drama, Festival, Spectacle* (1984). Using the Olympics as his main example, he argues that spectacle is a “megagenre” that encompasses other genres that are more limited in scope and more specific in mean-

ing. The Olympics are simultaneously a game (an agonistic contest among national opponents), a rite (a solemn consecration of human unity aimed at symbolizing the ideal of world community), a festival (a joyous celebration of unity, cooperation, accomplishment, and excellence), and a spectacle (a grandiloquent display of imagery evoking a diffuse sense of wonderment and awe). These four genres are interconnected in the history, ideology, performance, and structural ordering of the Olympics, but each is separable and places its own semantic construction—its own “reading” in the semiotic sense—on the phenomenon.

Examining the spectacle genre as a communicative frame (in the sense meant by GREGORY BATESON and ERVING GOFFMAN), MacAloon sees its metamessage as one of entertainment and detachment. The spectator qua spectator remains individuated and uncommitted. But spectacle is also a “recruitment device” that opens access to the other genres it contains. Audiences are often induced to accept the deeper significance of the phenomenon, becoming not just watchers but celebrants, believers, and partisans as well.

For MacAloon, the profusion of spectacles is a



Figure 3. (*Spectacle*) The Olympic Games, Helsinki: Paavo Nurmi lighting the Olympic flame at the opening ceremony, 1952. The Bettmann Archive, Inc.



Figure 4. (*Spectacle*) Cockfighting: matching the cocks and making them angry. Batoean, October 5, 1937. From Gregory Bateson and Margaret Mead, *Balinese Character: A Photographic Analysis*, New York, 1942, plate 43, 3. The Institute for Intercultural Studies/Library of Congress.



Figure 5. (*Spectacle*) New York World's Fair of 1939: National Cash Register Building, Ely Jacques Kahn, architect. The numbers show daily attendance figures. The Museum of the City of New York.

popular response to the “master cultural confusion of the present era”—a profound ambivalence and concern about the relationship between appearing and being, image and reality. Contemporary thought is preoccupied with superficial forms—media stereotypes, opinion polls, advertising slogans, bureaucratic language, and so on. But it is also disturbed by the way these forms obscure deeper realities. Modern people enjoy the freedom of skeptically, even playfully, watching their social world, but they want the assurance that there are truths to be known and values to be practiced. Spectacle displays a modern quandary and serves further as a context for “thinking it out.” See FACT AND FICTION.

A parallel argument is made by the British philosopher cum social scientist Ernest Gellner in his book *Spectacles and Predicaments* (1979). Gellner sees two major problems in the modern world: validation and enchantment. People seek both to verify bewildering complexity and to impose on it a decorous order. Spectacles offer decorum but ultimately transform themselves into predicaments by drawing audiences into the central action and enabling them to search experientially for verification. This epistemological process corroborates MacAloon’s notion that spectacles have both an outer set of appearances that attract an audience and an inner sense of authenticity that is accessible through empathy and participation.

A contrary argument is put forth by the radical French social critic Guy Debord in his book *La*

société du spectacle (1967). Debord sees all of modern life as spectacle, a pathological condition that preempts valid social discourse. “*Le spectacle n’est pas un ensemble d’images, mais un rapport social entre des personnes, médiatisé par des images*” (Spectacle is not a set of images, but social relations mediated by images). Spectacle in this view is a metaphor of modernity, not a performance genre that is nurtured by modernity and that, in turn, interprets it.

Spectacle as Tourist Attraction

Most spectacles are, among other things, tourist attractions, a factor that accounts for a great deal of their extravagance, publicity, and commercialism. When spectacles are movable (international athletic events, world’s fairs), cities and countries compete intensely to host them. Motives typically include prestige, an envisioned stimulus to the economy, and the opportunity to acquire public facilities that will enhance the spectacle and remain after it. Montreal, for instance, built its subway system to provide for the transportation needs of Expo ’67. See TOURISM.

In the case of spectacles that are fixed (carnivals, national ceremonies, some sports “classics”), promoters and public officials increasingly emphasize touristic appeal. The Trinidad Carnival, for example, was traditionally known as either “the creole bacchanal” (lower-class revelry) or “we ting” (an exclusivist celebration). But when the Trinidadian oil industry suffered reverses and the country adopted a policy of tourist development, carnival was vigor-

ously advertised as “The Greatest Show on Earth.” This newer emphasis has had a significant impact on the style and content of carnival and hence on the meaning it communicates within and beyond Trinidadian society.

In his seminal book *The Tourist* (1975), U.S. sociologist Dean MacCannell examines spectacle as a grandiloquent form of the myriad cultural productions that serve as focal points of tourist activity. As archetypal moderns, tourists view their own society as shallow and spurious. They seek deeper meaning in travel, which exposes them through cultural productions to enacted versions of their own heritage and to the lives of peoples less disturbed by the discontents of modernity. Tourists are “sightseers” (spectators), of course, but the entire semiotic ordering of tourist attractions is designed to create a sense of authenticity by drawing them “backstage,” giving them an insider’s understanding, and encouraging them to participate as well as observe. Like religious rites, tourist spectacles create and communicate a sense of reality, truth, and value. This argument supports the suggestion of many anthropologists—Turner, Edmund Leach, and Nelson Graburn among them—that tourism is a modern, secular version of pilgrimage.

Other factors contribute to the diffuse relationship among spectacle, modernity, and tourism. For one, visual codes generally have surpassed oral-aural codes in both aesthetic and epistemological importance, a process that probably originated in literacy and has been accelerated by film, television, and other visually oriented modern media. The visual nature of spectacles not only qualifies them as modern, but

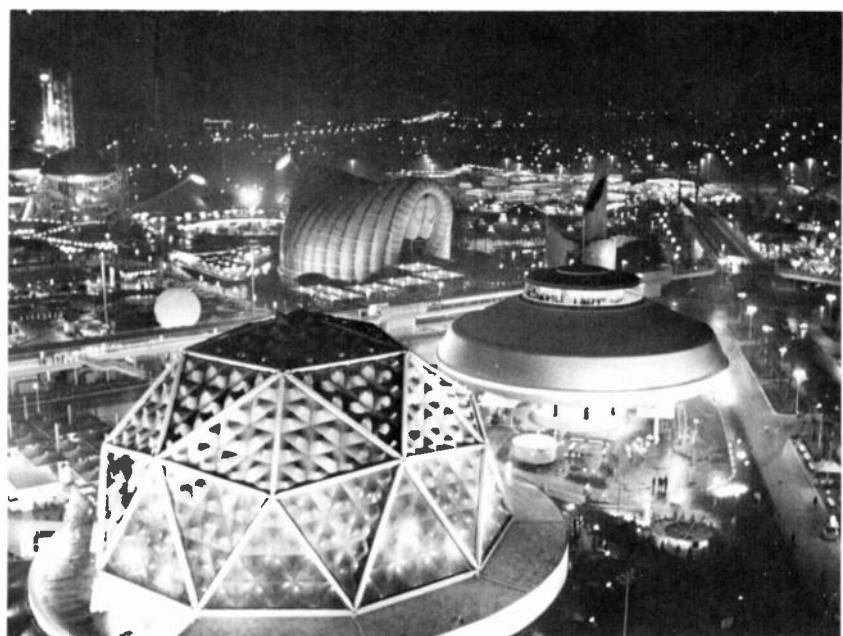


Figure 6. (*Spectacle*) Nighttime view of Expo '70, Osaka, Japan. Courtesy of Japan Air Lines.



Figure 7. (*Spectacle*) May Day celebrations in Red Square, Moscow, May 1, 1970. UPI/Bettmann Newsphotos.

also enhances their transcultural portability and hence their touristic potential.

There is also the modern emphasis on LEISURE as free time, that is, time at an individual's disposal to spend in a manner of personal choice. Both tourism and spectacle are modern leisure pastimes. Subscription to them is voluntary and nonbinding, and one is free to leave at any time. No prior belief or commitment is entailed (even though these may be forthcoming later). The only predisposing reason for being there is to enjoy oneself.

Another important factor is the transition in Western societies from producer to consumer capitalism. The frugality and investment orientation of early capitalism—its ascetic rationalism, to use MAX WEBER's phrase—has been overshadowed by a standard that emphasizes the use of money to purchase commodities, services, and experience. Under the influence of the early Protestant ethic, spectacle was a flagrant taboo, a "deceptive bedazzlement" that lured people from moral purpose and, worse yet, distracted them from work. Contrastingly, in contemporary societies, spectacle is a showcase of popular culture's major assets and attractions.

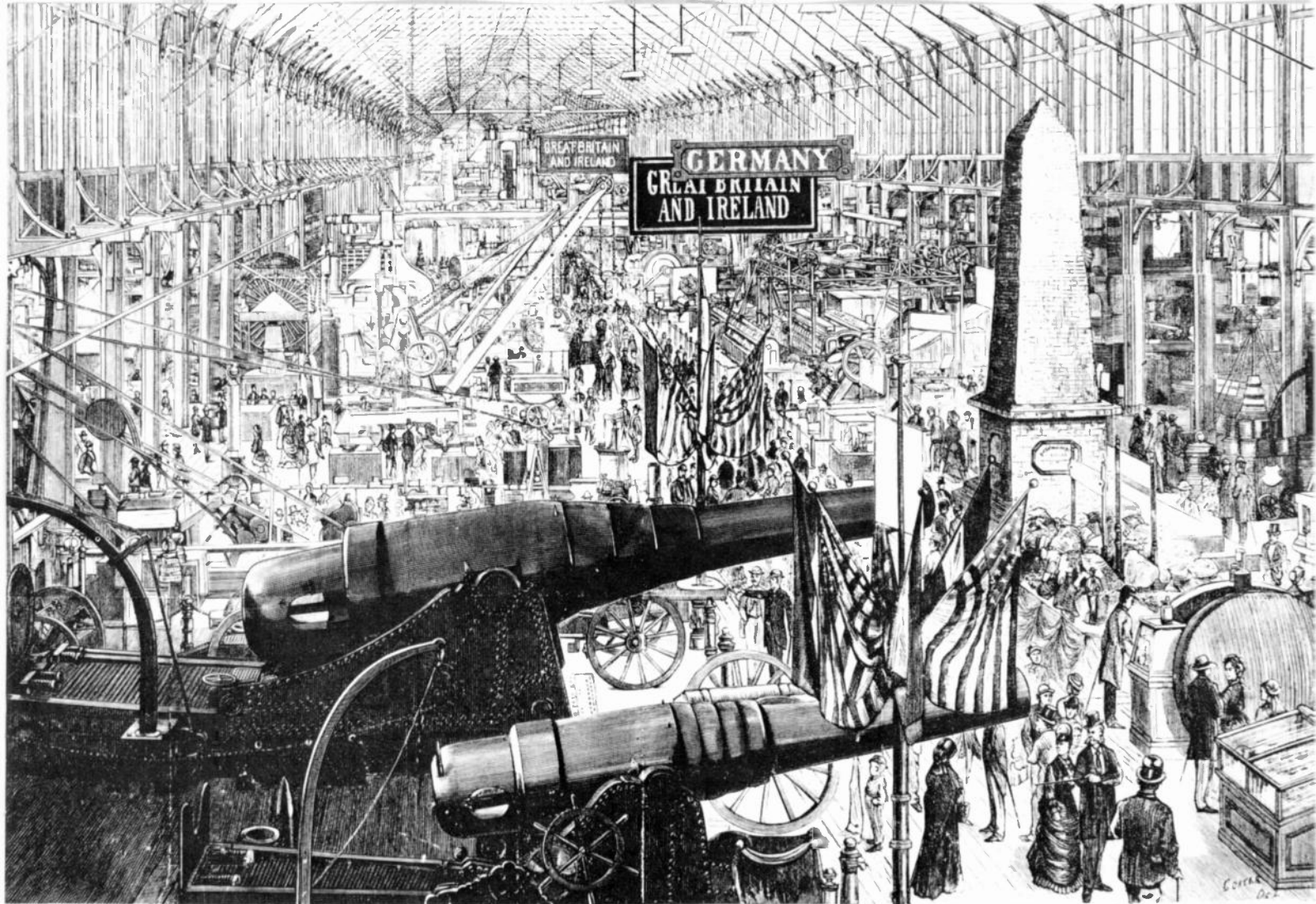
Yet some Protestant influences undoubtedly persist, albeit in altered form. Distinguishing broadly between the spectacles and tourist attractions of Protestant and Catholic societies, it is readily apparent that the former are less licensed and socially inventive

than the latter; that is, in Protestant societies spectacles are less likely to be used as an excuse to flout the normal social order. Within the Western hemisphere, for example, events such as the Calgary Stampede, the football "bowl" games, and the major national holiday celebrations of the United States' Protestant-oriented "civil religion" have but a small measure of the ludic illicitness and social parody found in the carnivals of New Orleans, Trinidad, and Brazil, as well as in many of the carnivalesque religious fiestas of Latin America.

Spectacle and Mass Culture

Spectacle is arguably the diagnostic performance form of modern mass culture. Like an amusement park, it is a setting where everything happens at once. Communication is dialogic, polyphonic, and polythematic. Spectacle is a phantasmagoric presentation of a phantasmagoric phenomenon—the modern world's pluralistic fragmentation. It unifies this fragmentation not by systematically ordering it, but simply by packaging it within a circumscribed performance context. It is precisely this sort of unification—in fact, an articulation of differences within a perceivable framework—that constitutes what MacCannell terms modernity's "unifying consciousness."

If spectacle is an appropriate depiction of the modern world—a form that both presents modernity and



GENERAL VIEW OF THE SOUTH NAVE OF MACHINERY HALL.

Figure 8. (*Spectacle*) Machinery Hall, dominated by two Krupp cannons from Germany, at the United States Centennial Exposition held in Philadelphia in 1876. From Frank H. Norton, *The Illustrated Historical Register of the United States Centennial Exposition, 1876*, New York, 1877, p. 241.

makes sense of it—it is also a summation of popular genres and cultural subsystems. Literary critics Julia Kristeva and MIKHAIL BAKHTIN and anthropologist Barbara Babcock point respectively to the “carnivalization” of the modern novel, the Rabelaisian cacophony and grotesqueness of our communications systems and social life, and the “surfeit of signifiers” in ludic literature and performance. Similarly, U.S. anthropologist James Boon asserts that modern entertainment forms are characterized by a “riot” of disconnected and disjunctive symbolic types. Spectacle is both an archetype of modern popular culture and, alternately, a comment on it.

The accommodative capacity of spectacle is perhaps its most distinctive modern feature. As a “super” genre, spectacle is a suitable form for mass culture. Spectacle does not obliterate or replace other genres;

rather, it encompasses and frames them, situating them in a wider and more general communicative context. The semiotics of that enlargement process not only exemplify mass culture, but also provide a focus for a reflexive apprehension of it.

Bibliography. Paul Bouissac, *Circus and Culture*, Bloomington, Ind., 1976; Guy Debord, *La société du spectacle*, Paris, 1967, reprint *The Society of the Spectacle*, Detroit, Mich., 1983; Clifford Geertz, *The Interpretation of Cultures*, New York, 1973; Ernest Gellner, *Spectacles and Predicaments: Essays in Social Theory*, Cambridge, 1979; John MacAloon, ed., *Rite, Drama, Festival, Spectacle: Rehearsals towards a Theory of Cultural Performance*, Philadelphia, 1984; Dean MacCannell, *The Tourist: A New Theory of the Leisure Class*, New York, 1976; Frank E. Manning, ed., *The Celebration of Society: Perspectives*

on *Contemporary Cultural Performance*, Bowling Green, Ohio, and London, Ont., 1983; Sally F. Moore and Barbara Myerhoff, eds., *Secular Ritual*, Assen/Amsterdam, 1977; Victor Turner, *From Ritual to Theater*, New York, 1982; Norton Wood, ed., *The Spectacle of Sport*, Englewood Cliffs, N.J., 1957.

FRANK E. MANNING

SPECTRUM

The RADIO spectrum is a unique resource that during the past century has become the basis of a global technical-industrial revolution. This revolution started when Great Britain, Germany, France, the United States, and Russia began in the 1890s to use the inventions of GUGLIELMO MARCONI and others to exchange information through the radio spectrum. The unique characteristics of the radio spectrum made it the first major example of worldwide common property as distinct from private property; its use by any group requires that all groups cooperate to minimize interference in its use. The structures and policies developed for its use were influenced by and in turn had consequences for all major global tensions and problems.

Characteristics. The electromagnetic spectrum consists of fields of magnetic and electrical force capable of transmitting electromagnetic energy in successive waves of different lengths. In addition to radio waves, the spectrum includes radiant heat, infrared light, visible and ultraviolet light, the X-ray spectrum, and, finally, cosmic rays. The presently usable radio spectrum ranges from about ten kilohertz to 300 million kilohertz per second. When energy waves are generated within these frequencies and information is imposed on them, it is decodable within limits. The limits are set by conditions that affect wave propagation, if natural and human-generated noise does not create intolerable interference.

The conditions that affect wave propagation depend basically on the conductivity characteristics of the environment. These characteristics are rooted in variable behavior of the ionosphere (magnetic and electrical fields of force as affected by sun and earth), geological and water formations, and weather. Other technical variables that affect wave propagation include the type of signal modulated (amplitude, frequency, pulse time, etc.), the width of the channel, antenna capacity at both the transmitting and the receiving ends, the power used in transmitting, the polarization of the signal (vertical or horizontal), the ability of the equipment to deliver the signals in desired directions, multiplex versus simplex capacity, and so on. Until the 1920s, electronic equipment was

developed for the Low and Medium Frequencies, 30 kHz to 3 MHz. Development of the High Frequencies (3 MHz to 30 MHz) took place in the next decade. In the 1930s and 1940s, the art extended to the Very High Frequencies (30 MHz to 300 MHz), and in the late 1940s and the 1950s to the Ultra High Frequencies (300 MHz to 3 GHz). The Super High Frequencies (3 GHz to 30 GHz) were explored in the 1950s to 1970s. The frontier of development in the 1980s was in the Extremely High Frequencies (30 GHz to 300 GHz) and the Very Low Frequencies (10 kHz to 30 kHz). Because of the propagation factors mentioned above, the range of distance over which radio communication is possible differs greatly as between these sectors of the radio spectrum. The spur to development has been military research and development in the industrialized countries with civilian applications (e.g., radio and television broadcast) being spin-offs.

The radio spectrum differs from other natural resources in possessing the following characteristics. First, the radio spectrum's original and still principal use is the act of sharing information between transmitter and receiver; the principal function of both transmission and retention is characteristic of no other resource. Second, for one nation or one class of user to use the radio spectrum, all nations and classes of users must be able to use it. Therefore, worldwide cooperation is necessary in order for the radio spectrum to be used by anyone. Third, the radio spectrum is nondepletable and self-renewing. There is interference between users (minimized by international regulation), but this "pollution" disappears as soon as the interference ceases. Other natural resources such as soil, water, and air are depletable, and renewal may take millions of years. Finally, because the radio spectrum is used to transmit information and because control of the flow of information is the basis of political power, the allocation of the radio spectrum is essential in establishing and maintaining national sovereignty. Few other resources have this political, tactical, and strategic significance. At the same time, the very system on which this power rests is inherently and inescapably fragile and vulnerable to disruption. Natural forces (e.g., storms), technical factors, bureaucratic weaknesses, and deliberate actions span a wide range of causes of interference. Government studies (e.g., in Sweden and France) have warned of the fragility of modern telecommunications systems. Therefore joint decision making by all nations at the world level contributes to the practice of world sovereignty. This world regulation underlies the fact that, by international law, title to the radio spectrum does not rest with particular individuals or nations but with all humanity. See INTERNATIONAL ORGANIZATIONS.

Frequency allocation. For several millennia, Western law has recognized three types of relationships between people and environmental resources: private property, common property, and state property. The peculiar characteristics of the radio spectrum combine to place it partly in the category of common property on a world scale and partly in that of state property. It can never be private property because of the degree of regulation that it requires.

Radio frequency allocation is a process involving three mutually determining steps. The first step is to determine the specific classes of use for specific bands of frequencies, based on engineering STANDARDS that take account of environmental and technical parameters. For example, airlines require long-range frequencies for navigation and for long-distance communication (e.g., over oceans), but also short-range frequencies for communicating between air and ground (e.g., at airports). They must therefore have access to frequencies in different parts of the spectrum. Furthermore, because aircraft (and ships) move around the world, they must be able to use the same bands of frequencies wherever they move. Specific standards are necessary to assure them of maximum use and minimum interference. The second step is to determine the location of transmitting and receiving stations for use in a given hemisphere, region, or country, given a specific frequency band, a specific class of use, and the engineering standards that have been determined for that class (e.g., decisions determining how many television stations are assigned to particular locations). The third step is to determine the identity of the licensees who will use the specific locations for transmitters and receivers according to class of service and required engineering standards.

This allocation process became the responsibility of the International Telecommunications Union (ITU), the oldest functioning world-scale organization. The ITU originated in 1865 as the International Telegraph Union to deal with standards, service, and rate matters for TELEGRAPHY and cables. It was extended in the first quarter of the twentieth century to cover TELEPHONE and radio communications. The basic organization is the ITU Plenipotentiary Conference, at which every five to ten years the member countries meet to renegotiate the structure and policies of the ITU. These actions by the members when confirmed by their governments form the evolving constitution of the ITU. Technical, economic, and political negotiations prepare proposals for plenipotentiary conferences through work of the Consultative Committee for International Telegraph and Telephone (CCITT) and the Consultative Committee for International Radiocommunications (CCIR), which are elected by the ITU members. Administrative Conferences of members implement policies adopted at

Plenipotentiary Conferences. This structure is served by the International Frequency Registration Board, an Executive Council (both elected by the members), an elected Secretary-General, and support staff.

In 1982, 157 countries, each with one vote, governed the allocation process. Enterprises that design and manufacture electronic equipment and each class of spectrum users (e.g., aeronautical, marine, broadcast) participate at every level of the process, as do their trade associations. Negotiation, lobbying, and compromise—in other words, politics—characterize the process.

Although the nations of the world have never departed from the basic “world property” concept of the right to use specific radio frequencies, in practice such rights have been allocated on a first-come, first-served basis. In the days of formal empires (see COLONIZATION) the imperial powers enjoyed colonial voting (i.e., major powers had as many as six votes each) in the ITU and its predecessor, the International Telegraph Union. After World War II, when formal empires were breaking up, and when the ITU became affiliated with the United Nations, the voting rule became one nation, one vote—as the result of a U.S. initiative.

A more subtle basis of maintaining imperial power was the priority allowed to the country that first notified the ITU of its intention to use a particular radio frequency. This principle was agreed to at the Berlin Conference in 1906, and it enabled the United States to lay the foundation for its dominance in world telecommunications after 1945. The policy came under attack by Third World countries in the 1970s, leading the dominant powers to deplore the “politicizing” of the ITU.

Third World. Through the 1980s, the great bulk of international communications using the radio spectrum flowed either to or from the United States. In comparison the lateral flow of information—as well as of real commodities—between Third World countries was very undeveloped. The dominant (industrialized) countries had 90 percent of the spectrum and 10 percent of the population. The Third World countries had 90 percent of the population and 10 percent of the spectrum. The domination by the industrialized countries is asserted conspicuously through the use of the radio spectrum by their military forces and national DIPLOMACY, and by transnational corporations including those that operate the worldwide network of transnational data teleprocessing.

About two-thirds of the members of the ITU were Third World countries. They varied greatly in size of population, natural resources, cultural character, and degree of commitment to goals of material progress. Yet these countries shared certain common interests.

If they were to change the asymmetrical power relations between themselves and the most industrialized countries, they needed to own, control, and operate their own communications systems. This was as vital to their independence as was their military capability. A communication system for them did not need to be highly sophisticated; the telephone, telegraph, radio broadcast, tape recorder, and photocopier would take them a long way.

Third World countries pressed their claims for equitable shares of world resources through a range of forums: the World Bank, GATT (General Agreement on Tariffs and Trade), the ITU, UNESCO and other UN organizations, the Club of Rome, and many ad hoc conferences. In the 1970s and 1980s their claims crystallized in demands for a New World Information Order and New World Economic Order. The Non-Aligned Movement, since its founding in Bandung in 1955, has been an increasingly cohesive and sophisticated coordinating agency for these struggles (see ASIA, TWENTIETH CENTURY). Two issues were sharply contested: the flow of information (one-way or balanced) and frequency allocation policy (planned or unplanned). See NEW INTERNATIONAL INFORMATION ORDER.

In the ITU the Third World countries rejected with increasing skill and determination the previous "first-come, first-served" basis of allocating frequency bands and station assignments. They sought positive, long-range planning for the use of the radio spectrum, with reservations of frequency assignments for countries not yet ready to make use of them. The United States, its capitalist allies, and the Soviet Union opposed such planning. They contended that fixed allotment plans that distributed frequencies and orbital slots for satellites to countries where there was no present demonstrated need and ability to use them would not permit optimal utilization of the spectrum or provide adequate incentives to adopt technologies that conserve the spectrum.

In 1974 the ITU Maritime Conference agreed to a plan that allotted frequency assignments according to a mathematical principle of fairness, and in 1977 the World Administrative Radio Conference (WARC) on direct broadcast satellites assigned specific orbital slots to all countries outside the Americas. For the latter, a Western Hemisphere WARC in 1983 assigned orbital slots to some countries and groups of countries that expected to use them immediately. See SATELLITE.

The 1982 ITU Plenipotentiary Conference was particularly stormy. Heated disagreements arose over the effort of Arab countries to exclude Israel from the conference. But the central issues were the initiatives of the Third World majority for ITU planning of frequency allocation and their insistence that the

ITU provide technical assistance and cooperation. The United States opposed ITU technical aid and supported instead bilateral aid that could build markets for transnational corporation exports. Subsequently, the U.S. government considered refusing to pay its share of the ITU budget and withdrawing from the ITU altogether. However, a study by Georgetown University for the U.S. State Department in 1984 concluded that the ITU was indispensable and that the U.S. should continue to participate:

Above all, the United States must recognize the absolute need for an ITU-type organization to allocate the electromagnetic spectrum, coordinate efforts to harmonize telecommunications facilities and equipment, allow collaboration on rates and tariffs and improve use of telecommunications in safety, rescue, air traffic, etc.

The study also approved the long-standing U.S. policy of favoring bilateral technical aid to developing countries rather than the ITU-administered aid, which the Third World countries preferred.

Future issues. At any given time the capacity of the radio spectrum is limited by the state of the electronic art. But because research and development make possible more efficient use of it, and there is always the possibility of increasing the capacity of the already-used portions of the spectrum (the intensive margin) and of the newly explored portions of the spectrum (the extensive margin), there is no *scarcity* of spectrum capacity over time. Because spectrum use produces economic rent, recovery of the cost of administering it through license fees would provide an incentive for licensees to economize in its use. Taxpayers' burdens could be reduced by raising license fees further to recover "unearned increment" received by broadcast licensees.

The mode of spectrum management within nation-states has generally been legislative and passive, leaving the initiative in steps two and three (above) to the potential licensees. A range of possible means of improving efficiency in the use of the spectrum depends on positive planning by national governments. New strategies in such planning include pressures for more research and development at both the intensive and extensive margins of spectrum development; requirements that licensees use newer, more efficient equipment; requirements that licensees make organizational innovations (e.g., undivided joint interest enterprises) that reduce spectrum demands; more insistence on circuit discipline and common-calling techniques.

As noted above, a unique characteristic of the radio spectrum is that it lies close to sovereign power where no market mechanism can exist. Indeed, in most if not all countries, the military is the largest single user of the spectrum. A large literature has grown since the 1950s by mostly U.S. neoclassical

economists supporting the introduction of market forces into the frequency allocation process. This work assumes that perfect competition exists in the relevant markets. In the real world the necessary conditions are absent. For these reasons and because under international law radio frequencies cannot be private property, "deregulation" of radio spectrum management is not possible.

A number of developing countries have proposed recovery of revenue from the use by others of orbital slots allocated to them for geostationary satellites. And the MacBride Commission report to UNESCO, *Many Voices, One World* (1980), recommended consideration of an "international duty" on the use of the spectrum and orbital slots for the benefit of developing countries, and another "international duty" for the same purpose levied on "the profits of transnational corporations producing transmission facilities" to partially defray the costs of using international communication facilities.

In taking part in the allocation of the radio spectrum, the world's peoples are taking the first step toward determining the ends for which the spectrum may be used in the future. Cooperation to avoid unacceptable interference is the essence of radio spectrum management. Through the process of radio frequency allocation under the ITU, all countries have the possibility of setting the rules for its use. Through such rules and subsequent actions, all countries may obtain and secure control of their own resources.

Bibliography. George A. Coddling, Jr., *The International Telecommunications Union*, Leiden, 1952; George A. Coddling, Jr., and Anthony M. Rutkowski, *The International Telecommunications Union in a Changing World*, Dedham, Mass., 1982; Department of Communications, Canada, Telecommission Directing Committee, *Instant World*, Ottawa, 1971; Garrett Hardin, "The Tragedy of the Commons," *Science* 162 (1968): 1243-1248; IEEE-EIA Joint Technical Advisory Committee, *Spectrum Engineering: The Key to Progress*, New York, 1968; International Commission for the Study of Communication Problems (UNESCO), *Many Voices, One World: Communication and Society, Today and Tomorrow*, Paris and New York, 1980; Harvey J. Levin, *The Invisible Resource: Use and Regulation of the Radio Spectrum*, Baltimore, Md., 1971; C. B. MacPherson, *Property: Mainstream and Critical Positions*, Toronto, 1978; David Ricardo, *Principles of Political Economy and Taxation*, London, 1819, reprint New York, 1969; Dallas W. Smythe, *Dependency Road: Communications, Capitalism, Consciousness, and Canada*, Norwood, N.J., 1981; U.S. President's Task Force on Communications Policy, *Staff Papers*, Vol. 7, *The Use and Management of the Electro-Magnetic Spectrum*, Washington, D.C., 1969.

DALLAS W. SMYTHE

SPEECH

The form of communication used most frequently by human beings and the one that many would argue is characteristic of humans and no other species. Speech behavior is usually thought of in two distinct but interrelated ways.

From one perspective, the study of speech behavior concerns the actual process of generating and vocalizing sounds, with the sounds necessary for producing oral LANGUAGE assuming primary importance. This process involves a complex interaction and coordination of the brain, the nervous system, and various anatomical structures and organs (see Figure 1). The actions involved in sound production alone are respiration, phonation, resonance, and articulation. Although some languages use sounds produced while inhaling, most sounds are initiated by air exhaled from the lungs and sent up through the trachea. The air stream is made audible by the vibrations of the vocal folds in the larynx. Whispering occurs when the vibration of the vocal folds is not activated. By changing the shape of the oral and nasal cavities and by the various kinds of contact made between the mobile articulators (tongue, tongue tip, and lips) and the fixed articulators (hard and soft palates, alveolar ridge), different sounds are produced.

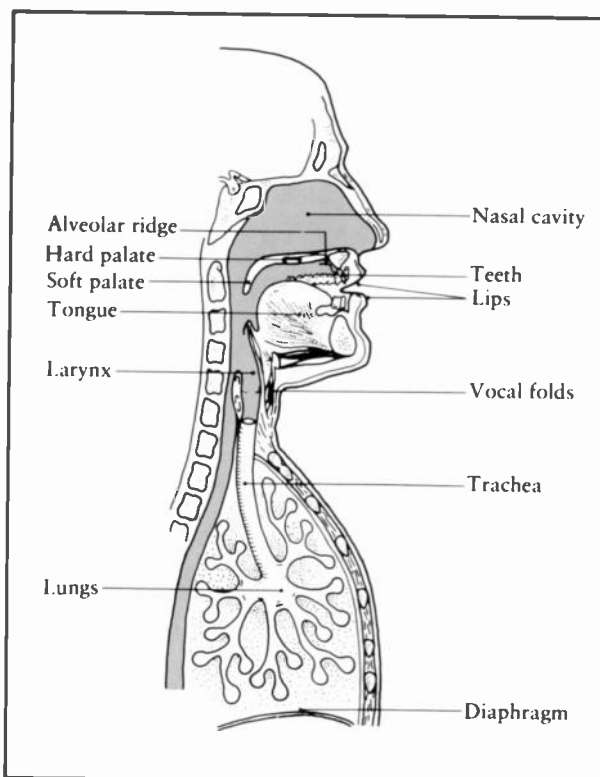


Figure 1. (Speech) Diagram of the organs and structures involved in speech.

Speech behavior is also viewed as an oral linguistic process used by human beings to communicate with others and with themselves. From this perspective, the emphasis is on spoken symbolic interaction. The cognitive processes involved in developing and planning spoken messages, the nature of the messages themselves, and the effects of spoken messages are all of interest to those who study speech from this perspective. *See also* LINGUISTICS.

The act of speaking has interdependent relationships with other important body processes. Most scholars acknowledge the existence of a mutual influence between thought and speech; that is, the way we speak about things affects how (and possibly whether) we think about them, and the way we think about things affects how we talk about them. The specific conditions that facilitate or inhibit this mutual influence are less clear and are subject to continued exploration. Human beings, like other animals, have thoughts that do not seem to be tied to speech behavior.

Speech has a close kinship to GESTURE as well. Several detailed examinations of gestures and speech have revealed a rhythmic coordination or synchrony between an individual's speech units and gesture units of varying sizes, suggesting a common controlling mechanism for these two separately produced systems. Speech and gestures work together in several ways. Sometimes gestures precede speech and act as a preface to the spoken message or even as a self-priming device for generating speech. Gestures may also be used to complete a spoken message after speech has ceased. For some messages, gestures can be used to replace speech entirely. But most gestures work in tandem with speech by providing different but simultaneous messages with speech or by providing emphasis, organization, and punctuation to speech. Furthermore, speech behavior also activates hearing (PERCEPTION) and listening (comprehension) processes of the speaker. Thus, a comprehensive study of speech behavior often requires close scrutiny of cognitive, gestural, and auditory processes as well.

Is Speech Unique to Human Beings?

For at least the last 2,300 years, humans have been wondering whether ARISTOTLE was correct when he described humans as the only animals "endowed with the gift of speech." Human beings are not the only animals that vocalize. Birds and other animals make sounds that closely resemble words used in human speech. Nor are human beings the only animals to use symbols to communicate. Nonhuman primates have been taught to use various forms of language to communicate. But humans seem to be the only animals capable of fusing vocalized sounds with symbolic language. Even when, in 1949, a psy-

chologist and his wife raised Vicki, a three-day-old chimpanzee, in their home as they would a human infant, the chimpanzee did not learn and use symbolic speech. Prevailing opinions suggest that the chimpanzee's inability to learn spoken language is more than simply an inability to vocalize like human beings. The differences, it is argued, are in the capacity of the human brain for fusing, monitoring, and controlling the coordination of the sound-production equipment with the linguistic symbols. *See* ANIMAL COMMUNICATION; ANIMAL SIGNALS; COGNITION; COGNITION, ANIMAL.

For many scholars, the uniquely human ability to fuse vocalized sounds with symbolic language is significant because it results in a phenomenon quite different from either process alone. As anyone who has ever practiced a speech aloud knows, we perceive and react to spoken language much differently from when we read the same message. Also we perceive and react to spoken language very differently from when we "say" the same message to ourselves silently.

The Phylogeneses of Speech

Although human speech was being recorded graphically some five thousand years ago, it is likely that our ancestors of four hundred thousand years ago were already using spoken language to communicate. Determining exactly when humans began to use speech as their primary means of communication is very difficult. Despite their answers to many other questions about human evolution, skeletal remains have not yielded the necessary evidence. A few scholars once believed that the presence of genial tubercles—bony protuberances on the inner side of the chin attached to the tongue muscles—were evidence of the presence of articulate speech, but this theory has not received widespread support. Paleoneurologists who have used the skulls of prehistoric humans to make brain casts can provide some indication about when speech may have evolved, but to date paleolaryngology seems to offer the most promising clues.

Paleolaryngology began by examining the development of the larynx in children. During the first eighteen months or so the position of the child's larynx is similar to that of living apes and monkeys. Then it begins to descend into the neck and alters the way the child breathes, swallows, and vocalizes. This unique position of the larynx is accompanied by a similarly unique skull shape. The base of the human skull accompanying the descended larynx is arched, while the skull base of other mammals that have larynges in a higher position is flat. Reasoning that a descended larynx was necessary in order to produce the range of sounds associated with human speech today, researchers are examining the basi-

craniums of our ancestors. Current evidence suggests that the earliest hominids had vocal tracts much like the apes and monkeys today. Some changes began to take place about one and a half million years ago, but the arched skull base of humans has not been found in skulls of humans who lived more than three hundred thousand to four hundred thousand years ago.

There is much speculation on how speech first emerged in the human species. Some believe the ability to speak had divine origins, but many theories are based on the emergence of the ability to make sounds. According to these theories, the origins of the sounds and sound combinations that eventually formed the structure of oral language came from the sounds early humans made mimicking those heard in nature, those used in emotional expressions (e.g., cries) or vocal play, and those made during physical exertion. Probably all these sources played a role as possible sources for sound groups that later became integral to the sounds used in spoken words. Other scholars point to the possible role of gestures in the phylogenetic development of speech. These theories generally assume that early human beings first developed a communicative system with gestures. According to these theories, sounds were often by-products of this gestural communication system. Gradually, early humans sensed the advantages of using a system that was not dependent on visibility and that could be used while the hands were busy with other activities, and this then led to a refinement of the sound-making process.

The weight of scholarly opinion concerning the phylogensis of speech can be summarized this way: most believe that the development of spoken language evolved slowly rather than quickly; most believe that the evolution of speech is closely linked to evolving increases in human brain size and the complexity of the nervous system; most believe that the evolution of speech was tied to matters involving the survival of the species; most believe that the process moved from an oral language of emotions and other here-and-now referents to one of more abstract symbolic ideas; and most agree that since children are today born into a world where people are already speaking, ontogeny is *not* a brief and rapid recapitulation of phylogeny.

The Ontogenesis of Speech

For the natural and timely development of speaking skills, human infants need a functional vocal apparatus for producing sounds, a healthy brain and neuromuscular system for monitoring and controlling speech, and a surrounding environment that provides the necessary stimulation and support for speech behavior. Before the child learns to use the

arbitrary array of sounds as a symbol system, he or she goes through several preverbal, overlapping stages of sound production.

The birth cry is the neonate's first vocal activity. During the next two months, the infant reacts reflexively to a variety of stimuli such as heat and cold, thirst and hunger, pain and pleasure. These undifferentiated cries do not seem to be significantly altered by the nature of the stimuli. The cries do contain sounds that will later be used in speech. In English these are primarily vowel sounds.

Gradually, the infant's crying becomes differentiated, and during the second month of life special sounds refer to special needs, usually reflecting comfort and discomfort at first. Cries are primarily distinguished by pitch, rhythm, and intensity. Although these sounds are not made with the intention of having others respond to them, others do respond, marking the beginning of a sound-reaction pattern.

During the second three months, the child plays and experiments with sounds and his or her sound-making capabilities. This activity is commonly called babbling. Although babbling may provide some preliminary experiences and practice with speech sounds, children who do very little babbling also learn to make the necessary sounds for speaking. This form of vocal play seems to be largely instinctive, because nonhearing children have also been observed babbling. Some believe the apparent imitation of caregiver intonation patterns represents the most important foundation for learning during this phase.

During the second six months of life, the child continues his or her sound play and practices repeating sound complexes or syllables. This process, called lallation, is primarily self-imitation at first. But around the ninth or tenth month, the child gives more effort to repeating the sounds of others, often for the pleasure of the rewards given by those who have been imitated. Echolalia is the term used to refer to this process. During this time, the child also shows the first signs of verbal understanding by responding appropriately to words and/or phrases made by others.

Normally, the child produces his or her first words about the age of one year. First words are often monosyllabic nouns or duplicated monosyllables like "ma-ma." When the child utters a sound like mama, the mother may respond by attending to the child, repeating the sound so the child will say it again, and rewarding the child with a smile and a hug. The word "mama" comes to be associated with satisfaction for the child, and with a particular source of satisfaction, and soon the child says it in order to bring about that satisfaction. The development of human speech through the merger of sound making and language learning is now clearly manifest. By the time the child is two years of age, brain weight

will have increased threefold, cerebral dominance will have begun, and the child's usage repertoire will be about two hundred words. By age six, the child's vocabulary is about twenty-five hundred words, and by seven or eight most children have reached the articulatory proficiency of adults. By puberty, the ability to initiate normal language learning is believed by many scholars to have passed. *See also* LANGUAGE ACQUISITION.

The Functions of Speech

Speech (which for most purposes here can be taken either as vocal language or as one of its surrogates, such as SIGN LANGUAGE) is central to the development of the person and the way that developing person is presented to and understood by others. Our individual identities and self-concepts are largely a result of speaking and listening to others and ourselves. We express our personalities by the way we talk about ourselves and, perhaps more important, by the way we talk about virtually anything. Our speech tells others who we are. In fact, speech patterns are often used as markers of mental and social pathologies—for example, talking too much or too little; talking to certain inanimate, nonhuman, or unobservable entities too frequently; or using language deemed inappropriate by one's social community.

Speech is also the primary vehicle for making contact with the human community. It enables us to establish social bonds with others of our species. On such occasions the content of our speech is often the act of speaking itself (or the potential for same) rather than the meanings associated with the specific words spoken. Speech in this sense acts as a means of identification with our species, with our humanness.

Speech also functions as a means of getting things done, of influencing ourselves and others in order to experience a sense of control over our environment. Even the way we describe our world affects our actions within it. We can talk ourselves into believing or doing things, and we can persuade others to believe or do things through speech; we can release emotions for self-gratification, for inflicting pain, or for obtaining comfort from others; we can verbalize written or silent ideas in order to make them more understandable to ourselves and to others; and we can speak to ourselves for pleasure and amusement, or we can use our speech to please others.

The Academic Study of Speech

Human speech behavior has been a subject of scholarly attention for over two thousand years. The treatises on practical public discussion in ancient

Syracuse, Athens, and Rome launched a concern for oral RHETORIC that resulted in many learned volumes. Rhetoric also had a long tradition as a key part of the curriculum in higher education. *See also* PUBLIC SPEAKING.

Early in the twentieth century the study of speech began to broaden in a number of ways, particularly in the United States, where departments of speech had been organized in a number of colleges and universities. Continuing the focus on rhetoric and PERSUASION, these fostered a tradition of tournament debating that spread to secondary schools (*see* FORENSICS). In addition, the departments began to encompass scholars with interests in speech pathology and audiology (the description, etiology, diagnosis, and treatment of SPEECH AND LANGUAGE DISORDERS). Some departments extended speech studies to the study of THEATER and the new medium of RADIO.

Midcentury brought a new and significant development. In the rhetorical tradition the focus had always been on the process of persuasion as manifested by public speakers. Now research and teaching began to encompass informal, personal speech in ordinary social encounters, and the academic study of speech became known as speech communication.

The scope of research and teaching in the field of speech communication has come to encompass a number of interrelated areas.

Social cognitions. Here the focus is on information processing about a communicative event by an individual. These cognitions may occur prior to, during, or after a social encounter; they may be formal (as in creating and organizing a public speech) or informal; they may involve varying degrees of self-awareness or intent. Expectations, ATTITUDES, fantasies, plans, strategies, memories, and apprehensions related to a person's communicative behavior are of interest. Even though they may be studied separately, the ultimate goal for understanding social cognitions is to determine how they affect overt speaking and listening behavior.

Messages. Here the focus is on the nature of the messages produced. What linguistic, vocal, and gestural choices were made? What was the content of the message? How was the message manifested—the style as well as the timing in relation to other messages? The answers to these questions are of particular value for understanding the responses to the message.

Effects. Two approaches are usually used for understanding the effects of spoken messages. One examines the correspondence between speaker goals and listener reactions. Listener reactions may be overt (arguing with the speaker) or covert (changing one's attitude toward the speaker, the message, or both). To what extent, for example, is a speaker who wants to persuade a friend to do something distasteful,

without losing the person's friendship, able to accomplish these goals? Another way of looking at effects is to concentrate on the developing interaction process. What is the nature of the process when a public speaker makes a statement that triggers a heckler's outburst from the audience, which in turn prompts an unrehearsed reply from the speaker? In a two-person CONVERSATION, process effects are commonly discussed as reciprocal (speaker and listener responses tend to be similar) and compensatory (speaker and listener responses tend to be offsetting or dissimilar). Process effects are scrutinized at one moment in time or over the course of an entire conversation. Explanations for the effects of spoken messages are derived from a knowledge of social cognitions, the nature of the messages produced, and an understanding of the context.

Context. The context within which human speech behavior occurs provides important clues concerning why certain messages occur and others do not, why messages occur in the manner they do, and why messages have the effects they do. Speech can be examined in different environments, such as hospitals, courtrooms, classrooms, and business organizations; in different communicator relationships, such as candidate-voter, friendships, marriages, supervisor-subordinate relationships, and family relationships; in encounters in which the communicators have different cognitive and behavioral backgrounds, such as age, GENDER, handicap, race, cultural heritage, and sexual preference; in encounters in which speech behavior is mediated by various kinds of auditory and visual technology; and in encounters in which speakers are members of different speech communities.

The unit of study in speech behavior varies in size, depending on the type of research. Dyadic or interpersonal analyses may focus on a formal job interview or small talk between two people on a coffee break; small-group behavior may involve a formal meeting or a social network; ORGANIZATIONAL COMMUNICATION may look at a large group like an entire organization or a smaller unit of the organization, such as a specific work group or a supervisor-subordinate dyad; public speaking and the oral interpretation of literature examine a single speaker and one or more audiences; and the study of speech in social movements usually involves many speakers and many audiences. *See also* GROUP COMMUNICATION; INTERPERSONAL COMMUNICATION.

Bibliography. Carroll C. Arnold, *Criticism of Oral Rhetoric*, Columbus, Ohio, 1974; Carroll C. Arnold and John Waite Bowers, eds., *Handbook of Rhetorical and Communication Theory*, Boston, 1984; Thomas W. Benson, ed., *Speech Communication in the Twentieth Century*, Carbondale, Ill., 1984; George A. Borden, Richard B.

Gregg, and Theodore G. Grove, *Speech Behavior and Human Interaction*, Englewood Cliffs, N.J., 1969; Charles T. Brown and Charles Van Riper, *Speech and Man*, Englewood Cliffs, N.J., 1966; Frank E. X. Dance and Carl E. Larson, *Speech Communication: Concepts and Behavior*, New York, 1972; Giles Wilkeson Gray and Claude Merton Wise, *The Bases of Speech*, 3d ed., New York, 1959; Franklyn S. Haiman, *Speech and Law in a Free Society*, Chicago, 1981; Mark L. Knapp and Gerald R. Miller, eds., *Handbook of Interpersonal Communication*, Beverly Hills, Calif., 1985; Wilder Penfield and Lamar Roberts, *Speech and the Brain-Mechanisms*, Princeton, N.J., 1959, reprint New York, 1966; Lev Semenovich Vygotsky, *Thought and Language*, ed. and trans. by Eugenia Hanfmann and Gertrude Vakar, New York, 1962; Karl R. Wallace, ed., *History of Speech Education in America*, New York, 1954.

MARK L. KNAPP

SPEECH AND LANGUAGE DISORDERS

Disorders that can be classified behaviorally as disorders of language, articulation, phonation, and fluency. They can also be classified by type of disabling condition contributing to the disorder. The disabling effects of neurologic, auditory, laryngeal, craniofacial, learning, and emotional disturbances or pathologies on communication depend on the success with which compensatory coping strategies can be developed. Estimates of the number of people with SPEECH and LANGUAGE disorders range from 4 to 20 percent.

Diagnosis is determining the nature of the speech or language disorder and of any disabling condition contributing to it. Assessment is uncovering the abilities available with which the communication disorder can be ameliorated. Therapy is the process by which amelioration is effected.

Language disorders. In children, language disorders are manifestations of difficulties in mastering semantic, syntactic, phonologic, and pragmatic rules. These are the rules by which cognitive meaning is mapped in linguistic form for spoken expression. Types of developmental language difficulties for which different therapies are appropriate include specific language impairment (formerly called by several names, such as delayed language and childhood aphasia) and language problems associated with autism, mental retardation, learning disabilities, hearing loss, and head injury.

In adults impairment of acquired language is caused by brain injury that varies in type and severity with site and extent of neural lesion. Types of language impairment are numerous. Broca's aphasia is a non-fluent, agrammatic, expressive disorder. Wernicke's aphasia includes impaired attention as well as comprehension and production. Global aphasia is severe depression of all communicative abilities. Word re-

trieval is the chief problem in anomic aphasia. Speech is relatively normal in conduction aphasia except for paraphasic errors in which wrong "main" words are used. Right-hemisphere communication disorders include visuospatial deficits, linguistic processing deficits, and perceptual/cognitive deficits. Alexia and agraphia involve impairments of reading and writing. Transcortical motor aphasia is a disturbance of spontaneous speech. Subcortical aphasias, like global aphasia, show severe depression of all communicative abilities. Communicative deficits of traumatic head injury include cognitive impairment and confused language. Impaired memory, attention, and problem solving characterize general intellectual deficits.

Articulatory disorders. The term *phonologic disorder* has supplanted *articulatory disorder* as recognition has grown that deviant speech sound production, for whatever reason, is still a phonologic defect. What *articulation disorder* has come to mean is impaired ability to make the necessary movements to produce speech sounds normally. This impairment is generally attributed to oral, auditory, and neural dysfunctions.

Oral disabilities range from tongue thrust to cleft palate to velar paralysis to surgically removed portions of tongue, mouth, or throat. These disabilities impair vocal tract functions of speech. Auditory disabilities can involve the middle or inner ear or auditory neural paths in ways that interfere with the feedback that guides articulatory performances. Neural disabilities impairing articulatory development in children are cerebral palsy and developmental apraxia of speech (the nature of which is disputed). Apraxia of speech in adults, by contrast, is recognized widely as impaired ability to produce and sequence speech sounds automatically. Most neurally based articulatory disorders appear, as the motor system deteriorates with age, in the form of dysarthrias. They range from flaccid, spastic, and ataxic dysarthria to hypokinetic, hyperkinetic, and mixed dysarthria.

Phonatory disorders. Disorders of voice can be functional or organic. Regardless of cause, they are heard as pitch, loudness, or quality abnormalities. The most typical cause of functional problems is vocal abuse. It occurs frequently in childhood from screaming and yelling. In adulthood, it can result from excessive singing, shouting, and loud talking. When the vocal folds are fatigued or inflamed, vocal abuse tends to cause tissue damage in the form of nodules on the folds where they collide with greatest impact and sometimes cause contact ulcers. Other functional causes range from transsexual and post-mutational voice problems (a particular problem of adolescent males whose voices "break") to aphonia and sometimes spastic dysphonia of psychogenic origin.

Organic causes of voice disorders typically involve laryngeal pathologies, such as tumors and paralyses. One or both vocal folds can be paralyzed in an adducted position, which makes phonation possible but breathing difficult, or in an abducted position, which facilitates breathing but precludes phonation. Tumors can be benign or malignant. If caused by vocal abuse, they can often be treated with vocal rest and voice therapy. Otherwise, surgical removal is required for benign tumors before the voice can be restored. With laryngeal malignancy, the prognosis is good if caught early; partial excision of the larynx may suffice. If cancer is advanced, total laryngectomy will be required, in which case some form of alaryngeal speech must be learned as a substitute for normal voice. These forms include esophageal speech (in which air is set in vibration at the neck of the esophagus), an artificial larynx (in which an electric vibrator or vibrating reed is substituted for the larynx), or a surgically implanted prosthesis (which permits voice generation with respiration).

Fluency disorders. Although fluency disorders can be associated with dysarthria and aphasia (and in children with language impairments are called "cluttering"), by far the greatest attention has been given to stuttering. Stuttering usually begins in early childhood. Despite half a century of extensive investigations of cortical, brain stem, auditory, laryngeal, respiratory, and vocal tract differences, firm evidence of genetic transmission is the only strong clue pointing to a constitutional predisposition to stutter. Although specific factors are unknown, environmental conditions, probably involving stress of some as yet undetermined form, appear to be necessary for the onset of stuttering. Spontaneous recovery of as high as 80 percent prior to adulthood has been reported.

More is known about effective treatment than about the nature of stuttering. Behavioral therapies can predictably replace stuttering with normal fluency, although maintenance of this fluency is still problematic. Fluctuations of confidence are probably a crucial factor in treatment.

See also SLIPS OF THE TONGUE.

Bibliography. Thomas J. Hixon, Lawrence Shriberg, and John Saxman, eds., *Introduction to Communication Disorders*, Englewood Cliffs, N.J., 1980; William H. Perkins, *Current Therapy of Communication Disorders*, New York, 1983–1984; idem, *Speech Pathology: An Applied Behavioral Science*, 2d ed., St. Louis, Mo., 1977; Paul H. Skinner and Ralph L. Shelton, *Speech, Language, and Hearing: Normal Processes and Disorders*, Reading, Mass., 1978; Charles Van Riper and Lon Emerick, *Speech Correction: An Introduction to Speech Pathology and Audiology*, Englewood Cliffs, N.J., 1984.

WILLIAM H. PERKINS

SPEECH ANXIETY

An individual's fear of actual or anticipated oral communication with another person or group of people. It is often referred to as communication apprehension or oral communication anxiety. One of its forms is popularly known as stage fright. Surveys seem to indicate that anxiety about oral communication is common in most cultures in the world. A common response to a high degree of such anxiety is withdrawal, frequently called shyness or reticence.

Types. There are three major types of SPEECH anxiety. The first is general in nature. Individuals who experience this type feel anxious about virtually all oral communication, regardless of its form, the nature of the receiver, or specific circumstances surrounding the communication.

A more common type is context specific. It is associated with communication in only one particular context, such as giving a speech to an audience, attending a job interview, or meeting new people.

Audience-specific anxiety is the third type, one based on a response to a specific person or group of people. A common example is a subordinate's reaction to communicating whenever a particular supervisor is present. It matters not whether the communication involves a CONVERSATION, a small-group conference, a large meeting, or a formal speech. What matters is whether the supervisor is present.

Causes. Two primary factors are believed to contribute to the development of speech anxiety in an individual. On the basis of research with identical and nonidentical twins, some investigators feel there is a genetic predisposition toward approaching or avoiding other people, which may in the course of time be reflected in speech behavior patterns. Others who have studied speech anxiety believe that most if not all such anxiety is learned as a result of an individual's communication experience. Such learning is believed to be rooted in the communication history of the individual and related to questions of whether early efforts to communicate met with success or failure, reward or punishment, gratification or pain, response or rejection. Particular childhood events, relating to a particular type of communication, may generate anxiety of a situation-specific type. If an individual has had negative experiences, mixed experiences, or no experience with a particular kind of communication in the past, it is likely the individual will suffer from anxiety if forced to engage in that kind of communication.

Effects. The only consistent effect of speech anxiety is an internally experienced feeling of discomfort and stress. It is important to recognize that this is a cognitive response of the individual and may or may not be associated with physiological arousal. Indi-

cators of physiological arousal, such as increased heart rate or increased sweating, have no necessary relationship to the internal feeling of anxiety.

The most common effect of speech apprehension on behavior is a tendency to avoid or withdraw from communication. One might decline an invitation to give a speech, fail to appear for a job interview, avoid social functions or meetings, or even select an occupation that requires little interaction with others. However, such withdrawal behaviors are not necessarily associated with a high degree of anxiety about oral communication.

When avoidance of communication is impossible or the individual chooses not to withdraw, the communication behavior of the person experiencing high anxiety is likely to be disrupted. Such things as poor eye contact, inappropriate gestures, and vocal non-fluencies are likely to increase. It is important to note that such disturbances may not be present even for a communicator experiencing extremely high anxiety. Some individuals are able to control external manifestations of anxiety so that observers are unaware of the anxiety. A less common behavioral response to high anxiety is a tendency to overcommunicate. In an attempt to overcome their anxiety, some individuals become very talkative. In most cases the communication of such individuals also displays some of the disruptions noted above.

Overcoming speech anxiety. The level of oral communication anxiety experienced by most people in most communication situations is not a serious problem. The individual may be somewhat uncomfortable but is able to control the anxiety and communicate normally. Only when the level of anxiety is much higher, enough to produce change in communication behavior, is it considered serious by most people. Very few individuals are able to overcome extremely high speech anxiety satisfactorily without assistance from a trained professional. The three methods most commonly used by professionals are systematic desensitization, cognitive restructuring, and skills training.

Systematic desensitization, a behavior therapy, is the most effective approach for attacking the anxiety directly. In this method a person is taught how to relax the various muscle groups in the body and then is progressively conditioned to relax while visualizing increasingly threatening communication situations.

Cognitive restructuring, another behavior therapy, is directed toward changing how a person thinks about communication. The person is first taught to recognize the negative thoughts he or she has about communication and then trained to substitute positive thoughts for the negative ones.

The skills training approach assumes that the cause of the anxiety is lack of sufficient skill to ensure successful communication. The individual is taught

specific skills to be used in specific situations. This approach is quite helpful for overcoming situation-specific speech anxiety when skills are truly deficient. However, its use for other purposes is severely limited. *See also* SOCIAL SKILLS.

Bibliography. Arnold H. Buss, *Self-Consciousness and Social Anxiety*, San Francisco, 1980; John A. Daly and James C. McCroskey, eds., *Avoiding Communication: Shyness, Reticence, and Communication Apprehension*, Beverly Hills, Calif., 1984; Mark R. Leary, *Understanding Social Anxiety*, Beverly Hills, Calif., 1983; James C. McCroskey and Virginia P. Richmond, *The Quiet Ones: Communication Apprehension and Shyness*, 2d ed., Dubuque, Iowa, 1982; Gerald M. Phillips, *Help for Shy People*, Englewood Cliffs, N.J., 1981; Virginia P. Richmond and James C. McCroskey, *Communication: Apprehension, Avoidance, and Effectiveness*, Scottsdale, Ariz., 1985.

JAMES C. MCCROSKEY

SPEECH PERCEPTION. *See* PERCEPTION—SPEECH.

SPEECH PLAY

The creative disposition of LANGUAGE resources; the manipulation of formal features and processes of language to achieve a striking restructuring of familiar discourse alignments. A great deal of conversational SPEECH play is essentially frivolous, yet it serves vital communicative needs, such as establishing a proper social bonding among participants in a speech event. Moreover, when it is used in connection with certain social and RITUAL enactments, speech play may acquire a profound or even exalted stature.

Speech play is a species of what ROMAN JAKOBSON refers to as “introversive semiosis,” that is, language turned in on itself. Speech play highlights relationships among linguistic elements that tend to remain latent in the more reference-oriented uses of linguistic codes. It fastens on the “wrinkles” in the linguistic CODE, its points of overlap, inconsistency, ambiguity, and anomaly. It draws attention to inconvenient linguistic facts, such as the piling up of lexemes on a single phonetic unit, the close phonetic resemblance of contrasting lexical items (the French *poisson*, meaning “fish” and *poison*, meaning “poison”), or the ambiguity produced by optional deletions in a syntactic structure (“the shooting of the hunters was terrible”). Speech play draws attention to these nuances of the code, be it in finite, subversive episodes of wordplay or in the cadences of spoken POETRY.

Only those resources available in a given language’s repertoire can be turned to playful ends. Speech play is inherently ecological. Each language is a medium, facilitating certain manipulations, rul-

ing others out entirely. Consider the following instance of graffiti:

Con-gress Is the Opposite of Pro-gress

A technique of word formation based on autonomous roots and affixes makes possible this polemical juxtaposition of prefixes. Speech play dissects and analyzes the host linguistic environment.

Forms of speech play. The forms of speech play are legion, falling plausibly into four categories, with diverse representatives in the world’s speech communities. The first might be called *wordplay*, consisting of isolated, discrete moments of speech play (puns, speech METAPHOR, graffiti).

Wordplay encompasses in pristine form all the conceivable permutations of the formal features of language. Wordplay, with its flashes of verbal creativity, occurs primarily in a conversational setting (*see* CONVERSATION). Its varieties can be charted in rhetorical figures of sound, schema, and trope or in the ethnic genres of specific speech communities. Classical RHETORIC abounds in atomistic formal devices of the sort likely to surface in playful speech, for many a witticism has been engineered on the basis of figures like (1) *antistasis*, repetition of a word in a different or contrary sense; (2) *metaplasm*, moving letters or syllables of a word from their place; (3) *hyperbaton*, departure from normal word order; and (4) *synecdoche*, substitution of part for whole, genus for species, or vice versa.

In the English language tradition, a number of wordplay varieties have been named:

- The *pun*, which substitutes one lexical item for another, where the two are phonetically related.
- The *Wellerism*, or quotation proverb, named for Sam Weller in Charles Dickens’s *Pickwick Papers* (“‘My bark is on the sea’ said the dog as he fell overboard”).
- The *conundrum* with its riddlelike format resolving into a pun.
- The *spoonerism*, involving a switching of initial syllables, and named for the Reverend William A. Spooner (1844–1930) of Oxford University, who is credited with the following slip of the tongue in a speech to a group of farmers: “I have never before addressed so many tons of soil.”
- The *malapropism*, named for a character in Richard Sheridan’s comedy *The Rivals* (1775) with a tendency to misuse pretentious language.

The second form of speech play is *verbal games*, speech play harnessed to gaming structures (jokes, riddles, catches, verbal dueling). Verbal games harness speech play to a combative arena, where consensual rules specify the roles, moves, and goals of the game. At the informal end of the spectrum we encounter the RIDDLE, an interrogative ludic routine

that sets the stage for launching episodes of speech play, challenging facile assumptions about linguistic and cultural codes. Verbal dueling lies at the more formal end of the spectrum, taking on the aura of public SPECTACLE, as participants attempt to outmaneuver their foes within the framework of well-established rule systems. *See also* HUMOR; INSULT.

The third form of speech play could be called *special linguistic codes*. This is speech play carried out systematically over an entire discourse segment to produce distinctive ways of speaking for special social purposes (adult baby talk, argots, play languages, glossolalia, ritual speech). Many play languages are created through a systematic reallocation of phonemes, as is pig latin, famous among North American schoolchildren. The technique is purely phonological:

Pig latin: igPay atinlay

Rule: Move the first phoneme of each word to the end of that word, and then tack on the vowel glide /ey/.

A simple phonological transformation of this sort produces speech that is quite difficult for the uninitiated to comprehend.

Special linguistic codes may also be created through transformations wrought on other language components. Argot and slang, for example, involve the process of lexeme substitution. The street language of Mexican-American youth, often referred to as *caló*, retains the standard PHONOLOGY of Spanish but introduces radical alterations in the lexicon. Its sources include the historical *caló*, an argot of the Spanish underworld with a strong Gypsy influence; the English language, which has loaned words like "chance" (*chansa*) and "dime" (*daimé*); indigenous Mexican languages (the word *cuate*, "close pal," derives from a Nahuatl word meaning "twin"); and the Spanish language, the vocabulary of which is modified through metaphorical and vernacular processes.

Ceremonial codes are frequently generated from systematic speech play working simultaneously at various levels in the linguistic structure. They often display patterning of the aural texture of speech, along with grammatical parallelism and a special vocabulary. The ritual language of the Kamsa Indians of Andean Colombia exhibits all of these effects: a prosody composed of regular phrases shaped by isochronic meter and intonational contour; a complex type of word formation, creating ponderous lexical items; a syntactic structure producing high levels of grammatical parallelism; and a special lexicon composed of metaphorical equivalents to many ordinary words. Kamsa ritual language is a distinctive speech variety used to formulate speeches during ceremonial occasions. *See also* RELIGION.

The fourth category of speech play, *poetic forms*,

is speech play harnessed to artistic expression in traditional genres (PROVERB, ballad, limerick). It lies at the foundation of all poetry, for poetic discourse achieves its artifice through the discrete moments of speech play that it weaves into global artistic patterns. What surfaces in wordplay as a fortuitous rhyme may emerge in verbal art as an instance of periodic end rhyme. Poetic forms are characterized by their prosodies, organizing the dimensions of time, stress, timbre, and intonation into the patterns we perceive as meter, rhyme, and speech melody. Within these prosodic vessels poetic forms display all the finite nuances of grammatical parallelism and lexical substitution endemic to speech play, but now harnessed to aesthetic forms concerned with issues like climax and closure. *See also* ORAL POETRY.

Speech play can run the gamut from the frivolous to the sublime, from conversational spice to poetic grace. Speech play, the creative disposition of language resources, is alternatively an amusement, a vocation, a mark of social standing, a religious obligation. It adds a note of levity to ordinary talk. It may be systematized to create special linguistic codes or harnessed to some institutional design, a game, or a poem. Whether incidental or prescribed, intended or unintended, orthodox or subversive, it attests to the indomitable spirit of human creativity, ever restless within the bounds of received cultural systems. Speech play opens a door to transcendence of sheer referentiality in verbal expression; in so doing, it promotes the many communicative uses of language, playful and affective, that are not strictly referential in scope.

See also SLIPS OF THE TONGUE.

Bibliography. Richard Bauman, *Verbal Art as Performance*, Rowley, Mass., 1977, reprint Prospect Heights, Ill., 1984; Peter Farb, *Word Play: What Happens When People Talk*, New York, 1973; Paul Garvin, ed. and trans., *A Prague School Reader on Esthetics, Literary Structure, and Style* (in Czech), Washington, D.C., 1964; Roman Jakobson, *Selected Writings*, Vol. 2, *Word and Language*, The Hague, 1971; Barbara Kirshenblatt-Gimblett, ed., *Speech Play: Research and Resources for the Study of Linguistic Creativity*, Philadelphia, 1976; Richard Lanham, *A Handlist of Rhetorical Terms*, Berkeley, Calif., 1968; John McDowell, *Children's Riddling*, Bloomington, Ind., 1979; Susan Stewart, *Nonsense: Aspects of Intertextuality in Folklore and Literature*, Baltimore, Md., 1979; Archer Taylor, *The Proverb, and An Index to the Proverb*, Hatboro, Pa., 1962.

JOHN HOLMES MCDOWELL

SPONSOR

The 1786 edition of the Chambers *Cyclopaedia* listed the term *sponsor* as follows: "See God-father." Later

dictionaries defined it as "one who assumes the debts of another." In modern communications media, and especially in broadcasting, the term has come to mean a financial backer, usually of a special sort—the advertiser, a pivotal figure in many RADIO and television systems (*see* TELEVISION HISTORY).

Fees paid by advertisers for the presentation of their promotional messages provide most broadcasting systems with some part—in many cases all—of their operating funds. Sponsorship of this sort has given advertisers a unique role in ADVERTISING history as well as in social history. Like other forms of advertising, broadcast COMMERCIALS are a factor in the distribution of goods and services; at the same time, because of their importance in the economics of broadcasting, the sponsor has an influence (which may be exercised intentionally or unintentionally, directly or indirectly) on programming decisions and the values implicit in them. The significance of this is disputed. Sponsors have been described as a modern version of the ART patron of earlier times, but in societies served predominantly by sponsored television their influence may be far more pervasive. The mechanisms of sponsorship and of government policies relating to them have changed over time and have varied significantly from place to place.

Origins. When radio began its boom period after World War I, its use as an advertising medium was scarcely considered. Leaders in most countries looked on it as a means of public enlightenment comparable to the SCHOOL, LIBRARY, and MUSEUM, therefore meriting government funding—possibly defrayed in whole or in part by license fees to be levied on set owners. Arrangements of this sort prevailed in most European countries.

In the United States a more laissez-faire spirit took hold, which soon spread to Latin America and later elsewhere. The U.S. Department of Commerce authorized a large range of organizations to establish broadcasting stations; by the end of 1922 more than five hundred had gone on the air. They included electrical giants like Westinghouse and General Electric, which at first thought their revenues from the sale of radio sets would finance their broadcasting activities. Other licensees included universities, churches, newspapers, hotels, and department stores, which generally embarked on radio as an inexpensive prestige device. A public service approach was the keynote: colleges broadcast their lectures, hotels their string quartets, newspapers their news bulletins. People flocked to stations to make appearances, to take part in a moment of history; no one seemed to want payment. Within months, when artists began to ask for fees and authors for royalties, it became clear that other financial arrangements were needed.

In 1922 the American Telephone and Telegraph Company (AT&T) proposed a new kind of radio station, which it described as a historic extension of

the TELEPHONE idea. Any person or corporation wishing to talk to the public at large would be able to do so for a fee: one hundred dollars for ten evening minutes, fifty dollars for ten daytime minutes. The idea was quickly denounced on both practical and philosophic grounds. The prospect of a new competitor for the advertising dollar alarmed publishers of periodicals. And besides, was it right for AT&T to be selling slices of the public domain for private profit? Secretary of Commerce Herbert Hoover declared it "inconceivable that we should allow so great a possibility for service . . . to be drowned in advertising chatter." Yet Hoover in his official capacity gave the go-ahead to the AT&T plan. The first commercial went on the air in the late afternoon of August 28, 1922, over WEAJ New York; it promoted the sale of cooperative apartments in a New York City suburb. When it resulted in sales, the sponsor returned to "talk to the public" five more times and was followed by others—slowly at first, then in a rush. The messages soon took more theatrical forms. A 1923 program featuring actress Marion Davies on "How I Make Up for the Movies" led to encomiums on behalf of Mineralava soap. Listeners were offered an autographed photo of the actress, providing the sponsor with a merchandising hook as well as an audience-measurement device. An advertising agency had arranged the program. Scores of other stations decided to adopt the AT&T idea (for a time AT&T claimed they had no right to), and by the mid-1920s it dominated U.S. broadcasting.

A central element in the system was that a sponsor could buy airtime and decide how to use it—subject to the station's approval, which seemed to be a formality. This pattern governed both local and network broadcasting. Periods of fifteen, thirty, or sixty minutes (minus, in each case, a fraction of a minute for station identification, time signals, and other matters) in stretches of thirteen, twenty-six, thirty-nine, or fifty-two weeks came to be the main purchase units. The system gave sponsors considerable control over program schedules. This caused little public policy concern at first. If many hours were sponsor-controlled, others remained unsold and could be used for other, noncommercial purposes. There seemed to be something for everyone. But as commercial broadcasters sold more of their time, earned skyrocketing profits, and bought up most of the stations that had operated noncommercially, the system was increasingly questioned. Licensees, theoretically responsible for their schedules, had in effect sold control to advertisers. Key policy decisions seemed to be made by an advertising oligarchy. During the 1940s and 1950s U.S. broadcasting came under constant attack from critics inside and outside government as reforms were proposed and debated.

Other systems under pressure. While the U.S. system was increasingly involved in controversy, non-

commercial systems in Europe and elsewhere were experiencing pressures of another sort, epitomized by the rise of Radio Luxembourg. Gaining attention in the 1930s as one of Europe's most powerful stations, it operated on the time-selling plan. Its power was irrelevant to the tiny area of Luxembourg itself, but the main target was Britain. Taking advantage of Britain's staid, intellectual programming and classical orientation, Radio Luxembourg featured U.S. jazz, winning a substantial audience among young Britons and support from advertisers—particularly multinational companies marketing food, drug, and tobacco products in Britain. The station also welcomed the U.S. SOAP OPERA, in many cases backed by the same companies that sponsored soap operas in the United States. The success of these maneuvers was irksome to Britain. It represented an erosion of audience as well as of advertising investments. It brought British Broadcasting Corporation (BBC) programming as well as its anti-advertising policy into question.

After World War II a similar confrontation developed in South Asia, precipitated by a station in Ceylon (later Sri Lanka) that, like Radio Luxembourg, was powerful and operated commercially. Under pressure in this case was All-India Radio (AIR), which had been created on the BBC model but which, after India won independence in 1947, became even more restrictive in its programming. Its emphasis was on instructional talks and on Indian classical and folk music. This music was a much-admired cultural treasure, but India's youth were addicted to another kind of music, the songs that were a key element in Indian feature films (*see* MUSICAL, FILM—BOMBAY GENRE). AIR's administrators considered it "hybrid music," contaminated by U.S., Latin American, and African rhythms and instrumentation, and they banned it from AIR schedules. Radio Ceylon took advantage of this, featuring Indian film songs and sometimes U.S. jazz. During the 1950s, operating with enough power to blanket India, it became the most popular station in the region and won support from many companies marketing consumer products in India. The leading program among young Indians was the weekly "Binaca Toothpaste Hour," which was modeled after the U.S. "Your Hit Parade" and revealed the top ten songs. The climactic moment, heralded by trumpet fanfares, when the new number one song was proclaimed, found young people in all parts of India clustered around radio shops. Here, too, the erosion of audience and advertising funds caused agitation, which was often leveled at AIR.

The same sort of pressure was continuing in Europe, where the French noncommercial system was harried by what it called peripheral stations, in this case advertising-supported stations operating from the independent enclaves of Monte Carlo and Andorra, directing French-language programs and com-

mercials at French territory. In the 1960s such pressures were augmented by an eruption of pirate stations operating from ships and offshore islands in the Atlantic and the North Sea, often featuring rock and roll, amply supported by advertisers, and aiming at markets in various countries of western Europe served by noncommercial systems.

What finally brought such pressures to the breaking point was the advent of television and its rapid diffusion during the 1950s and 1960s. It soon became clear in many countries that license fees levied on set owners could not adequately support a television system unless fees were so high as to be beyond most homes. License fees were in any case increasingly difficult to collect, especially in developing countries (*see* DEVELOPMENT COMMUNICATION). A rapid change of policies began; most countries decided to welcome the sponsor, both to television and radio. Dual systems developed in some countries, such as Britain and Japan, with an advertising-supported television system operating alongside a license-supported system. In others, such as India and many other Asian and African countries, government monopolies remained in effect but sought revenue via commercials. Most socialist countries used advertising to channel the flow of goods, and the media carried messages to this end representing various industry sectors.

In many countries the advertiser as sponsor was welcomed with tight restrictions relating to length, frequency, taboo topics, and other matters. A plan initiated by Radiotelevisione Italiana (RAI) was to cluster commercials in time periods allocated to this purpose. The idea was to distance the advertiser from programming decisions. The sponsor was asked to sponsor the system, not a particular program or series. Each sponsor in such a cluster paid the same rate, as shown on a published rate schedule. To the surprise of many observers, periods of clustered commercials won a considerable following as leading directors became involved in their creation. A number of countries adopted the clustering plan.

Reforms in the United States. A time for reform came also to the United States. Scandals involving fixed television quiz programs brought matters to a head in the 1960s. Some QUIZ SHOW producers had devised means to make sure that popular contestants would remain victorious throughout a series of programs (thus increasing the ratings), and sponsors were found to have demanded such controls. The revelations brought national consternation. The networks resolved to "take charge in our own house." Network programming decisions would henceforth be made solely by the network, and all programs would be under its control. Advertisers would be invited to buy time slots (of thirty seconds, sixty seconds, or various other units) within the available program schedule. To some extent the major net-

works had already been attempting a shift to such a plan—which they called the magazine concept—but many advertisers had resisted. The scandals provided both the opportunity and the necessity for such a move.

This time the sponsors acquiesced—with significant reservations. Major sponsors took the position that they did not wish to influence programming but insisted on deciding with what programs their messages would be associated. In the U.S. system that now evolved (in contrast to the system that had been adopted in Italy) the sponsor bought slots in specific programs at prices determined by BARGAINING. A company preparing a campaign for one of its products might in one contract purchase slots in some two hundred different broadcasts scheduled for the following season, with a price specified for each slot. As the system developed, the prices for slots fluctuated wildly. Most sponsors wanted audiences with specific demographic characteristics. Because the Nielsen rating services provided such data about network audiences (see RATING SYSTEMS: RADIO AND TELEVISION), bargaining could readily proceed on this basis. Some sponsors defined their needs in precise terms: “We are ready to pay \$8 per thousand women in the right age range.” It meant that a single thirty-second slot in a prime-time series especially popular with young women (key purchasers of consumer goods) readily went for fifty thousand dollars or more. Many manufacturers of products sold in supermarkets were intent on reaching this same group, with resulting escalation in the price of appropriate slots. Other sponsors were after another, more elusive target. Luxury automobiles and computers were bought mainly by affluent men who could be counted on to watch major athletic contests (see SPORTS—SPORTS AND THE MEDIA). A single thirty-second slot in a U.S. Super Bowl football game could command a price of two hundred thousand dollars or more; indeed, a few sponsors found it worth twice that sum to talk to the public for thirty seconds in this context. A sponsor making such investments might also be ready to purchase a few spots in documentaries or newscasts, but at considerably lower prices.

The disparity of prices resulting from the bargaining system—along with its overall profitability—had a number of consequences. For commercial broadcasters elsewhere it posed the problem of whether to adopt such a system or at least to apply it to periods of widest interest. Within the U.S. networks the system had created strong internal pressures. It had given the networks financial incentives to match with their programming the demographics of the marketplace and to opt for programming that would yield the lucrative slots.

Network sponsors had been placed in a unique position. They could rightfully assert that they were

not making programming decisions; the networks were. For this reason some major sponsors now insisted they should just be called advertisers. Yet their decisions in the buying of slots had come to exercise constant and powerful leverage over network decisions and thus over the selection of programs that would be featured in network schedules and go out into world markets.

Bibliography. Erik Barnouw, *The Sponsor: Notes on a Modern Potentate*, New York, 1978; Timothy Green, *The Universal Eye: The World of Television*, New York, 1972.

ERIK BARNOUW

SPORTS

This entry consists of three articles:

1. Sports and Society
2. Sports and the Media
3. Psychology of Sports

1. SPORTS AND SOCIETY

Sports belong in the world of PLAY and LEISURE, yet business elites, mass media, and government and political leaders recognize their potential for making profits, disseminating PROPAGANDA, and eliciting pride and solidarity. Organized sports prevail virtually everywhere and have developed over the past half-century into a major social institution.

Sports as International Culture

Sports promote connections from the broadest level to the momentary bonding of two strangers, whether as rival participants or as fans sharing the same passion. Organized sports parallel the intricate weave of government agencies in organizational structure: small towns, even rural areas, are linked to one another and to big cities for state and regional championships; major cities are knit together into national leagues and meet in regular competitions; and nations that play the same sports are drawn into relationships with one another through continental and worldwide federations that stage international contests between representative teams. Nationalistic feelings are fanned, and, simultaneously, people are united in a global folk CULTURE.

International sports have succeeded as a basis for global community by promoting common knowledge and shared symbols among people of different nations. Comparative data on audiences for SATELLITE-televised events show that major international sporting contests draw together more spectators than anything else. Sports provide a common frame of reference and rules that transcend cultural, political, and lan-

guage barriers. A sports pantheon of STARS and a series of special events make up a set of universally recognized symbols that constitutes one of the elements of international culture.

The Fédération Internationale de Football Association (FIFA), established in 1904 as the controlling body for world soccer, is second only to the United Nations in number of members. Association football, called soccer in the United States and football everywhere else it is played, is the world's most popular participant and spectator sport. The quadrennial World Cup is the only global championship for professionals in a team sport. It is estimated that one of every two people in the world watches the final match of the month-long tournament.

Contests between professional athletes from different countries are common in individual sports like tennis, golf, boxing, and auto and bicycle racing, but contests in other team sports involve athletes officially ranked as amateurs. Basketball is followed by volleyball as the spectator team sport with the widest participation in international amateur tournaments. In terms of the number of players, both male and female, field hockey is one of the world's most popular participant sports. Played in more than seventy countries, it draws large crowds only in India and Pakistan.

At the local level, sports competitions have much older roots. Forms of ball-kicking games were played in ancient China, Rome, and Greece, and a riotous brand of soccer was played in the streets of medieval England during public holidays. At least since the intercity rivalry of the ancient Greek Olympic Games, glory has been shared by the townspeople of the victorious athletes. Across time and place, sports promoters, whether governments or management, have told fans that they can properly assume the victory as their own. Identification of fans with athletes—whether in terms of a common school, city, nation, race, or religion—is the foundation of every variety of spectator sport. Athletes and teams have served as important sources of collective identity. As objects of conversation, publicity, and mass media coverage, organized sports continue to focus community social life.

Sports and Social Structure

Whether one sees the consequences of sports as beneficial or harmful to society depends on which of two competing theoretical approaches—functionalist or conflict-oriented—is adopted. The functionalist perspective leads social scientists to examine the ways in which sports contribute to the smooth operation of society as a whole. The benefits of sports are seen to include the promotion of values such as the importance of rules, hard work, organization, and a

defined authority structure; the legitimation of the goals of success and achievement; the social integration or reaffirmation of linkages of sports participants and also those they represent; and the development of physical skills and the promotion of the physical well-being of people who lead otherwise sedentary lives in industrial and postindustrial cities.

Conflict theorists do not disagree that widespread interest in commercialized sports leads to such consequences; rather, their perspective leads them to view those consequences as harmful. Critics of the status quo recognize the role of sports in socializing the young to fit into a regimented, bureaucratic work mold. Mass entertainment spectacles (*see* SPECTACLE), including organized sports contests, are viewed as providing escape and excitement and making participation in political or revolutionary organizations less likely.

Furthermore, conflict theorists argue that commercialized sports reduce players to material commodities exploited by others for the sake of profit, and the pressures to perform take their toll on athletes' bodies through injury or the inducement to take harmful drugs. The highly visible rewards given to athletes in turn publicize an IDEOLOGY of upward mobility. Conflict theorists point out that athletes' fame creates illusions about individualism by presenting a model in which success depends on hard work and perseverance, thus distracting attention from organizational bases for blocked mobility. Finally, fans' identification with athletes is used to sell a host of consumer goods, and the proliferation of participant sports has spawned a huge leisure industry in capitalist systems.

Functionalist theorists have been criticized for ignoring the possibility that sports may benefit some members of society more than others and for failing to note the exploitation found in organized sports. Conflict theorists have been criticized for overemphasizing the influence of capitalism when in fact contemporary sports function much the same way in socialist and Communist societies. Perceptive analysts have noted that theorists tend to apply the functionalist model to social systems they support and the conflict model to those they criticize.

The contours of sports specific to a culture shed light on its other institutions, values, myths, and inequalities. In the United States, for example, racial integration in team sports awaited the breakdown of societal segregation and hastened its demise by virtue of the attendant publicity. Yet blacks still are largely absent from elite sports and are excluded from many leadership positions in sports. Media attention to female athletes remains minimal despite women's increased participation in sports and sporting organizations. Changes in sports reflect and reinforce broader social changes in any society. Paradoxically,



Figure 1. (*Sports—Sports and Society*) A stadium wall collapsed, and twenty-eight people died after English soccer fans attacked Italians at the European Cup final, May 29, 1985. The sign reads, “Do not let the misconduct of a few spectators spoil the pleasure of the majority.” Reuters/Bettmann Newsphotos.

club divisions, team colors, and fan rituals (*see RITUAL*) tend to stay the same as sports act as a force for social change.

Sports and Aggression

A different type of controversy surrounds one function of sports presumed to hold true across time and place, namely, that sports serve as a societal safety valve. Sporting rituals have long been thought to be cathartic. Roman elites believed that a diet of “bread and circuses” would keep workers from revolt. Neo-Freudians view the buildup of tension and frustration as inevitable and see violent sports as a healthy channel for the expression and control of aggression for participant and spectator alike (*see VIOLENCE*).

Contemporary empiricists raise two questions about these assumptions. First, they point out that games and sports are consistent with broader cultural patterns. Cooperative societies encourage noncompetitive sports; societies that stress individual achievement and success encourage competitive sports. Violent societies endorse violent sports. In U.S. football, for example, most of the violence is within the rules, or normative, and even violence outside the rules is often rewarded by coaches, communities, and the media. More than a reflection of societal values, sports also reinforce aggression because they condone and do not condemn it.

Second, it is clear that not all expressions of aggression by fans are harmless; rather, collective violence at sporting events has emerged as a major social problem for many nations. Do aggressive sports attract violence-prone fans, or do they create in them an inclination toward the display of violence? A decade of empirical research suggests that combative sports, as a mirror of cultural norms, teach and stimulate violence. It is not competition per se that increases hostility but rather the aggressive nature of that competition. Those who participate in combative sports show more aggression in response to anger and frustration than those who participate in non-contact sports. Athletes in combative sports are more likely than others to suffer from hypertension, a finding that further undermines the notion of sports as catharsis.

Emergence of Organized Sports

Sporting institutions cannot be understood in isolation from the prevailing social structure. They are inseparable from historical context, technological development, and shifting ideologies. An essential ingredient for the emergence of big-time sports was the development of mass leisure. Although play and games have been a part of every known society, the emergence of leisure institutions as a segregated part of life available to the masses required several changes.

The organizational change was the result of the Industrial Revolution and its concomitants, including the move from rural to urban life, the separation of the workplace from the home, and the emergence of routinized factory labor with shorter work schedules. A supportive value system was also essential. For example, in North America the Puritans took a dim view of recreation and emphasized work and religious worship. Not until the mid-nineteenth century did the old belief systems, with their prohibitions on sports and other amusements, begin to break down.

Another crucial ingredient for the emergence of sports as we know them was a system of mass communication. For sporting events to become parts of mass culture, mechanisms had to be found for reaching diverse audiences in distant places. At least since 1850 fans in Europe and the United States could get accounts of some events, particularly boxing and horse racing, through the growing telegraph system (see TELEGRAPHY). Journalistic accounts of angling, hunting, cricket, footracing, and boat racing were carried in magazines (see MAGAZINE). By the beginning of the twentieth century the newspaper sports page had arrived (see NEWSPAPER: HISTORY), some two decades later came RADIO, and by midcentury, television (see TELEVISION HISTORY).

Technological advances changed forever the way people relate to sports. The expansion of sporting news was related directly to instantaneous reporting made possible by the telegraph, and PHOTOGRAPHY introduced millions of readers to the visual form of sports. The invention of the electric light bulb stimulated the indoor sports of basketball and volleyball. Steamboats and railroads made possible regional competition, and trolleys facilitated intracity matches; fans as well as athletes utilized these mass transit systems. In geographically extensive countries like the United States and Brazil fully developed national championships had to await inexpensive, efficient air travel. Intercontinental matches were spurred by the advent of the jet plane. Television draws in regions with and without professional teams to the national sporting scene; satellites permit live transmission of televised events that unite audiences around the world.

Political and economic relations have played a significant role as well. Soccer is the world's most popular team sport because the height of the game's popularity in England coincided with the height of the British Empire's maritime, industrial, and diplomatic influence. The means of cultural DIFFUSION were many: students who studied at English schools brought the game home with them to the Continent and Latin America; the British Embassy staff displayed it in Scandinavia; sailors in the Royal Navy carried soccer to their port cities; British engineers and workers in local projects introduced it to Russia, Romania, Uruguay, and Argentina.

The emergence of sports as a major social institution is inextricably linked to general trends of modernization. The twentieth century especially has seen a progressive shift from informal, participant-oriented amateur sports to highly organized, spectator-oriented professional sports. The accompanying shifts from local or regional events to national and international events and from individual to team activities are part of the evolution of sports as big business, an expansion of their role to be expected in leisure-oriented mass societies.

Bibliography. John Arlott, ed., *The Oxford Companion to World Sports and Games*, London and New York, 1975; Jay J. Coakley, *Sport in Society: Issues and Controversies*, 3d ed., St. Louis, Mo., 1986; D. Stanley Eitzen, *Sport in Contemporary Society: An Anthology*, 2d ed., New York, 1984; Richard S. Gruneau, *Class, Sports, and Social Development*, Amherst, Mass., 1983; Janet Lever, *Soccer Madness*, Chicago, 1983; Michael D. Smith, *Violence and Sport*, Toronto, 1983.

JANET LEVER

2. SPORTS AND THE MEDIA

Examples of sports as a powerful currency of mass communication are not difficult to find. In the 1970s boxer Muhammad Ali was described as the most widely recognized person in the world. Since the 1960s the Olympic Games and soccer's World Cup have been among the most attention-getting non-military international events. In most industrial countries and in a growing number of developing nations sports events constitute the single most popular media fare. The attachment to sports is so strong that people all over the world use athletes and sports teams as symbols of self-identification and community pride, and sometimes as sources of national pride.

Sports can be used to deliver a wide variety of messages. In the United States, for example, it is associated with competition and capitalism, while in the Soviet Union and the People's Republic of China it is seen as promoting cooperation and socialism. Sports may be used to teach such diverse values as achievement and pragmatism on the one hand and spontaneity and emotional expressiveness on the other. Regardless of the setting, the messages delivered by sports are likely to support the general cultural values of the people involved.

Interrelations

When the relationship between sports and the mass media is examined, there is a tendency to emphasize the impact of the media on sports. There is no

question that this impact has been significant in the case of commercialized spectator sports. Commercial sports depend on the revenues produced by media coverage, they depend on the spectator interest generated by media-sponsored promotional campaigns, and they depend on the media to communicate scores and performance statistics to information-seeking fans. The impact of sports on the media has received less attention. Sports events have historically played important roles in promoting the debut of each of the modern media. For example, when Louis Lumière (see LUMIÈRE, LOUIS AND AUGUSTE) dispatched cameramen throughout the world in 1896 to demonstrate his amazing new invention, the cinematograph, the first things they filmed included a bullfight in Spain and the Melbourne Races in Australia. In

1899, when GUGLIELMO MARCONI came to the United States to demonstrate the wireless, his trip was sponsored by the *New York Herald*, which wanted him to report the America's Cup races so the *Herald* could have the news on the street before the ships reached shore. Marconi did it successfully, and the story made big headlines. In 1946, when NBC, introducing the new postwar television technology, telecast a Joe Louis–Billy Conn heavyweight prizefight, the *Washington Post* declared, "Television looks good for a thousand-year run." Taverns rushed to install television sets to attract crowds during boxing and wrestling events. The tavern prizefight showings were probably television's most effective promotion during that year. See TELEVISION HISTORY.

An analysis of newspapers and television in coun-

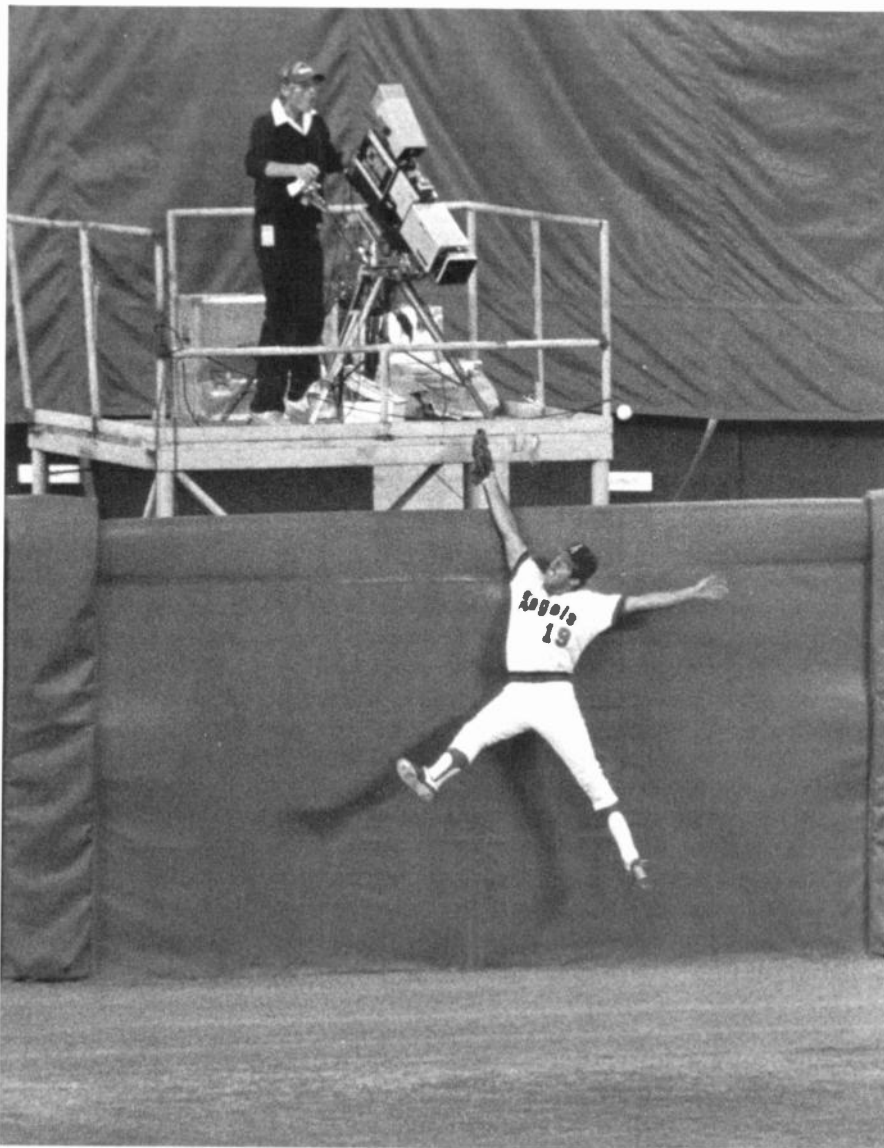


Figure 1. (*Sports—Sports and the Media*) California Angels baseball player Fred Lynn attempts to catch a long fly ball, which bounces off the television stand and comes back onto the field. UPI/Bettmann Newsphotos.

tries where the media are privately owned shows that they have come to depend on sports nearly as much as sports depends on them. Developments in the United States, though not entirely representative of the sports-media links in other countries, can be used to highlight the nature of the media's dependence on sports. In the United States, newspaper coverage of sports began in the late nineteenth century and grew steadily, eventually securing a substantial proportion of general news coverage in most major city papers. Many newspapers depend on sports both as a topic of news and as a basis for circulation. Furthermore, sports have provided incentives for some television companies to develop sophisticated technology to cover large spectator events. In general, the coverage of sports links television programming to an increasingly popular sphere of life in modern society; this link is crucial to its continued success.

Merchandising

Privately owned mass media use sports to attract ADVERTISING dollars. Businesses having products to sell to young and middle-aged consumers with average to above-average incomes often use the sports section for their ads. Similarly, television advertisers realize they can communicate with hard-to-reach audiences by buying commercial time on sports events. Even "elite" sports events with relatively low ratings—like golf and tennis—sell their commercial time at expensive rates because they are viewed by a high proportion of professionals and business executives. This is ideal for companies selling expensive items. See SPONSOR.

Advertisers like to associate their products with valued activities, and sports are highly valued in industrial societies. Sports and athletic models are used around the world to sell everything from cigarettes and alcohol to clothing and cars. College and professional teams alike are utilized as symbols in the marketing of products. There are few young people in industrial societies such as the United States, Japan, and western Europe who have not owned some piece of clothing or a toy displaying the logo of a sports team.

Top-level athletes in professional and amateur sports have been able to sell their names to companies looking for endorsements for their products. Some professional athletes have doubled their annual incomes with endorsements. Even many of the top "amateur" athletes around the world have been offered attractive cash rewards for endorsing products and winning medals in major international events while using those products. Of course, not all athletes make money on endorsements. But advertisers are well aware that people identify with popular athletes and use them as models for how to improve their

physical and social skills. This identification is an important factor in successfully communicating messages about products.

Political Dimensions

Sports and politics are likewise linked to each other in important and subtle ways. As sports become more popular in a society, their potential as political tools increases. Sports have frequently been used to promote political socialization within countries and to establish prestige and power in international relationships. For instance, it is an accepted practice in many countries to display the national flag and play the national anthem at sports events. Political leaders have often found it useful to be publicly associated with sports, as both players and spectators. In fact, it has become a tradition for U.S. presidents to make congratulatory phone calls to the locker rooms of national championship teams and to individual athletes who have set noteworthy records.

Sports events may be used as scenes for patriotic displays emphasizing the superiority of particular political systems and ideologies. The impact of these displays is intensified both by the endorsement of sports by political leaders and by the fact that in some countries amateur sports programs are closely linked to the military. The influence of sports on the international level is significant enough to lead many countries, even those with serious economic problems, to invest vast sums of money in facilities and programs with the hope they will produce medal winners in major international sports events.

Of course, sports can also be used as a diplomatic tool in international relations. For example, when Commodore Matthew Perry of the United States negotiated the opening of Japan in 1854 after two centuries of Japanese seclusion, the signing of agreements was followed by festivities in which each side demonstrated some of its specialties. The Japanese began with a demonstration of sumo wrestling, a suggestion of their power. In the 1970s "Ping-Pong diplomacy" was used to pave the way for the establishment of political ties between the United States and the People's Republic of China. A touring Ping-Pong team followed by exchanges of other athletic teams was a "safe" way to initiate contact leading to political agreements. Under the right conditions, sports can be a playful, unthreatening medium for bringing people together and emphasizing their common interests.

The Olympic Games

The connection between the Olympic Games and politics has a long history. Even the ancient Greeks used the games at Olympia to enhance the prestige

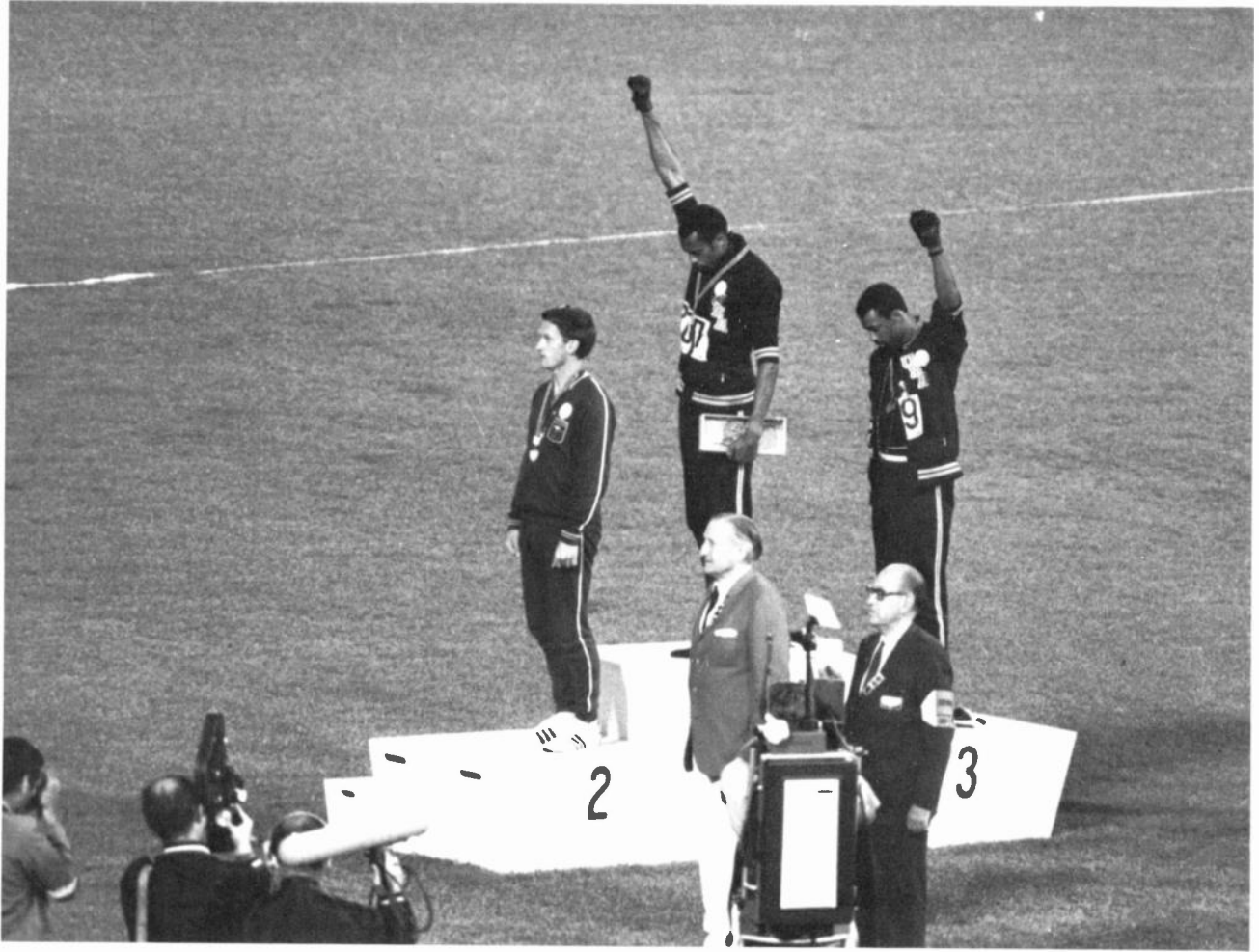


Figure 2. (*Sports—Sports and the Media*) U.S. sprinters Tommie Smith (*center*) and John Carlos (*right*) make the “Black Power” salute during the playing of the national anthem at the awards ceremony, Olympic Games, Mexico City, 1968. UPI/Bettmann Newsphotos.

of their respective city-states and to gain public support for local political policies. Although the ancient Olympic Games were usually accompanied by temporary truces between warring city-states, they did not prevent wars from being fought. When the modern Olympic Games were revived by Baron Pierre de Coubertin, one of his purposes was to rejuvenate the spirit of young people in late-nineteenth-century France so that the French would be less vulnerable to military attack. Of course, he posed other goals as well, including the development through sports of international amity and goodwill, ultimately leading to world peace. Coubertin hoped and believed that peace would be furthered by the Olympic Games, and in fact he saw the foundation of political processes as resting in sports competition.

Even before the first of the modern Olympic Games was held in Athens in 1896, its organizing committee

expressed numerous political concerns. Since then participation in the Olympics has become an issue of international diplomacy. The games became political showcases for host countries and for powerful nations that could use their economic resources to train medal-winning athletes. In the Olympiads following World War II the chauvinistic tendencies gave way to issues of domination and loyalty in international relationships. Participation in the Olympics became a symbol of political recognition and legitimacy. Between the 1948 games in London and the 1968 games in Mexico City, shifting political boundaries in Germany, Korea, and China presented the International Olympic Committee with difficult political decisions related to recognition. Starting with the 1968 Olympics, the German Democratic Republic and the Federal Republic of Germany competed separately. Political issues resulted in boycotts of the

games by African countries in 1976, by the United States in 1980, and by the Soviet Union and other socialist countries in 1984.

Media coverage has increased the visibility of international sports events and made the Olympics an even more popular forum for political expression. Medal counts in the Olympic Games take on great political significance, and athletes are burdened with the responsibility of being "diplomats in track suits" for their respective countries.

Sports events are potentially powerful vehicles for the transmission of spirit and ideas. Like other forms of cultural expression such as drama, literature, art, and music, sports may serve to celebrate human skill and achievement. At the same time, unlike other currencies of communication, sports contains an overt element of competition that can destroy its potential for unity.

Bibliography. Jay J. Coakley, *Sport in Society: Issues and Controversies*, 3d ed., St. Louis, Mo., 1986; Richard Espy, *The Politics of the Olympic Games*, Berkeley, Calif., 1979; Leonard Koppett, *Sports Illusion, Sports Reality*, Boston, 1981; John W. Loy, Jr., *Sport, Culture, and Society*, 2d ed., rev., Philadelphia, 1981.

JAY J. COAKLEY

3. PSYCHOLOGY OF SPORTS

Sport, as the competitive exercise of physical skill, speed, strength, or endurance, organized and bound by rules, is one of many means for the communication and maintenance of cultural norms. Social scientists began to take a scholarly interest in sports at the end of the nineteenth century with psychological studies of the PERFORMANCE of athletes when competing against others or when performing alone. This area of research, known as *social facilitation*, is still pursued by sports psychologists. The formal discipline of sports psychology began in the 1920s when psychologist Coleman Roberts Griffith established a sports psychology laboratory at the University of Illinois, and Carl Diem established the Deutsche Hochschule für Leibesübungen in Berlin to study learning, psychomotor skills, and personality as they relate to athletic performance.

Contemporary sports psychology is concerned with athletic performance and in particular with the personality and motivational factors that maximize performance, with group dynamics as they pertain to the behavior of sports teams, and with the role of sports in psychosocial development and physical well-being (see GROUP COMMUNICATION; MOTIVATION RESEARCH). There is also interest in sports as a form of mass ENTERTAINMENT and in the relationship be-

tween sports and other social institutions. See sections 1 and 2, above.

Psychological Functions of Sports

Theories of the origins and purposes of sports may be grouped into two basic perspectives: the *excess energy* theory and the notion that sports and PLAY are forms of *socialization*. The excess energy perspective, which includes theories by Herbert Spencer in the mid-nineteenth century and SIGMUND FREUD at the turn of the twentieth, sees in sports a means of releasing energy that is superfluous to survival. Contemporary biological and social science theories derived from this notion conceive of sports as means of channeling aggressive and other forms of biological drives or psychic energy. The ethologist Konrad Lorenz, for example, viewed sports as a substitute for the aggressive drive that otherwise would result in warfare (see ETHOLOGY).

The second perspective can be traced to the nineteenth-century writer Karl Groos, who viewed play as a means of practicing roles and developing social and motor skills that would enable the individual to assume adult responsibilities. Modern versions of this approach stress the development of cognitive, psychomotor, and SOCIAL SKILLS, and the acquisition of cultural values through sports. This view of sports places emphasis on the social and cultural contexts in which play occurs and leads to the examination of how different cultures play the same game. For example, Japanese baseball differs in subtle but culturally meaningful ways from baseball in the United States. In Japan managers are rarely fired after a losing season, games may end in a tie, and there is an emphasis on team play rather than on individual achievement.

The types of games played in a culture may reflect its sociopolitical system. Research by U.S. anthropologist John Roberts and psychologist Brian Sutton-Smith indicates that games of physical skill are most often found in cultures that reward personal achievement and that games of strategy are prevalent in cultures with complex social structures and a focus on obedience in children. Games of chance are found primarily in cultures with high levels of anxiety and warfare and a harsh natural environment, and where religious beliefs stress the benevolence or coerciveness of supernatural beings. Some sports theorists have traced the development of modern sports to the rise of capitalism during the Industrial Revolution and to the spread of the Protestant ethic, with its emphasis on independence and individual achievement.

Contemporary sports differ in distinct ways from pre-nineteenth-century sports. Modern sports are largely secular, although many have origins in an-

cient religious festivals (*see* FESTIVAL). They place value on the equal opportunity to compete so that the conditions of competition are theoretically the same for all contestants. There is a greater specialization of roles or division of labor in modern team sports and a clearer distinction between the roles of spectator and participant.

The excess energy and the socialization perspectives are not mutually exclusive. Sports do not have only a single purpose, but serve a multitude of functions for both the individual and the society. One of these functions is to teach cultural lessons to participants. While sports and other forms of play have typically been thought to be a counterpoint to the serious adult world, more recent theories hold that the ways in which a society entertains itself are indicative of its values, beliefs, and ideals. LEISURE activities are not a counterpoint to culture but a reiteration of culture. Sports are means of TEACHING, communicating, and strengthening social values and are thus an instrument of socialization.

The socializing effects of sports have been noted by generations of social scientists, including GEORGE HERBERT MEAD, Freud, Johan Huizinga, JEAN PIAGET, and Erik Erikson. Traditionally it has been argued that participation in sports teaches youngsters competence, role-taking skills, self-control, goal-setting, appropriate attitudes toward cooperation and competition, and cognitive and motor skills, preparing the young for the nonplay business of adult social intercourse. Research conducted by clinical and developmental psychologists in the 1970s and 1980s supports the conclusion that children's play results in greater imagination, ability to cope with stress, and emotional control, and that these enhanced play-related activities carry over into adulthood.

The apparent relationship between sports and cultural values gives rise to the use of sports metaphors. In the United States, for example, many people speak of certain sports as a METAPHOR for society—football and baseball are widely used—and use certain features of these sports (aggressiveness, competition, and an emphasis on outcome) in their analogies. The selective use of sports as a metaphor tends to emphasize traditionally masculine values such as aggression, rugged individualism, and the equation of worthiness with victory. Sports, both as children are encouraged to play them and as they are presented to broadcast audiences, have also been viewed as teaching aggressive behavior and generally conservative political values.

Sports Violence

The two main theoretical positions differ in their interpretations and predictions of the effects of VIOLENCE in sports. The excess energy notion predicts

that taking part in or witnessing sports violence should reduce residual aggression. In this way sports is presumed to serve as an outlet for aggression. This position is often called the *catharsis hypothesis*. It assumes that individuals possess a finite amount of aggressive energy that, like the hunger drive, requires periodic satisfaction or expression. On the other hand, the socialization perspective exemplified in SOCIAL COGNITIVE THEORY specifies that performing or witnessing violence is a means of learning and strengthening subsequent aggression. Research on the cathartic versus social learning perspectives is quite consistent: exposure to sports violence, whether as athlete or spectator, enhances the probability of subsequent aggression. However, nearly all the research on this issue has been conducted during a brief period, from the late 1960s to the mid-1980s, has examined only a limited number of sports, and has been conducted primarily in North America. Therefore the universality of such findings is open to question.

There are other interpretations of sports violence, particularly spectator violence. For example, spectator violence can be seen as a means of restoring equity. Many instances of group violence at athletic events follow what is perceived by the aggressors to be some unfair or inequitable action on the playing field, such as an unfair call by a referee. Because sports fans have few acceptable channels for expressing their disapproval, violence becomes a means of communication. Furthermore, the cathartic feelings reported by some fans may result from the restoration of justice or equity following the demonstration of this disapproval.

Spectatorship

Watching sports may relieve boredom, relax tension, provide for personal development, increase feelings of camaraderie and community solidarity, teach self-control of intense emotions, and enhance one's sense of achievement. Enjoyment is enhanced when the spectator identifies with the winner and believes that the opponents dislike each other. Sports fans are more likely to show overt signs of their identification, such as referring to the team as "we" or wearing the team's colors, after their preferred team wins a game. This is presumed to enhance the sports fan's self-esteem. Partisanship also influences the sports fan's perceptions of a game, leading to what has been called perceptual bias, in which an unfavorable outcome is seen as the result of external factors such as poor officiating, bad luck, or unfair play on the part of opponents.

The presence of partisan sports fans may influence the performance of athletes. This has been studied as social facilitation and as what is called the home

team effect. As applied to the realm of sports, the presence of supportive fans tends to enhance the performance or play of skilled athletes. It is this enhanced performance that presumably gives the home team an advantage over a visiting team, though research suggests that this advantage is limited.

See also SPECTACLE; STARS—THE STAR PHENOMENON.

Bibliography. Mihaly Csikszentmihalyi, *Beyond Boredom and Anxiety*, San Francisco, 1975; Jeffrey H. Goldstein, ed., *Sports Violence*, New York and Berlin, 1983; Allen Guttmann, *From Ritual to Record: The Nature of Modern Sports*, New York, 1978; Johan Huizinga, *Homo Ludens: A Study of the Play-Element in Culture*, Leiden, 1938, reprint Boston (trans. by R. F. C. Hall from the German, 1944 ed.), 1955; Gunther Luschen and George H. Sage, eds., *Handbook of Social Science of Sport*, Champaign, Ill., 1981; John M. Silva and Robert S. Weinberg, eds., *Psychological Foundations of Sport*, Champaign, Ill., 1984; Paul Weiss, *Sport: A Philosophic Inquiry*, Carbondale, Ill., 1969.

JEFFREY H. GOLDSTEIN

SPY FICTION

This entry consists of two articles:

1. History
2. Themes

1. HISTORY

The term *spy* not only refers to one who gathers information but also embraces most foreign-dominated covert operations threatening state security: fifth columns, sabotage, assassination, liaison with regular or irregular troops (such as the European Resistance in World War II), and the activities of international criminal organizations. Spy stories often incorporate elements of such diverse genres (see GENRE) as crime, war, adventure, and romance (see ROMANCE, THE).

Much ESPIONAGE literature responds to current affairs. Particularly since World War II, innumerable memoirs, exposés, and histories have regaled an avid public with details of actual operations, from elaborate deceptions (like Ewen Montagu's *The Man Who Never Was*) to the burrowings of moles, double agents, and traitors. FACT AND FICTION have interacted with surprising frequency, involving events on all continents.

The ancestors of modern spy literature include the biblical Samson and Delilah story (anticipating the vamp theme), James Fenimore Cooper's *The Spy* (1821, military spying), Edgar Allan Poe's *The Purloined Letter* (1845, cryptography; see CRYPTOLOGY), and Charles Dickens's *A Tale of Two Cities*

(1859, situating unsung heroism amid moral decay).

The modern spy story crystallized around 1895 as national rivalries intensified and governments systematized their secret services. At first Anglophone and especially British authors dominated the genre. Possibly Britain's special diplomatic-imperial position encouraged its early interest.

British novelists E. Phillips Oppenheim and William Le Queux devised two basic themes, both related to statecraft and indeed overlapping with each other. Oppenheim dwelt on diplomats and their amorous indiscretions. Le Queux told tall tales of dueling intelligence services—extravagant schemes, convoluted plots, and soot-and-whitewash heroics. Erskine Childers's *The Riddle of the Sands* (1903) and John Buchan's *The 39 Steps* (1915) introduced another perennial: innocent civilians stumbling onto foreign plots. Childers pioneered detailed REALISM in the spy novel, while Buchan initiated picaresque chases with a "pursuer pursued" through a variety of familiar or curious locations. ALFRED HITCHCOCK later refined Buchan's pattern for screen thrillers, beginning with his 1935 adaptation of *The 39 Steps*. Joseph Conrad's novel *The Secret Agent* (1907) elaborated the other side of espionage: the spy's family dramas, everyday experience, and psychology.

Early films displayed spy themes and reflected contemporary political concerns. *Mata Hari* (1932) popularized luxurious romances and the vamp-martyr nexus (Figure 1). *Nurse Edith Cavell* (1939) encouraged a British emphasis on nonchauvinistic duty. Austrian-born film director Fritz Lang bestowed V. I. Lenin's features on the arch-villain of his stylish pulp thriller, *Spione* (1928).

Somerset Maugham's *Ashenden* (1928) founded a new British school of spy fiction. Realistic descriptions of secret service operations portrayed tedium, terror, moral mediocrity, culpable errors, and sometimes even Machiavellian machinations victimizing innocents and allies. Successors to this tradition include Eric Ambler and Graham Greene.

With the onset of World War II depictions of Fascist-type spies multiplied. Lillian Hellman's play *Watch on the Rhine* (1941), for example, included passionate debates over divided loyalties in a German-American family, although it sacrificed complexity to the function of combating U.S. isolationism.

In 1949 Igor Gouzenko's revelations about Soviet espionage in the United States encouraged witch-hunts by the House of Representatives' Committee on Un-American Activities (HUAC) and by Senator Joseph McCarthy in the U.S. Senate. Panicked by the rhetoric of these hearings and the systematic confusion of dissidence with subversion, the U.S. media were unwilling to allow "un-American" attitudes any rationale or emotional appeal. Graham Greene's *The Quiet American* (1955) and *Our Man in Havana*



Figure 1. (*Spy Fiction—History*) Greta Garbo, with Ramon Novarro, in *Mata Hari*, 1932. The Museum of Modern Art/Film Stills Archive.

(1958) presciently criticized Western operations in Indochina and Cuba.

The cold war thaw around 1960 encouraged a new, apolitical interest in spying's privileges and pressures. British novelists adopted two contrasting emphases. In Ian Fleming's popular, eueptic novels (1953–1966) James Bond was celebrated for his gadgetry, hedonism, and “license to kill.” Sociological critics suggested that Bond's life-style was a METAPHOR for his readers' experience of the new affluence, which stressed expense accounts, social mobility, and sexual permissiveness. The film adaptations of Fleming's works were tongue-in-cheek—swashbucklers geared to modern “cool” (Figure 2). Among their many derivatives, a British television series, Patrick McGoohan's “The Prisoner” (1967), introduced a Kafkaesque ambivalence into the spy theme. A recalcitrant agent finds himself imprisoned in a strange, possibly hallucinatory village devised to brainwash him into conformity. U.S. television series of this period included “Mission: Impossible” (Figure 3) and “I Spy,” both exhibiting enlightened racial attitudes (black and white spies working together in harmony) along with uninhibited cold war machinations. There was also “The Man from U.N.C.L.E.,” which gave many viewers the impression that it pictured a United Nations spy agency. Enemy agents in such series generally represented unnamed “iron curtain countries” or “people's republics.” Soviet television usually clothed capitalist spies in comparable ambiguity.

Fleming's popularity was rivaled by two British

novelists of the more serious, saturnine school. In *The Ipcress File* (1962) author Len Deighton vindicated his lower-class agent's mistrust of his snobbish Establishment superiors. From 1961 on, an Establishment insider, John Le Carré, painted somber, exceptionally plausible depictions of British operations. Several, notably *Tinker, Tailor, Soldier, Spy* (1975), evoke an “old-boy network” of upper-class traitors (Guy Burgess, Donald Maclean, Kim Philby, Anthony Blunt).

The two decades following the cold war thaw appeared to be the golden age of espionage literature. Political attitudes covered the gamut. Alarm at U.S. volatility stimulated Deighton's startlingly revisionist *Billion-Dollar Brain* (1967), in which a mad U.S. oil tycoon masterminds a Bay of Pigs-style invasion of the Soviet Union. Leon Uris's roman à clef *Topaz* (1968) plausibly indicted French collaboration with the Soviet Union and Cuba. Anticommunism permeated Hitchcock's picaresque thrillers *Torn Curtain* (1966) and *Topaz* (1969). Conversely, a French film, Alain Resnais's *La guerre est finie* (1966), honored the lifetime devotion of Communists and fellow travelers to subverting Spain's durable Fascist regime (1939–1975).

A new U.S. theme developed in response to the 1960s assassinations of John F. Kennedy, Robert Kennedy, Martin Luther King, Jr., and Malcolm X; the disclosures of FBI and CIA autonomy; and the Watergate affair in the early 1970s. Journalists and novelists postulated conspiracies, too far-reaching to be fully clarified, between executives in security agen-



Figure 2. (*Spy Fiction—History*) Sean Connery as James Bond, with Daniela Bianchi, in *From Russia with Love*, 1963. The Museum of Modern Art/Film Stills Archive.



Figure 3. (*Spy Fiction—History*) Peter Graves in "Mission: Impossible." State Historical Society of Wisconsin, Erik Barnouw Collection/Paramount Pictures.

cies, multinational corporations, and reactionary political circles. This “literature of paranoia” might well be a metaphor for a painful loss of innocent optimism in the United States.

The spy theme has its echoes in literature, films, and television drama around the world. Regional as well as international conflicts and cold wars are echoed. Political shifts bring media shifts: diabolical Chinese agents, for example, common in U.S. productions of the 1950s and 1960s, vanished after the 1972 U.S.-Chinese rapprochement. However, producers and viewers alike downplay the significance of particular plots and stereotypes: the spy genre is commonly regarded as ENTERTAINMENT, not PROPAGANDA. Meanwhile, the media spy appears to be a lightning rod for diverse modern frustrations, fears, and enthusiasms.

See also MYSTERY AND DETECTIVE FICTION.

Bibliography. Raymond Durnat, “Spies and Ideology,” *Cinema 2* (Mar. 1969): 5–13; Donald McCormick, *Who’s Who in Spy Fiction*, New York and London, 1977; James Robert Parish and Michael R. Pitts, *The Great Spy Pictures*, Metuchen, N.J., 1974; Lenny Rubinstein, *The Great Spy Films*, Secaucus, N.J., 1979.

RAYMOND DURGNAT

2. THEMES

The GENRE of spy fiction appears to have ancient roots. For example, Chinese classical literature includes a novel, *San Kuo—The Romance of the Three Kingdoms*, that may be described as a spy story. However, there is general agreement that novels in which a spy’s work is central to the NARRATIVE are a modern phenomenon. It is tempting to seek a sociological explanation; that is, that it is only the circumstance of warfare between nation-states that gives the work of the spy sufficient importance to serve as a meaningful symbol. Yet the themes raised by the nature of the spy— isolation, betrayal, moral ambiguity—are common in Western literature from the nineteenth century on. See also FICTION.

The defining feature of spy fiction is its focus on ESPIONAGE and on the spy or counterspy as the main character (see FICTION, PORTRAYAL OF CHARACTER IN). The type of activity most typical of such heroes is a mixture of deduction concerning the enemy’s involvements and the action necessary to defeat the enemy’s plans, with heavy emphasis on the professional ingenuity required to cope with extreme danger. On this basis it is clear that the spy story bears affinities both to MYSTERY AND DETECTIVE FICTION and to the adventure story.

The earliest commercially successful authors of spy

fiction—William Le Queux, Erskine Childers, and John Buchan—were British, and their heroes were characterized by class snobbery, loyalty to the British Empire, and a sense of honor and patriotism expressed in ways that seem ridiculous, if not pernicious, to contemporary readers. In these early twentieth-century books patriotism is experienced as national superiority, and racist sentiments are common. It is no accident that these novelists also wrote traditional adventure stories; for them, and no doubt for their readers, spying was primarily the locus of adventure rather than a theme in its own right and implied no genre-based expectations on the part of the audience. One exception was the British writer Eric Ambler, who in *The Mask of Dimitrios* (1939) created a central character who is unsure of himself, becomes embroiled in espionage out of curiosity, and finally acts to frustrate unscrupulous international financial interests. In this novel the world of the spy serves as a powerful METAPHOR for the degradation of the modern world.

The first major contributor to post-World War II spy fiction was U.S. “tough guy” mystery writer Mickey Spillane, whose private eye hero, Mike Hammer, tackled Soviet spies and gangsters with the same righteous hatred. Mike Hammer also displayed a disregard for due legal procedure that reflected an aspect of cold war IDEOLOGY. The British novelist Ian Fleming borrowed aspects of Spillane’s style—particularly his explicit portrayals of brutality and sexuality—when he invented James Bond, arguably the most successful fictional spy. Many theories have attempted to account for the Bond phenomenon—Fleming’s eight novels as well as their successors and numerous imitations, constituting one of the most famous series in publishing history (see PUBLISHING—PUBLISHING INDUSTRY), and a string of popular films with several different actors incarnating James Bond—but perhaps the most convincing explanation for the character’s enduring success is his ability over several decades to adapt to the prevailing Western social and political climate.

Among the most successful spy writers since the 1960s are John Le Carré and Frederick Forsyth. Le Carré’s world-weary heroes embody themes drawn from novelists such as Graham Greene and the existentialists, and his later novels increasingly focus on the psychology and morality of spying’s “secret world,” as he calls it. The vision of the nation-state that emerges from Le Carré’s books is diametrically opposed to that found in his predecessors’: the earlier heroes’ enthusiasm and belief in a mission is replaced by weary professionalism and cynical survivalism, their sense of solidarity by distrust or frank opportunism. Forsyth’s novels are characterized by a disregard for character portrayal, painstaking research into the

technical details of espionage and commandolike operations, and a cold brutality; the power of his novels lies in his control of suspense.

The central character in spy fiction is conventionally male—the rare heroines tend to be endowed with qualities traditionally considered masculine—and audience research suggests that the majority of the audience for these stories is male. Both facts indicate that one of the main sources of spy fiction's popular appeal is its portrayal of an idealized and stereotyped masculinity. The attributes composing this definition of masculinity derive in part from the tradition of heroic literature, in part from the events depicted in spy stories themselves.

These events are usually of two types: those involving risk or danger and those involving mystery. Spy fiction is fundamentally similar to mystery or detective fiction in that the reader's response is in large measure based on suspenseful curiosity, and the hero is the main or only source of relevant information. In some cases mystery arises because the source of a threat is unknown or the future course of events is uncertain. However, in many spy novels the element of mystery is secondary, and the reader's interest derives from the portrayal of spying as an exotic and perilous occupation.

Danger is central to the spy narrative. The risk is not necessarily physical, but the "Great Game" (as spying was first called in 1901 in British author Rudyard Kipling's *Kim*) is always played for high stakes. The hero must possess the qualities necessary to win: ruthlessness, cunning, decisiveness, and, frequently, skills of physical violence. The tradition of heroism generally places great premium on the isolation of the hero, the person who has exclusive right to our admiration, and the nature of spying makes this isolation all the more plausible. It is customary for the spy to practice his or her skills independently of those providing support, and the spy hero is admirable precisely because he or she possesses the skills to act alone and effectively in a dangerous world.

Central to the fictional world of the spy are the real-world features of the nation-state and the forms of action that its representatives can take without overstepping the legal boundaries on which the nation-state is founded. By definition the spy hero moves outside the realm of legality. Characters' skill in circumventing the law suggests that spy fiction implicitly validates disregard for legality when the survival of the state itself is concerned. The monstrous plots uncovered and thwarted by the spy show that the nation-state's continued existence is in constant jeopardy and that therefore the spy's actions are justified despite their dubious legality or morality.

In this ambiguous situation the pleasure the reader

derives from the narrative itself contributes to the validation of illegality. The spy is admirable precisely because in a situation in which concern for lawfulness would be a shackle on effectiveness he or she has both the courage and the expertise necessary to ensure the survival of the nation-state. The world of the spy thriller posits constant menace to national survival and to the spy as the nation's representative; thus the spy and the reader are immersed in a world of threats and justified response to them. Accordingly, the emotional structure of this world is the structure of paranoia, for paranoia is the simultaneous sense of persecution and total self-justification.

Bibliography. John Atkins, *The British Spy Novel: Styles in Treachery*, London and Riverrun, N.Y., 1984; H. R. F. Keating, ed., *Whodunit? A Guide to Crime, Suspense, and Spy Fiction*, New York and London, 1982; Bruce Merry, *Anatomy of the Spy Novel*, Montreal and London, 1977; Jerry Palmer, *Thrillers: Genesis and Structure of a Popular Genre*, London and New York, 1978; Richard Osborne, *Clubland Heroes*, 2d ed., London, 1974.

JERRY PALMER

STAMPS

Postage stamps were first used in England in 1840. Until that time its POSTAL SERVICE had been financed by an expensive system involving fees paid partly by the sender, partly collected from the recipient, and based on complex distance calculations and other factors. The reform proposed in 1837 by Sir Rowland Hill called for modest fees paid solely by the sender and the use of a "bit of paper just large enough to bear the [ink] stamp, and covered at the back with a glutinous wash, which the bringer might, by the application of a little moisture, attach to the back of the letter." The first adhesive stamp carried the profile of young Queen Victoria and cost one penny. The system was adopted throughout the world and led to annual exchanges of billions of letters, postcards, packages, newspapers, and ADVERTISING matter. The postage stamps won a place on the front rather than on the back, as Hill had proposed. Many of the stamps bore an image of the head of state or other national icon. Stamps thus followed the precedent set by COINS in adding to their fiscal function a communications role. The image could serve as an assertion or reminder of the locus of power (*see* POLITICAL SYMBOLS).

Themes. Early stamps carried many designs other than portraits, but portraits remained common until World War II (*see* PORTRAITURE). After the war, with the breakup of colonial empires and the birth of new nations, other communication strategies came more often into play. Special stamp issues focused on cul-

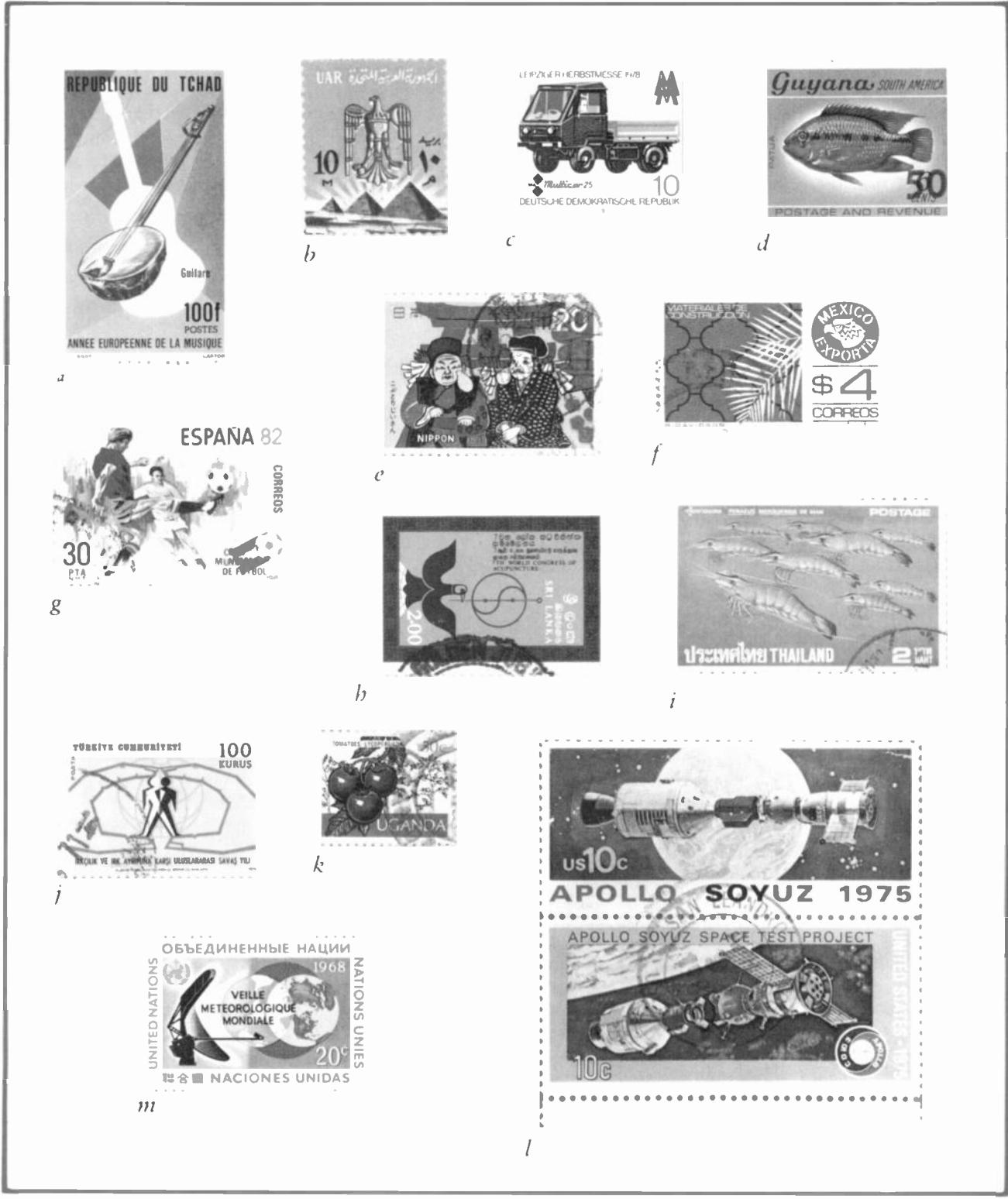


Figure 1. (Stamps) International examples of special stamp issues. Courtesy of Max Kenworthy.

ture, historic achievements, heritage, industries, resources, and scenic splendors. Thus, for example, (a) Chad proclaimed its musical tradition, (b) Egypt its antiquity, (c) the German Democratic Republic its manufactures, (d) Guyana its fauna, (e) Japan its performing arts, (f) Mexico its exports, (g) Spain its sports prowess, (h) Sri Lanka its medical work, including acupuncture, (i) Thailand its exotic fish, (j) Turkey its concern for human rights, and (k) Uganda its flora. The United States, at a time of détente, memorialized (l) joint U.S.-USSR space tests, while (m) the United Nations called attention to its meteorological services.

Fund-raising. Special-event stamps have won wide favor with stamp collectors, which has encouraged many nations to issue a steady stream of such "commemoratives" as a source of additional funds, quite aside from their postal functions. Stamps have also been used for other fund-raising purposes such as charity drives. These stamps usually bear two values linked by a plus sign, one value being the postal charge and the other the amount that goes to charity. New Zealand has issued stamps of this kind since 1929 for youth programs, called "stamps for camps." The Red Cross and its Muslim counterpart, the Red Crescent, receive sizable contributions from charity stamps issued in many countries. Argentina collected funds to combat polio ("Lucha contra la poliomielitis") through a stamp portraying a polio victim's face from Correggio's *Antiope*.

Postal history. Not surprisingly, stamp designs have often been used to chronicle the evolution of postal services. Every step in special delivery services, from the pony express to bicycle delivery to airmail, has been featured on stamps. Italy is credited with the first official airmail stamps, in 1917, for a regular service between Rome and Turin. The 1930s witnessed dramatic long-distance flights of giant German airships and occasioned stamps dedicated to the *Graf Zeppelin* and the *Hindenburg*. One of the most curious of all airmail stamps was a twenty-four-cent U.S. stamp of 1918 known as the "Upside-down Jenny," so named because one sheet of stamps was printed erroneously with an inverted airplane at the center.

Historical role. Stamps have not only reflected history; some have helped make it. A 1900 Nicaraguan stamp showing a volcano belching fire is reported to have been widely circulated in the U.S. Congress by a Panamanian lobbyist at a time when a decision on where to build the isthmus canal was about to be made. The stamp helped make the point that it would be safer to build in Panama than in Nicaragua. In wartime, countries have not been above making forgeries of one another's stamps, with propagandistic adjustments. German stamps forged by the United States in World War II portrayed Adolf

Hitler's face as a skull. In return the Germans substituted, for the jewel in the crown of King George VI, a Star of David. Beyond that, both Great Britain and Germany counterfeited each other's stamps in wartime for use by their ESPIONAGE agents operating within enemy borders. But stamps have not often served hostile purposes. More often they have been celebratory, even while facilitating worldwide communications.

Bibliography. William W. Cummings, ed., *Scott Standard Postage Stamp Catalogue*, 4 vols., New York, 1984; David Lidman and John D. Apfelbaum, *The World of Stamps and Stamp Collecting*, New York, 1981; James A. Mackay, *Stamp Collecting*, New York and London, 1983.

MAX R. KENWORTHY

STANDARDS

There can be no communication without agreement on the symbols to be used and the meanings to be associated with them (*see* MEANING). Such agreements are called standards, or conventions, or codes. They are applied to a large range of matters from word usage to complex technological details. They are found in every facet of communications ranging from PUBLISHING, TELEGRAPHY, TELEPHONE, and RADIO to such twentieth-century developments as FIBER OPTICS, VIDEO, CABLE TELEVISION, and the SATELLITE. Even a dictionary is a standards document, recording the meanings associated with various words or strings of characters. The development of standards is a complex process—part political, part technological. It involves the efforts of firms, standards organizations, and governments. The existence or absence of a standard can affect the entire structure of an industry.

Historically national telecommunications and broadcast monopolies have been able to set domestic standards unilaterally. Negotiated, formal standards were needed primarily for international communications. With the convergence of computers and communications and increasing competition in communications products and services, cooperative standards processes have taken on new importance. *See* COMPUTER: IMPACT; TELECOMMUNICATIONS NETWORKS.

Functions of standards. Standards can be classified according to the economic role they play. *Compatibility* standards are necessary for products or systems from different manufacturers or carriers to work together. *Variety reduction* standards limit the number of different versions of a system in order to simplify training, maintenance, and inventory and to allow achievement of scale economies in manufac-

turing and operations. *Information* standards facilitate transactions involving complex goods by providing reliable ways of describing them. A standard definition of a "voice circuit" in terms of bandwidth, signal-to-noise ratio, distortion, and other characteristics provides a shorthand for describing a complex concept. *Testing* standards further specify how such attributes are to be measured. *Quality* standards set minimum performance levels that help the consumer to decide what characteristics are required for an application.

Standards can encourage entry and enhance competition by clearly defining what is required to serve a market. Compatibility standards give consumers access to a wide range of correspondents in the case of telephones, or programming in the case of broadcasting or tape cassettes. Standards—or the lack of them—can also serve to protect existing firms, stifle international trade, or inhibit innovation.

Development of a formal standard. While a standard can be thought of as a document, standardization describes a set of behaviors and a process. Firms may build compatible devices though what is required for compatibility may not be written down. Conversely, many written standards are ignored in the marketplace. Often one or more formal standards will coexist with de facto standards in the marketplace.

In the absence of a national MONOPOLY that sets standards unilaterally, formal standards development requires extensive negotiation among interested parties. Formal standards are developed by a wide range of organizations including international and national standards bodies, trade associations, professional associations, government regulatory agencies, and executive departments. Table 1 lists some of the most important groups involved in communications standards and some of the standards they have developed.

Standards bodies typically operate in small technical working groups through consensus procedures. Draft standards are then submitted for a formal vote to a larger membership or review committee. Representation in standards committees varies: in ISO and the ITU it is by country; in EIA and ECMA it is by firm; in IEEE participation is by individual professionals (see Table 1). In practice, vendor firms provide the financial support and personnel to develop standards. Standards adopted by national bodies or trade groups often are brought to the CCITT or ISO for international approval.

There are five distinct phases in the development of a formal standard. In the first phase agreement is reached on the functions to be performed by the standardized product or procedure. Failure to reach agreement on a standard often reflects differences in the perceived domain of application of the product. Beginning in the 1970s standards bodies began to

use formal architectural models, which divide the standardization problem into "layers" corresponding to different levels of abstraction. Layering enables separate groups to work on the development of related standards in parallel.

In the second phase the standards body rigorously describes the specific methods used to accomplish each function. During the committee process parties in the industry are educated about the issues and trade-offs involved in choosing a standard, and the standard itself is written down in successively clearer and unambiguous drafts. Terms are defined, test methods are specified, and protocol specifications may be written in a formal, computerlike language. Firms often contest vigorously to have their own technology adopted as a standard, thus giving them a lead in the market.

Increasingly, standards agreements include numerous options in order to satisfy different participants. Consequently two products, both of which conform to a standard, may not work together or may work poorly if the vendors have implemented different options. Thus in phase three, user or government groups specify mandatory option sets for their procurements as a way of further reducing the diversity. Eventually in phase four, firms decide to develop products conforming to the standard and to bring them to market. Increasingly, however, a fifth phase, conformance testing—by vendors, users, an independent laboratory, or the government—is necessary to ensure that a complex standard has been fully implemented. Only then can buyers be confident that a purportedly standardized product will operate as expected.

Most formal standards are based on a product design that already exists as a de facto standard in the marketplace. However, starting in the late 1970s standards bodies increasingly were asked to develop standards in advance of marketplace introduction. For example, in 1984 the CCITT adopted a standard for 9,600-bit-per-second full-duplex modems before any such products had been manufactured. By agreeing to a standard in advance, firms eliminate the risk of backing a design that fails to become the standard. The telephone industry's development of standards for the Integrated Services Digital Network is perhaps the most prominent example. Unfortunately, a standard developed in advance of market experience is more likely to need revision and may fail to suit market needs. For these reasons, and because the complexity of communications systems is increasing, many standards must be viewed as moving targets rather than fixed points.

While adoption by a regulatory agency, or a PTT, may give a standard the force of law, most formal standards represent voluntary agreements. Thus mere codification does not ensure adoption by vendors or user.

Table 1. Organizations Concerned with Standardization

<i>Organization</i>	<i>Membership</i>	<i>Typical Standards</i>
<i>International Organizations</i>		
International Telecommunication Union International Consultative Committee for Telephone and Telegraph (CCITT)	States PTTs, carriers	modems, packet networks (X.25), telephone signaling
International Consultative Committee for Radio (CCIR)	Broadcast authorities	television format, channel spacing
International Organization for Standardization (ISO)	National standards bodies	HDLC, Open Systems Interconnection
<i>National Standards Bodies</i>		
American National Standards Institute (ANSI)	Corporations	character sets (ASCII), magnetic tape formats
British Standards Institute (BSI)	Trade associations	teletext standards
Association Française de Normalisation (AFNOR)	Corporations	videotex
Japan Industrial Standards Committee	Corporations	data communications
<i>Trade Associations</i>		
European Computer Manufacturers Association (ECMA)	Corporations	OSI, local area networks
Electronic Industries Association (EIA)	Corporations	DTE-DCE interface (RS-232)
Japan Electronic Industry Development Association	Corporations	consumer electronics
<i>Professional Associations</i>		
Institute of Electrical and Electronics Engineers (IEEE)	Individuals	local area networks
International Federation of Information Processing Societies (IFIPS)	Individuals	computer messaging
<i>Government Agencies</i>		
U.S. National Bureau of Standards (NBS)		Computer I/O standards
U.K. Information Technologies Standards Unit (ITSU)		U.K. subset of OSI standards
National Ministries of Post, Telephone, and Telegraph (PTT)		telephony standards

Theories of standards behavior. A manufacturer's decision to support a standard depends on numerous factors: the cost characteristics of the technology, the industry structure of both buyers and vendors, and the firm's position in the industry. Whether the industry in fact achieves a standard depends on the number and influence of the firms favoring it and the timing of the standards development process. Three aspects of this process are especially important: (1) the firm's decision to support standards, (2) the dynamics of standards at the industry level, and (3) the role of governments in standardization.

The decision by a manufacturer to support standards occurs for two basic reasons. First, the value of products such as telephones, facsimile, or electronic mail systems increases when other users have compatible products. Second, compatibility standards allow separate companies to manufacture complementary products (e.g., videocassette recorders and compatible cassettes). If the cost of translation is low a single standard may not be necessary to achieve these benefits. The benefits of specialization that flow

from multiple standards can then be attained at modest cost.

In the presence of large networks of compatible products standards may increase dramatically the total size of a firm's market. However, standards can also lead to increased market entry, a lower market share, and ruinous price competition. A particular firm's decision to support or oppose standards depends on the combination of impacts on the firm's profits. Large, vertically integrated companies typically oppose interface standards that facilitate competitive entry. IBM has typically opposed standardization of computer-disk-drive interfaces. A dominant firm may oppose the development of formal standards that reduce its ability to alter de facto standards for competitive advantage, whereas the remaining firms in the industry are likely to support standards as a way of reducing the market power of the dominant firm. Concentrated buyers, such as the PTTs, national broadcasting authorities, and government agencies, tend to support standards and the price competition they engender.

The dynamics of standards at the industry level are also important. A standard will be adopted only when firms controlling a sufficient fraction of the market can be mobilized in its favor. Either a large number of smaller firms or a small number of very powerful firms may begin the process. If the industry is too fragmented it may be impossible to coordinate all the actors. If the industry is too concentrated the dominant firm may oppose attempts to undermine its de facto standard.

Successful standards are most often developed after early experience with a technology but before too many alternative designs have been established in the marketplace. For similar reasons it can be very difficult to persuade firms to abandon an existing standard in favor of an improved alternative. For this reason standards are sometimes cited as barriers to technical innovation, particularly in areas undergoing rapid technological change (see DEVELOPMENT COMMUNICATION).

When a standard is proposed initially, many firms may be skeptical of its success and unwilling to commit to its support. Eventually, as more firms adopt it, support accelerates in a chain reaction. Consequently the formation of an initial coalition is often critical to the success of a standard. J. Farrell describes two situations in which a standard may not be adopted: when all firms are moderately eager but no single firm is willing to take the risk of asserting a proposal that may fail, and when a few firms are eager but are too few in number to get the bandwagon moving. Support of large users through procurement specifications can be crucial in persuading firms actually to develop compatible products.

Governments play a crucial role in standards both directly and indirectly. Some standards are imposed nationally as a matter of law by government action. And governments indirectly influence the adoption of standards through their role as large buyers in the marketplace.

In many countries the PTT is the sole legal provider of telecommunications services. Thus a standard adopted by the PTT must be followed. Alternatively a regulatory agency may determine the standard. In the United States the Federal Communications Commission approves standards for connecting customer premises equipment to the telephone network. Broadcast standards are almost always set by government bodies. See TELECOMMUNICATIONS POLICY.

By acting as a concentrated buyer government can have a major impact on voluntary standards. Many countries have agencies in a ministry of defense, industry, or commerce that specify standards for government purchases of communications products (e.g., the U.S. National Bureau of Standards). As representatives of the larger consuming public, governments also act to encourage the adoption of standards viewed as helpful to the consumer.

Governments may use standards to aid national vendors in international markets. PTTs can set standards that favor the products of domestic firms. In addition government representatives can press international bodies to adopt standards based on the products of national firms. The French government played an aggressive role in attempting to swing European broadcasting authorities to back the French-developed SECAM standard for color television. The technology was licensed on extremely favorable terms to the Soviets in return for their support in the CCIR. However, attempts by the French developers to charge exorbitant rates for access to the SECAM patents led the German firm Telefunken to develop its own alternative, PAL, which was eventually adopted in northern Europe. Failure to agree on a single standard has meant extra costs for translation for such pan-European broadcasts as soccer and the Olympics and has made it more costly for viewers in border areas to receive both French and German programming.

In summary, when compatibility is a prerequisite to communication, standards are a major characteristic of communications products and services. Setting standards will continue to increase in importance as the number and range of communication technologies and applications multiply and the number of firms with a stake in the market grows.

See also COMPUTER: HISTORY.

Bibliography. Dorothy M. Cerni, *Standards in Process: Foundation and Profiles of ISDN and OSI Studies*, Washington, D.C., 1984; Rhonda J. Crane, *The Politics of International Standards: France and the Color TV War*, Norwood, N.J., 1979; J. Ryan, ed., *Telecommunications Standards* (special issue), *IEEE Communications Magazine* 23, no. 1, 1985; J. Farrell and G. Saloner, *Standardization, Compatibility, and Innovation*, Cambridge, Mass., 1984; Charles Kindleberger, "Standards as Public, Collective, and Private Goods," *Kyklos* 36 (1983): 377-396.

MARVIN A. SIRBU AND DEBORAH L. ESTRIN

STARS

This entry consists of two articles:

1. The Star Phenomenon
2. Star System

1. THE STAR PHENOMENON

Stars may be defined as performers in any medium who are highly successful, are widely recognized, and constitute the main attraction of whatever they appear in. Characteristically, however, stars exist as images extending beyond their performances to what are taken to be their personalities and ways of life. In modern entertainment industries the star is also



Figure 1. (*Stars—The Star Phenomenon*) Theda Bara in *Cleopatra*, 1917. The Museum of Modern Art/Film Stills Archive.

part of the labor that manufactures media images. He or she is first of all an image fashioned out of the raw material of a person's physiognomy, psychology, skills, and aptitudes. Many people in addition to the star may be involved in the manufacture of this image (photographers, publicists, agents, fashion designers, ACTING coaches, etc.). Stars are thus both labor and the image that this labor produces. The star image is then in turn used in the creation of performances—for example, in the making of MOTION PICTURES. By definition the star's image is already partly formed before a film is made or a PERFORMANCE given and to that extent constitutes a kind of congealed labor, a product of labor that, like machinery, can itself be used to make another product.

Stars are a characteristic feature of mainstream channels of communication in technologically developed capitalist societies. In tribal and feudal societies performance was not usually professionalized to the point that a person had a public identity based in performance; instead, people participated in performance on an occasional, amateur basis or as part of a RITUAL office in which the individual personality was subsumed. The star emerged with the gradual professionalization of performance, and then only slowly (see DRAMA—HISTORY). Performers in the



Figure 2. (*Stars—The Star Phenomenon*) Rudolph Valentino. The Museum of Modern Art/Film Stills Archive.

commedia dell'arte troupes, for example, were entirely identified with the stock characters they played—and the same was true of many traditional theatrical forms, such as clowns in the circus or the No and Kabuki theaters of Japan (see MUSIC THEATER—ASIAN TRADITIONS). By the late eighteenth century in the West stars were a feature of the dramatic THEATER and, to a lesser extent, the concert hall, but the development of the star system came with the growth of music hall and vaudeville entertainment as part of what is sometimes called the industrialization of CULTURE. See DRAMA—PERFORMANCE.

Star and audience. Attempts to explain the popularity of stars with audiences may be divided into those that use a broadly psychological model and those that use a broadly sociological model. The simplest psychological model contends that the star fulfills for audience members certain psychic needs. These needs can be expressed in familiar common-sense terms (such as “everyone needs someone to look up to” or “stars make up for what we lack in

our lives”). Psychological analyses have explored these ideas, focusing particularly on the use of the star as a love or hate object and as a figure with whom the audience member identifies. Identification may involve a felt affinity with a star’s temperament or situation (“he or she is like me” or “we’re in the same position”) or can go as far as actual imitation of the star in terms of physical features, dress, ATTITUDES, and perceived values.

Recent psychoanalytic work, influenced by developments in French psychoanalytic theory, has also focused on the question of identification. The appeal of such an approach, which has been greatly influential in academic FILM THEORY, is that it links conceptualization of psychic processes with what are taken to be intrinsic features of the film experience itself, suggesting a corollary at the level of the subconscious between primary psychic processes and the act of looking at images of people on film. See PSYCHOANALYSIS.

Sociological models of the relationship between



Figure 3. (*Stars—The Star Phenomenon*) Marlene Dietrich. The Museum of Modern Art/Film Stills Archive.



Figure 4. (*Stars—The Star Phenomenon*) John Wayne in *Hondo*, 1953. The Museum of Modern Art/Film Stills Archive.

star and audience are concerned with particular stars, or kinds of stars, and their link to other aspects of social meaning and value. Accounts of the way stars embody social values differ according to whether they are developed within a holistic model of society (emphasizing the attitudes and values held in common across a society) or within a conflict model (in which attitudes and values are seen to differ and to be in competition because of the disposition of power in society). Holistic accounts tend to see stars as reflecting consensual values already widespread in society—indeed, the star is a star precisely because she or he embodies widely shared values. On this view John Wayne was a star because he represented what Americans at that time wanted and valued: strength, independence, rugged individualism. Conflict-based accounts, on the other hand, tend to associate successful stars with the ideologies characteristic of ruling groups in society. Thus stars are seen to represent the myth of success necessary to competitive capitalism or as reinforcing the traditional GENDER roles of patriarchal society. From this perspective Wayne's HOLLYWOOD stardom would be related to his embodiment of the values held by those in power in U.S. society at that time.

More recent work in this tradition has introduced a far greater degree of complexity into this approach, on the one hand stressing the inherently unwieldy, nonuniform nature of IDEOLOGY itself, and on the

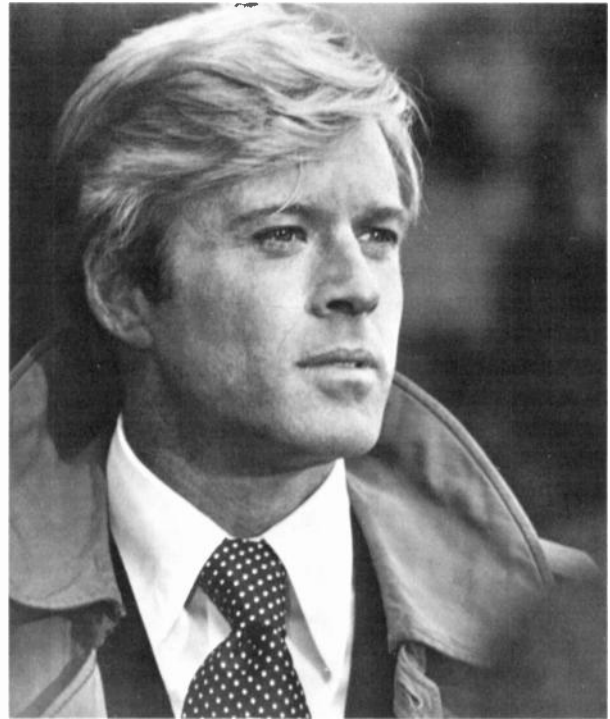


Figure 5. (*Stars—The Star Phenomenon*) Robert Redford in *The Way We Were*, 1973. The Museum of Modern Art/Film Stills Archive.

other attempting to distinguish between the ideological implications carried by the star and what audiences themselves make of the star. The first emphasis examines the way stars may embody values that are not in any simple way supportive of dominant values (as with “independent women” stars like Barbra Streisand or “rebel” male stars like Marlon Brando). The second concerns the variety of ways of thinking and feeling that different groups in society may bring to their perception of the star, such that a star may be read in a variety of ways other than that intended by the dominant ideology. Of particular interest here has been the examination of feminist, lesbian, and gay male “readings” of star images ostensibly offered as patriarchal and heterosexual. See FEMINIST THEORIES OF COMMUNICATION.

Star and text. The presence of a star in a film, SPORTS event, or any performance generally will affect the shape and feel of that media “text.” Certain elements may be used to make the structure of the performance fit the star image: plots that put the star in a characteristic situation or allow for the expression of the star’s personality or create opportunities for the star’s talents to be showcased. CINEMATOGRAPHY, mise-en-scène, and FILM EDITING can make the star the visual center of shots and scenes, thus encouraging the viewer to read everything else in terms of the star.

Even when the star’s image has not markedly

influenced the shape of the text in which he or she appears, the star's presence may greatly affect how the text is read. Most media texts are in part read through what is already known about them in advance, and audiences may go to an event because of their interest in the star rather than any interest in story or outcome.

See also MUSICAL, FILM; TELEVISION HISTORY.

Bibliography. Richard Dyer, *Stars*, London, 1979; Christine Gledhill, ed., *Star Signs*, London, 1982; Alexander Walker, *The Celluloid Sacrifice: Aspects of Sex in the Movies*, London and New York, 1966.

RICHARD DYER

2. STAR SYSTEM

While the psychological and sociological ramifications of the star phenomenon have received wide attention (see section 1, above), its economic importance has been less carefully examined. Yet its place in the economics of motion picture production and distribution has been crucial and has involved many aspects. *See also* MOTION PICTURES.

Film production is at best a costly speculation in intangibles. Unpredictability governs every phase of the enterprise. Among the few elements that seem in a way to ensure success is the hold—or assumed hold—of a star over a segment of the audience. The star has thus been looked to in all major film industries as a stabilizing element, keyed to a particular pattern of distribution and an expected level of income, justifying a particular budget and scale of production. In the HOLLYWOOD of the big-studio era—the 1930s and 1940s, known as its golden age—stars were a central preoccupation in corporate planning.

Once the star system had acquired this status, stars were not so much discovered as created. Assigned to films by the production chief, the star was essentially an indentured employee, subservient to managerial decisions through a restrictive option contract. Entire studio departments functioned as components of the star-making machinery. The script department wrote vehicles for the star's persona, while the ADVERTISING and publicity departments constructed the uniqueness of the star by transforming his or her personal life to match the screen persona.

Evolution. In the early 1930s the major studios that had achieved dominance of the industry faced many marketing problems, including the problem of establishing rental prices for their products. *Sales Management*, a trade journal of the period, characterized the situation:

Picture a product distributed to thousands of dealers serving well over 50 million consumers weekly, a product

without a fixed price because its value cannot be determined in advance. Imagine too that there is no preordained market for this product and that the product is not tangible at all, but a series of moving shadows.

The geographic location of the theater chains owned by the "Big Five" studios compounded this problem; for the most part these chains were regional rather than national. To achieve national distribution the majors had to play one another's pictures. In practice Warner Brothers' exhibitors would bargain with the distributor of a Paramount picture for a percentage of the box-office gross. But what percentage? One way of approaching the problem was through product differentiation, the creation of distinguishing marks that industry and consumer could recognize. If consumer demand could be stabilized by means of product differentiation, so could price.

But the creation of consumer demand accomplishes more than price stabilization; it actually allows a producer to raise prices. Demand, fixed through product differentiation, becomes less sensitive to increases in price. These concepts had effects at various levels of the industry. A distributor could exact a larger percentage of the box-office gross if a picture contained a successful star; at the level of exhibition, moviegoers readily purchased the higher-priced tickets of first-run theaters if the presence of the star was able to coax them into the theater soon after release. Hence the role of product differentiation was the star's most critical function.

In fact, the genesis of the star system can be seen in a series of experiments aimed at establishing marks of differentiation by which consumer demand could be stabilized. Between 1905 and 1910 film producers, searching for ways to create consumer loyalty, attempted to identify their own names in the public mind with a certain type of film. Thus Selig was known for outdoor pictures, Pathé (*see* PATHÉ, CHARLES) for theatrical imports. It was after 1910 that the rudiments of a star system began to fall into place. By that time NARRATIVE forms had supplanted the vaudeville acts and scenics that had typified the industry in its early days. The trend increased the public's interest in particular actresses and actors, and letters began to arrive at the production companies, inquiring who the actor was who jumped from a roof, who played the Indian maiden, and so on. As a result, actors began to receive screen credits, and in January 1910 Kalem, recognizing the value of star names, began sending to theaters posters and lobby cards promoting its stars, thus becoming one of the first companies to deliberately employ the star as a mark of differentiation.

Incontrovertible proof that audiences were focusing on film actors came when the fan magazine *Motion Picture Story* appeared in 1911. Bent on publicizing the plots of current films, the magazine

queried its readers about what kinds of film stories were the best. Instead of the anticipated votes for stories, the magazine was deluged with ballots for stars, and the fact that audiences distinguished films by actors became inescapable.

Accordingly, producers began to use performers as a successful strategy for differentiation. With the cinematic and narrative components in place for an institutionalized star system, it seemed logical to recruit luminaries of the stage to work in motion pictures. The development of the multireel feature, with its promise of increased income—and potential for rereleases—made it economically feasible to hire the Mabel Taliaferros and Sarah Bernhardts and to exploit their fame in the service of product differentiation. But the fame of movie stars soon outdistanced that of stage stars, and the film industry began to develop its own.

The process. Star development began with the search for the correct character role. In practice, a player would be cast in a series of different roles. Audience response to these roles would be carefully monitored through fan mail, sneak preview questionnaires, box-office receipts, and exhibitor feedback. When the audience responded favorably to an actor in a particular role, the star persona would be built around that part.

The creation of the Bette Davis persona exemplifies this process at work. At the beginning of her tenure with the studio, Warners cast Davis in glamorous sex-goddess roles, with little success at the box office. Loaned to RKO to portray the vamp Mildred in *Of Human Bondage* (1934), Davis generated such a sensational response from the audience that Bette Davis the actress was to become the personification of the role that she played in this film. This transformation was accomplished through many channels, including the studio's legal department. Bound to the studio by the option contract, Davis could only appear in the films to which she was assigned. Eager to capitalize on her new popularity, Warners cast her again and again as the man-wrecking vamp, the woman without a soul, from her first successful starring feature, *Dangerous* (1935), to the last film she made for this studio, *Beyond the Forest* (1949).

The company supported the star-making process by fabricating a personal life that would make the artist the incarnation of his or her screen character. To accomplish this, the publicity department would provide a stream of articles, biographies, and photographs that created a unity of actor and role. Articles in the fan magazines portrayed Davis as fiery, independent, and hard-boiled, both on-screen and off. Physical traits were incorporated into the evolving persona. One story reported that the hallmark of her wicked, popping eyes had originated when her face was burned as a child, causing her eyes to bulge!



Figure 1. (*Stars—Star System*) Cover of *Modern Screen* magazine, featuring “Luise Rainer—The Rebel.” From R. Griffith, *The Movie Stars*, New York: Doubleday & Company, 1970, p. 454.

Ultimately such a process belies the act of PERFORMANCE, as the actor “becomes” his or her screen persona. But this fusion of actor and character ensured the uniqueness of the star. Another performer might act the vamp, but only Davis *was* the vamp.

Star differentiation was carried through in communications addressed to exhibitors as well as to the public. It dominated promotional materials such as posters, lobby cards, and publicity items distributed to exhibitors and ads prepared for use in trade papers. Davis the vamp remained the central theme. Redundantly, ads promised that “man-wrecking Bette is on the manhunt again,” and “Bette smacks ‘em where it hurts!”

Implications. What is being marketed in such campaigns extends beyond the appearance of the star into a series of expectations about narrative structure associated with the star. Required to create vehicles for the star, the studio scriptwriters grafted the traits associated with star differentiation onto the film's protagonist. This had a profound effect on narrative structure. In the classical Hollywood cinema the goals and desires of the protagonist generally motivate the



Figure 2. (*Stars—Star System*) Bette Davis in *Of Human Bondage*, 1934. The Museum of Modern Art/Film Stills Archive.

causal logic of the action and consequently the structure and content of the narrative. Hence Davis's films repeatedly featured a triangle of characters consisting of Davis the vamp, her passive husband or fiancé, and another man. A "good" woman was often included as a passive counterpoint to "bad" Bette.

Structuring the narrative around the star performed a valuable function for the film industry by providing a framework by which the success of the star's pictures could be formularized and reproduced. It is in the role of structuring the narrative that the star can be analyzed as an auteur. For if the definition of AUTHORSHIP is the discernment of a coherent unity across the body of the auteur's work, then the star fits that definition. However, it is important to temper this assertion with the knowledge that in an industrial mode such as Hollywood, employing a high degree of division of labor, no one person has total control. Therefore, the star is but one of the voices of authorship. See ARTIST AND SOCIETY.

But the impact of the fusion of actor and character into the star image projects beyond the star's function of structuring the narrative or product differentiation. The star also operates as a social phenomenon. Cultural and sociological critics have asserted that the star delineates social types, thus presenting an idealized concept of how people are supposed to or at least expected to act.

Besides presenting models of behavior, the star presents models of appearance. Fashion designers have often utilized the star as arbiter of appearance to market their designs. Designers could differentiate their product through the association of apparel with the star image and popularity. Hence a woman who saw herself as strong and independent might want to attire herself à la Bette Davis.

In the contemporary film industry the complete control that yesterday's studios exercised over the image of the star has ceased to exist. Because of changes rendered by tax laws, by the antitrust decision that forced the divestiture of theaters, and by the concurrent rise in independent production, contemporary stars are not subject to the same image-making machinery as their earlier counterparts, and their roles are not mandated by a restrictive option contract. Yet the star is still a function of the economic imperatives of the film industry, for it is these imperatives that shape the very nature of the product itself.

Bibliography. Charles Affron, *Star Acting*, New York, 1977; Richard Griffith, *The Movie Stars*, Garden City, N.Y., 1970; Richard Schickel, *The Stars*, New York, 1962; Alexander Walker, *Stardom: The Hollywood Phenomenon*, New York and London, 1970.

CATHY ROOT

STRUCTURALISM

Broadly defined, the application of the methods of structural LINGUISTICS to any object or practice. The term thus designates less a definitive field of study than a distinctive approach applicable to a great variety of objects: myths, films, literary texts, wrestling matches, economic formations, and restaurant menus have all provided the materials for a structuralist analysis. In this sense structuralism differs from its near relation SEMIOTICS, which may be taken to denote the study of signifying systems and is to that extent a science defined by a particular kind of object. Structuralism may indeed take signifying systems, such as myth or literature, as its object of inquiry, but it also extends such an investigation to systems that are not strictly speaking signifiatory, such as economic activity or kinship structures. Its distinctiveness of approach in such areas is to treat the object or practice in question as though it were a signifying system, or "text"—to apply to it the kinds of concepts (CODE, SIGN, GRAMMAR, syntax, and the rest) that are essentially derived from the science of linguistics.

Structuralism is in this sense one of the clearest examples of what we might call the dominance of the linguistic paradigm in modern thought. It could be claimed that in any historical epoch one or more particular models or paradigms of thought will be assigned a privileged status, and the power of such models will be demonstrated by the fact that, though drawn from a specific field of intellectual inquiry, they will extend an imperial sway over surrounding realms. Thus in the MIDDLE AGES theological concepts governed not only the exploration of divine truth but also the discourses of politics, ethics, and AESTHETICS, whereas for the nineteenth century the natural sciences provided a framework within which, say, psychology and sociology could be addressed. In the twentieth century structuralism focuses on these and other fields and thinks them all through again, this time as LANGUAGE. Language becomes less a medium in which insights arising from such fields may be communicated than a METAPHOR for understanding their inner modes of operation. We can thus conceive, very broadly, of a tripartite historical movement from language as instrument of communication (the Age of Enlightenment) to language as a dense, enigmatic object in its own right (nineteenth-century philology) to language as a ruling model or metaphor for all social practices (twentieth-century structuralism).

More exactly, structuralism involves the application of the concepts of *structural linguistics* to adjacent domains, rather than just the idea of language as such. Just as the founder of structural linguistics, FERDINAND DE SAUSSURE, had "suspended" or "put

in brackets" the actual message-contents (*parole*) of a language, in order to more efficiently extract its abstract underlying system of rules (*langue*), so a structuralist analysis will systematically set aside the specific content or meanings of a system in order to isolate and identify those deep codes, mechanisms, and conventions that generate such local, ephemeral significances (see MEANING). In the most basic sense, a structuralist analysis of a restaurant menu would concern itself not with the nature or quality of the particular dishes available but with the governing system of rules by which such dishes could be selected, permuted, and combined. Thus the Western culinary system will typically permit an initial selection of fish (but not chocolate), which might then be "syntactically" combined with steak or game (but not ice cream), which in turn could be coupled with wine (but not brandy). The meal, in other words, is determined by an invisible but orderly grammar whose operations may be quite absent from the consciousness of the participants at the actual point of eating and which are entirely conventional—they will not apply in, say, Beijing or Bombay (see FOOD). A structuralist analysis of a literary text will of course be incomparably more elaborate than this simple model, but it will nevertheless essentially obey the same methodological procedures, bracketing off the empirical significance of events, characters, and symbols in order to expose the hidden textual logic that permits such elements a certain determinate range of functions, combinations, contrasts, and equivalences.

Structuralism thus takes its place among the many twentieth-century formalisms, serenely indifferent to empirical content, attentive only to the highly abstract formal operations that bring such content into being. Indeed, one might claim that for structuralism the "content" of a poem, myth, or kinship system is the form: what such a text communicates is less an empirical referent or signified than its own signifiatory system. This is another way of saying that all such texts are fundamentally about themselves. Two such texts that could be revealed to display the same underlying system of rules, however different in theme, would be judged by structuralism to be in effect the same text. For a structuralist anthropologist like CLAUDE LÉVI-STRAUSS, all myths weave a set of local variations on a few constant, recurrent elements. These elements may be placed in binary opposition in one myth, made equivalent in a second, and inverted in a third, but it is to these formal operations of contrast, equivalence, exchange, inversion, and the like that the analyst's attention will be directed, not to a traditional INTERPRETATION of the contents of the text as (for example) symbolic, allegorical, or psychologically expressive. Just as, for Saussure, the meaning of any particular sign is a totally relational matter, a function of its arbitrary difference from

other signs within the same SIGN SYSTEM, so for structuralism the meaning of a literary, mythological, or economic feature is wholly a question of its relations to other such features within the closed economy of a specific signifying structure. Elements of the structure do not first of all have meaning in themselves and then enter into mutual interaction; their meaning is their functional interaction. One element in the system may replace another, but if it retains the same structural function and location the system itself can be said to be unchanged.

Like its great modern philosophical predecessors, Marxism and Freudianism, structuralism insists on an essential discontinuity between appearances and reality. The "real" is not spontaneously available to our senses, as empiricism assumes; the true meaning, as for SIGMUND FREUD, is never the apparent one. Only by rejecting the empirical presence of a phenomenon, in order to decipher the submerged logic that brings it into existence, is true knowledge possible. To know truly thus involves suspending not only the signified or referent of a system but also the subjective experience of the knower. Like Marxism and Freudianism, structuralism is thus a form of antihumanism, deeply hostile to that privileging of the subjective experience of the individual that is the hallmark of Western bourgeois humanism. On the contrary, the human subject for structuralism is itself no more than the complex effect of a set of determining structures, the product of a signifying system. If structuralism dissolves any particular object into a more fundamental structural logic, it equally decenters the individual subject into an encompassing system, of which that subject is by definition unconscious. We would not be capable of acting effectively if we were continually conscious of the deep conventions and procedures that make such action possible. Such conventions are always in a sense artificial and culturally relative but will appear natural to those who are the bearers or exponents of them.

Structuralism's claim that even our most unique inward experience is the effect of a set of structures—social, biological, and linguistic—has provided a valuable antidote to the pieties of Western individualist humanism, in some ways parallel to LUDWIG WITTGENSTEIN's insistence on the sociality of even the most apparently "private" sign. To interpret, for structuralist theory, is less a question of consciously deploying certain techniques and procedures than being, so to speak, deployed by them. We would not even know what it was to interpret, or what counted as an object of interpretation, unless certain deeply unconscious assumptions were already securely in place. The act of READING is, for structuralism, less a lonely communion between a unique subject and a distinctive object (the text) than a suspension of both subject and object for a concentration on the struc-

ture of which both are simply local effects. This, however, leaves structuralist theory with the notable problem of the subject, which seems to have shed all transformative agency to become a mere prisoner of its signifying structures. Structuralism has a cognate difficulty with the whole question of historical change: its systems tend to be closed, synchronic, and self-reproducing, and the dynamics or dialectics by which one such system may be transformed into another are not on the whole adequately theorized.

Other criticisms have also been leveled at the structuralist method. It has been seen, for example, as a new kind of Platonism, which casts aside the particular material object in order to grasp it as no more than a reflection of some immanent Form (see PLATO). It is also perhaps questionable whether language has quite the centrality that structuralism would assign it: are not economic, political, and sexual production at least of equal importance in historical development, and is it not classically idealist to convert all material practices into forms of discourse? Structuralism has been powerfully challenged by its own poststructuralist progeny, which doubt whether codes, signs, and conventions are anything like as stable as classical structuralism would presume and which focus attention, as in the deconstructive theory of Jacques Derrida, on that within any given system that either escapes its governing logic or remains in some sense heterogeneous to it. It has also become clearer that structuralist methods must always be in some sense dependent on a preceding hermeneutical understanding: the structuralist may analyze the interaction of signifying units, but how does he or she determine what is to count as a signifying unit in the first place? For this, it would seem, we must look less to the rigors of structuralist logic than to our general hermeneutical grasp of the "life world," which can never be fully formalized. In its forceful subversion of the humanist subject, however, as well as in its scandalous exposure of even the most apparently natural operations as mere effects of convention, structuralism has made an abiding contribution to modern social theory.

See also AUTHORSHIP; LITERARY CRITICISM; POETICS; SYMBOLISM.

Bibliography. Jonathan Culler, *Structuralist Poetics: Structuralism, Linguistics, and the Study of Literature*, Ithaca, N.Y., 1975; Terence Hawkes, *Structuralism and Semiotics*, Berkeley, Calif., and London, 1977; Fredric Jameson, *The Prison-House of Language*, Princeton, N.J., 1972; Michael Lane, ed., *Structuralism: A Reader*, London, 1970; Richard Macksey and Eugenio Donato, eds., *The Structuralist Controversy: The Languages of Criticism and the Sciences of Man*, Baltimore, Md., 1972.

TERRY EAGLETON

STYLE, LITERARY

An aspect of LANGUAGE perceptible both in the form of a communication and in its effect on a receiver. Whether style resides in the language itself (GRAMMAR, vocabulary, RHETORIC), in the speaker/author, or in the context in which the communication takes place is a question that has stirred much discussion and much uncertainty.

The notion of style has a long history. The origin of the word is the Latin *stilus*, a pointed object (related to such words as *stigma*, *stimulus*, and *stick*) and specifically the metal tool used by the Romans for scratching on the wax tablets that served them for notebooks (see WRITING MATERIALS). *Stilus* came to mean WRITING itself and finally a manner of writing. In English *stile* or *style* developed further to mean the form as opposed to the substance of a message, then good form in writing, and eventually any manner of doing, being, or appearing that is characteristic of a group or individual. Thus English historian Edward Gibbon's style is his unique way of writing; the impressionist style is a way of painting like Henri Matisse or Claude Monet. But "dressing in style" or "a person with style" are expressions that imply approval as well as characteristic features.

Redundancy and information. The possibility of style in language derives from the fact that natural languages, unlike artificial codes (see CODE), have a structure containing substantial redundancy. Telephone numbers have zero redundancy and carry maximum information (see INFORMATION THEORY). Natural language, on the other hand, is about 50 percent redundant. If it were not, any interference with the transmission of a message would mutilate it beyond recovery, just as the loss of a single digit in a telephone number makes it useless. In any sentence only some of the material contains information; much of its grammar is duplicated. For example, in the sentence "In the past, colleges and universities were primarily religious institutions" the plural is indicated four times (by the endings on three of the nouns and the verb form *were*); the past tense is marked by the initial prepositional phrase and *were*; and the noun *institutions* includes *colleges and universities*. Redundancy can be defined as predictability. When a part of any communicative structure is predictable it fails to convey information. A telephone number is completely unpredictable and therefore completely informative. Knowing six of its seven digits will not help to predict the missing one. This predictability, which is not a defect but a valuable aspect of the structure of the language, can be observed in syntactic rules favoring certain constructions and disallowing others and thereby serves to protect the integrity of messages. Predictability or redundancy permits communication to take place

even when part of the message is lost in transmission. Redundancy in language also makes it possible to convey a message in more than one form, according to the preference or disposition of the individual writer or speaker, whereas a nonredundant code, which provides only one form per message, makes no allowance for individual variation—that is, style.

Form and content. The concept of style requires a distinction between the form and the content of a message. Unless the content can be conveyed in a different form, content and form are indistinguishable, and there is no room for individual variation. This distinction is taken for granted in scientific, journalistic, and other forms of nonaesthetic communication. But in literary and aesthetic discussions it is argued that every change in form is invariably a change in MEANING. In some sense this argument is irrefutable. It is certainly true that Shakespeare's most famous line ("To be or not to be: that is the question") has a different effect on an audience than a PROSE paraphrase such as "Should one kill oneself?" The considerable difference between these two formulations may be viewed as a difference of emotional connotation, of emphasis, rather than of meaning. If it is insisted that all differences of emotional emphasis are differences of meaning, any discussion of style becomes impossible. For commenting on style in ordinary texts the heuristic assumption of synonymy is essential. For the discussion of POETRY and other aesthetic texts, style may be understood to include the emotional coloring and view of reality characteristic of an author and conveyed in his or her language.

Theories of style. The Greek and Roman rhetoricians established a hierarchy of styles (the low, the middle, and the high) based primarily on diction and suited to particular genres (see GENRE)—low for satire, high for epic. ARISTOTLE, for example, thought of style as the means of distancing a text from the ordinary use of language by means of unusual vocabulary or metaphors (see METAPHOR). Similarly, Quintilian considered style a feature that could be added to an existing text by the elaboration of figures, an exotic diction, or archaic syntax. This theory of ornate form held until the end of the eighteenth century. In the early nineteenth century the individualist theory, which holds that an individual will inevitably display a unique style, became prominent and has continued to be the basic explanation for the relation of writer and style (see AUTHORSHIP; ROMANTICISM). Early in the twentieth century, under the influence of the Italian philosopher Benedetto Croce, the organic theory of style arose; it insisted on the identity of form and content and claimed to abolish the notion of style as a distinct entity. This view became very popular among literary critics, aestheticians, and philosophers, and it has dominated

the refined discourse of texts in many professional journals, but it has not displaced the individualist theory or, in fact, the theory of ornate form, which survives in the teaching of composition. See LITERARY CRITICISM.

The idiolect. A language is a collection of words subject to arrangement by means of rules called syntax and spoken by an assembly of people usually living in a certain geographical area. A variety of such a language used by a subgroup is a dialect (see LANGUAGE VARIETIES). An idiolect is that part of the total language known to an individual speaker of it. Although the speakers of a language hold the major portion of the language's resources in common, there are significant variations among individuals owing in part to the difference between active use and passive comprehension and in part to the process of LANGUAGE ACQUISITION itself. Except for the extremes of the educational range (a five-year-old child and a political orator of long experience, for example), most speakers can make sense of aspects of the language (e.g., complex rhetorical figures, technical vocabulary, complex syntax) that they do not use, that are not part of their active linguistic repertoire. Because of differences in upbringing, parents' LITERACY, schooling, READING preferences, work specialization, and place of residence, no two people have exactly the same linguistic resources available to them when they come to speak or write. It is a logical conclusion that each person will have a unique idiolect and an individual style of writing that does not change greatly once it is established.

The unconscious process of composition. Every speaker or writer is aware that the process of generating sentences is essentially beyond the reach of consciousness. The writer produces meanings and marshals them in an order that he or she believes will be effective or persuasive or attractive. The syntactic and lexical means for achieving this end operate below the surface of consciousness, in a manner not unlike the muscles of the leg in walking or the reflexes of the driver of a car. Like handwriting, which with small variations remains consistent throughout a person's lifetime and expresses, however uncertainly, that part of a personality under neuromuscular control, the production of language is controlled by the limits of the idiolect and by certain contextual requirements manifested as rhetorical variations. The speaker draws from a finite set of linguistic resources (idiolect) but can also adapt his or her SPEECH to particular circumstances (the social context), speaking in one way (register) to a group of children and another to an assembly of academics gathered for a convocation, regulating the level of the vocabulary, the complexity of the syntax, and the elaboration of the rhetorical figures to the expectations and understandings of the audience. To

a great extent these adjustments in an impromptu speech are made without any considerable participation of the conscious language-generating machinery. In a writer the unconscious machinery is subordinated to the conscious editing procedure in the course of which the final version emerges. Much of what is called rhetoric and POETICS represents revision after the original thrust of the thought has been framed in language. This interaction differs significantly from the superimposition of ornate form on the literal meaning. The mark of the individual is the predominant fact about any piece of writing and the reason that readers prefer one writer to another who may be conveying the same message.

Stylistics

Stylistics is the study and analysis of style for any of three purposes: (1) the INTERPRETATION of a text, (2) the identification of an unknown author, and (3) the discovery of the process by which language becomes individualized. The study of individual style began in the late eighteenth century, when such rhetoricians as Hugh Blair criticized the style of Joseph Addison and Jonathan Swift in highly particular ways and Robert Burrowes noticed the unusual features of SAMUEL JOHNSON'S prose. These early critics of style based their comments on the belief that any deviation from grammatical or syntactic norms, any singularity, was a deviation from correctness and required revision. This view soon gave way to a belief in individuality of style. Hence the primary goal of stylistics has been the description of the individual features of style of an author, sometimes for the eventual purpose of permitting unattributed work to be identified by internal evidence, sometimes merely to gain a better understanding of a writer's personality. (Although no firm link between style and personality has been established, there is a general belief in its existence.) In such a version of stylistics the emphasis may be placed on the writer's whole work or on a segment of it.

More recently, literary critics have used linguistic-stylistic approaches in the service of interpretation, that is, the attempt to better understand individual works of literature. Some linguists have tried to construct grammars of individual poems in order to explain the linguistic deviations of the poet in the work. Apart from these specific purposes (identification and interpretation) there is a more general purpose to stylistics, which can be described as a concern with the process of style, the transmutation of the material of thought into the apparent concreteness of language.

The earliest work in stylistics was impressionistic. The reader was struck by the language of an author

and attempted to state this impression, usually with reference to the personality of the author. Such were the accounts of Swift's style as nervous or matter-of-fact, Gibbon's as flabby, and Ernest Hemingway's as muscular—adjectives factually unrelated to the phenomena they were describing.

With the development of LINGUISTICS and an increased belief in the power of science, a positivist tendency emerged that has led to an adoption of the methods not only of linguistics but also of statistics to testify to the significance of the results. Mathematicians and statisticians, primarily interested in identification problems, have done much of this work. Computers greatly increased the reach and popularity of this approach, especially after collections of machine-readable texts were formed. In 1964, for example, using computer statistical methods, U.S. scholars Frederick Mosteller and David L. Wallace asserted that James Madison had composed all the disputed *Federalist* papers. Large comparative norms such as the one-million-word Brown Corpus have been compiled for use as controls. Concordances and other reference works useful to those engaged in stylistic analysis have proliferated. *See also* CONTENT ANALYSIS.

The literary products of this approach, however, have been found meager and unsatisfactory. Some critics have cast doubt on the very existence of style. Others have ridiculed the pretensions to scientific objectivity asserted by the followers of linguistic methods. The difficulty they have identified is real: although it is possible to specify in considerable detail the linguistic features of style of a text or the work of an author and to show how these differ from the work of others, such a description provides no similarly certain means of interpreting the significance of the differences. To resolve this difficulty, stylisticians under the influence of reader-response critical theory have attempted to include the reader's reaction to the text as part of the analysis (*see* READING THEORY). This approach, because it is related to the effort to deny the text's objective existence, has also created uncertainties, one of which is the necessity of erecting a hypothetical ideal reader to protect against subjectivity. Such a reader invites equal skepticism. The branch of stylistics devoted to literary interpretation is likely to continue to be full of thorns.

See also AESTHETICS.

Bibliography. Alvar Ellegård, *A Statistical Method for Determining Authorship*, Göteborg, Sweden, 1962; Nils Erik Enkvist, *Linguistic Stylistics*, The Hague, 1973; Roger Fowler, ed., *Style and Structure in Literature: Essays in the New Stylistics*, Oxford, 1975; Gustav Herdan, *Language as Choice and Chance*, Groningen, The Netherlands, 1956; Anthony Kenny, *The Computation of Style*, Oxford,

1982; Louis T. Milic, *A Quantitative Approach to the Style of Jonathan Swift*, The Hague, 1967; Wolfgang Müller, *Topik des Stilbegriffs*, Darmstadt, FRG, 1981.

LOUIS T. MILIC

SULLIVAN, HARRY STACK (1892–1949)

U.S. psychiatrist and influential theorist of interpersonal relations. Harry Stack Sullivan attended Cornell University briefly and in 1911 enrolled in the Chicago College of Medicine and Surgery. In 1921 he settled in Washington, D.C., where he began formal investigations of schizophrenic states.

For about eight years, as assistant psychiatrist at the Sheppard and Enoch Pratt Hospital in Towson, Maryland, Sullivan established a clinical setting that enabled him to demonstrate the profound importance of the modalities of communication in the therapeutic treatment of schizophrenic patients. The therapeutic environment he promoted was first and foremost a social encounter. His early success in treating schizophrenic patients received wide recognition. Subsequent developments in milieu therapy had a significant impact on psychiatric social work and related fields.

Sullivan believed that schizophrenic states were far more common than imagined, and he argued that particularly during adolescence the powerful feelings of loneliness were symptomatic manifestations of these states. By adapting SIGMUND FREUD's "talking cure" to the treatment of mental states other than neuroses, Sullivan gave psychiatry a powerful impetus to view mental disease as biologically *and* socially given. Cure thus became a social recovery as much as a return to a physiological state of well-being. Throughout his professional career Sullivan eschewed chemical agents, shock treatment, and lobotomies in the treatment of psychosis.

Sullivan's commitment to a communicative model of mental health led him both professionally and intellectually beyond the specialized grounds of the psychiatric treatment of schizophrenia. In late 1930 he moved to New York City, where he opened a private practice. Sullivan's theory of interpersonal relations, grounded initially in his views of preadolescent and adolescent development and in his treatment of severely mentally disabled patients, was reformulated through his contact with a broader range of patients and his reading of the works of such social scientists as EDWARD SAPIR (with whom he formed a close friendship), Ruth Benedict, Bronisław Malinowski, GEORGE HERBERT MEAD, and CHARLES HORTON COOLEY. Sullivan elaborated his thinking in such books as *The Interpersonal Theory of Psychiatry* (1953) and *The Fusion of Psychiatry and Social Science* (1964).

Sullivan's deepest influence has undoubtedly been

on that configuration of modern therapy beyond psychiatry proper that attempts to restore the individual to active participation in social life. Although he called for a fusion of psychiatry and social science, there is little evidence that this has occurred. Sullivan's hope to establish an ideal of interpersonal intimacy remains elusive, despite his efforts to universalize that ideal in the analysis of race relations and nuclear confrontation. Yet, in his postulate that "we are all much more simply human than otherwise, be we happy and successful, contented and detached, miserable and mentally disordered, or whatever," Sullivan expressed his hope for a form and content of communication that was, finally, true to a human nature capable of overcoming its fears of isolation in a complex and modern world.

See also INTERPERSONAL COMMUNICATION; PSYCHOANALYSIS.

Bibliography. Arthur Harry Chapman, *Harry Stack Sullivan: His Life and His Work*, New York, 1976; Helen Swick Perry, *Psychiatrist of America*, Cambridge, Mass., 1982.

JONATHAN B. IMBER

SURVEY RESEARCH. See EVALUATION RESEARCH; OPINION MEASUREMENT; POLL; PRINT-AUDIENCE MEASUREMENT; RATING SYSTEMS: RADIO AND TELEVISION. See also GALLUP, GEORGE; ROPER, ELMO.

SYMBOLIC LOGIC

Logic can help to formalize ways of thinking about a form of communication called *argumentation*. As we are constantly subjected to statements intended to persuade us, we may use logic to test the reasoning behind the arguments (see PERSUASION). Modern deductive logic is often called symbolic logic because it uses symbols to condense and formalize its representation of arguments. As the science of argumentation, logic cannot distinguish unerringly between true and false statements, but it can help us develop standards of validity and soundness in argumentation in general.

For example, logic explains why the first of the following two arguments is valid and why the second must be unsound:

The merrier our party becomes, the noisier our songs will be.

The noisier our songs are, the madder our neighbors will get.

Therefore, the merrier our party is, the madder the neighbors will get.

The person who forgets most is most ignorant.

The person who knows most forgets most.

Therefore, the person who knows most is most ignorant.

Arguments and Statements

Arguments are linguistic embodiments of pieces of reasoning. Their constituents are *statements* expressed by declarative sentences that are true or false, but not both. As the foregoing examples show, an *argument* is a string of statements, one of which, the conclusion, is said to follow from or be warranted by the others, the premises. A *valid* argument is one having a form such that if all its premises are true, then its conclusion must also be true. An argument is *sound* only if it is valid and has true premises. A statement is *true* if it corresponds to the way things really are. Thus while truth is a property of statements, validity and soundness are properties of an argument as a whole. Validity is the only condition that must be satisfied in a *hypothetical* use of arguments. In contrast, soundness is necessary in a *commitment* use: those who assent to the premises of an argument are committed to assenting also to its conclusion.

Deductive arguments are assessed in two complementary ways: content and form. We assess an argument's *content* by determining the truth or falsity of its premises. We evaluate the argument's *form* by establishing whether its conclusion follows from the premises. Why bother with the twofold assessment of arguments? Because it is rational to believe only what is true. The best way to establish the truth or falsity of our beliefs is to evaluate the arguments that can be advanced for or against them. And why is it rational to believe only truths? Because decisions based on false beliefs tend to be bad ones.

The difference between form and content of arguments is well illustrated by the story of a teacher of argumentation who made a peculiar contract with one of his pupils. The pupil would not have to pay for the lessons if he did not win his first case. After the lessons were completed, the student did not take any cases. In order to receive payment the angry teacher sued. The pupil defended himself with the following startling argument:

Either I will win this case or I will lose it.
If I win this case, I will not have to pay my teacher
(because he will have lost his suit for payment).
If I lose this case, I will not have to pay my teacher
(because of the terms of our agreement).
Therefore, I do not have to pay.

In response the teacher presented an equally impressive argument:

Either I will win this case or I will lose it.
If I win the case, the pupil must pay me
(because I will have won my suit for payment).
If I lose the case, the pupil must pay me
(because he will have won his first case).
Therefore, the pupil must pay me.

If we adopt the turnstile symbol \vdash as shorthand

for the frequently occurring expression "therefore" and let P and Q mark the gaps to be filled by appropriate statements, then the arguments by teacher and pupil are easily seen to share the following simple logical form:

$$P \text{ or not } P, \text{ if } P \text{ then } Q, \text{ if not } P \text{ then } Q \vdash Q.$$

The remaining English (in general, natural language) expressions are called logical statement *connectives*. Since the meanings of connectives are held constant, it is typical in logic to introduce the wedge \vee as an abbreviation for the connective "or," the tilde \sim as a symbol for "not," and the arrow \rightarrow as a shorthand for the connective "if . . . then. . ." On replacing the connectives by their symbolic abbreviations, we reach

$$P \vee \sim P, P \rightarrow Q, \sim P \rightarrow Q \vdash Q.$$

This is the final symbolic form of the arguments (both valid) by the teacher and his pupil. Although it is not known how the case was decided, what these formally identical valid arguments show is that the original contract between the teacher and the pupil contained a hidden self-referential contradiction and should not have been applied to their own case.

Symbols

Modern deductive logic is often called symbolic logic because it employs a symbolic apparatus much like that used above. Advantages of symbols are many: brevity, precision, perspicuity, parsimony, and generality. Logic owes its comprehensive range of application precisely to the fact that it is formal; arguments differing widely in content often have the same form.

The most basic and most frequently employed valid argument form is *modus ponens* (MP):

$$P \rightarrow Q, P \vdash Q.$$

This logical form is employed by every rational human being and has been recognized since antiquity. For example, Pope Paul VI used it in his famous message to world leaders:

If peace is possible, then achieving peace is a duty.
Peace is possible.
Therefore, achieving peace is a duty.

MP may be used to explain the validity of more complex arguments. It is easy to confuse MP with the following invalid argument form, known as the *fallacy of affirming the consequent*:

$$P \rightarrow Q, Q \vdash P.$$

A typical argument that commits the fallacy is this:

If the Bible is God's revelation, then it will withstand critical attack.
It does withstand such attack.
Therefore, it is revelation.

In general two kinds of error can be made when advancing an argument. In an unsound argument one makes a *factual* error by being mistaken in claiming that the premises are all true. In an invalid argument one makes a *formal* error by misinterpreting the deductive linkage between premises and conclusion.

Classical Logic

It is common to mean by classical logic the study of deductive arguments involving the usual connectives and quantifiers "all" and "some." With the resources of this logic it is possible to analyze and evaluate arguments of remarkable complexity and subtlety, far beyond any of the examples given above. Classical logic is completely safe because its body of admissible arguments is consistent, and it is at least as adequate (i.e., corresponds to the reality of argumentation) as any mature science. Logic stipulates the meanings of connectives, but these axiomatic meanings do not always correspond to the intuitive meanings of natural language expressions from which they have been originally abstracted. The following familiar argument about the existence of God elucidates the point:

If I will have eternal life if I believe in God, then God must exist.
I do not believe in God.
Therefore, God exists.

While this natural language argument is clearly invalid, its symbolic translation most assuredly *is* valid. It is immediately evident that the formal version

$$(P \rightarrow Q) \rightarrow R, \sim P \vdash R$$

of the argument is not a wholly satisfactory translation of the natural argument. In this example the second premise does not entail the antecedent of the first premise, while formally $\sim P$ does entail $P \rightarrow Q$.

Because classical logic sometimes gives incorrect results even with arguments that seem to fall within its domain of applicability, logicians have proposed several *alternative* logics (including constructive, intuitionistic, strict, free, relevant, many-valued, and partial-valued logics) that accommodate many of the semantic peculiarities of natural language connectives and quantifiers. The question of which alternative logics are fact or fiction has not been properly resolved.

Applications to Communication

A natural habitat of arguments is human communication. Logic sets definite limits to communication situations. As a paradigm, consider the classic Wise Man Puzzle:

A king, wishing to know which of his three advisers is the wisest, paints a dot on each of their foreheads, telling them that each man's dot is either black or white and that at least one of them has a white dot; he then asks them to tell him the color of their own spots. After a while the first replies that he does not know; the second, on hearing this, also says he does not know. After hearing both responses, the third man declares, "I know the color of my spot."

The puzzle is to generate the line of argument employed by the third wise man. The difficulty lies in the nature of the third wise man's reasoning about the knowledge of the first two. Not only must he pose a hypothetical situation, but then he must reason within that situation about what conclusions the second wise man would have to come to after hearing the first wise man's response.

Epistemic logic, based on conditional and common knowledge operators, provides a powerful framework for reasoning about knowledge in communication situations. In particular, it explains how the third wise man in the example above must reason: "Suppose my spot were black. Then the second of us would know that his own spot is white, since he would know that if it were black, the first of us would have seen two black spots and would have known his own spot's color. But since both answered that they did not know their own spot's color, my spot must be white."

In this example the communication situation is as follows. The agents communicate with each other via admissible channels. Each agent is at all times in some state of knowledge, and this state is a function of some earlier state and the messages received. Knowledge states contain not only facts about the world but also facts about the states of knowledge of others. From a logical standpoint each agent may be framed in terms of an algebra of statements (expressed in some fixed language) together with a string of admissible arguments (deduction rules) applicable to the statements in the algebra. Reasoning about the agents' knowledge is carried out in terms of a new logical operator, symbolized by square brackets [•]. So if P is a statement from the algebra of statements of wise man (agent) m , then the fact that "Wise man m knows that P " is conveniently symbolized by the expression $[m]P$. Iterations of the sort "Wise man m knows that wise man n knows that P " receive the obvious symbolization $[m][n]P$. Epistemic logic is based on classical logical argument forms and the following "knowledge" argument forms:

- $K_1 \quad [n](P \rightarrow Q), [n]P \vdash [n]Q$
- $K_2 \quad [n]P, [n]Q \vdash [n](P \wedge Q)$
- $K_3 \quad [n]P \vdash P$
- $K_4 \quad [n]P \vdash [n][n]P$
- $K_5 \quad [n]P \vdash [n]\sim[n]P$

Argument form K_1 says that each agent's body of knowledge is closed under MP (logical deduction). Simply, agents know the logical consequences of their own knowledge. Removal of this idealization of knowers has led to many alternative epistemic logics. Form K_2 legislates the fact that if agent n knows both P and Q , then n also knows their logical conjunction $P \wedge Q$ (the inverted wedge \wedge is an abbreviation for the connective "and"). Principle K_3 suggests that an agent only knows things that are true, a condition that distinguishes knowledge from belief: one cannot know something that is false, although one may believe it. The last two conditions pertain to logical introspection. In particular, K_4 says that if agent n knows that P , then n knows that he or she knows that P . The last condition concerns negative introspection—the fact that one has knowledge about one's own lack of knowledge.

Common and implicit knowledge. A persistent theme in discourse understanding, convention, and coordinated action is *common knowledge*. In a logical model of communication we grant that when a social group has common knowledge of some statement P , then not only does everyone in the group know that P , but everyone knows that everyone knows that P , everyone knows that everyone knows that everyone knows that P , and so on ad infinitum. When the group consists of two agents, say m and n , then we may write $[m \wedge n]P$ as short for "It is common knowledge between m and n that P ." As pointed out, common knowledge may be unfolded in terms of an infinite conjunction of iterated knowledge:

$$[m \wedge n]P =_{\text{def}} [m]P \wedge [n]P \wedge [m][n]P \wedge [n][m]P \wedge [m][n][m]P \wedge \dots$$

It is not hard to show that the common knowledge operator $[m \wedge n]$ shares the properties expressed in K_1 – K_5 . For example, it is common knowledge among the three wise men (i.e., their "frames of reference" overlap to some extent) that at least one spot is white and that K_1 – K_5 hold.

The next notion that is relevant in a logical model of communication is that of *implicit knowledge*, which is the knowledge that can be obtained by pooling together the knowledge of agents in a group. For example, suppose agent n knows that P and agent m knows that $P \rightarrow Q$. Then together agents n and m know that Q , implicitly, even if neither of them knows Q individually. If we adopt $[n \vee m]P$ as

shorthand for the expression "Agents n and m have implicit knowledge of P ," we have the rule

$$[n]P \vee [m]P \vdash [n \vee m]P.$$

Again, the operator $[n \vee m]$ satisfies K_1 – K_5 . No amount of communication in a closed social group can change the implicit knowledge about the world.

Since agents communicate with each other exclusively by exchanging messages of various sorts and through different channels, we need to know what states of knowledge are attainable via such communication. To this end we introduce a *conditional knowledge* operator $[m:M]$ such that for statements M and P the epistemic statement $[m:M]P$ expresses the fact that "Agent m knows that P , given the received message M ." Here again, $[m:M]$ satisfies the deduction rules K_1 – K_5 and the following argument forms:

- $M_1 \quad [m]P \vdash [m:M]P \text{ if } \sim[m]\sim M$
- $M_2 \quad [m]M \vdash [m:M]P \rightarrow [m]P$
- $M_3 \quad [m:M]N, [m:N]P \vdash [m:M]P$
- $M_4 \quad [(m:M):N]P \vdash [m:M \wedge N]P \text{ and } [m:M \wedge N]P \vdash [(m:M):N]P$
- $M_5 \quad \vdash [m:M]M$

Message axiom M_1 says that if agent m knows that P , then m continues to know that P even after having received message M so long as agent m does not know that $\sim M$. Condition M_2 expresses the fact that under the knowledge of M if an agent m knows that P , then m knows that P independently of receiving message M . Rule M_3 characterizes the transitivity of message reception. By contrast, rule M_4 captures the idea of composition of messages. First learning message M and then message N is the same as learning $M \wedge N$ in a single step. Finally, clause M_5 requires that whatever is received as a message must be known.

Deduction rules K_1 – K_5 , together with message principles M_1 – M_5 , provide an exact—albeit idealized—explanatory account of how the third wise man must have reasoned. This sort of logical methodology offers some distinct conceptual advantages over typical commonsense treatments, without the synergistic complexities so frequently encountered in studies of human communication. The logical model fits within the finely bounded region between formally tractable but oversimplified models and more realistic but less easily axiomatized views.

See also CYBERNETICS; INFORMATION THEORY; MODELS OF COMMUNICATION.

Bibliography. D. Harrah, *Communication: A Logical Model*, Cambridge, Mass., 1963; W. V. Quine, *Philosophy of Logic*, Englewood Cliffs, N.J., 1970.

ZOLTAN DOMOTOR

SYMBOLISM

Etymologically, *symbolism* derives from the Greek word *symbollein*, meaning "to put together." A *symbolon* was half of a coin retained in lieu of a verbal agreement. Now symbolism is generally defined as the use of a SIGN to stand for something other than its usual signified. The symbol is both less precise than nonsymbolic terms and more explanatory: whereas the original Greek symbolic practice suggests that any coin would do, the modern "putting together" is often taken to reveal previously unthought-of affinities or likenesses, potentially codifiable but beyond the scope of discursive definitions. To this extent symbolic figurations can claim to be unique, neither translatable back into discourse like allegory nor infinitely expandable within discourse like METAPHOR and simile. This strong version of symbolism recurs in intellectual history but frequently gives way to a simpler one. The basic idea of the displacement of one MEANING by another is retained in both versions. Symbolism can occur within any SIGN SYSTEM, from PORTRAITURE to traffic lights. The color red, for example, can symbolize passion or danger as well as representing the color of a dress or giving an order to stop. In each case, if the symbolic function is dominant, a literal CODE of meaning is assumed to give way to one transferred from elsewhere.

However, theorists have often found it difficult to separate these supposedly different communicative acts. Some have taken symbolic LANGUAGE to be paradigmatic of how humans exchange information, making it unnecessary to distinguish a symbolic MODE. If all words are originally symbolic there can be no inherited background of literalness against which symbolic usage can appear divergent and innovatory. Others, usually assuming the strong version, have sharply differentiated symbolism from standard usage, often in defense of artistic privilege or a contrasting scientific objectivity. But although the scope of symbolism varies with the interests of different sciences of communication—linguistic, sociological, anthropological, aesthetic, psychological—all theories of meaning, from Platonism to poststructuralism, have had to provide an adequate account of symbolism (see AESTHETICS; COMMUNICATION, PHILOSOPHIES OF).

PLATO can be seen to have set the terms of this debate. In *The Republic* he ostensibly holds poets in disrepute, but as a result is able to adopt their techniques to describe the ideal reality behind the flux of appearance without fear of presumption. Ironically, Plato devalues ART only to employ myth and allegory to symbolize what science cannot represent. In reaction to Plato, but under his influence, ARISTOTLE'S *Poetics* describes POETRY as the most philosophical

of all kinds of WRITING, explicitly making its heuristic power dependent on its possession of a symbolic function distinct from that of scientific description. Subsequently this fragile dialectic between symbolism and science was frequently to collapse. For the later Greek philosopher Plotinus, art's power to figure the ideal reality simply *was* ultimate knowledge; and in the RENAISSANCE the esotericism resulting from the strong versions of symbolism in such doctrines as his came into open conflict with attempts to establish the foundations of modern empirical science. Political disputes, correlatable to the scientific debate, pitted the symbolic protocols of authoritarian regimes against the materialism of the rising commercial classes; the Reformation focused its attacks on the ecclesiastical establishment with reference to the way in which the priesthood appeared to exceed its symbolic function. In the broadest terms, then, theories of symbolism recapitulate basic philosophical and political disputes founded on disagreements about the proper distance to preserve between symbolic and scientific discourse.

Symbolism and romantic ideology. However, symbolism also has a more specialized history, beginning in the late eighteenth century with the romantic period in literature (see ROMANTICISM), in which the symbol becomes described as a particular trope and is used exclusively to legitimate art. In romantic IDEOLOGY the gap between the symbolic and the true is closed, and symbols merge with their meanings while still retaining their advantages over a bare scientific terminology. In the Kantian language out of which romantic theories of the symbol grew, the symbolic embodies an aspect of the intelligible or noumenal world (Plato's ideal reality) in unitary form; it is not, that is, restricted to representing through contradiction or antinomy—the modes in which ideas of Reason appear to the Understanding. Immanuel Kant held that symbols were noncognitive, but post-Kantians like the German philosopher Friedrich Schelling and his English follower Samuel Taylor Coleridge, at least in his theology, influentially advocated a strong version of symbolism as a kind of knowledge superior to allegory and metaphor. Johann Wolfgang von Goethe, too, thought it was in the nature of poetry to let its readers see immediately general truths that allegory could only report on as though from a spatial and temporal distance.

The romantic theorists for whom poetry was, in the words of the early nineteenth-century German aesthete A. W. Schlegel, "an eternal symbolizing," were as influential for literature as they were for critical theory, and as a result almost all European literatures had their symbolist movements, most famously in France. There Charles Baudelaire revived the identification of essential reality with ideal aesthetic truth, often through sordid examples of reality

that made his poetic appropriation of them appear all the more creative. Such conventionally unpromising situations concentrated attention on the symbolist consciousness, which could redeem from them a previously hidden residue. The poet Stéphane Mallarmé's endeavor "to paint, not the thing, but the effect it produces" continued to encourage a highly reflexive style, since the poem itself must be one of its subject's effects. Everything else is "chance," and later poets such as W. B. Yeats, Paul Valéry, and Rainer Maria Rilke inherited in their individual ways this basic confidence that ultimate truth lies behind poetry's own self-examination.

Developments in critical theory. Critiques of the romantic theory were foreshadowed in the 1820s in G. W. F. Hegel's *Aesthetics* but were developed in the twentieth century by European critical theorists such as WALTER BENJAMIN and THEODOR ADORNO, by the later structuralist and poststructuralist polemics of ROLAND BARTHES and Jacques Derrida (see STRUCTURALISM), and by U.S. deconstructive criticism, practiced most influentially by Paul de Man and Geoffrey Hartman (see AUTHORSHIP). With a growing appreciation of the force of these ideas there was once more an upsurge of interest in the communicative procedures poetic symbolism might share with other forms of thought. The gap between symbol and truth is reopened and the presence of meaning in the symbol made problematical, as in any other kind of discourse. In this process of assimilation a distinctively scientific discourse is as much at risk as romantic symbolism. If all linguistic functions are equally figurative there ceases to be room for literal, scientific description. Following philosopher of science Thomas Kuhn's arguments for the way in which scientific revolutions expediently abandon paradigms, many philosophers have taken a more pragmatic view of scientific truth, compatible with the simpler form of symbolism.

This development can be traced in a more radical and more visible form by considering relations since 1945 between critical and linguistic theory. W. K. Wimsatt spoke for the ascendant American New Criticism when, drawing on the semiotic distinctions of CHARLES S. PEIRCE (see SEMIOTICS), he described poetry as a "verbal image . . . an interpretation of reality in its metaphoric and symbolic dimension." For the New Critics a poem need not "mean" other than through its "being"; it is iconic of the reality whose features it symbolizes (see ICONOGRAPHY). Although it is iconic the poem still appears to allow for the open-endedness commonly attributed to symbolism, because it shares specific properties with what it denotes. Danish linguist Louis Hjelmslev explained this participation by describing symbols as being "isomorphic with their interpretation," when interpretation brings in all the other features that

must remain constant if the iconic property is still to belong to what is denoted. Macbeth's "naked newborn babe" can only be a symbol of pity given a cultural background much too large to be denoted completely. The Italian semiotician Umberto Eco has objected that such a theory is still too restrictive because symbols are vaguer and our use of them less determined than Hjelmslev allows. The interpretive background may be invented along with the symbol rather than preexisting it. Many theorists have noted that poetry, and modern poetry in particular, can make a virtue of such novelty, challenging the reader to construct a viable interpretive model of its elements.

An icon is a determinate feature of an indeterminate background, but it is equally arguable that symbols are indeterminate tokens presenting determinate ideas. Conventionally we abstract from a range of possible qualities in order to see the image of a baby as primarily symbolizing pity rather than, say, softness, pinkness, or innocence. In that case the category of the natural that motivates the symbol is part of a wider, arbitrary relation between signifier and signified. The symbol contrasts explicitly with the unmotivated or arbitrary sign that is the basic unit of the LINGUISTICS of FERDINAND DE SAUSSURE. Structuralists and poststructuralists have therefore frequently criticized the pretensions of symbolism to preempt arbitrary interpretation and to anchor the purely differential structure of language in natural reality.

Since for Saussureans such an anchoring is impossible, the argument for it has been attributed to polemical motives. Barthes and others attacked the conservative politics they believed were implied by the naturalized symbolism of what Barthes called "mythologies." For Barthes a myth is "stolen language," a naturalization of what is in fact arbitrary and unlimited. Dream symbolism was similarly subjected to critique, and in LITERARY CRITICISM the archetypal interpretive codes of Northrop Frye were opposed by Harold Bloom's psychoanalytic theories (see PSYCHOANALYSIS) by which "the meaning of a poem is another poem." SIGMUND FREUD was reinterpreted to show that his analyses of dream-work and its mechanisms of psychic repression had unwittingly rediscovered the traditional figures of RHETORIC. For Jacques Lacan dream-work, when unraveled, uncovered neither the archetypal code that Freud often appeared to be searching for in his interpretation of dreams or his investigations into the psychopathology of everyday life nor a Jungian reservoir of instinctual drives (see JUNG, CARL), but the substitutive functions common to all linguistic operations, whereby words produce not extraverbal "origins" but more words.

Post-Lacanian French theorists, while still taking

their bearings from the Saussurean tradition, have felt the need to try to rediscover a symbolic function in which language registers the force of what exceeds its own linguistic economy. This recalls the disparity noted in the original Greek model between the *symbolon*, the half-coin, and the verbal contract it commemorated; for in the new theories the possibility of the figure for some extradiscursive assurance of intradiscursive agreement surfaces yet again. The experience of "jouissance" Barthes eventually sought for in *READING*; Julia Kristeva's detection of a feminist energy anterior to the patriarchal symbolic order of language (see *LANGUAGE IDEOLOGY*); the "figural" quality by which language, according to Jean-François Lyotard, can show the ways in which its object escapes discursive organization—all these are new names for a symbolic activity that once again is something more than a metaphorical or allegorical divergence from standard discourse. Its history suggests that symbolism answers a particular need that, though periodically effaced in fresh theories of language, will always recur.

See also *POETICS*.

Bibliography. Hazard Adams, *Philosophy of the Literary Symbol*, Tallahassee, Fla., 1983; Anna Balakian, ed., *The Symbolist Movement in the Literature of European Languages*, Vol. 2, *A Comparative History of Literatures in European Languages*, Budapest, 1982; Morton W. Bloomfield, ed., *Allegory, Myth, and Symbol*, Cambridge, Mass., 1981; Ernst Cassirer, *The Philosophy of Symbolic Forms*, 3 vols. (*Philosophie der symbolischen Formen*), trans. by Ralph Mannheim, New Haven, Conn., 1953; Umberto Eco, *Semiotics and the Philosophy of Language*, Bloomington, Ind., 1984; Mary LeCron Foster and Stanley H. Brandes, eds., *Symbol as Sense: New Approaches to the Analysis of Meaning*, New York and London, 1980; Tzvetan Todorov, *Theories of the Symbol* (*Théories du symbole*), trans. by Catherine Porter, Ithaca, N.Y., 1982.

PAUL HAMILTON

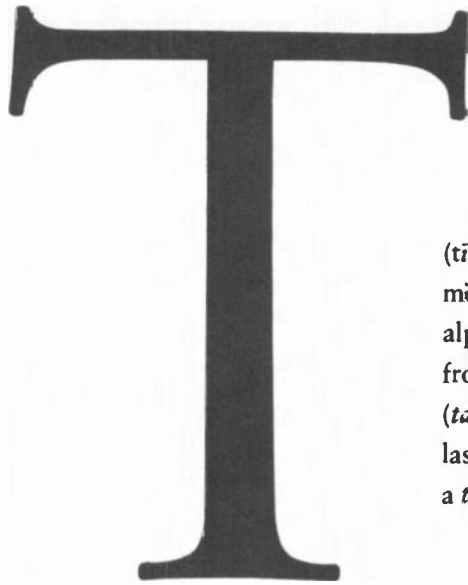
SYNDICATION

Distribution mechanism by which the cost of a newspaper feature or radio or television series is divided among diverse outlets. First used in the newspaper field, the term has been applied to news commentaries, comic strips, political cartoons, reviews and columns, and other special features as well as to a parallel range of radio and television offerings. Syndication may be done by an individual newspaper or broadcasting station (or a group of papers or stations) wishing to gain added revenue from its popular features or by an organization established specifically for syndication, offering items it has produced or has obtained by contract. An outlet acquiring an item via syndication is generally granted limited rights in a specific geographic area and within a specific time period. It pays a fee that may depend, in the case of a newspaper, on the paper's circulation, the population of its distribution area, or other criteria. In the case of a broadcasting station, such a fee may depend on the power of the station's transmitter or on its advertising rates.

In television, syndication is generally used as a supplement to commercial network distribution, usually after network distribution. It is sometimes used as a substitute for such distribution, particularly for programming keyed to specialized ethnic, linguistic, or other audience groups. Internationally, syndication emerges as the principal method for the marketing of rights in television series; actual delivery of programs can be done via prints or tapes or by satellite transmission. With the sophisticated development of dubbing and subtitling techniques, syndication has opened worldwide markets to the commercial programmer. See *TELEVISION HISTORY*.

ERIK BARNOUW

SYNTAX. See *GRAMMAR*.

A large, bold, black serif capital letter 'T' is positioned on the left side of the page. It has a thick vertical stem and a horizontal top bar with slightly flared ends.

(*tī*), the twentieth letter of the English and other modern alphabets, the nineteenth of the ancient Roman alphabet, corresponding in form to the Greek T (*tau*), from the Phœnician (and ancient Semitic) † × × × (*tau*), in Phœnician, and originally also in Greek, the last letter of the alphabet. . . . Several varieties of a *t*-sound occur in different languages. . . .

TARDE, JEAN-GABRIEL DE (1843–1904)

French lawyer, criminologist, and sociologist. Often overshadowed by his compatriots Auguste Comte and ÉMILE DURKHEIM, Jean-Gabriel de Tarde ranks as one of the three most outstanding social thinkers of nineteenth-century France. Tarde's writings and thought have various implications for students of communications theory, but of particular interest is his scrutiny of collective behavior, mass communication, and PUBLIC OPINION.

Tarde was born and grew up in the small town of Sarlat in southern France, where his ancestors had resided since the eleventh century. This family tradition and historical background gave Tarde material for a number of books he later wrote about the town and his family. After a strict classical education and training in the law, Tarde practiced law in the Sarlat area for the next twenty-five years. He also read widely from the writings of the major philosophers and social theorists of his era, including G. W. F. Hegel, John Stuart Mill, and Herbert Spencer. This reading provided the basis for his most important theoretical volume, *The Laws of Imitation* (1890). Through his work in the courts Tarde also became interested in the causes of crime and deviance. He wrote extensively on criminology, emphasizing the need to examine socialization and imitation as social forces leading to crime. His work led to national recognition, an appointment as director of the criminal statistics bureau in the Ministry of Justice in Paris (1894–1900), and a professorship at the Collège de France (from 1900). Tarde and Durkheim were bitter rivals, and throughout their lifetimes they debated basic issues of sociological theory in their writings.

Some of Tarde's most important work comes from his interest in processes of communication. He wrote specifically on the role of TELEGRAPHY, the TELEPHONE, the mass-produced BOOK, and other printed materials (such as invitations and announcements) in the development of modern industrialized societies. He focused on the shift in social control from medieval towns and villages to large industrialized cities, which he related to the invention of various means of communication. Tarde contrasted the politics and currents of ideas before and after the beginning of newspapers and mass communication. He believed that before the mass media existed, communication was characterized by thousands of separate opinions providing no continuing ties among people. The advent of rapid communications via the telegraph, the telephone, and the means to distribute newspapers over a large territory brought a far greater efficiency. Tarde emphasized the power of newspapers as molders of public opinion in modern times (see NEWSPAPER: HISTORY). He wrote that a daily press permitted primary groups of highly similar individuals to form

much larger secondary groups whose members were closely associated without ever seeing or knowing one another.

Tarde further projected at the close of the nineteenth century that it would be impossible to isolate the impact of the communications industry from the many other technological developments associated with modern societies. He realized that in order for international conflict to grow to the extent of arousing the passions and involvement of entire populations (as well as mobilizing national economies), it must be based on established communication networks. Although the social transformations associated with newspapers and other means of rapid communication enhanced the potential threat of large-scale conflicts, Tarde felt that in the long run mass communication would be a force contributing to rationality and movement toward world peace.

Bibliography. Jean-Gabriel de Tarde, *On Communication and Social Influence: Selected Papers*, ed. by Terry N. Clark, Chicago, 1969.

EDITH W. KING AND R. P. CUZZORT

TASTE CULTURES

Term coined in 1967 by U.S. sociologist Herbert J. Gans to refer to the cultural strata or subcultures in a society that parallel the strata of social class in that society. In 1949 Russell Lynes suggested a stratification of creators and consumers of U.S. CULTURE into "highbrows, upper middlebrows, lower middlebrows, and lowbrows." Gans married this concept to the more sociologically oriented social-class schema proposed by W. Lloyd Warner and Paul S. Lunt in their 1941 study of New Haven ("Yankee City"). Gans described five general taste cultures in the United States: high culture, upper-middle culture, lower-middle culture, low culture, and quasi-folk low culture.

In identifying these taste cultures Gans attempted to discard the value judgments traditionally associated with such rankings. A cultural relativist, he assumed that all human beings have cultural wants—possibly even needs—but that because of social class and class position people satisfy these needs in different ways. Thus high culture, in a functional sense, is neither a more nor a less valid form of expression than lower-middle or even quasi-folk low culture for those who create and consume it. By making this point Gans lodged the concept of taste culture solidly within the pluralist tradition in what is perhaps best known as the elite-mass culture debate that characterized much social science in the United States in the 1940s and 1950s.

Fearful of the effects of industrialization, urban-

ization, and the development of mass media, critics such as Dwight Macdonald, Bernard Rosenberg, and THEODOR ADORNO pointed to these social changes as major factors accounting for the destruction of cultural diversity in society and its replacement by a bland, homogeneous mass culture that was dangerous to political freedom. Deriving their ideological impetus from the cultural elitism of eighteenth- and nineteenth-century Europe, these critics turned their attention, in the United States, to the effects of commercial RADIO, MOTION PICTURES, and mass-circulation magazines, as well as to the PROPAGANDA uses made of these media by socialist governments during the post-World War II period. The tone of these critics was often strident in their warnings about the effects of mass culture on society. With this proliferation of mass culture, it was argued, taste levels would sink to the lowest common denominator, rendering citizens susceptible to the techniques of mass PERSUASION.

This concept of massification and its attendant dire effects did not long stand unchallenged in the social sciences. In 1957 Richard Hoggart published an empirical study of the British working class and the "full rich life" of this subculture. And in the United States, in 1959, Edward Shils asserted that mass culture enhanced individuality because of the increasing number of consumer choices that must be made by the individual. Talcott Parsons argued in 1960 that the mass media actually increased the diversity and quality of popular culture in the United States, a position seconded in 1964 by Harold Wilensky, who claimed that mass culture was in reality a plurality of cultures from which consumers selectively chose combinations that best suited their needs. This pluralist tradition was the bedrock upon which Gans built his concept of taste culture.

In addition to his relativistic position concerning the worth of various taste cultures, Gans made a second crucial distinction in developing this concept, a distinction between culture itself and those who consume it. This bifurcation of the concept into what he called "taste cultures" and "taste publics" follows Alfred L. Kroeber and Parsons's 1958 distinction between cultural systems as "symbolic-meaningful systems of values and ideas" and the artifacts produced to reflect them on the one hand and, on the other, social systems as the interaction of individuals and collectivities. Thus, for Gans, taste cultures are the array of arts, ENTERTAINMENT, information, and consumer goods available to different taste publics, while taste publics are aggregates of individuals who make similar choices for similar reasons.

This distinction is important in that culture does not always totally satisfy or meet the needs of those who consume it, a point obscured by the inseparability of culture and public. In addition, in a world

dominated by large mass media networks and industries, in order to remain viable the media must serve several taste publics with a single cultural product, such as network television (*see* TELEVISION HISTORY). Gans's analytic distinction between culture and public allows investigation of these central concerns in communications and audience research (*see* COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT).

Although there has been some empirical research in the United States (Paul DiMaggio, Paul Hirsch, Richard Peterson), Britain (Dick Hebdige, Hoggart, Michael Smith), and Sweden (Keith Roe, Karl-Erik Rosengren) to suggest that the concept of taste culture is valid and useful, the most important work, both theoretically and empirically, is that done in France in the 1970s and 1980s by Pierre Bourdieu.

Bourdieu argues that cultural artifacts have symbolic codes embedded in them that make sense only to those socialized in these codes. For those from different social strata cultural objects are viewed through inapplicable or misleading codes that cause a confusion of interpretation, while those from the same social stratum, who know the codes because they have been socialized in them, will interpret, understand, and appreciate the cultural object in question. *See* ARTIFACT; CODE.

One important implication of Bourdieu's position is that, if the dominant culture is a code into which some people are inducted from birth and which others must master, then debates over the value of cultural artifacts are highly political in nature, since they involve the argument that the worth of cultural objects is closely equated with the social worth of consumers, with respect to their position in the class structure.

MAX WEBER, the German sociologist, distinguished between social class (based on economic position) and social status (based on style of life), but Bourdieu sees them as overlapping markets—one fueled by economic capital, the other by cultural capital. Culture, then, has a central place in the power struggles of social classes and the perceived worth of individuals in society.

To some extent cultural capital can be used in a conscious and strategic way to better one's class position; however, a great deal of it lies even deeper, in the culture codes of early socialization. The reflexively felt sense of what is true, beautiful, natural, and/or good—the very sense of self-identity—is, in Bourdieu's eyes, an expression of that mix of cultural and economic capital that defines membership in social classes and, in many systems, allows the dominant classes in society the sort of hegemonic control proposed by Italian scholar ANTONIO GRAMSCI.

Although a focus on the correspondence between taste culture and social class has been an important

and central thrust of the work surrounding this concept, there is more. Gans, in 1985, modified his five original taste cultures to include a middle culture that seems to cut across and blend upper- and lower-middle cultures in the United States. He has also pointed to age (youth culture), ethnicity (black U.S. culture), and GENDER (feminist movements) as discriminating variables, important in defining taste cultures and publics not necessarily constrained to one social class. In addition, private market researchers have developed complex mappings of the U.S. population, dividing people into taste publics on the basis of cultural consumption patterns, residential areas (defined by postal zip codes), and census demographic data for use by the media and cultural industries that have enough money to afford these complex and expensive analyses.

Finally, in the United States some researchers such as Peterson, DiMaggio, and James Davis have noted very loose correlations between cultural preference and class level. In examining the audience for country and western music in 1975, Peterson and DiMaggio found that the audience was more clearly distinguished by race and age than by social class and that many of the same stratum, race, and age did not like the music. They coined the term *culture class* to refer to that aggregate of individuals who seek out similar cultural forms, even as this aggregate is indefinable in the traditional socioeconomic terms of social class. Davis's 1982 analysis of a number of U.S. attitude surveys (an analysis contested by Gans) supports Peterson and DiMaggio in that Davis found so little correlation between social class and cultural consumption that he suggested the concept may no longer be valid, at least in the United States.

In highly industrialized societies, under conditions of relatively high social mobility, greater discretionary income, easy credit, efficient distribution of goods, high diffusion rate of cultural products, and a substantial amount of LEISURE time, the linkages between cultural consumption and social class are not automatically correlative but are contingent, problematic, and variable. The concept of taste culture, especially as it has been developed by Gans and elaborated on in other cultures and contexts, is primarily a helpful conceptual tool for studying culture, communication, and social class.

See also ART; ARTIST AND SOCIETY; LITERARY CANON; LITERATURE, POPULAR.

Bibliography. Pierre Bourdieu, *Distinction: A Social Critique of the Judgement of Taste* (La distinction: Critique sociale du jugement), trans. by Richard Nice, Cambridge, Mass., 1984; Herbert J. Gans, *Popular Culture and High Culture: An Analysis and Evaluation of Taste*, New York, 1974; idem, "Popular Culture in America," in *Social Problems: A Modern Approach*, ed. by Howard S. Becker, New

York, 1966; Dick Hebdige, *Subculture: The Meaning of Style*, London, 1979; Richard Hoggart, *The Uses of Literacy*, London, 1957; George H. Lewis, "Taste Cultures and Their Composition: Towards a New Theoretical Perspective," in *Mass Media and Social Change*, ed. by Elihu Katz and Tamas Szecsko, Beverly Hills, Calif., 1980.

GEORGE H. LEWIS

TAXONOMY. See CLASSIFICATION.

TEACHING

The planned and organized attempts to facilitate the learning of others. *Learning* is the name given to the process of changing through experience. Through the cognitive and affective processes of learning people acquire relatively permanent changes in knowledge, skill, belief, ATTITUDES, and feelings, which give new meanings to experience that lead to changes in behavior.

Because of its social and individual importance, societies foster learning from infancy through adult life. Especially in modern complex societies, with their continually changing knowledge bases, an enormous amount of learning occurs in the SCHOOL and in daily life out of school. This learning includes and goes beyond the acquisition of facts, values, knowledge, attitudes, and beliefs to include learning strategies and self-control of one's abilities to learn (see SOCIAL COGNITIVE THEORY).

To promote these socially significant kinds of learning, people instruct and teach other people (a) by structuring experience that would otherwise be too diffuse; (b) by providing models whose activities, modes of thought, and general outlooks learners can copy or imitate, as was the case in preceding centuries when apprentices learned from models called "masters"; and (c) by providing symbolically coded information—LANGUAGE, numbers, pictures, and the like—to substitute for direct experience. Both teaching and instruction, in contrast to indoctrination or conditioning, imply learner awareness of the process of change (see PERSUASION).

Instruction, often used loosely as a synonym for teaching, denotes attempts to facilitate the learning of a limited area or domain by using either people or inanimate devices such as books, machines, and curricular materials as the facilitators. The primary objectives of instruction are to impart to students specific facts, skills, pieces of information, techniques, or strategies and to create in them an understanding of phenomena in limited domains.

The active roles of learners and teachers. In contrast, teaching implies greater primary concern for the long-term intellectual, personal, and social learning and development of the learner in harmony with

the attainment of the more specific and immediate objectives of instruction. In addition, teaching means that at least two people, the teacher and one or more learners, actively engage in the learning activity, each with a distinctive responsibility. The teacher is responsible for designing and conducting the teaching activities that are appropriate for engaging the thought processes, learning strategies, and metacognition (awareness and control of one's thought processes) of the learner in attaining the short-term instructional objectives and in achieving the long-term, intellectual, social, and personal objectives of EDUCATION. The teacher is responsible for practicing techniques that reflect the current state of knowledge about teaching, including teaching learners how to learn.

The learner is responsible for learning, for engaging in the thought processes that will focus attention and generate relations between knowledge and experience, on the one hand, and the material, skill, or techniques to be learned, on the other. Learners are responsible also for becoming aware of their thought processes and learning strategies, for monitoring them, and for using them to enhance learning, memory, and comprehension.

These modern concepts of teaching and learning differ from their ancient counterparts (such as learning to memorize and teaching by recitation) and from behavioristic models developed in the first half of the twentieth century, when teaching was defined by the behavior that was learned. With the increased interest in cognitive psychological principles in education during the last twenty years, the meanings of teaching and learning have further evolved.

Modern conceptions of the causes of learning. Formerly teaching was thought to be the direct cause of learning. Good teaching meant good learning, and poor teaching meant poor learning. More recently the critical role of the learners' thought processes in influencing achievement has been studied and established. As a result, teaching is now thought to produce its effects by stimulating learners to construct new meanings for their experience. The engagement of these thought processes in turn facilitates learning.

As a result, teaching now includes giving students awareness of and control over their thought processes and learning strategies. Through this awareness and self-control students acquire new information, skills, and ideas in school, and they also learn how to learn in school and how to learn in other contexts later in life.

These cognitive and affective processes constitute an indispensable link between teaching activities and student achievement. They imply that teaching does not produce learning in the everyday sense of directly imparting information. Instead, teaching engages the learners' thoughts and strategies in the active process of constructing relations between new information

and existing mental structures, which produces achievement.

Teaching is a two-way, interactive process. The teacher stimulates the students' thought processes. The students in turn respond and stimulate the teacher to invent the next, most appropriate teaching activity. This conception of teaching alters approaches to students. They are perceived not as passive recipients of one-way communication, from the teacher to the learner, but as having active responsibility for generating knowledge and for interacting with the teacher (*see* MODELS OF COMMUNICATION).

Advances in knowledge. This conception of teaching has led to new lines of research that have focused on the learner's thought processes as mediators of the effects of teaching. From this research have come the following findings, which provide new interpretations of earlier findings. First, learning in schools does not seem to be the process of practicing the appropriate behavior to receive rewards from teachers. Teachers give praise too infrequently to too few students to enhance their learning through principles of reinforcement. Instead, by observing a student receiving praise, many of the other students in the class learn the teacher's objectives and desires. The reward serves to focus their attention rather than to form an association between a stimulus, such as a question, and a response, such as an answer. Behavioral objectives given to learner and teacher questions also seem to direct students' attention to the teacher's goals. Again, teaching functions by influencing student thought processes—in this case, attention—which mediates achievement.

In another area of research, motivation, a related finding occurs. Reinforcement, such as the giving of rewards only when children give correct answers to questions in class, seems to motivate students to continue learning primarily when they attribute the reinforcement to their own effort rather than to luck, ability, or the ease of the task. In this case the way the student thinks about the cause of the reinforcement, not the teacher's act of giving it, increases motivation to learn the subject matter.

Last of all, in the area of comprehension, many teaching studies have shown that large gains in students' understanding can be achieved through the use of guided discovery, feedback, interactive images, and related techniques that teach learners to construct relations between their knowledge and the text they are learning. For example, by asking elementary school children to generate summaries or images as they read, comprehension can be increased by 50 to 75 percent. In these studies teaching produces its effects by stimulating learners' thought processes to generate meanings for experience (*see* MEANING). These new meanings result in measurable changes in behavior.

In sum, modern concepts of teaching emphasize the critical role the learner plays in interpreting the teacher's activities and in constructing meaning from them. The constructed meaning influences student learning and achievement.

See also AUDIOVISUAL EDUCATION; COGNITION; EDUCATIONAL TELEVISION.

Bibliography. Walter Doyle, "Paradigms for Research on Teacher Effectiveness," *Review of Research in Education* 5 (1977): 163-198; Michele Linden and Merlin C. Wittrock, "The Teaching of Reading Comprehension According to the Model of Generative Learning," *Reading Research Quarterly* 17 (1981): 44-57; Donald Meichenbaum and Joan Asarnow, "Cognitive-Behavior Modification and Metacognitive Development: Implications for the Classroom," in *Cognitive-Behavioral Interventions: Theory, Research, and Procedures*, ed. by Philip C. Kendall and Steven D. Hollon, New York, 1979; Greta Morine-Dersheimer, "Pupil Perceptions of Teacher Praise," *Elementary School Journal* 82 (1982): 421-434; Merlin C. Wittrock, "The Cognitive Movement in Instruction," *Educational Psychologist* 13 (1978): 15-30; idem, "Learning as a Generative Process," *Educational Psychologist* 11 (1974): 87-95; idem, ed., *Handbook of Research on Teaching*, 3d ed., New York, 1986.

MERLIN C. WITTROCK

TELECOMMUNICATIONS NETWORKS

Telecommunication is the transmission of signals over long distances. The earliest form of telecommunication was visual signaling with smoke, flags, or lamps. However, in the nineteenth century a revolution in communications began with the development of TELEGRAPHY and the TELEPHONE and continued with the invention of the RADIO and related technologies near the turn of the century. By the second half of the twentieth century the development of cables with substantially increased capacities and the application of FIBER OPTICS, as well as the microwave transmission of television signals in connection with SATELLITE technology, meant that a wide variety of signals could be sent around the world instantaneously. These developments ushered in the modern telecommunications system.

System characteristics. The basic functional components of such a system are (1) the communication terminal, which today could be a telephone, a teletypewriter, a facsimile machine, a personal computer, or a large computer central processor; (2) the local loop (i.e., the network of wires, cables, poles, and related equipment that connects terminals to a local central office); (3) switching equipment in the central office that provides the necessary connections when calls are made and performs network management functions; (4) larger-capacity trunk cables or occa-

sionally direct microwave links that connect central offices (e.g., a local end office with a long-distance toll office); and (5) transmission equipment that sends and receives signals over long distances, including higher-capacity coaxial or fiber optic cable, microwave radio, and satellites.

For signals to be communicated effectively over such a system there must be technical compatibility among all functional components, and each component must be capable of handling the signals of the highest-quality service that will be provided over the system. When telephone systems were upgraded to meet the requirements of national and international long distance it required technical improvements not only in the transmission function but in all other functions as well, including the telephone instrument.

Innovations in telecommunications technology in the second half of the twentieth century have expanded both the capabilities and the capacity of the facilities used to communicate. Telecommunications systems can now carry different types of messages, including not only telegraph, voice, and television signals but also facsimile, VIDEO, and computer data signals. Off-air broadcasting has been supplemented by CABLE TELEVISION and direct broadcast satellites.

Cellular radio has expanded the possibilities for mobile communication within cities. Telephone companies are upgrading their voice telephone systems with digital switching and fiber optic cable to facilitate computer data transfer and processing over telecommunications networks with greatly expanded capacity. Cable television companies have been upgrading their distribution cables to permit data transfer. Some business and residential subscribers may now select from an increasing variety of computer communication terminals to obtain access to computer data and information banks (see COMPUTER: IMPACT; DATA BASE). In addition, the quality of equipment used to record and transmit visual images (film, television) and SOUND (music, FM radio) continues to improve (see SOUND RECORDING; TELEVISION HISTORY).

The telecommunications system of interconnected facilities is now used to provide a wide variety of different communication services. Each service provides connection among a particular network of potential users, employing a particular type or quality of communication signal. Local telephone service provides public access to telephones in the local area at voice-grade technical standards. But the local telecommunications facilities also provide connections for voice, telegraph, video, and data signals that are separate from the local public telephone network. These may be either private communication lines connecting only a few locations or special networks such as a local data network. Some services require four-wire loop connections for higher-quality service

rather than the two-wire loop required for voice telephone. The local facilities also provide access to the public long-distance network and, if the particular facilities have been upgraded, to national and international networks for video or data signals, such as airline reservation systems.

The telecommunications system was designed originally to meet the standards of voice communication. It employed the analog transmission method, which used signals that were exact reproductions of the pattern of sound waves being transmitted. But this restricted the speed with which digital data signals could be transmitted. In addition, signal distortions that did not significantly affect the quality of voice communication created errors in data transmission. A major thrust of research and development was therefore a search for new techniques that would improve accuracy in data communications.

Telephone companies and administrations began to convert their signal standards from analog to digital and to upgrade systems to the standards of digital computers. Progress was most rapid for the long-distance transmission function, and digital terminals were widely available by the 1980s. The conversions of local switching and loops were more costly and were implemented more slowly. POTS (the plain old telephone system) was in the process of being converted to an ISDN (integrated services digital network), a sophisticated multipurpose network used to provide a wide variety of communication and information services. This conversion process is likely to continue at least until the end of the twentieth century.

Industry structure and regulation. Traditionally telecommunications services have been supplied under the concept of end-to-end service by a MONOPOLY supplier. In most countries the primary and often exclusive supplier has been a department of the national government, usually part of the post office (the post, telephone, and telegraph administration, or PTT). In North America and a few other regions the dominant mode of supply has been by private corporations with geographically defined monopolies, subject to government regulation of investment, financing, services, and tariffs.

The telecommunications system was extended to less populated areas through cooperatives and municipal and provincial companies, often receiving direct government subsidies (e.g., the U.S. rural telephone program). In the United States the American Telephone and Telegraph Company (AT&T) until 1984 was the largest company in the world, a holding company with ownership of regional telephone companies serving the most populated regions of the country (82 percent of the telephones), the dominant telecommunications equipment supplier (Western Electric), the major research and development oper-

ation (Bell Laboratories), and a division that supplied almost all domestic and most U.S. international long-distance services.

Most PTTs set rates for public services at a relatively high level in order to subsidize postal service and make generous contributions to their respective national treasuries. Their expansion was slowed by investment limitations placed by governments with higher priorities for the use of public resources. In North America the private companies obtained their investment funds from the capital markets. Their rates for public services had to be approved by a state or federal government regulatory agency. Generally these regulatory agencies have attempted to limit the overall profit of the telephone companies to a reasonable level, but great flexibility has been allowed in setting individual rates for particular services.

From the early 1960s the concept of end-to-end monopoly came under increasing criticism in the United States, stemming primarily from the growing interaction between the telecommunications and computer industries. Other equipment manufacturers and potential suppliers of telecommunications services claimed that they could provide improvements to the system that would benefit consumers. This led to a gradual but substantial liberalization of traditional regulatory restrictions in the United States and the beginnings of similar changes in Britain, Japan, Canada, and several other countries.

In the mid-1960s the U.S. Federal Communications Commission (FCC) began an investigation into the growing demands to connect computers to the telephone network. In 1968 the commission ruled in its *Carterfone* decision that AT&T's restrictions against the attachment of terminals owned by others (called "foreign attachments" by AT&T) were unlawful. In 1969 the FCC approved an application by the MCI Corporation to supply long-distance services between Chicago and Saint Louis. In 1971 other applications to supply long-distance services were approved, and a policy allowing competition in domestic satellite services was adopted. In 1976 the commission adopted a policy of permitting the resale of communication services, allowing new competitors to offer public services using capacity they had leased from established telephone companies.

Throughout the 1960s and 1970s AT&T resisted the development of competition by restricting and impeding efficient interconnection, by selectively implementing deep price cuts in those segments of the market in which competitors appeared, and by creating costly and time-consuming delays for would-be competitors. Although these practices slowed down the development of competition, they did not stop it. On several occasions the FCC and/or the courts ordered AT&T to stop various anticompetitive prac-

tices, and a number of AT&T competitors filed court cases claiming that they had been damaged by AT&T's violation of the U.S. antitrust laws.

In November 1974 the U.S. Department of Justice charged that AT&T was engaging in the systematic destruction or prevention of competition for subscriber terminal equipment, long-distance telecommunications services, and telecommunications equipment manufacturing. It argued that only a breakup of the AT&T monopoly would allow effective competition to develop. By raising a variety of technical arguments AT&T was able to delay the trial until 1981. As the trial was reaching conclusion in 1982, AT&T and the Department of Justice agreed on a settlement that would restructure the AT&T monopoly by 1984.

The twenty-two Bell System telephone companies were grouped into seven regional holding companies. The new AT&T kept the backbone long-distance telecommunications system (including the international services), the manufacturing company, and the Bell Laboratories—about one-third of its former assets. Only AT&T's long-distance service was still subject to federal regulation, because AT&T retained over 90 percent of this market. The Bell telephone companies were to provide local telecommunications and some long-distance service in their geographical areas and connect AT&T, MCI, and the other long-distance companies to business and residential subscribers. The telephone companies remained subject to regulation by both state commissions and the FCC, and they were prohibited from offering information services over their monopoly local systems.

The merging of computer and telecommunications functions provided an avenue for incorporating the efficiencies of MICROELECTRONICS into telecommunications equipment and networks. The terminal equipment market was opened to international competition in most countries. Factories, offices, and "smart" buildings (buildings designed to provide access to a variety of telecommunications and information capabilities) were being transformed into centers of information movement and management. Telecommunications administrations throughout the world found it increasingly difficult to continue purchasing modern switching and transmission equipment from favored national suppliers in the face of superior equipment at substantially reduced prices from international competitors.

With respect to national long-distance facilities and services, as of 1987 only the United Kingdom and Japan, in addition to the United States, were experimenting with new competitive systems. In many countries the use of the telecommunications network is being liberalized so as to permit a wide range of data, information, and value-added network services. In the international market competitive fiber optic

cable and satellite systems were planned for both the Atlantic and Pacific regions by the 1990s.

Public policy issues. The introduction of competition using new technologies in telecommunications networks raised important issues of public policy (see TELECOMMUNICATIONS POLICY). The imposition of market efficiency standards on monopoly carriers that heretofore had not been perceived as terribly efficient provided clear benefits to the economy. But if, at the same time, it precluded the continuation of social policy directed to the maintenance of universal telephone service, large benefits to one sector of society would be achieved at a cost to already disadvantaged sectors. Where universal telephone service has been achieved it has not been primarily a result of social cross-subsidies in telephone tariffs but rather through direct grants, low-interest loans, and similar approaches. Most PTTs have had relatively low subscriber penetration rates and have never attempted to provide universal service.

The monopoly telecommunications carriers claimed that competition for long-distance services meant that they would no longer be able to subsidize basic local telephone service. They claimed that local rates would have to increase dramatically and the universal telephone service objective would be seriously compromised. By the term *subsidy* the carriers meant the contributions from long-distance service revenues covering a share of the local facility costs that were used in common by both local and long-distance services. Yet, in the relatively few cases in which telephone companies supplied only local facilities and services, they claimed that the contribution from long-distance service was not sufficient to cover the costs imposed on local facilities by long-distance services. The costs of local telecommunications facilities were determined primarily by the requirements of long-distance service, not local service.

Of even greater significance was determining which services would be assigned the massive costs of the system upgrading to computer standards (i.e., the ISDN). Under prevalent industry accounting and regulatory practices the great majority of these costs would be allocated to local telephone service and could require dramatic local rate increases by threatening the universal telephone service objective. If these costs were to be assigned to the services causing their increase and benefiting from the system upgrading, more detailed accounting and rate regulatory standards would have to be adopted by the authorities. One possible scenario for telecommunications service pricing was a flat monthly charge for the right of access to the system and usage charges for all services actually used, including local telephone service. This approach was favored by commercial customers with high volumes of use for all services. However, consumer groups argued that high access

charges might force low-income people desiring only telephone service to disconnect from the system.

It was doubtful that regulators and policymakers would need to enforce a massive program of social cross-subsidies in order to protect the public user of basic local telephone service. Rather, they needed only to prevent exploitive pricing of the monopoly local telephone service, that is, the subsidy of competitive services with revenues from monopoly services. But whether regulators and policymakers were capable of such a task in the face of the combined pressure from telecommunications carriers and large business users was questionable.

The telecommunications equipment and services market was enormous, valued in 1984 at \$128 billion in the United States and more than double that in the rest of the world. It was growing at more than 12 percent per year, and there were vast opportunities for selling equipment and services in both developed and developing countries. The largest transnational corporations (TNCs) in the world economy were involved either as suppliers or as customers. The implications of these developments for the domestic economies of most nations were sufficiently large as to make telecommunications an important part of industrial policy. In addition, telecommunications issues were taking on a new significance for several INTERNATIONAL ORGANIZATIONS, including the ITU, the OECD, the GATT, UNESCO, and others. See NEW INTERNATIONAL INFORMATION ORDER.

The international competitive battle for the 1980s and 1990s revolves substantially around the issue of technical standards that ultimately would be adopted for the ISDN. International Business Machines (IBM) had already established a standard for connecting its own (as well as IBM-compatible) equipment, called Systems Network Architecture (SNA). Telecommunications carriers were working toward a different initial standard, open standards interconnection (OSI), but it took longer to be fully defined. In addition, the digitalization of the public telecommunications network made it possible for the increasing number of sophisticated "intelligent" functions to be located either in the network (and controlled by the telecommunications carriers) or in the terminal equipment purchased by the subscriber.

Implications. It has long been recognized that advanced communication techniques can provide enormous military, political, and economic advantages. Information is power, and communication techniques have had an important influence on the distribution of power within societies, as well as the rise and fall of empires. The major portion of research and development in telecommunications technology has been financed by the military budgets of the major powers. Military concerns included data encryption to protect against the interception of sig-

nals, techniques for more precise satellite surveillance, communication control over weapons in space, and techniques for jamming enemy communications.

The newest telecommunications technologies had significant influences on the way people lived and worked. Inevitably new opportunities were opened for some, but traditional ways of doing things were rendered impossible for others. Access to computerized information banks over telecommunications networks provided more and better information for large corporations, government agencies, and certain professions at a cost they were willing to pay. But with the availability of on-line information banks the collections and services of public libraries began to be reduced (see LIBRARY—TRENDS).

By overcoming the limits of time and space and expanding enormously the volume and variety of information that can be transmitted and processed, the new telecommunications system would provide substantial benefits and economies to very large users with substantial budgets for specialized computer communication equipment. The new information networks permitted an extension of the bounds of administrative control and offered increased productivity in large centralized organizations. Perhaps the primary beneficiaries were transnational corporations that were able to expand their scope, enlarge their markets, and transfer financial resources instantaneously around the world. But in many countries this created a major threat to domestic production and employment, national sovereignty, and local cultures, especially in developing countries. The vast majority of the world's population did not have access to a telephone, and in the 1980s 75 percent of the world's telephones were found in only eight of the world's 175 countries. Unfortunately this imbalance was not likely to be altered significantly without a major realignment of international telecommunication and economic policies.

Bibliography. John Brooks, *Telephone: The First Hundred Years*, New York, 1975; Harold A. Innis, *Empire and Communications* (1950), rev. by Mary Q. Innis, foreword by Marshall McLuhan, Toronto, 1972; Manley R. Irwin, *Telecommunication America: Markets without Boundaries*, London and Westport, Conn., 1985; W. H. Melody, ed., *The Information Society: Unveiling Some Contradictions* (special issue), *Media, Culture, and Society*, July 1985; Rita Cruise O'Brien, ed., *Information, Economics, and Power*, London, 1983; OECD, *Telecommunications, Pressures and Policies for Change*, Paris, 1983; Robert J. Saunders, Jeremy J. Warford, and Bjorn Wellenius, *Telecommunications and Economic Development*, Baltimore, Md., 1983; Herbert I. Schiller, *Information and the Crisis Economy*, Norwood, N.J., 1984; Dallas W. Smythe, *Dependency Road: Communications, Capitalism, Consciousness, and Canada*, Norwood, N.J., 1981.

WILLIAM H. MELODY

TELECOMMUNICATIONS POLICY

Policies that address the provision, organization, and control of networks for point-to-point transmission of information in electromagnetic or optical form and the services provided by such networks. As long as telecommunications involved a relatively simple and stable technology and a restricted range of simple services (telegraph, telex, and TELEPHONE), telecommunications policy remained the province of engineers and administrators and was relatively uncontroversial. However, from the 1960s on a range of related economic and technical developments forced telecommunications issues to the top of the policy agenda, both nationally and internationally.

The collection, manipulation, storage, and distribution of information became ever more central to the economic and social life of advanced industrial societies. According to some estimates, by the late 1970s more than 50 percent of the U.S. labor force was engaged in information processing, and the OECD (Organization for Economic Cooperation and Development) countries had either reached or were rapidly approaching that point. Moreover, the convergence of computing and telecommunications shifted these vital information flows increasingly into the electronic, digital mode. As far as government policies were concerned, this meant that not only was the provision of an efficient telecommunications infrastructure as important to the prosperity of national economies as railways and roads had once been, but the sectors of the economy supplying telecommunications and related information technologies became those with the highest growth rates and brightest future prospects. Thus many governments turned to this sector of their economies as the key to escape from the economic crisis in which they had found themselves by the late 1970s, and telecommunications policies became more crucial to industrial and economic policy.

Symptomatic of these pressures were the decisions by several countries in the early 1980s to dismantle telecommunications monopolies. Examples include the decision in the United States to break up American Telephone and Telegraph (AT&T) and to deregulate large sections of the telecommunications market, and similar actions in Great Britain and Japan to break the PTT (post, telegraph, and telephone) monopolies in the provision of networks, services, and terminals.

At the same time the shift to the electronic, digital mode began to dissolve the traditional demarcations between switched telecommunications and other communications media with differing institutional, legal, and regulatory frameworks. The end point of this development will be the installation of a worldwide Integrated Services Digital Network (ISDN) planned for the 1990s, which promises to create a

single, integrated, broadband pathway down which all of society's information and entertainment will flow, even if this information is translated for consumers back into print, images, or sounds. How that pathway is provided, organized, and controlled has become an extremely important social policy question facing nations and the international community. The structure and regulation not just of the mass media but also of service industries such as banking and retailing have in turn become telecommunications policy issues.

Early monopolies. At the heart of the debates over telecommunications policy lies the issue of MONOPOLY versus competition. Since ALEXANDER GRAHAM BELL filed his basic telephone patents in 1876, switched telecommunications services have been developed by monopolies to a high but internationally very uneven level as tools of business and social communication. In most countries these monopolies have been direct arms of the governmental PTT ministries. In the United States the job was left to a regulated private monopoly, AT&T.

This arrangement was defended and can still be defended on the grounds of natural monopoly. A switched telecommunications network is a natural monopoly for two reasons. First, the high initial costs of establishing a telecommunications network, especially at the local level, make duplication highly inefficient. In addition, the value of a switched network to its users stems from its interconnectivity. This means that the value of the network rises exponentially with each additional subscriber and reaches its optimum capabilities with one universal service.

Within the richer industrialized nations, these monopolies, although operating in the market to sell goods and services to consumers, were used to pursue essentially sociopolitical ends, namely, the provision of low-cost service to all citizens throughout a particular nation. The service was universal in terms of both geographical location and price, and its services were provided at an average cost; that is, areas and routes of high density were priced at the same level as those of low density.

Monopoly control of the network was extended to encompass monopoly control of all terminal equipment attached to the network on technical grounds. In addition, telecommunications administrations developed a monopsonic relationship with their respective domestic equipment industries (i.e., each nation's telecommunications company was the sole buyer in the domestic equipment market). This relationship was defended on industrial policy grounds, but also and more importantly on the grounds that only the network controller could determine both the technical needs and the pace of development of the telecommunications network and thus required a close relationship with the industry supplying its

equipment. This monopolistic structure produced telecommunications administrations that were among the largest economic organizations in their respective countries.

Trends supporting competition. Since the 1960s a number of interrelated economic and technical pressures influenced this traditional structure. The development of the multinational corporation as the dominant form of business organization made efficient and increasingly sophisticated telecommunications a strategic necessity for the corporate sector and in turn raised telecommunications costs. This trend was reinforced by the wider shift from manufacturing, a relatively low user of telecommunications, to services, a high user. Thus the cost, range, and efficiency of telecommunications services became a high corporate priority, and the business community became an advocate of competition in the telecommunications network, service, and equipment markets as a means of maximizing innovation and minimizing costs.

Parallel technical developments reinforced this trend. Largely as a result of military research, alternative transmission technologies (microwave, SATELLITE, coaxial, and optical fiber cables) were developed. Combined with the growing convergence of computing and telecommunications, these new technologies offered cheaper, more flexible networks and services than those provided by the existing monopoly supplier. The implementation of these new technologies also generated businesses with an interest in supplying these services as well as an economic base outside the traditional telecommunications industry. IBM's Satellite Business System was a classic example of this trend.

In other words, the convergence of computing and telecommunications created a major new corporate demand for data communications services, which existing telecommunications networks were not designed to meet. In addition, however, the ability to manipulate telecommunications traffic in complex ways (such as time-division multiplexing, packet switching, cellular radio, and store and forward) broke up the old homogeneity of the switched-voice telephone service. This made it increasingly difficult for telecommunications administrations to make choices among a bewildering range of possible service offerings and customer needs without using the mechanism of the market. Finally, the rising cost of research and development in the telecommunications equipment industry meant that no single national market produced large enough returns to justify the investment, thus undermining protectionist policies toward national equipment industries and pushing major manufacturers, backed by their governments, into intense competition for Third World export markets.

Monopoly versus competition. The policy issues raised by these developments were fundamental. Should competition be introduced in the provision of telecommunications networks and services at a national level, and, if so, to what extent and with what effect? What is the appropriate relationship between an industrial policy designed to foster the development of an internationally competitive equipment industry and a policy designed to foster the optimum development of domestic telecommunications services? Are economic and technical developments supportive of or antagonistic to the enhancement of human freedom, and thus will regulation or deregulation foster that freedom? What is the appropriate response at an international level to these questions? In particular, how should countries that have chosen to move in the direction of competition relate to those that have chosen to retain monopoly? Are national sovereignty and cultural plurality compatible with the free flow of information under free-market conditions?

In considering these policy issues it is important to stress that technology does not determine the outcome. The choices are not between desirable and undesirable technological solutions, but between solutions that represent the incompatible interests of various social groups, classes, and nations. For instance, the values of individual free expression and the free flow of information may clash with the values of communal solidarity, national culture, security, and prosperity; speed of development and innovation may conflict with the goal of maximizing access to their benefits; policies optimal for the production of information—such as COPYRIGHT and confidentiality—may clash with policies aimed at optimizing the DIFFUSION of information; policies aimed at the long-term maximization of human knowledge and prosperity may, in the medium term, increase inequalities between nations, classes, and social groups.

The crucial policy questions regarding the introduction of competition in the provision of telecommunications network services have been, first, whether the advantages that accrue from competition in terms of more efficient use of resources and higher rates of innovation outweigh the loss of advantages provided by a monopoly system; and, second, whether the costs and benefits will be equally borne by all sections of society. Competition in telecommunications raised particular problems because of the high level of shared costs and because of the value of universal interconnectivity. These factors produced a highly arbitrary relationship between costs for any given service or section of the network. This arbitrariness was enshrined in the principle of cost averaging and meant that telecommunications tariffs were determined politically rather than by the market. This in its turn

meant that competition in the provision of basic service was only sustainable under certain conditions: (1) It was necessary to create regulations that forced the dominant network provider to subsidize competition. (Without such regulations market forces would always allow natural monopoly to reinstate itself.) (2) Competitive networks had to be protected by allowing them to compete only on low-cost, high-density routes without being obligated to provide universal service, but with the right to interconnect with the universal network and to benefit from the larger network's economies of scale, reliability, and carrying capacity. (3) Major bulk users had to be allowed to build private networks that bypassed the universal network, while themselves using that network when necessary.

The crucial policy question was not just how best to balance the conflicting benefits of competition or monopoly in general. The breakdown of the concept of a universal and homogeneous service began to create two distinct classes of users: the major corporations, which required an escalating range of sophisticated long-distance and international services at the lowest possible price, and the small, local business and domestic subscriber, who required cheap, reliable, mainly local voice telephony. Thus ways needed to be found to ensure that those gaining the benefits of competition did not do so at the expense of those suffering the loss of the benefits of monopoly.

The above arguments apply to basic services—those services that supply only end-to-end connection without manipulating the message. The provision of enhanced or value-added services, in which what is sold is message manipulation (e.g., from store and forward, or packet switching, to elaborate data management and information services), raises different policy issues. Here natural monopoly arguments do not generally apply. In fact, competition would seem desirable, especially since it is in these areas (such as CABLE TELEVISION and ELECTRONIC PUBLISHING) that telecommunications regulation increasingly involves the provision of entertainment and informational services, where considerations of freedom of expression are relevant.

Finally, at a national level there is the question of the balance between an industrial and a service-based policy in telecommunications. A service-based policy, on the one hand, might argue that opening the domestic equipment market to maximum international competition would maximize innovation and minimize cost, thus maximizing the efficiency of both network and service provision. An industrial policy, on the other hand, might argue that it was necessary to use the purchasing power of a national monopoly PTT, both to protect domestic employment and to ensure the survival of a national base for technolog-

ical innovation and high-technology exports as well as the survival of national control over key strategic technologies.

A related policy issue is that of STANDARDS. Technical compatibility is an essential complement to interconnectivity. Traditionally PTTs imposed common standards within their national markets. Such standards can be and have been used as nontariff barriers to trade. Markets, to be fully competitive, require common standards. But competitive markets themselves militate against common standards. Thus such standards have had to be imposed, either by national governments unilaterally or internationally by negotiations between governments. This is difficult because decisions on standards may favor one national industry or firm over another and because decisions on standards may preempt policy options. For instance, decisions on international ISDN standards placed competitive and monopoly models of network and service provision against one another and made the extent to which control over network operations would remain at the national level highly contentious. However, if there is to be an international market in telecommunications and related information technology equipment and an international flow of telecommunications services, then either such international agreements must be reached or common standards will be imposed de facto by dominant multinational companies, reinforcing both oligopoly and national dependency.

International implications. All these policy issues have international ramifications, if only because the principle of interconnectivity does not stop at national boundaries. In the past, international relations in this field were regulated within the International Telecommunication Union (ITU) with little contention. This situation changed in the late 1970s for two reasons. First, the international market for telecommunications goods and services became an increasingly important and fiercely contested battleground between the industrialized nations. Second, Third World nations increased their voting strength in the ITU and made efforts to ensure their equitable access to world communications resources.

The central international issue was again that of competition versus monopoly. Those multinational corporate interests that had been pushing for the introduction of competition at a national level, especially in the United States, wanted the same privileges they had been granted in the United States to be made available to them in other countries. This was a contentious issue for two reasons. First, there remained deep philosophical and political differences among nations about how communications should be handled, in particular on the balance between free expression and economic competition on the one hand and social solidarity and public service on the

other. Second, the future of national PTT monopolies had implications far beyond the borders of each country. The introduction of competition in a nation's communications ends its control not only over industrial policy in the telecommunications field but also over the flow of information across its borders. This has consequences for the future of the nation itself. For instance, all nations control a national currency and the banking system through which it flows. As money itself is increasingly transformed into an international flow of bits in a telecommunications network, the ability of a nation to control its economic destiny is gravely weakened. Similarly, if the vital economic and social intelligence about a country is held in data bases outside its borders and under the control of other national and economic entities, its ability to act independently is gravely threatened. A society's ability to protect and develop its own national culture is threatened by a free flow of words, sounds, and images under free-market conditions. Such flows favor the large nation over the small, the rich over the poor. For all these reasons, the appropriateness of competition as the norm for the operation of telecommunications networks lies at the heart of the international telecommunications policy debate.

Bibliography. Oswald H. Ganley and Gladys D. Ganley, *To Inform or to Control: The New Communication Networks*, New York, 1982; Cees J. Hamelink, *Transnational Data Flows in the Information Age*, Springfield, Va., 1984; International Commission for the Study of Communication Problems (UNESCO), *Many Voices, One World: Communication and Society, Today and Tomorrow*, Paris and New York, 1980; Leonard Lewin, ed., *Telecommunications: An Interdisciplinary Survey*, Dedham, Mass., 1979; OECD, *Telecommunications: Pressures and Policies for Change*, Paris, 1983; Ithiel de Sola Pool, *Technologies of Freedom: On Free Speech in an Electronic Age*, Cambridge, Mass., 1983; Dan Schiller, *Telematics and Government*, Norwood, N.J., 1982; Anthony Smith, *The Geopolitics of Information: How Western Culture Dominates the World*, New York, 1980; Christopher H. Sterling, ed., *International Telecommunications and Information Policy*, Washington, D.C., 1984.

NICHOLAS ROBERT GARNHAM

TELEGRAPHY

The modern era of communication, with its instantaneous contact over time and space, was inaugurated by the development of magnetic telegraphy. The introduction of this technology occurred with exceptional speed compared to that of earlier communication innovations, and its social repercussions were so profound that its ownership and operation became matters of public concern.

Invention and diffusion. The idea of telegraphy grew out of the Voltaic pile (1800), a device that converted chemical energy into electrical energy, thus providing a source of continuous electric current. This simple battery encouraged experimentation with electricity between 1820 and 1840 in England, France, the United States, and Denmark. As a result it was discovered that electric current flowing through a wire caused movement in a magnet suspended nearby. The invention of the telegraph still required the means for transmitting a signal at will and an effective device for receiving the message. That occurred with the invention of electromagnetic detectors in 1836–1837 by Sir William Cooke (1806–1879) and Sir Charles Wheatstone (1802–1875) in Britain and by SAMUEL F. B. MORSE (1791–1872) in the United States. Within forty years the technology of telegraphy grew to include high-speed printing, which culminated in ticker tapes and telexes, and duplex and quadruplex telegraphy, which allowed up to four messages to be sent over a wire simultaneously.

The first successful telegraph communications took place in Great Britain with the Paddington-West Drayton line of July 1839 and in the United States with Morse's Baltimore-Washington line of May 1844. The United States, Britain, and soon France began employing the telegraph almost immediately. In the United States, telegraph lines became commercially feasible in 1845–1846. By 1848 they had blanketed the east and west to Chicago and St. Louis, and had linked all major northern and southern cities by 1851. The line to California was completed in 1861, eight years before railroads spanned the continent. In Great Britain such major cities as London, Dublin, Liverpool, Manchester, Glasgow, Aberdeen, and others were connected by 1857, at which time nearly five hundred telegraph stations were open to the public. The telegraph was also rapidly adopted on the European continent: in Austria and Prussia in 1849, Belgium in 1850, the Netherlands and Switzerland in 1852, Sweden in 1853, and a number of other countries over the following ten years (see Figures 1 and 2).

Telegraph poles and lines sprang up quickly. In the United States there were thirty-two thousand miles of telegraph lines by 1860, when some 5 million messages were dispatched. In Great Britain at the same date there were about eight thousand miles of line and over 1 million messages were transmitted. On the European continent, forty-five thousand miles of lines had been erected by 1860, carrying 4.5 million messages compared with a quarter of a million messages eight years earlier. Lines and messages multiplied over the ensuing decades, but the best measure of the diffusion of telegraphy is the intensity of use between 1860 and 1910 (see Table 1). The slowdown in the years after 1890 reflected the grow-

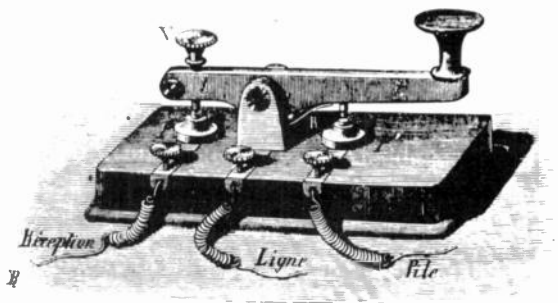


Figure 1. (*Telegraphy*) An engraving of a telegraph key. The Bettmann Archive, Inc.

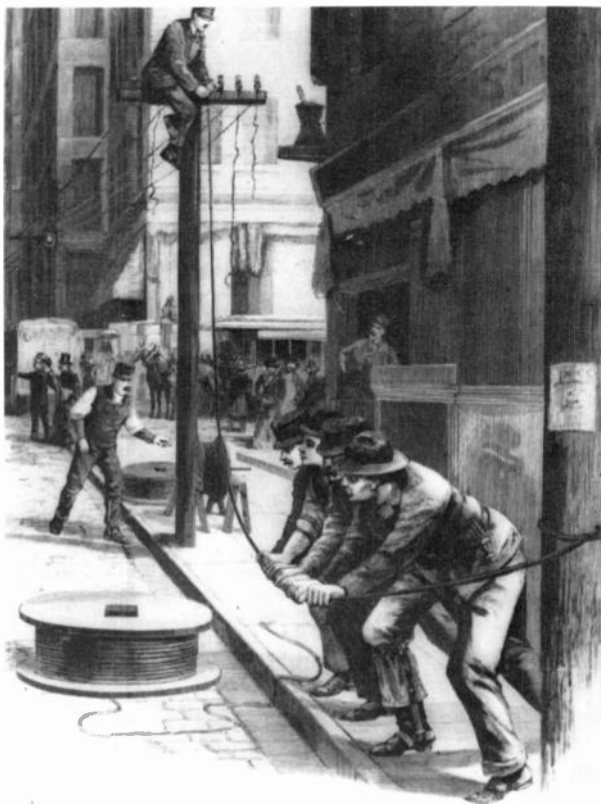


Figure 2. (*Telegraphy*) Erecting telegraph poles in 1889. The Bettmann Archive, Inc.

ing use of the TELEPHONE, especially in Great Britain and the United States.

Perhaps the most significant development in the expansion of telegraphy was the construction of submarine cables, first installed across the English Channel between Dover and Calais in 1851. A North Atlantic cable, proposed in 1847, was installed in 1858 but soon broke down. The next attempt, with the world's largest ship, the *Great Eastern*, as cable-layer, succeeded in establishing a permanent line

between Newfoundland and Ireland in 1866 (see Figure 3). A burst of ocean cable projects followed, practically girdling the earth by 1872, when almost all the principal cities of the world were linked. One result of this expanded communications network was that large areas of Africa, Asia, the Middle East, and Latin America, already under the control of foreign powers, could be more rapidly and effectively colonized during the following years. In addition, telegraphy furthered the growth of a truly international economy governed by world prices and a single system of international payments.

Impact on business and government. The birth and diffusion of the telegraph was accompanied by extraordinary social optimism. In the United States a Cincinnati newspaper saw the telegraph in 1847 as "facilitating Human Intercourse and producing Harmony among Men and Nations. . . it may be regarded as an important element in Moral Progress." A leading business publication in 1865 saw the nations of the world "brought into closer moral contact with each other. . . The hand of progress beckons unceasingly to freedom, and whenever science achieves a victory, a rivet is loosened from the chains of the oppressed."

In the world of commerce and finance the telegraph was widely regarded as an agent for facilitating competition and perfecting markets over space and time; information on prices and quantities of goods would henceforth be available to everyone on an equal basis, so that MONOPOLY power would be

Table 1. Telegraph Messages per Hundred of Population (Including Ocean Cables), 1860–1910

	1860	1870	1880	1890	1900	1910
Australia	35	56	168	299	253	274
Austria	4	17	28	38	58	73
France	2	15	44	70	103	127
Germany	2	22	30	45	70	78
India	n	n	1	2	3	5
Italy	n	7	21	28	29	45
Japan	na	na	6	11	38	61
Russia	1	3	9	12	14	25
Sweden	4	14	22	37	49	71
United Kingdom	4	27	85	174	216	192
United States	16	29	63	94	114	117

n = negligible
na = not available

Sources: B. R. Mitchell, *European Historical Statistics 1750–1970*, New York, 1975; B. R. Mitchell, *International Historical Statistics, Africa and Asia*, New York, 1982; B. R. Mitchell, *International Historical Statistics, The Americas and Australasia*, Detroit, 1983; R. B. Du Boff, "The Telegraph and the Structure of Markets in the United States, 1845–1890," *Research in Economic History* 8 (1983): 253–277.

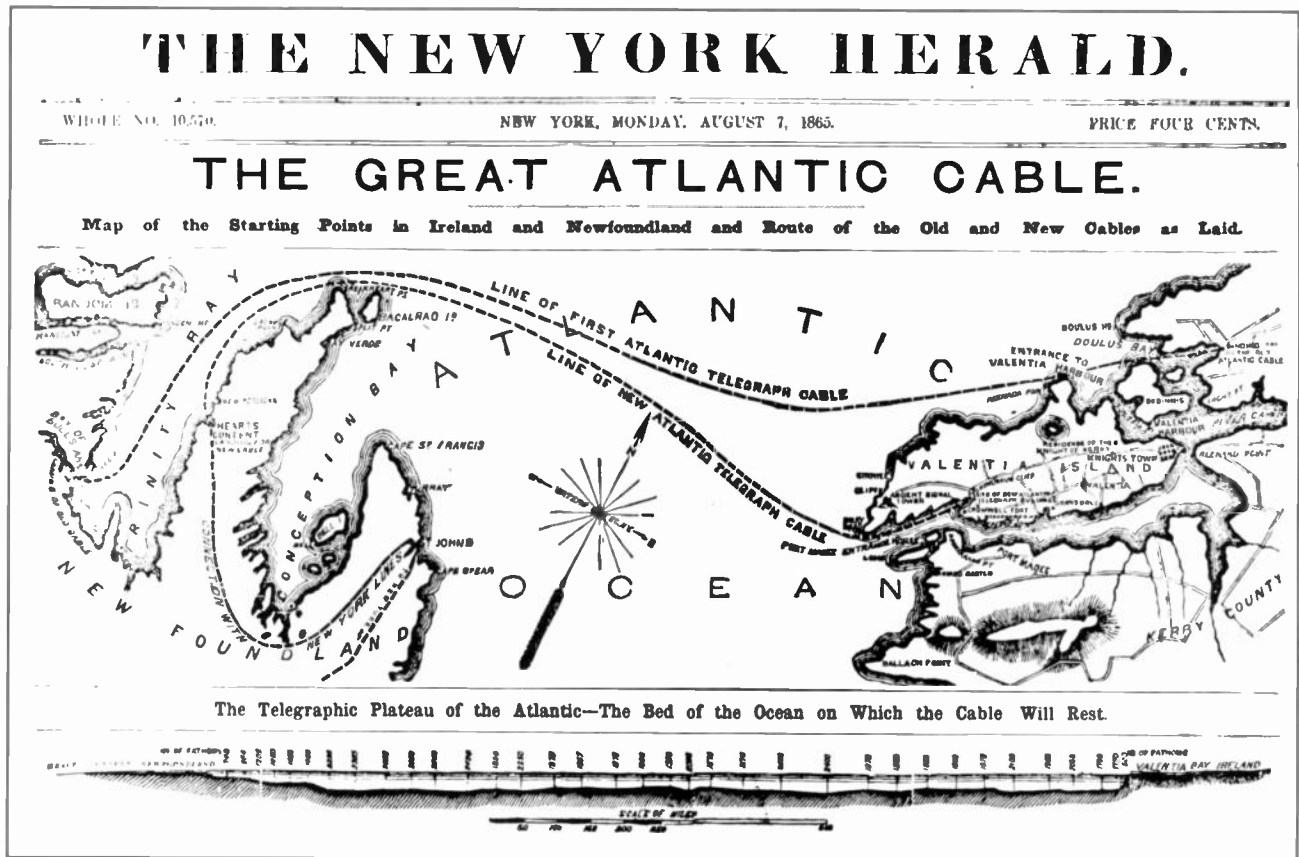


Figure 3. (Telegraphy) A map of the early transatlantic cables between Newfoundland and Ireland. From the *New York Herald*, August 7, 1865. Courtesy Burndy Library, Connecticut.

weakened. In fact, the telegraph promoted both competition and monopoly. The telegraph did bring about sharp reductions in regional price differences and radically lowered the costs of obtaining and distributing information. For business firms it saved time, cut down the need for large inventories, decreased short-term financing requirements, and made it possible to eliminate many middlemen and wholesalers. In combination with railroads and steamships, the telegraph made possible the larger national and international markets that came into being between 1850 and 1900.

However, the effects of telegraphy on the conduct of business and government also included growth in the scale of enterprises, centralization of decision making, increased capacity for SECRECY, and centralization of information. Rather than increasing competition, these effects tended to encourage the development of monopoly power.

As a result of the telegraph and the accompanying plunge in the costs of communication, the overall scale of business enterprises increased rapidly. In the United States, for instance, by 1851 a ten-word message could be sent from New York to Boston for

\$0.20, to Chicago for \$1.00, and to New Orleans for \$2.40. The average cost of a message fell to \$1.05 in 1868 and \$0.39 in 1877 (even more in relative price terms, since the overall price level rose between 1850 and 1875). This raised scale thresholds: the size of manufacturing, wholesaling, and retailing firms grew because they could now carry on business outside their traditional market zones. Furthermore, business institutions that were actually created by telegraphy were inherently nationwide or international in scope—commodity exchanges and organized securities markets in particular.

The telegraph virtually invited centralization of decision making by drastically reducing the costs of gathering relevant information regarding prices; availability of raw materials, labor, and capital; and other data necessary for extending control over far-flung operations. All this applied especially to the control of colonies; the larger the territory, the more useful it was for authorities to have a rapid means for communicating with their most remote outposts. While Britain's colonial trade was to a large extent shaped by the ocean cable, much of the thinking of the Admiralty and the War Office revolved around

the employment of the telegraph network as a vital component of imperial defense against external rivals and local political unrest alike. *See* COLONIZATION.

Speed and secrecy are the ingredients for success in many military, political, and economic endeavors. The advantages of the telegraph in this regard were recognized and employed in business operations from the start. Immediate transmission of orders and requests was assured, while secrecy for users of the wires was guaranteed by elaborate codes as well as strict telegraph company rules regarding confidentiality of messages. These intelligence dimensions were understood from the first days of the telegraph era; cipher systems and CODE language, replete with common commercial and financial phrases, were worked out as early as 1844–1845. In the United States the telegraph helped employers combat trade unions by allowing the swift transmission of information about known organizers. The value of having a direct telegraph line to factories and workplaces, one telegraph company official pointed out, was “evident: the master was felt to be among his men,” even though physical distance intervened.

For governments, too, the new modes of intelligence inherent in telegraphic communication were quickly utilized. The “Ems Dispatch” of July 1870, precipitating the Franco-Prussian War, showed that the new technology could be used for purposes quite different from “producing Harmony among Men and Nations.” In France the state-run telegraph began by giving priority to the police and the military. Telegraph lines existed there for six years before they were made available in 1851 to private citizens. The Vienna correspondent of the London *Chronicle* reported in 1854 that “Austria feels a greater degree of security against another rising of her subjects, in the fact that she possesses and controls an extensive system of telegraphy.”

The telegraph also encouraged concentration of information sources. For example, the New York Associated Press was established in 1848 by six New York newspapers, which agreed to unite “for the purpose of collecting and receiving telegraphic and other intelligence” at common cost. Julius Reuter also understood the new capabilities of telegraphy when he set up his agency at Aachen in 1849 and began supplying foreign news to the English press in 1858. Wire services narrowed the base from which news was distributed. Telegraphic technology required fast news gathering at a single place; it placed a premium on fewer, standardized information sources that could be quickly sent out over the wires and cover wider geographic areas. This one-way, routinized version of news dispatching, essential for low-cost use of the telegraph, enlarged the area of news reception and dissemination but fostered monopolization in much the same way as growth of national

and international markets promoted larger-sized business firms.

Organization. The most intensive use of telegraph systems, then, came from the worlds of commerce, finance, and government. Private citizens used the telegraph mainly for urgent communication with relatives and friends. But nowhere was telegraphy so dominated by business interests as in the United States, where the power of business to enforce its priorities appears to have been substantially greater than in Europe. Elsewhere inland telegraphy was or became state controlled. With the British Telegraph Act of 1868, which authorized the Post Office to purchase and operate all British telegraph companies, the United States and Canada became the only nations in which the telegraph remained private. In the United States the formation of the Western Union monopoly in 1866 stirred the proponents of government control of telegraphy into action. Agitation for a national telegraph system linking the nation’s post offices went on until the 1890s, but its advocates never made any significant progress toward that goal. Submarine cables also remained almost entirely in the hands of the private enterprises that built them.

Both government and privately founded telegraph companies invested in telegraphy in foreign countries. Britain’s Colonial Office showed a lively interest in both intra- and intercolonial communications. From 1879 to 1914, imperial telegraph subsidies totaled £1.9 million. Private U.S. investments in foreign telegraph systems were substantial for the same reasons. Western Union expanded into Canada in the 1850s, first by buying the Montreal Telegraph Company, then by pursuing plans to build a cable from British Columbia to Siberia (a plan later abandoned). From the 1860s through the 1880s, U.S. telegraph companies built lines to Cuba, Mexico, and the rest of Latin America, where large increases in telegraph traffic were recorded after 1900.

Since 1850 the communications sector of industrial nations has grown at a rapid rate, with the introduction of each technological innovation—telegraph, telephone, RADIO, computer, SATELLITE. The telegraph led the way, altering methods of production and exchange on a global scale. The outcome was a series of spectacular and unprecedented reductions in the cost and feasibility of sending and obtaining information.

See also COMPUTER: HISTORY.

Bibliography. Richard B. Du Boff, “The Rise of Communications Regulation: The Telegraph Industry, 1844–1880,” *Journal of Communication* 34 (Summer 1984): 52–66; idem, “The Telegraph and the Structure of Markets in the United States, 1845–1890,” *Research in Economic History* 8 (1983): 253–277; Alvin F. Harlow, *Old Wires and New Waves: The History of the Telegraph, Telephone, and*

Wireless, New York, 1936, reprint 1971; Jeffrey Kieve, *The Electric Telegraph in the U.K.: A Social and Economic History*, Newton Abbot, Eng., and New York, 1973; Lester Lindley, *The Constitution Faces Technology: The Relationship of the National Government to the Telegraph, 1866–1884*, New York, 1975; Robert L. Thompson, *Wiring a Continent: The History of the Telegraph Industry in the United States 1832–1866*, Princeton, N.J., 1947.

RICHARD B. DU BOFF

TELEPHONE

Since its invention by ALEXANDER GRAHAM BELL in 1876 the telephone has enjoyed remarkable success in Western industrialized economies. These nations have made telephone technology an integral part of their national communications systems. Indeed until the early 1960s approximately 90 percent of the world's telephones were found in North America and Europe and more than 60 percent in the United States alone.

The growth of national telephone networks proceeded differently in different countries. In the United States a private organization, the Bell Telephone Company, took charge of commercial development. Formed out of a patent association of Bell, Gardiner G. Hubbard, and Thomas Sanders, this firm initially tried to sell the Bell telephone patents to the Western Union Telegraph Company for one hundred thousand dollars, but the offer was refused. Possessing little capital, the fledgling Bell Company franchised the right to lease telephones to private agents scattered across the country.

In Europe telephone development fell under state direction almost from the start. Germany's telegraph administration oversaw telephones, producing a public MONOPOLY in the new industry (see TELEGRAPHY). Great Britain and France at first relied on mixed ventures, as government postal and telegraph bureaus leased the right to rent telephones to private firms in exchange for a percentage of the gross revenues. Only Sweden and a few other countries broke with this pattern, experimenting for a time with market competition.

Initially telephone growth proceeded slowly in all of these countries. Before the invention of the telephone exchange, telephony was strictly a point-to-point form of communications. Subscribers rented instruments and strung lines to the places with which they wished to communicate. But they were unable to talk directly with more than one or two other telephone users. The exchange revolutionized telephony by making multiple direct connections possible. Between 1878 and 1880 exchanges surpassed private lines as the main type of telephone service.

Augmenting the utility of the telephone to subscribers by increasing the number of possible connections, the new technology fueled telephone expansion and led to important changes in the industry. In the United States and elsewhere scattered territorial agencies gave way to capitalized firms, because exchanges demanded greater capital than private lines and required maintenance and management.

United States. In the United States these changes took place at a time of important telephone industry reorganization. In 1878 Western Union had entered the business through its subsidiary, the Gold and Stock Company. Using a competing telephone developed by Elisha Gray and a telephone transmitter invented by THOMAS ALVA EDISON, the telegraph corporation quickly cut into National Bell's (the Bell Company's name in 1878) market share.

This brief flurry of competition ended quickly, however, as Bell and Western Union came to terms in 1880. Western Union agreed to give Bell a monopoly of the telephone business in exchange for Bell's promise not to start a message-for-hire service. As understood by Western Union this stipulation prevented Bell from engaging in long-distance message transmission. Bell willingly conceded this point, as commercial long-distance telephony was not profitable at the time. Western Union apparently believed that most long-distance messages would continue to be transmitted by telegraph. This assumption proved false, and the restriction in the contract provided no barrier to Bell's later entry into the long-distance communications market.

The Bell–Western Union accord set the structure of the U.S. telephone industry for the next fourteen years. American Bell (renamed again in 1880) used its patents on the telephone and related equipment to maintain an unbreachable private monopoly in the industry. The corporation also acquired Western Electric in 1882 to manufacture telephones and equipment for its licensed companies and began to acquire controlling interest in these regional (operating) companies. In 1885 Bell founded the American Telephone and Telegraph Company (AT&T) to develop long-distance telephone service. In all, Bell's monopoly enabled it to centralize telephone operations and to lay the foundations for an interconnected local and long-distance telephone network that would emerge as the Bell System in 1908.

Europe. European telephony also proceeded toward centralization, though more slowly than in the United States and by public rather than private efforts. France, Germany, and Great Britain all created postal, telegraph, and telephone administrations (PTTs) to oversee communications. Even Sweden ended its experimentation with competition and consolidated its telephone system under government control. By

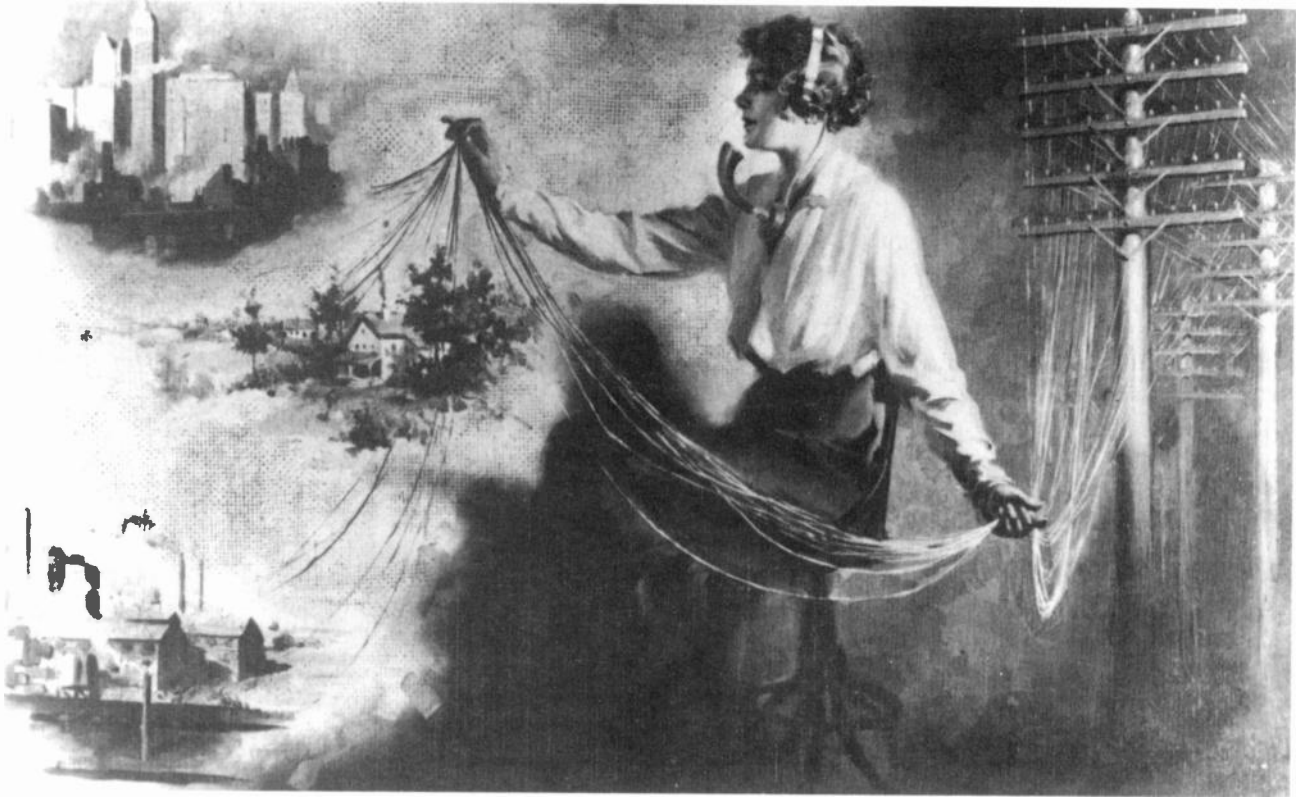


Figure 1. (*Telephone*) "Weavers of Speech": an advertisement for the Bell Telephone System. Courtesy of AT&T Bell Laboratories.

1911 public ownership of telephone service was dominant in Europe. Some private systems remained, but gradually they too gave way to public monopoly.

The telephone systems of Europe differed markedly from that of the United States. Being public enterprises, they were shaped by bureaucratic rivalries, political considerations, and the limitations of public finance. In France and Germany, for example, a lack of capital slowed telephone expansion. Though the systems of these nations were under public control, subscribers themselves had to raise funds and demonstrate that adequate demand for service existed before authorities would provide lines. In Europe the drive to create an interconnected telephone network, which characterized Bell's efforts, was small. Instead the telephone was treated as one part of a combined communications system, and often its growth was sacrificed in the interest of other forms of communication. As a result no European nation approached the United States in telephone distribution per capita in this period.

Early twentieth-century developments. While European nations were creating their public telephone monopolies, the U.S. telephone industry underwent a sudden reorganization in 1894 with the reintroduction of competition.

In that year the original Bell patents expired, and new firms, the independent (non-Bell) telephone carriers, entered the industry. They gained more than 50 percent of the market by 1902, and their presence rapidly increased the number of telephones in the nation and brought down prices by almost 75 percent.

Customers flocked to the independents in part because these new firms concentrated on inexpensive local service, something that most telephone users valued more than Bell's extensive but expensive long-distance system. These developments increased telephone distribution in the United States but also undermined Bell's goal of creating a single, unified telephone network.

Over time Bell regained its dominant place in the telephone industry and resumed its drive to create an interconnected network. Both private and public actions contributed to this result. AT&T, which took over ownership of the entire Bell enterprise in 1899, provided the private effort with its policy of "universal service." It expanded long-distance service, bringing a greater number of customers into the Bell System. Where demand for such service was weak, the corporation acquired competitors to gain market

share. In other cases it compromised with its competitors by signing sublicense contracts with them. These agreements allowed the independents to connect with Bell lines, provided that they conformed to Bell standards and practices. In this way Bell drew more areas into its growing national network. Between 1900 and 1908 the percentage of non-Bell firms connected to Bell lines increased tenfold. By 1912 Bell commanded 58 percent of the telephone market.

Public sanctions helped to unify this new system. State legislatures took telephone regulation out of municipal hands and placed it in the hands of independent commissions. These commissions tended to side with Bell against local governments, which had used competition to tailor telephone service to local needs. Federal regulation, which had begun in 1910 with the Mann-Elkins Act, also played an important role. In 1913 the Justice Department, using the threat of an antitrust suit, got Bell to agree to allow non-competing independent firms access to its lines. This accord, the Kingsbury Commitment, essentially conformed to the private policies Bell had devised earlier, but it removed the threat of antitrust enforcement.

By 1920 the telephone systems of Europe and the United States were centralized under their single administrations. These systems differed in important ways. The U.S. telephone industry was under the control of a single management, AT&T, but consisted of a number of different organizations. It grew rapidly under the stimulus of continued technological advances and a public policy that used revenues from long-distance service to subsidize local rates. European telephone systems were under public control, but they were less extensive and generally more expensive than the U.S. system, as European nations did not make the extension of the network their top priority.

Some of these differences disappeared over time. All countries faced a similar challenge: the creation of a single system that served a number of different regions within their economies. In both the United States and Europe public policy moved to incorporate more outlying areas into the national network. At the same time AT&T became increasingly dependent on GOVERNMENT REGULATION for its dominant position in the U.S. telephone industry, though it continued to remain a private corporation. By the late 1940s the United States began to lose its overwhelming lead in percentage of world telephones as European and other nations began to catch up.

After World War II. Japan in particular experienced rapid growth in telecommunications in these years. Like many European nations it had created a public telephone monopoly in the early twentieth century. But in 1949 it separated telecommunications from POSTAL SERVICE and placed it in a state-owned,

privately run corporation, Nippon Telephone and Telegraph. This hybrid, halfway between the Bell System and the European PTTs, successfully expanded Japan's telephone network, so that by 1979 the country had more telephones per capita than any European nation except Sweden.

In the years following World War II less developed countries also began to establish national telecommunications systems, though with less success than industrialized countries. Underinvestment in telecommunications has characterized their economies despite efforts to promote the industry. In part these problems may reflect the special difficulty in applying the telephone to heavily rural and agrarian societies, a problem similar to that which existed in the early years of the Bell System. Yet newer technologies, such as RADIO and SATELLITE communications, have also offered new opportunities to shape telecommunications to fit less developed economies. Whether because the main benefit of telecommunications ac-



Figure 2. (*Telephone*) Early telephone switchboard. The Bettmann Archive, Inc.



Figure 3. (*Telephone*) An American Airlines employee uses a mobile phone at the crash site of a DC-10 at O'Hare International Airport, Chicago, May 25, 1979. Courtesy of AT&T Bell Laboratories.

crues to these nations' small urban sectors or because of misguided development policies, the distribution of telephones in Third World countries has remained below five per one hundred people into the 1980s.

Although the industrialized world has enjoyed rapid growth in telecommunications throughout the twentieth century, it underwent important and disruptive changes in the years following World War II. In the 1950s the era of stability and convergence came to an end as rapid technological change reshaped the boundaries of the industry. Seeking to take advantage of the opportunities these new technologies presented, large-business users of telecommunications services pressed to open the industry to competition. Demanding greater freedom to own and use telecommunications equipment and desiring lower rates, they created a wedge that opened the way for new competitors. These changes affected all telephone systems, but their impact was greatest in the United States, where they shattered the assumptions under which the Bell System had operated for nearly fifty years.

Increasing competition. The Bell System breakup began in 1956, when AT&T and the Justice Department signed a consent decree in an antitrust suit that had begun in the late 1940s. In this accord AT&T was allowed to retain its manufacturing subsidiary, Western Electric, in exchange for its agreement not to enter unregulated services or industries. Coming at a time of rapid change, this pact limited AT&T's ability to respond to new opportunities.

Only years later would the problems of the 1956

decision become apparent. More immediate developments, however, also called into question U.S. TELECOMMUNICATIONS POLICY. Using microwave technology, new long-distance carriers began to demand the right to furnish service, particularly over the profitable, heavily used routes between major cities. The Federal Communications Commission (FCC) slowly granted them licenses, but its caution was met with increasing demands from new entrants, which used the courts to gain greater access to the long-distance market. New firms such as Microwave Communications Incorporated (MCI) cut into AT&T's revenues. Using advances in switching technology, they offered both private-line and switched long-distance service, further threatening AT&T by undercutting its rates, which were set by regulatory policy.

AT&T tried to limit damage to its revenues by denying new carriers access to local distribution channels. Without interconnection privileges the new companies could not economically provide service. The FCC originally supported AT&T's efforts but was ordered by the courts to change its policy and allow all telecommunications common carriers access to the network. By 1977 the long-distance market was moving toward competition. In the years following, competing firms pressed for greater access, on more equal terms, to Bell's local distribution loops.

Similar changes took place in the terminal equipment market, which, like long-distance service, had been monopolized by Bell. Once again FCC policy was forced to change as new entrants demanded the

right to make and market telecommunications devices that could be used on Bell lines. Court decisions forced the FCC and AT&T to end their absolute ban on such attachments and adopt standards for the use of non-Bell equipment in the network. This change effectively opened up the terminal equipment market to competition.

With the old monopoly structure under attack from several directions, the Justice Department began in 1974 another antitrust suit against AT&T. Bell operating companies, the government argued, refused to purchase telephone equipment from any supplier but Western Electric, preventing other equipment suppliers from competing in this market. More importantly, however, the suit also incorporated many of the issues raised by other corporations trying to gain entry into the telephone industry. Bringing together demands for greater competition voiced by the new long-distance carriers and large-business users, it was the most comprehensive reconsideration of U.S. telecommunications policy that had been undertaken in more than half a century.

The antitrust suit provided the means of reshaping that policy. In a 1982 consent decree AT&T was allowed to retain ownership of Western Electric, but it divested itself of its regional operating companies. These latter firms remained regulated providers of local telephone service, though they had to open their lines to all long-distance carriers. AT&T emerged as a smaller firm; though its long-distance business was still subject to regulation, it was free to enter new markets.

Most other nations have retained their postal, telegraph, and telephone public monopolies, and the growth of telecommunications in developing nations has generally proceeded with significant government assistance. Continued technological change, the merging of computer and telephone technologies, and the creation of new services such as electronic mail all suggest that the traditional boundaries of the telephone industry will continue to change (see *COMPUTER: HISTORY*; *COMPUTER: IMPACT*). New competition from U.S. telecommunications companies operating overseas may force a restructuring of European telecommunications systems as well.

See also *AGENDA-SETTING*; *FIBER OPTICS*; *TELECOMMUNICATIONS NETWORKS*.

Bibliography. Gerald W. Brock, *The Telecommunications Industry: The Dynamics of Market Structure*, Cambridge, Mass., 1981; Robert Bruce, *Alexander Graham Bell and the Conquest of Solitude*, Boston, 1973; Robert W. Garnet, *The Telephone Enterprise: The Evolution of the Bell System's Horizontal Structure, 1876-1909*, Baltimore, Md., 1985; A. N. Holcombe, *Public Ownership of Telephones on the Continent of Europe*, Cambridge, Mass., 1911; Kenneth Lipartito, "The Telephone in the South: A Com-

parative Analysis," Ph.D. diss., The Johns Hopkins University, Baltimore, Md., 1986; Dan Schiller, *Telematics and Government*, Norwood, N.J., 1982; George David Smith, *The Anatomy of a Business Strategy: Bell, Western Electric, and the Origins of the American Telephone Industry*, Baltimore, Md., 1985.

KENNETH J. LIPARTITO

TELEVISION. See *CABLE TELEVISION*; *EDUCATIONAL TELEVISION*; *TELEVISION HISTORY*; *TELEVISION NEWS*.

TELEVISION HISTORY

The evolution of television is here chronicled in three articles:

1. Early Period
2. Global Development
3. World Market Struggles

1. EARLY PERIOD

In the late nineteenth century the magic mirror of fantasy, through which faraway events could be glimpsed, began to seem not quite so fantastic but a likely development. The 1876 demonstrations of the TELEPHONE by ALEXANDER GRAHAM BELL brought this about. He had based his invention on study of the ear, and he referred to the telephone as an instrument for hearing telegraphically. If that was now feasible, why not also see telegraphically, by a device based on study of the eye? The ramifications of the idea were widely visualized. In 1879 in the British magazine *Punch*, artist and writer George Du Maurier pictured a couple watching a remote tennis match via a screen above the fireplace (Figure 1). Three years later French artist Robida presented more startling visions. In one drawing he envisioned a French family of the future watching a war on a home screen (reflecting France's overseas expansions of the time, it was a desert war, apparently in North Africa). In others he depicted a woman at home inspecting merchandise on display in a store and another watching a lecturer at a blackboard, again via a mirrorlike screen in the home.

The disk. A laboratory step toward such ideas followed with startling promptness. In 1884 Paul Nipkow of Germany devised the Nipkow disk—a round disk with perforations arranged in a spiral pattern. When the disk rotated, a beam of light passing through the perforations would cause pinpoints of light to perform a rapid scanning movement on some opposite surface, similar to the movement of eyes back and forth across a printed page. The device was at once seen as a key to transmission of pictures by wire, in the form of a series of dots of varying intensity. It became the main basis for ex-



Figure 1. (*Television History—Early Period*) George Du Maurier, an 1879 prediction: televised sports. From *Punch*. State Historical Society of Wisconsin, Erik Barnouw Collection.

periments in image transmission—still images and moving images, first by wire, later by radio waves. The Nipkow disk remained a central feature of such experimentation for half a century, involving activity in virtually every major industrialized nation (Figure 2).

But progress was slow. While other communication innovations—the phonograph, MOTION PICTURES, RADIO—made their appearance, set off entrepreneurial booms, and spread around the world, the Nipkow disk and its traveling dots of light remained a laboratory wonder, awaiting further technical breakthroughs. The array of names that people gave it—“distant electric vision,” “telephonoscope,” “seeing by wireless,” “visual radio”—gradually gave way to a word used in 1907 by the magazine *Scientific American*: “television.”

First start. In the mid-1920s, as radio broadcasting fever was spreading, some experimenters thought that television was finally ready. Among the most avid apostles was John Logie Baird of Scotland, who had experimented with television for some years but had been ignored by Britain’s broadcasting establishment. Baird, skimpily financed, had to work on a makeshift basis. The Nipkow-style disk of his early demonstrations was made of cardboard cut from a hatbox, and a biscuit tin housed his projection lamp—but even with these means he impressed visitors. The British Broadcasting Corporation (BBC), which by charter controlled all broadcasting activities in Britain, was chastised by some critics for its inaction in regard to television, and specifically for not supporting Baird’s explorations. In 1929 it finally agreed to joint experimentation with Baird, using BBC transmitters, at first in off-hours only. A year later “Baird televisors” were placed on sale—equipped, like the transmission equipment, with whirling disks—to re-

translate the lines of dots back into sequences of images. The screen was the size of a saucer.

In the United States, at various locations, similar activities were in progress. At General Electric (GE) in Schenectady, New York, Ernst F. W. Alexanderson was in charge of television experiments and demonstrations. Here, too, various program forms



Figure 2. (*Television History—Early Period*) Scanner with Nipkow disk, as used by General Electric in experiments in the 1920s. Smithsonian Institution, Washington, D.C. Photo No. 60,005.

were tried and were observed by a scattering of viewers, some of whom made their own receiving sets. In 1928 some of them saw an adaptation of the stage melodrama *The Queen's Messenger*, announced by GE as television's first drama production (Figure 3). Only close-ups were used. Three cameras, all motionless, took part. The images, appearing on a postcard-size screen, were often little more than silhouettes.

All this offered the satisfactions of a pioneer experience. Yet none of it could be thought of as acceptable; clearly a mechanical system would not do in the long run. Gradually on both sides of the Atlantic the experimental effort subsided and collapsed. The stock-market crash and world economic depression contributed to this. Besides, the public was increasingly addicted to radio and did not seem to be demanding television. In 1934 the BBC discontinued its Baird telecasts; Baird televisors became museum pieces. In Germany, where the Nipkow disk had originated, its use persisted longer. In 1935 the regime of Adolf Hitler, intent on wide media impact, began the world's first regular television service, which operated for three years on a mechanical system. Then, in Germany as elsewhere, the disks stopped whirling. Television, in its first outing, had run into a dead end.

Second start. But a second lunge was in preparation. The keynote was electronic scanning. There would still be pinpoints of light in scanning movements, but they would be made by fusillades of electrons in a glass tube. The main impetus for the new effort came from the Radio Corporation of America (RCA), where the hard-driving DAVID SAR-

NOFF became president in 1930. Using its powerful patent position and rapidly growing revenues from radio broadcasting and set manufacture, Sarnoff made the achievement of electronic television his top priority. Already VLADIMIR K. ZWORYKIN, who had experimented with television in Russia before the 1917 Revolution, had been given the task of solving the technical problems for RCA. All available resources were at his disposal.

RCA, formed in 1919 to create a patent pool of major communications companies (GE, Westinghouse, AT&T, and United Fruit), seemed to control almost all patents relevant to its coming task. Any other rights needed were bought outright by RCA. Under Sarnoff policy RCA did not pay royalties; it collected them. But some puzzling—and, to Sarnoff, infuriating—obstacles loomed. One was PHILO FARNSWORTH, a youth whose career had the quality of a legend. Raised on a farm near the upper Snake River in Idaho, he did not encounter electricity until he was fourteen and his family acquired a Delco system. But just six years later, set up in a San Francisco laboratory by West Coast backers, he demonstrated electronic television and applied for a patent on the basic tube, taking RCA totally by surprise (Figure 4). Its attorneys challenged Farnsworth's claims, grilling him for hours in patent hearings. Yet in 1930, as Sarnoff was taking over the RCA presidency and preparing his television plans, young Farnsworth got his patent. He refused to sell his rights on a lump-sum basis as RCA demanded; in the end it had to take a Farnsworth license on a royalty basis. A parallel dispute, which became a titanic feud, involved EDWIN H. ARMSTRONG, inventor of fre-



Figure 3. (*Television History—Early Period*) "The Queen's Messenger," the first television drama, WGY Schenectady, 1928. Courtesy Rosalind Greene, State Historical Society of Wisconsin, Erik Barnouw Collection.



Figure 4. (*Television History—Early Period*) Philo Farnsworth performing television experiments at Philco, Philadelphia, January 1932. State Historical Society of Wisconsin, Erik Barnouw Collection.

quency modulation (FM), the sound system chosen for RCA television, but without royalty payments to Armstrong. Lawsuits over this were not resolved until decades later, all in favor of the inventor's estate. Amid such legal disputes, impasses, and negotiations, along with problems over SPECTRUM allocations, electronic television gradually took shape. In 1936 program tests and demonstrations began. Sarnoff decided on a commercial debut at the 1939 New York World's Fair.

On April 30, 1939, Franklin D. Roosevelt, opening the RCA exhibit and inaugurating the age of electronic television, also became the first U.S. president to appear on the tube. Sets went on sale. Telecasting began in a number of U.S. cities, as well as in Britain and Germany. Experiments in linking stations via coaxial cable were also begun.

But suddenly it all evaporated. Resources were needed for defense production. Specialists with television experience were needed for a highly secret development—radar. As World War II began, television services were halted in Britain and Germany and gradually ground to a halt in the United States. NBC's New York television transmitter was put to use in the training of air-raid wardens via sets in police stations. Television, in its second outing, had reached another dead end.

In many ways it was just as well. Almost all weaponry developed during World War II involved electronic components, and they contributed to a vastly improved postwar television system, which would acquire a color option. Prewar black-and-white electronic television was never really satisfactory. The receivers, mostly with five-inch and

nine-inch picture tubes, were flickery and balky. Studio cameras required extraordinarily intense lighting, and performers felt as if they were being fried. Around Radio City in New York, where NBC's studio experiments took place, actors were seen with yellow makeup and purple lipstick; unbalanced color responses by the cameras made such adjustments necessary. In retrospect it was all seen as valuable experience: they had found out what needed fixing.

Third start. In 1946, as RCA placed new sets on the market, stations erupted into action in a number of U.S. cities. Taverns hastened to install television sets; these attracted crowds, especially when boxing or wrestling was on the air (*see SPORTS—SPORTS AND THE MEDIA*). Other programming stirred euphoria: bits of OPERA, ambitious DRAMA, children's programs. In 1947 the opening of Congress was televised for the first time. A new "zoom lens," moving rapidly in on details, added excitement to sports. RCA introduced its new color system, and advertisers saw it at once as invaluable for COMMERCIALS. With color, surgeons began to see value in telecasts of surgical operations. In 1948 a new excitement galvanized the industry: millions watched television coverage of the Republican and Democratic parties' national conventions, both held in Philadelphia because it was linked by coaxial cable with New York, Washington, D.C., and a number of other cities where television was operative. Harry S. Truman, sitting in the White House, became the first U.S. president to see himself nominated on television.

But once again a roadblock appeared. The Federal Communications Commission, having licensed some hundred stations, called a freeze on station licensing

and set manufacture. It wanted to review its policies and allocations. As it did so the Korean War broke out and became a reason for continuing the freeze, which lasted from 1948 to 1952. It seemed a catastrophic setback, but the freeze held unexpected implications for television.

The licensing of stations had been haphazard. By 1948 New York and Los Angeles, each with seven stations, saw television in full operation. But many other cities had no television. Thus there were television cities and nontelevision cities—a situation that constituted a laboratory for observing the impact of the new medium. In the nontelevision cities, radio listening, cinema attendance, LIBRARY usage, and other indexes of media use remained largely unchanged; not so in television cities. Here economic earthquakes took place. By 1951 most television cities reported a 20 to 40 percent drop in motion picture attendance. Areas well provided with television witnessed waves of movie theater closings: 70 closings in eastern Pennsylvania, 134 in southern California, 55 in metropolitan New York. Sports events saw a drop in attendance in most television cities. Public libraries reported a drop in BOOK circulation. A comedy series starring Sid Caesar and Imogene Coca, “Your Show of Shows,” became a Saturday night terror to restaurateurs. Television had briefly drawn people to taverns; now it kept them at home.

What all this foreshadowed for television was that the lifting of the freeze, whenever it should come,

would set off an extraordinary boom. It began in 1953 and soon involved much more than was anticipated. HOLLYWOOD had, since the beginnings of television, sought to exorcise it. In Hollywood films, television sets were never seen; the medium did not exist. The major studios had withheld their pictures and STARS from television. The few features that had appeared on the tube were largely of foreign origin or were westerns like those of Hopalong Cassidy or Gene Autry (*see WESTERN, THE*) from fringe companies outside the Hollywood oligopoly. A number of unemployed film actors had launched television projects of their own; the extraordinary success of one of these, Lucille Ball’s “I Love Lucy” (Figure 5), was for studio heads a sobering phenomenon. Some began to feel that history was passing them by.

In 1954 Jack Warner, who earlier had led the motion picture industry into sound, again broke the united front by negotiating an agreement with the American Broadcasting Company under which his studio would produce filmed series for commercial television. His “Cheyenne” series brought a stampede of similar projects from other studios: “Wyatt Earp,” “Gunsmoke,” “Death Valley Days,” and others. Along with these came detective series like “Perry Mason” and family series like “Father Knows Best.” While embarking on series production the studios did more. Their backlogs of old features, once considered of dubious value, were suddenly unloaded for television use. In 1955 RKO released 740 of its old features to television, earning \$25 million in the process. Similar



Figure 5. (*Television History—Early Period*) Desi Arnaz and Lucille Ball in a scene from the television show “I Love Lucy.” The Bettmann Archive, Inc.

actions brought hundreds of Twentieth Century-Fox, Columbia Pictures, and Universal features into the television market, followed later by still others.

These actions brought upheaval to the young television industry. The schedules of most U.S. stations had been at least three-quarters live; suddenly they became three-quarters film. Station staffs, which had grown rapidly in size, were pared. Countless performers headed for Hollywood, hoping for a chance to survive. The industry had become centralized via film.

Commercial sponsors welcomed the shift. Hollywood telefilm series, based on continuing formulas, involved fewer controversial problems than the earlier live dramas, which were often social-problem plays in the Ibsen tradition. Hollywood favored action-adventure series, the pursuit of evildoers. Sponsorship of such a project linked a company with an attractive, continuing hero, who might also be available for the company's commercials. See SPONSOR.

But the ramifications were even wider. The Hollywood move took into account that television, firmly established in the United States and Britain, was about to begin in scores of other countries. All could be program markets.

Bibliography. Erik Barnouw, *Tube of Plenty: The Evolution of American Television*, New York, 1975; Asa Briggs, *The BBC: The First Fifty Years*, New York, 1985; Timothy Green, *The Universal Eye: The World of Television*, New York, 1972.

ERIK BARNOUW

2. GLOBAL DEVELOPMENT

In the mid-twentieth century television was poised for worldwide DIFFUSION. Having in two decades—the 1930s and 1940s—emerged from experimental beginnings to become a fixture in Britain and the United States, it would in two more decades become a world medium.

Developments came with startling speed. Industrial nations that had participated in prewar experiments could be expected to make early starts in postwar television; they included Japan, Canada, Australia, and a number of European nations. Less expected was a burst of activity from other nations.

In Latin America, Mexico, Cuba, and Brazil led the way, all launching television operations in 1950. They were followed rapidly by others. By the end of that decade eighteen Latin American nations had some form of television, with more on the verge. Asia virtually kept pace, with the Philippines starting in 1953. By the mid-1960s eighteen Asian nations had entered the television age; others were planning

to. Africa was not far behind. Algeria began in 1956, Egypt in 1960. By the end of the 1960s fifteen African nations had made a start in television. Half the world's nations had by now joined the procession.

However modest the first step, it seemed momentous to many—especially the new nations—and also costly. Rationales pointed to television as a key to national development (see DEVELOPMENT COMMUNICATION) and public enlightenment. Television was often pictured as an electronic blackboard, creating a nationwide CLASSROOM. But the symbolism of the event was perhaps more crucial. The step into television seemed a leap into a new and better world. Meanwhile, those who took it had to face a further decision: what kind of television?

Issues. Inevitably they looked to the experience of those who had done the main pioneering: Great Britain and the United States (see section 1, above). Yet these had sharply contrasting broadcasting traditions. In Britain television had developed as a public service mission under unified control, financed from license fees levied on set owners. U.S. television had grown out of a free-market tradition, with stations privately owned, financed by ADVERTISING, and with minimal GOVERNMENT REGULATION.

Broadcasting authorities in most countries tended to look on the rapid growth of commercial television in the United States with a mixture of awe and disdain. Most—particularly in Asia and Africa—did not consider it a model for their own television development. They preferred a centralized system more along British lines, one that could be readily integrated into their existing RADIO broadcasting structures, which were in most cases government controlled. In 1954, however, the United States and Britain added confusion to the situation, each adjusting its system in the direction of the other. In the United States the first not-for-profit television station, KUHT in Houston, went on the air on one of the channels set aside by the Federal Communications Commission (FCC) for educational use. The new "ETV stations" had little immediate impact; plagued by money problems and unfavorable channel allocations, they needed more than a dozen years to organize themselves into the Public Broadcasting Service (PBS), linking a nationwide lineup of stations.

Also in 1954 Britain authorized a commercial system to operate alongside the British Broadcasting Corporation (BBC) television service. The step caused surprise. Three years earlier the BBC had received a new ten-year charter, reaffirming its MONOPOLY status. A legislative inquiry had considered alternatives, including a dual private/public system, but the committee was impressed with the BBC's record of service and passed over any idea of subjecting it to competition, which it was felt might lower standards.

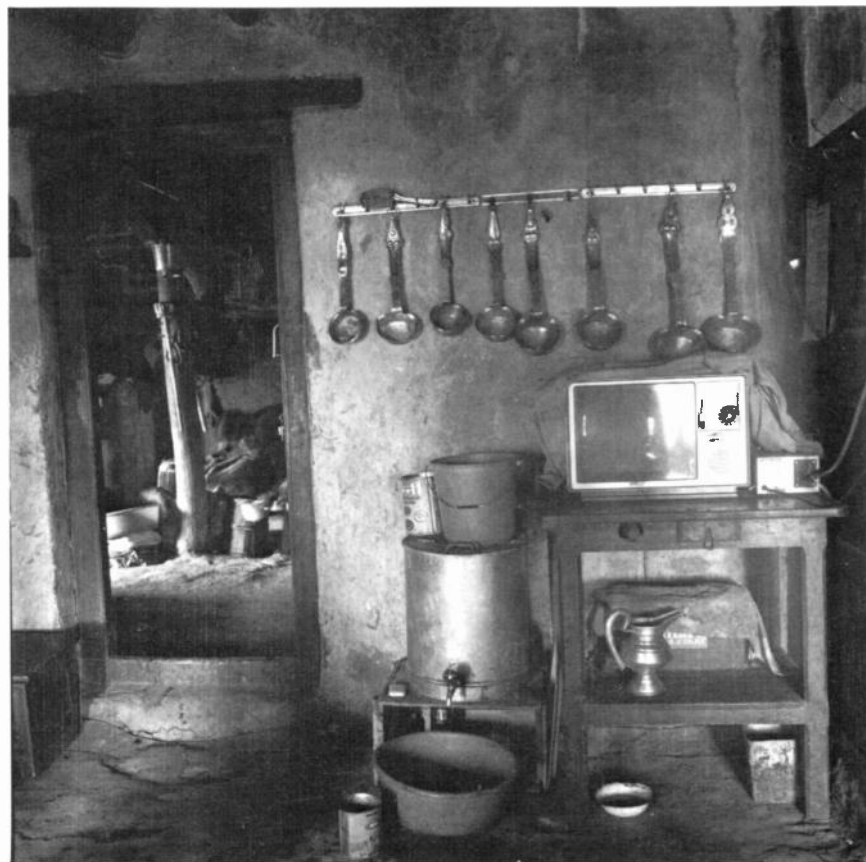


Figure 1. (*Television History—Global Development*) Ladakh, India, 1985. © 1986 Rosalind Solomon.

The new charter was a vote of confidence in the BBC. Shortly thereafter, however, a determined campaign to authorize commercial television was mounted by British financial and industrial interests. The BBC monopoly was attacked on both philosophic and pragmatic grounds. The alleged tepid quality of the BBC's programs was stressed. It was even charged that they were used by mental hospitals to soothe patients. Commercial television, it was argued, would be livelier, more diverse. Whatever the merit of these arguments, the campaign succeeded. Legislation creating the Independent Broadcasting Authority was enacted by Parliament in July 1954. The new commercial stations soon won wide popularity, setting up a determined public/private competition.

The policy trail. This British decision had wide influence on the evolution of global television patterns during the next two decades. Dozens of countries moved toward mixed public/commercial systems of one sort or another. Some countries, such as Canada, modified their regulations to permit commercial competition with the governmental broadcasting system. In many others a government monopoly was retained, but time slots were made available for advertising, not only to defray mounting costs of television but also to accommodate com-

mercial pressures. In Latin America commercial use of the medium had received strong backing from the start, as most governments proved willing to let private entrepreneurs develop nationwide systems; foreign corporate investments, especially U.S. investments, played a part in this, and rapid development was stimulated by it. In Mexico, which led the way, three companies were soon in strenuous competition. It brought all three close to bankruptcy, but they merged to form the profitable Telesistema Mexicano, which became the dominant national network. The government retained channels for public uses; it also held an option on time periods on the commercial system but did not attempt to compete with it. Comparable mixed systems evolved in other Latin American countries, as well as in several Asian and Middle Eastern countries, notably the Philippines and Iran, again stimulated by substantial foreign investments.

Many other governments, while accepting the role of advertising, were reluctant for both political and cultural reasons to give free rein to private entrepreneurs. In Italy television began as a monopoly under Radiotelevisione Italiana (RAI), a joint-stock company controlled by the government. It became one of the first European systems to experiment with limited advertising to supplement revenues from au-

dience license fees, clustering the commercials in a prime-time period earmarked for the purpose—a practice later adopted by other national television systems. On this basis RAI, in spite of political attacks on the monopoly system, maintained control into the 1970s, when the nation's supreme court declared the RAI monopoly unconstitutional. This resulted in numerous private stations rushing to the air, in most cases for commercial operation. New legislation ratified the resulting mixed system.

France went through a somewhat similar evolution. In 1958 General Charles de Gaulle became head of state in an atmosphere of political strife. He found in television an ideal platform for promoting his own views and used it in bravura style. On one dramatic occasion, faced with a coup by dissident military officers, he went before the cameras to call for national unity and to warn against cooperation with the coup leaders. It was a unique demonstration of television's PROPAGANDA potential, and de Gaulle had no wish to yield control of it. But opposition to the monopoly was intense and grew more so. It was charged that between 1956 and 1959 French television had not carried a single program about the government's widely unpopular efforts to suppress the nationalist revolt in Algeria. Eventually, in the 1970s, France took steps toward a mixed system.

In Communist countries television policies were fully controlled by political and economic concerns. Like the press, television was seen as a means for guiding a nation toward an envisioned future. Even so, in the earliest television years neither of the Communist world's most powerful figures—Joseph Stalin and Mao Zedong—fully exploited the medium's political possibilities. For almost twenty years Chinese television was limited to a few experimental stations. Only after Mao's death was a concerted effort undertaken to develop a national network.

In the Soviet Union television's usefulness as a government information channel was recognized somewhat earlier. The 1959–1965 Seven-Year Plan gave priority to expanding the national network, setting a goal of 15 million receivers. Television soon won wide popularity, carrying SPORTS, ENTERTAINMENT, and cultural programs interspersed with political messages. Advertising was introduced in the 1960s basically as a form of public service announcement, but it also channeled the distribution of goods, relieving regional shortages as well as surpluses. By the 1970s satellites were being used to expand the network to the remotest parts of the country.

If various major powers were reluctant to give up government monopoly of television, most developing nations were even more so inclined. Leaders of new nations, such as KWAME NKRUMAH of Ghana, saw it as an essential resource in the difficult transition from colonial to national status. It helped to establish the

legitimacy of new regimes and to win unity in the face of ethnic and tribal rivalries. For a number of Third World leaders—Gamal Abdel Nasser of Egypt, Fidel Castro of Cuba—it became an ideal platform for charismatic leadership.

Divergences. In a number of countries television developed under special circumstances. In Japan, Nippon Hosai Kyokai (NHK), the government-chartered broadcasting system financed from license fees, had held a monopoly until the U.S. occupation. In 1950 occupation authorities, aware of the role that centralized control had played in the rise of Japanese militarism and imperialist ventures, authorized a competing system based on advertising. Its operations began as the U.S. occupation departed. Vigorous competition followed, similar to that in Britain, with commercial and public systems both showing strength. Television developed with extraordinary speed.

In Germany, too, occupation policies played a formative role. Prevention of centralized control seemed the main issue to the Federal Republic of Germany's occupying powers—the United States, Great Britain, and France—but their solution was different from that adopted in Japan. They mandated a system of separate regional companies, each administered by a *Land*, or state. An impressive tradition of cultural programming developed, which often won viewers in the German Democratic Republic.

The German Democratic Republic, which began under Soviet occupation, developed television on Soviet lines, with the mission of providing an ideological counterweight to the popularity of readily available transmissions from the Federal Republic of Germany. The system became one of the most efficient in eastern Europe, with its own strong tradition of cultural programming. It occasionally broadcast charges against the Federal Republic of Germany's leaders, whom it accused of old links with nazism. A prickly relationship between the two television systems developed, especially in the early years.

In Africa the rush to television in the 1960s did not include South Africa, one of the few major countries holding back. Programming available from abroad—a crucial consideration in launching a new television system—tended to reflect racial customs seen as a threat to apartheid. Such programming would be, in the words of Albert Hertzog, minister of posts and telegraph, “a deadly weapon to undermine the morale of the white man and even to destroy great empires.” Various solutions, such as a wired system, were under discussion, but action was still postponed.

The idea of beginning with a wired television system had been adopted in Hong Kong, which in 1957 launched such a system serving the colony's British population. Over-the-air television, with programs in

Chinese as well as English, did not begin until a decade later.

India began cautiously, afraid that television would divert the nation's focus from necessities to luxuries. When its first station was begun in New Delhi in 1959, much of its attention went to educational experiments directed toward villages of the surrounding area. Network operations catering to middle-class urban audiences were finally begun a decade later—with the knowledge that a vast program resource existed in the vaults of India's film industry, the world's most prolific. In the first network years one of the most popular series consisted of compilations of song-and-dance numbers from celebrated Indian film musicals (*see* MUSICAL, FILM—BOMBAY GENRE).

Homogenizing factors. Despite widespread discussion about television's potential for national development, little progress was made in using the medium to that end. A number of pressures propelled the medium in other directions. One was its audience, which was urban centered. Another was the kinds of programs—predominantly U.S. drama series made in HOLLYWOOD—available at low cost to fill hours of program schedules. The costs of maintaining a national television service were staggering for many countries, and such a staple was badly needed. The imports, dubbed into the principal world languages, tended to become the standard goods of television. They were welcomed by program managers, not only because they attracted audiences but also because they readily attracted advertising sponsorship (*see* SPONSOR) and came with gaps designed for COMMERCIALS. The commercials that became available to fill these gaps and bring in needed revenue were often those of international companies that sponsored similar programs elsewhere. The resulting standardization was often deplored and criticized, especially by those concerned with preserving ethnic and national identities, but the economic factor proved a powerful element in furthering a homogenization of television in many parts of the world.

See also AFRICA, TWENTIETH CENTURY; ASIA, TWENTIETH CENTURY; AUSTRALASIA, TWENTIETH CENTURY; ISLAMIC WORLD, TWENTIETH CENTURY; LATIN AMERICA, TWENTIETH CENTURY.

Bibliography. Erik Barnouw, *The Image Empire*, Vol. 3, *A History of Broadcasting in the United States*, New York, 1970; Asa Briggs, *Sound and Vision*, Vol. 4, *The History of Broadcasting in the United Kingdom*, Oxford and New York, 1979; Wilson P. Dizard, *Television: A World View*, Syracuse, N.Y., 1966; Sydney W. Head, *World Broadcasting: A Statistical Analysis*, Philadelphia, 1975; UNESCO, *World Communications: A 200-Country Survey of Press, Radio, Television, and Film*, 5th ed., New York and Paris, 1975.

WILSON P. DIZARD

3. WORLD MARKET STRUGGLES

Global marketing of television ENTERTAINMENT and information via filmed or taped programming represents one of the most significant forms of international communication. Other forms of transborder television communications include programs received across frontiers though not transmitted for that purpose; planned international or regional transmissions (such as Eurovision, Intervision, Nordvision) that provide simultaneous telecasts to participating countries; coverage of special events of all sorts; licensing of program concepts, such as quiz shows, which foreign companies purchase in order to produce their own versions (*see* QUIZ SHOW); and international PROPAGANDA telecasts. Among all these, the sale of filmed and taped programming has assumed a place of special economic and social significance.

The evolution of separate national television systems into an international market of programming consumers did not become important until the late 1950s, by which time all industrialized countries had television broadcasting. However, foreign SYNDICATION of programming is as old as the medium itself. Feature-length motion pictures that had long since completed their runs in cinemas were the earliest material available. Initially motion picture companies believed television would harm their business, and many hesitated to license films for televised exhibition in their own countries. But they did sell their pictures abroad, and consequently some British theatrical films found their way to North American television stations up to the early 1950s.

Another staple product in global syndication is programming made especially for television, such as the series. As late as 1953 three-quarters of network programs in the United States still were broadcast live, and it was not until widespread use of film (and later tape) that syndication could flourish as a global business. In the United States, at least, production shifted from television network studios to motion picture studios. There was a parallel shift in program ownership from commercial sponsors to networks and outside producers. *See* SPONSOR.

The interest of sponsors that owned programs was to persuade viewers to buy products. But the interest of networks and film companies that own programs also is to sell them widely. As in the case of theatrical films, the substantial expense of a television program is incurred in its initial production. A copy of the original represents little additional cost, so the producer has an incentive, especially in a profit-motivated economy, to distribute it broadly. In this way, and apart from aesthetic or cultural considerations, the program is introduced into the flow of trade and becomes a commodity. The program constitutes an investment of capital that the owner seeks to recoup and multiply.

This was a commanding reason to shift to prerecorded programming. It provided opportunities to amortize costs and recycle shows in many markets and to expand profit. The trend toward global centralization of production and distribution was one of the consequences.

Whereas in many countries the television system is structurally and administratively distinct from the theatrical film business, in the United States there is a considerable integration of function, finance, and ownership. Television program production and distribution is just one segment of the filmed entertainment industry, whose companies also have interests in CABLE TELEVISION, recorded music, PUBLISHING, and other fields.

The foreign sale of U.S. television programming followed a pattern established decades earlier for the exportation of U.S. theatrical films. In addition to their sales offices in major markets, the principal companies coordinated their efforts in an export cartel. The Television Program Export Association (TPEA) was incorporated in 1959 under the Webb-Pomerene Export Trade Act (1918), which provides limited antitrust immunity for companies selling overseas. Members were allowed collectively to set prices for foreign sales, allocate markets, and act jointly against foreign trade barriers. The television networks, some major film companies, and important independent producers of that time were TPEA members. The association was dissolved in 1970 for several reasons. The networks had relinquished their roles as program producers and owners; independent producers' shares of programming had diminished, giving them less to export; and the film companies already belonged to the Motion Picture Export Association of America (founded in 1945), whose functions duplicated those of TPEA. The film companies' overseas distribution systems also could handle television programming with little additional overhead cost. *See* MOTION PICTURES—SOUND FILM.

The commercial push by major producers to export exists in tandem with a need in most television systems to import. Original dramatic programs, for example, can be expensive for a television system to produce regularly. Most countries can import a series episode for considerably less than a twentieth of its production cost in the United States—in the case of small nations a minute fraction of production cost (see Table 1). An imported program also may have production values that lend prestige to a television schedule and cannot be readily duplicated with local resources. The comparatively low cost of imports can be an economical way to expand telecasting hours. Indeed, U.S. distributors occasionally have sold episodes at loss-leader prices so that some new foreign systems would be assured of programming. These distributors also were creating a market and establishing their presence in it. The purchase of a

particular program (e.g., "Dallas") by television systems may respond to demands by a public whose appetite has been whetted by international publicity. Finally, commercially based systems seek to import programs having a proven ability to attract audiences with demographic characteristics that advertisers want. Proliferation of multinational advertising agencies and corporations selling consumer goods stimulates this practice (*see* ADVERTISING—ADVERTISING AGENCY).

Whereas economic motivations guide international program sales, cultural, political, religious, and linguistic concerns also shape the flow on a global or regional level. But they are of secondary importance when measured by volume or monetary value.

The global circulation of programming has particular characteristics. A UNESCO-sponsored study in 1972 and 1973 found that entertainment was by far the main content and that the flow was predominantly in one direction. A few industrialized capitalist countries were the largest exporters, with the United States the most important. Generally the rest of the world's nations were recipients. Some industrialized nations, such as Australia and Canada, also were net importers. Basically these findings also describe the international circulation of theatrical films. A follow-up study in 1983 revealed that the flow had not changed appreciably. The United States still accounted for most exports; Western Europe and Japan were distant followers. Regional exchange persisted, as among Arab states, and a few countries were important suppliers in other areas, such as Brazil and Mexico in Latin America.

There can be great differences in the kinds of programming selected by various nations. Profit-driven television systems primarily impose commercial criteria, whereas public and government systems can set cultural and social standards. Whatever the guidelines, there are political and ideological ramifications. On a different level, selection criteria may have to do with violence, family relations, divorce, nudity, sex, crime, treatment of the military, and so on.

In the early 1980s U.S. companies were receiving close to \$500 million annually from foreign sales of television programming, whereas a decade earlier that market had been worth less than \$100 million. Cinemas, however, provide twice as much foreign revenue for these companies as does television. About a quarter of the television program revenue of U.S. companies comes from abroad, but close to half of their cinema revenue is generated in foreign box offices. The worldwide growth of home VIDEO, cable television, and pay television is, however, increasing television earnings at a faster rate.

Although the United States is the leading exporter, its companies buy virtually no foreign material, and what is imported is almost exclusively from English-speaking countries. An exception is Spanish-language

Table 1. World Distribution of U.S. Television Programs

The production cost of a half-hour program (actually shorter by several minutes) is generally \$100,000 or more. The U.S. producer hopes to recoup this via the first sponsored network showing in the United States. Revenue from network reruns and worldwide syndication will then represent profit, which can continue for years. Foreign broadcast rights are generally marketed on a country-by-country basis. The 1985–1986 range of prices for various countries, per half-hour episode, was reported as follows by the entertainment newspaper *Variety*. Australia purchases programs on a somewhat different basis and is omitted from *Variety's* listings. The USSR rarely buys material on a dollar basis, seeking barter transactions. A one-hour program (actually shorter by several minutes) generally brings twice the half-hour price. Feature-film prices are substantially higher but represent a lesser part of the total revenue from television.

<i>Purchaser</i>	<i>Price range per half-hour episode (in U.S. dollars)</i>	<i>Purchaser</i>	<i>Price range per half-hour episode (in U.S. dollars)</i>
Algeria	90–100	Italy	6,000–18,000
Argentina	1,000–1,500	Jamaica	80–95
Austria	900–1,400	Japan	6,000–7,000
Belgium	1,250–1,750	Kenya	45–60
Bermuda	30–45	Kuwait	450–500
Brazil	4,000–6,000	Lebanon	175–200
Bulgaria	200–250	Luxembourg	1,200–1,500
Canada	6,000–20,000	Malta	45–50
Chile	220–375	Mexico	1,000–2,000
Colombia	800–1,500	Monaco	400–450
Costa Rica	180–210	Netherlands Antilles	55–85
Cyprus	30–75	Netherlands	2,000–2,250
Czechoslovakia	400–600	Nicaragua	75–85
Denmark	700–900	Nigeria	1,000–1,500
Dominican Republic	100–150	Norway	900–1,000
Ecuador	200–300	Panama	200–215
Egypt	400–600	Peru	250–300
El Salvador	75–90	Poland	150–375
Finland	900–1,000	Portugal	215–500
France	8,500–10,000	Puerto Rico	1,100–1,250
German Democratic Republic	750–1,500	Romania	200–450
Germany, Federal Republic of	8,500–18,000	Saudi Arabia	650–800
Gibraltar	40–94	South Africa	1,250–1,800
Greece	700–750	Spain	1,500–2,500
Guatemala	100–125	Sweden	2,100–2,500
Haiti	50–75	Switzerland	1,500–2,000
Honduras	85–90	Syria	70–275
Hong Kong	600–850	Trinidad and Tobago	130–140
Hungary	200–300	United Kingdom	12,000–14,000
India	500–600	Uruguay	150–175
Iran	500–750	USSR	120–300
Iraq	350–500	Venezuela	800–1,000
Ireland	300–350	Yugoslavia	175–500
Israel	400–500	Zambia	100–115
		Zimbabwe (Rhodesia)	100–125

programming, which is not directed to the Anglo audience. British commercial and public television companies aggressively market in the United States, but their sales successes have been limited to dramatic programs and documentaries—especially nature documentaries—whose acquisition for public television has been underwritten by major corporations. Still, British cash receipts, small as they are, depend heavily on sales in the United States. As a market for foreign producers and television systems,

the United States is essentially closed. Although there are no government-imposed limitations on imports, the commercial system sets its own de facto quota of 100 percent U.S.-made.

Domination of the world's cinema markets by U.S. films prompted many nations to establish trade barriers against them. This pattern has been carried into television. Even though many restrictions apply to imported material regardless of nationality, the burden falls mainly on U.S. exports because they con-

stitute the largest share of the international flow. Economic, social, political, and cultural reasons have been advanced to support these restraints.

Because U.S. companies do not reciprocate by purchasing foreign programming, some nations feel justified in limiting imports of U.S. material. The need to conserve critical supplies of hard currency for buying essential goods also can lead to restricting imports of television entertainment. Creative and technical workers claim they would have more employment if their national television systems imported less programming and devoted resources to original domestic production. Young people, too, would have an incentive to seek careers in television and motion pictures.

Some regulations favoring locally produced programs are based on the conviction that national culture needs to be preserved and that harnessing mass media can help. Furthermore, television is just one of many cultural vehicles, and indigenous productions are felt to deserve encouragement and subsidization just as do concert halls and live theater. Restrictions also are premised on the belief that without them control over television content, and particularly the use of new technology, would gravitate to foreign hands and decisions would be opposed to local needs. Restraints on foreign companies, then, serve to protect present and future prospects for domestic industries. Another justification is that foreign television material displays values and morality—for example, materialism, brutality, competitiveness—that conflict with those of the importing country. Finally, restrictions imposed by a government may stem directly from demands of its own private sector program producers who want a share of the home market.

These positions find expression in official and unofficial rules instituted by television systems themselves or the state. In Britain, for example, a long-standing benchmark is that foreign material should be limited to about 14 percent of hours telecast. Other major markets have similar guidelines. In Brazil imported television programming must be dubbed in local laboratories. Some countries restrict importations of finished goods so that the final assembly of videotape cassettes has to be done locally. Still other countries impose substantial duties on imported programming or regulate the exportation of revenue.

Problems associated with the international circulation of programs are part of a broader debate about national sovereignty, cultural domination, and media imperialism. They are expressed in calls for a NEW INTERNATIONAL INFORMATION ORDER. The complexities of positions are oversimplified by calling this a struggle between north and south, or developed and developing countries, or capitalist, socialist, and non-

aligned states. As far as mass media, and particularly television, are concerned, there is desire to achieve a more balanced global circulation of material and to redress the unidirectional flow.

The U.S. exporters of television programming, speaking through the U.S. government, have urged a "free flow of communication," unimpeded by barriers to their business and unencumbered by quotas and subsidies, which they perceive as market distortions that favor foreign competitors. The U.S. industry's free-trade position obviously represents its own economic interests. The government's position on these matters is developed in consultation with major U.S. communication companies, including those in the television programming business.

A particular point for debate is new technology that feeds into the home television set. Some observers have said that introducing videocassettes, cable, and pay television into a country would offer indigenous companies and artists an opportunity to expand their audiences and to carve out a market separate from cinema and conventional television, which often are dominated by foreign material. What has happened, though, is that new media have become another outlet for imports, especially from the United States.

The use of satellites to transmit programs directly to homes (Direct Broadcast Satellite, or DBS), and thus to bypass a national television system, poses further threats to national sovereignty (see SATELLITE). The major suppliers of programming are eager to have this medium developed, particularly with advertiser support. In 1972, though, a UNESCO declaration established the principle that a state planning to start DBS service should receive permission from receiving states before transmitting programs to their peoples. A similar resolution was adopted by the United Nations General Assembly, with the United States casting the only negative vote.

Bibliography. Robin Day Glenn, *Legal Issues Affecting Licensing of TV Program Material in the European Economic Community*, Washington, D.C., 1983; Thomas Guback and Tapio Varis, *Transnational Communication and Cultural Industries*, Paris, 1982; Chin-Chuan Lee, *Media Imperialism Reconsidered*, Beverly Hills, Calif., 1980; Armand Mattelart, *Multinational Corporations and the Control of Culture: The Ideological Apparatuses of Imperialism* (Multinationales et systèmes de communication), trans. by Michael Chanan, Sussex, Eng., 1979; Kaarle Nordenstreng and Tapio Varis, *Television Traffic—A One-Way Street?* Paris, 1974; William H. Read, *America's Mass Media Merchants*, Baltimore, Md., 1976; Herbert Schiller, *Mass Communications and American Empire*, New York, 1969; Alan Wells, *Picture-Tube Imperialism?* Maryknoll, N.Y., 1972.

THOMAS GUBACK

TELEVISION NEWS

Programs designated as news but tending at the same time to serve entertainment, information, EDUCATION, promotion, and PROPAGANDA functions. News programs are included in the offerings of most television systems worldwide, generally on a daily scheduled basis. Scheduled programs may be superseded or supplemented for events considered of transcendent significance. Although news programs are broadcast under sharply contrasting economic arrangements and within diverse political systems and constraints (see TELEVISION HISTORY—GLOBAL DEVELOPMENT), they have assumed throughout the world surprisingly homogeneous formats.

Formats and Processes

In its early stage of development television news generally consisted of bulletins read by an announcer at a desk, but the trend has been to move rapidly toward more complex formats. News programs may be anywhere from fifteen minutes to an hour in length, with discrete "stories" illustrated by still or moving pictures, sometimes with background music, stitched together by an "anchor" person or persons (male or female or a duo) displayed in a specially designed studio setting. They may also call in reporters, whose reports may already be on edited videotape or film or who may report live from some scene of action. The called-in reports, whether taped, filmed, or live, may be products of the television system itself or of other television systems anywhere in the world and may have been relayed by transport, cable, or SATELLITE. A modern television news program can thus be considered the end product of international industrial processes involving innumerable manufacturers, distributors, and retail outlets buying, selling, and exchanging the raw materials of news and served by armies of personnel at every level.

Each morning camera and sound operators as well as reporters in places around the world swarm out to begin the process. Pictures of events, expected and unexpected, are trapped in the camera eye. Some are for local use, but quantities of pictures and related data also go to collecting centers or world bureaus, where they are edited, refined to suit the values and tastes of particular groups or regions, and then transmitted to the headquarters of subscribing networks or local stations on all continents. There they are further edited, polished, and assembled, together with material collected at national and local production centers, into news packages of requisite lengths for broadcast at designated time periods.

In this international traffic the final selection of program elements is made by a station or network presenting a newscast. Inevitably selections differ,

reflecting divergent needs, tastes, taboos, pressures, and doctrines. Nations with very different interests may use the same footage for different purposes. But the process and formats are similar, although tone and style of presentation may differ. Television news in the United States tends to be snappy, sensational, crackling with electronic graphics. The style in most other countries is more formal and slower paced.

Dominant influences. The cost of television news is high, in personnel and especially in equipment, tending to give the richest nations a leading role in the global enterprise. Television networks in the United States, the United Kingdom, Japan, and other leading industrialized nations maintain bureaus in selected cities where news can be expected to happen or from which camera crews and correspondents can be quickly dispatched elsewhere. Events in or near these cities inevitably tend to get more detailed coverage than events in remote regions, such as areas of Africa or Latin America.

The dominant networks, in spite of their own coverage of news happenings through numerous foreign bureaus, also rely heavily on the four leading international NEWS AGENCIES, which supply news copy via wire and have a history antedating television: Associated Press (AP), United Press International (UPI), Reuters, and to a lesser extent Agence France-Presse (AFP). Night and day these major wire services periodically send out "budgets" or announcements of stories coming up; client editors and producers, depending on the wire editors to make newsworthy judgments, may choose to follow up the wire leads in their own television news formats. AP and UPI also monopolize the world Wirephoto market: the first still pictures of air crashes, floods, and other disasters reach most of the world's television screens via their Wirephoto services.

After World War II three major international organizations specializing in gathering television news came into being. Visnews, whose main shareholder is the British news agency Reuters, has headquarters in London. Worldwide Television News, whose principal shareholder is the ABC Television Network, is headquartered in the United States. CBS News, which gathers television news worldwide for its regular newscasts in the United States, also syndicates excess amounts to other broadcasters (see SYNDICATION).

The largest supplier is Visnews, which has its own staff of camera operators, reporters, and free-lance "stringers" distributed throughout the world. Visnews serves the NBC Television Network in the United States and several hundred other clients around the world; it provides pictures edited especially for individual customers. Because its national subscribers often have conflicting cultural attitudes and political values, Visnews asserts: "We don't take sides; we take pictures." The flow of news stories from Vis-

news to NBC is accompanied by a reverse flow: NBC provides pictures for Visnews, which the latter includes in its service to worldwide customers, along with material from the BBC and from the Japan Broadcasting Corporation (NHK). Visnews also has a two-way contract with Tass, the Soviet Union's news agency, for supplying and receiving pictorial material.

Format variations. The national evening newscasts in many countries are carried by a network of stations, but there may also be local news programs assembled by individual stations. These individual stations may draw on the same resources but are more likely to stress local accidents, crimes, fires, sports, weather, and reports of personal tragedies and triumphs. In the United States there is a trend, echoed in a number of other countries, toward "happy talk," empty badinage by the local news staff contributing little to the news but reinforcing the staff's familiar, cheery public images. By way of contrast the United States also has Cable News Network (CNN), a cable system that operates two all-news channels, one of which repeats headline news every half hour.

For extraordinary events—assassinations of heads of state, heroic funerals, royal weddings, coronations, and other occasions with mythic dimensions—normal time schedules are everywhere set aside. On such occasions television news may serve to give diverse audiences a common feeling of national identity and unity.

Staff. Playing a key role in television news packages, giving coherence to varied contents, are the anchorpersons. They are the visible messengers who bring the story to the public, their personalities acting as filters. Their inflections, gestures, and expressions can play a crucial part, intentionally or unintentionally, in cueing and channeling audience reactions to news items (*see* FACIAL EXPRESSION; GESTURE). They may become major celebrities, courted by politicians. In the early days of television, anchors generally had a journalism background, as did Walter Cronkite, whose dominance of CBS news programming lasted two and a half decades. Charisma appears to become an increasingly important consideration in the selection of anchors. Anchorpersons occasionally go into the field to cover a story so as to maintain credibility as reporters, but they often attract more attention than the events being covered.

Behind the anchor are the producer, the assignment editor, and the innumerable other functionaries needed to assemble the modern television news package. Preparing the day's work, they survey available news stories, and in a manner similar to that of the producer of a variety show they "routine" the structure of the coming program. As "lead" they choose the event best calculated to catch the viewer's atten-

tion. They end generally on a reassuring human-interest story. The final product is the result of the daily, hourly, and often minutes-before-airtime **BARGAINING** of decision makers working under pressure amid complex circumstances—harried "social historians in a hurry."

Issues

"The news," a perishable commodity, is extruded from the assembly line under the constraints of costs, cultural biases (conscious or unconscious), and numerous and diverse harassments. The need to fill prescheduled time periods, awareness of audience ratings (*see* RATING SYSTEMS: RADIO AND TELEVISION), uncertainties relating to the use of official information (*see* SECRECY), in commercial systems the shadow of sponsors (*see* SPONSOR), in the reporting of some disputes the possibility of LIBEL suits, and in all systems the pressures of GOVERNMENT REGULATION (in the form of licensing systems in some countries, of direct CENSORSHIP in others) further bedevil the manufacturer of the final product. The compression of the news into short bursts to capture and hold the fragile attention span of news consumers who absorb information night and day not only from television but from other sources as well, together with the competition for the viewer's eye and ear, compels reporters and editors of television news to dramatize, personalize, and fragment the happenings they are purporting to report objectively—in short, to shape the events they are reporting as much as to mirror them.

Television news is selective. It tells stories drawn from the real world, but in the selection process and in the narration it emphasizes conflict, officialdom, celebrity; it appeals to the senses, to feeling instead of analysis. All this is done in order to grasp and continue to hold the attention of television viewers, who frequently do not give their exclusive notice to the receiving set but engage in other actions such as eating, conversing, or reading while watching the screen.

In capitalist, Communist, and nonaligned nations alike television news tends to support and preserve the status quo, to ignore, suppress, downplay, or deflect dissident views except when these obtrude dramatically on the news horizon. Indeed there are social scientists who assert that in all countries, under all government authorities, television news (like all media) is a form of social management, a media construct, an illusion that meets little resistance as viewers are increasingly dependent on television for their view of the contemporary world.

That most viewers derive from television their picture of world events has been shown by many polls—for instance, in the United States since 1963

by the Roper polls. This influence is generally ascribed to television news, but television drama also deals with the contemporary world, often stressing international intrigue, ESPIONAGE, crime, TERRORISM, and covert war. Though classified as entertainment, such drama may also function for many viewers—particularly the young—as a kind of journalism. In most countries television fiction and non-fiction tend to give a unified impression, and their practitioners may consciously or unconsciously take cues from one another.

Television news professionals tend to reject, often heatedly, the criticisms leveled against them. They argue that a real, objective world is “out there,” and though they make their selections of what they report on the basis of “gut instinct” or “the news perspective” and also admit to dramatizing the news, they nevertheless insist that they report the news of the world accurately, fairly, and with integrity. *See also* ETHICS, MEDIA.

A frequent observation made about television news is that it focuses on events mainly when they explode into crises. Festering problems are ignored until they burst into VIOLENCE. The stress is on results, which may be dramatic, and seldom on causes, which are less so. In consequence many major events take the public by surprise, and their meaning remains shadowy.

Historical Context

Television news scarcely existed in the 1920s and 1930s, when pioneer television ventures were conducted in a handful of countries (*see* TELEVISION HISTORY—EARLY PERIOD), with occasional experiments in news programming. Resuming after World War II, television news groped for its appropriate form. Radio-style bulletins read by announcers were clearly not a solution, so television turned for help to the theatrical NEWSREEL. During the 1950s newsreel staffs migrated rapidly into television, and most major theatrical newsreels passed out of existence, with remnants surviving in some countries as government services.

Television news became enormously influential during the late 1950s—in the United States, especially through the work of Edward R. Murrow in “See It Now” and, later, of Cronkite as perennial “CBS Evening News” anchor. When Cronkite called for an end to the war in Vietnam during one of his 1968 programs, it is said to have influenced President Lyndon Johnson not to run for reelection. An overt expression of this sort by a television anchor was rare, and the act therefore had unusual impact. Television journalists and politicians have come to live in a wary, symbiotic relationship. *See* GOVERNMENT-MEDIA RELATIONS.

The 1980s were a turbulent period for television

news. Expanded satellite delivery systems, new forms of CABLE TELEVISION, the explosive rise of VIDEO, and the growing influence of the computer (*see* COMPUTER: IMPACT) created extraordinary new opportunities, which were complicated by new organizational alignments, corporate takeovers, privatization of government monopolies, and increased competition on a global scale. As news services continued to expand worldwide, developing countries shared the fruits via various forms of syndication. But the materials they received to fill their news programming reflected mainly the concerns of the suppliers and their world. This was one of the factors behind Third World demands, reiterated during the 1970s and 1980s in various forums, for a NEW INTERNATIONAL INFORMATION ORDER and for a new look at SPECTRUM allocations and procedures. Such issues seemed unlikely to be soon resolved.

Television news remains for social scientists a compelling, puzzling genre. Backed by global, transnational systems, it is flexible enough to yield endless national and local variations. Thought of as journalism, the final result seems rather a form of THEATER, enacted daily in hundreds of versions, each with a self-promoting momentum. Most viewers assess the validity of a news broadcast mainly by what they have learned from television itself via earlier broadcasts. And the newscasters, too, are by now a generation raised on television and imbued with its established performing standards. Television news has become, in effect, a PERFORMANCE genre.

See also DEVELOPMENT COMMUNICATION; MONOPOLY.

Bibliography. William Adams and Fay Schreiber, eds., *Television Network News*, Washington, D.C., 1978; David L. Altheide, *Creating Reality: How TV News Distorts Events*, New York, 1976; Robert M. Batscha, *Foreign Affairs News and the Broadcast Journalist*, New York, 1975; W. Lance Bennett, *News, the Politics of Illusion*, New York, 1983; W. Phillips Davison, *Mass Communications and Conflict Resolution: The Role of the Information Media in the Advancement of International Understanding*, New York, 1974; Anthony Smith, *The Shadow in the Cave*, Urbana, Ill., and London, 1973; Jeremy Tunstall, *The Media Are American*, New York and London, 1977.

ROBERT LEWIS SHAYON

TERRORISM

An attempt to bring about political change through VIOLENCE, usually in the form of bombings, assassinations, and kidnappings, directed at intimidating a population or government into granting demands. The violence is frequently perpetrated in an indiscriminate fashion, with the victims themselves having little or no connection to the political issues, all of

which enhances the fear on which terrorism thrives. As a form of political violence, terrorism is unique in its reliance on the PROPAGANDA value of the act of violence itself. It can be said, then, that terrorists commit acts of violence as a means of communication. Through violence terrorists seek to create a climate of fear and simultaneously to direct international attention to their cause. Acts of terrorism are generally of limited military or strategic value and are best analyzed as political dramas organized for the purpose of getting publicity. The fact that terrorists seem to design their violence to attract media attention has made the role of the media one of the major controversies in the general study of terrorism.

Varieties of terrorism. Terrorism as a phenomenon is frequently confused with *state terrorism*. The latter generally refers to the use of violence by a government against its own people to create an atmosphere of fear and intimidation so that the government's rule and authority will not be challenged. Although there are similarities between terrorism and state terrorism, the intellectual, philosophical, and conceptual approaches to these two phenomena render them distinct subjects. This becomes readily apparent when the topic is approached from the perspective of communication. States that use terrorism to attain political acquiescence attempt to conceal such acts from the media. Not only is the act itself more important than the publicity generated about it, but the occurrence of the act is in fact something the state wants to conceal from the scrutiny of world opinion. In contrast, terrorism conducted by nonstate actors—groups out of power—is generally designed explicitly for its attention-getting effects.

State terrorism is not synonymous with *state-sponsored terrorism*. State-sponsored terrorism refers to the sponsorship of a terrorist group or action by a nation-state. The sponsorship is frequently difficult to prove and is almost always denied by the state involved. Even the seemingly obvious issue of what sponsorship means is itself controversial. Some states openly provide arms, training, and logistical support to groups that other states call terrorists. When the support is overt, the sponsoring state will deny that the support is anything other than legitimate military assistance to a group engaged in a war of national liberation. Most state sponsorship of terrorism is covert, and the media can rarely cut through the layers that separate sponsor from client.

As a type of political violence, terrorism is best understood by comparing it to other forms of political violence. The form of political violence any group chooses is a function of the amount of popular support and military power it possesses. A group with substantial popular support and with military power roughly equivalent to the group it wishes to dislodge will engage in civil war. A group with somewhat less power will engage in irregular or guerrilla

warfare. A group with still less power will engage in sporadic riots and mass demonstrations (*see DEMONSTRATION*). The form of political violence found at the bottom of this power hierarchy is terrorism.

Terrorism is the political violence of the weak, of those who lack either the military strength or the popular support to engage in more intense forms of political violence. Terrorism is as much a manipulation of POLITICAL SYMBOLS as it is a form of political violence. Terrorists seek to compensate for their political weaknesses by creating the illusion of power through dramatic episodes that are designed to draw a disproportionate amount of attention on the part of the popular media. Thus terrorism is to a large extent a mixture of political propaganda and political THEATER. Terrorists want a lot of people watching, listening, and questioning.

Media coverage of terrorist acts. Because terrorist acts are frequently undertaken for dramatic effect, the media face difficult ethical and professional problems in deciding how to report these events. The media must report the news without becoming part of the news. Yet the terrorists have acted with the hope of using media exposure to influence both the public perception of the event and the climate of political opinion. The media must decide how to respond to what are legitimate, newsworthy events without becoming part of the process that encourages those events to occur. Some critics have argued that the events themselves should not be reported or should be reported differently. Defenders of the media reply that terrorism was practiced long before the existence of electronic or even print media. The Zealots and the Sicarii of Jerusalem in the first century C.E. and the Assassins (Ismailis Nizari) active in Persia and Syria from 1090 to 1275 committed acts of terrorism and gained wide attention. They made themselves known by murdering prominent people, usually on holy days, in public or sacred areas amid large numbers of onlookers. The events themselves were usually significant enough to generate reports and discussion of their occurrence. Even today, if the media ignored terrorism the terrorists could simply escalate their acts of terror until they could no longer be ignored.

In the reporting of ongoing terrorist events the media have at times become the eyes and ears of the terrorists by reporting in-progress police procedures, perhaps risking the safety of victims. Dramatic episodes have tempted the media to capture all the excitement of what is happening, sometimes without regard for the possible effects on victims. The other concern about media coverage of terrorism is the issue of whether the media are providing a forum for terrorist propaganda. Media interviews with terrorists have at times seemed less than newsworthy. A media interview with a terrorist has been described by critics as a situation ripe for exploitation and one

in which blood is frequently spilled as payment for media access. For their part the media assert that terrorism is news and that journalists have a societal obligation to report the news. A media interview with a terrorist may provide the terrorist with a forum for propaganda, but this result, some argue, is no different from what is likely to occur in a media interview with a government official.

There is some consensus that the media's coverage of terrorism requires neither new ethical standards nor new guidelines but the adherence to well-known and proven professional procedures. When those procedures are questioned, most experts still agree that the media and not government should be the final arbiter of the role of the media in a free society. Nonetheless, in some democracies threatened by terrorism societal perceptions of media abuse coupled with concerns for public security have produced legislation severely limiting the media's access to news. The balancing of freedom of the press with freedom from fear is one of the difficulties that terrorists present to democratic societies.

See also ETHICS, MEDIA; RADIO, INTERNATIONAL; TELEVISION NEWS.

Bibliography. Richard Clutterbuck, *The Media and Political Violence*, London, 1981; Abraham H. Miller, *Terrorism and Hostage Negotiations*, Boulder, Colo., 1980; idem, ed., *Terrorism, the Media and the Law*, Dobbs Ferry, N.Y., 1982; Dan Nimmo and James E. Combs, *Nightly Horrors: Crisis Coverage by Television Network News*, Knoxville, Tenn., 1985; Philip Schlesinger, Graham Murdock, and Philip Elliot, *Televising "Terrorism": Political Violence in Popular Culture*, London, 1983; Alex P. Schmid, *Political Terrorism: A Research Guide to Concepts, Theories, Data Bases, and Literature*, Amsterdam and New Brunswick, N.J., 1983, 1984; Alex P. Schmid and Janny de Graff, *Violence as Communication: Insurgent Terrorism and the Western News Media*, Beverly Hills, Calif., 1982.

ABRAHAM H. MILLER

TESTIMONY

How people describe events they have observed plays a role in many communication processes. Testimony often serves as a basis for belief and action. In civil and criminal law cases, in which questions of liability or guilt often hinge on eyewitness testimony, its nature is a particularly crucial matter and is the focus of this discussion (see LAW AND COMMUNICATION).

Eyewitness Testimony

The term *eyewitness testimony* is not necessarily restricted to matters that have been observed visually. An eyewitness might testify about what words he or she heard another person utter or whether a tele-

phone threat was in the voice of a particular person. Although the latter is often called earwitness testimony, the term eyewitness testimony applies generally to any testimony by a person who experienced an event directly through one of the five human senses. Having been an eyewitness to some event that has criminal or civil evidentiary implications, the eyewitness is likely to be asked explicitly to recount the event at least twice before the trial: once or more during police investigations and again at a preliminary hearing. At a preliminary hearing or any subsequent trial the eyewitness gives testimony under a sworn oath to tell the truth. Usually the matter of truth versus motivated DECEPTION is not at issue in eyewitness testimony, but issues of accuracy versus inaccuracy of the eyewitness's memory frequently are of concern.

Modern psychological theory describes memory as a process that involves the acquisition, storage, and retrieval of information. The human memory process operates differently from a videotape system in several respects. A VIDEO system can replay the recorded event in a relatively faithful manner. Unlike a video system, the human eye does not attend to all that appears in its view but instead is selective. This selectivity in human PERCEPTION is based on the interests and biases of the human observer and is influenced by the dynamic features of the event. In a human observer, unlike a video system, attention failure or common forgetting can result in gaps in memory, and these gaps may be filled in later by inferences, guesses, or externally provided information.

In criminal and civil cases courts of law depend heavily on eyewitness accounts of past events to help reconstruct the facts. When an eyewitness testifies that she or he saw a person commit a crime or cause an accident, the testimonial evidence is considered direct evidence. A witness's testimony that she or he saw a person in the neighborhood where a crime occurred earlier is considered circumstantial evidence in that the trier of fact (judge or jury) must make additional inferences in order to reach a judgment of guilt. In either case the trier of fact must decide how accurate the eyewitness's testimony is likely to be.

Historically courts have assumed that jurors are fully capable of deciding when to weight eyewitness testimony heavily and when to discount it. In the early 1900s, however, some experimental psychologists expressed their disagreement with this assumption. As early as 1903 German psychologist Louis William Stern was qualified by German courts to give expert testimony on the subject of eyewitness accuracy. In 1908 U.S. psychologist Hugo Münsterberg strongly attacked the assumption that the judge or juror is capable of judging eyewitness accuracy. Münsterberg's contention, expressed in his book *On*

the Witness Stand, was sharply counterargued by U.S. legal scholar John H. Wigmore. The years from approximately 1920 to the mid-1970s resulted in little further development by experimental psychologists on the issue of eyewitness testimony.

In the mid-1970s psychologists began to reexamine the issue. The work was clearly needed. In Great Britain in 1976 a government-funded review of identification evidence headed and authored by the Honourable Lord Patrick Devlin concluded that the psychological literature was scant but that there were important issues of reliability. An explosion of research then emerged from laboratories around the world, primarily in the United States, Canada, and Great Britain. This research gave the study of eyewitness testimony a new respect and visibility within psychology. As the data base grew, many jurisdictions in the United States, Canada, and Australia began to allow eyewitness experts to testify in cases dealing with eyewitness testimony.

Psychological studies. Modern experimental research into the accuracy of eyewitness testimony involves presenting people with carefully controlled events using media such as slide sequences, videotapes, or live staged events for which the actual event characteristics are known in detail. In many cases these are simulated crimes, accidents, or other rich and complex events. Following exposure to such events people are tested for their memory. Witnessing and testing conditions are varied systematically to determine the extent to which testimony accuracy depends on characteristics of the event, characteristics of the interval between the event and later testing, and characteristics of the testing. Research experiments show clearly that the accuracy of eyewitness testimony cannot be described independently of the particular witnessing and testing conditions. Within this framework of considering the witnessing and testing conditions, some general conclusions can be reached.

In terms of witnessing factors, witnesses are more accurate under the following circumstances:

1. Their exposure time is longer rather than shorter.
2. The events they witness are less rather than more violent.
3. At the time of the event they were not undergoing extreme stress or fright.
4. They are generally free from biased expectations.
5. They are asked to report on salient aspects of an event rather than peripheral aspects.

In terms of testing conditions, witnesses are more accurate under the following circumstances:

1. They are tested after a short time has passed rather than a long time.
2. They have not been exposed to any biasing information after the event is over.

3. They are questioned in a way that does not suggest what answer is expected.

In the special domain of identification of previously seen people, psychologists have discovered a number of phenomena. An important one is called cross-racial identification, which refers to a situation in which a member of one race tries to identify a member of a different race. Witnesses have more difficulty recognizing individual members of a race different from their own.

Whether trying to recognize a previously seen person or simply testifying about the color of the traffic light or some other detail, witnesses will give their testimony with some degree of confidence. Some psychological studies have shown that there is little or no relationship between how confident witnesses are and how likely they are to be accurate. This means that inaccurate testimony is sometimes given with a high degree of confidence or certainty by an eyewitness. Thus one cannot assume that simply because a witness is confident, he or she is probably accurate.

Research on eyewitness testimony that is conducted under controlled conditions is considered an applied branch of experimental psychology or experimental social psychology. However, this research also has contributed to basic theoretical conceptions about the workings of human memory, especially with regard to the surprising degree to which memory reports are malleable and the controversial issue of whether or not memory is permanent. For example, one line of research, developed in the 1970s at the University of Washington at Seattle, indicates that people's testimony about an event they saw can be altered by information acquired after the event (usually called *postevent information*). *Postevent information* can be incorporated into the witness's testimony regardless of whether the information is true (i.e., reflects actual aspects of the event). In one widely replicated experiment, for example, people viewed a slide sequence of an auto-pedestrian accident. In one version of the slides the auto passed a stop sign; in another version, a yield sign. After viewing the slides some people were asked a leading question about whether or not another car passed the auto while it was at the stop sign; others were asked the same question with the word *yield* substituted for *stop*. Later, when asked whether they remembered the sign as being a stop sign or a yield sign, people tended to answer consistently with the leading question asked of them earlier—regardless of whether the sign in the original event was a stop sign or a yield sign. Similar phenomena have been observed in experiments involving a wide variety of stimuli, including faces. For example, after briefly observing a clean-shaven face, people who are asked

a question like "What color was the man's mustache?" are later likely to describe the person they saw as having a mustache and are likely to incorrectly identify a mustached person from a set of photographs as the person they saw. The precise psychological processes by which postevent information alters testimony remain in doubt, but it is clear that postevent information has the greatest influence on testimony when the person's memory for the details of the original event is weak.

Research findings indicate that young children are influenced by postevent suggestions more than adolescents or adults are. In addition, young children generally provide less complete accounts of witnessed events in their free narrative statements than do adults. Although generally less complete, young children's accounts of witnessed events often are equal to adults' accounts in terms of the portion of the account that is accurate.

Credibility of eyewitness testimony. How jurors make decisions about the veracity of eyewitness accounts is not completely understood. The Devlin Report examined cases tried in England and Wales in 1973 and found that of 347 cases in which eyewitness testimony was the only evidence, 74 percent resulted in convictions. Experimental studies in which people read trial transcripts or view simulated court cases indicate that people are sensitive to a number of variations in eyewitness testimony that either augment or decrease its credibility. A series of studies begun in 1979 at the University of Alberta indicate that people evaluate the credibility of eyewitness accounts by attending to factors that are not particularly diagnostic of eyewitness accuracy. The confidence or certainty with which an individual proffers eyewitness testimony seems to be the most powerful determinant of whether or not people believe the testimony. Confident or certain eyewitnesses are much more credible to people in general and jurors in particular than are unconfident or uncertain eyewitnesses. Research indicates that the amount of detail and vivid elaboration an eyewitness provides during testimony also affects the credibility attributed to the witness, with greater detail and vividness being accorded greater credibility. A witness who says "I remember her; she was wearing blue shorts with Nike tennis shoes and pink socks" is likely to be perceived as more credible than a witness who says "I remember her; she wore casual summer clothing." Experiments on eyewitness accuracy, on the other hand, do not give strong support to the idea that either the eyewitness's confidence or the amount of detail provided by the eyewitness has a consistent relationship to eyewitness accuracy.

Bibliography. Frederic C. Bartlett, *Remembering: A Study in Experimental and Social Psychology*, New York and Cambridge, 1932; Brian R. Clifford and Ray Bull, *The*

Psychology of Person Identification, London, 1978; Elizabeth F. Loftus, *Eyewitness Testimony*, Cambridge, Mass., 1979; Hugo Münsterberg, *On the Witness Stand: Essays on Psychology and Crime*, New York, 1908, reprint 1933; Patrick M. Wall, *Eyewitness Identification in Criminal Cases*, Springfield, Ill., 1965; Gary L. Wells and Elizabeth F. Loftus, eds., *Eyewitness Testimony: Psychological Perspectives*, New York, 1984; A. Daniel Yarmey, *The Psychology of Eyewitness Testimony*, New York, 1978.

GARY L. WELLS AND ELIZABETH F. LOFTUS

TEXTBOOK

A work written to facilitate the learning and TEACHING of a particular subject in SCHOOL, college, or UNIVERSITY. The textbook emerged as a significant educational tool during the eighteenth and early nineteenth centuries. Largely a result of the rise of state-supported EDUCATION, the textbook offered a way of coping with an increasing variety of pupils coupled with increasing dependence on less-skilled teachers, and by the mid-nineteenth century textbooks were numerous and diverse.

Texts of a sort had been used since the Roman and Egyptian civilizations, but until the last two hundred years teachers relied on traditional works such as the Bible or the writings of ARISTOTLE or Euclid. For beginning levels teachers first used wooden or stone tablets; later hornbooks, ABC books, or psalters; and then primers to present the ALPHABET, syllables, and the rudiments of moral and religious instruction. In many countries the first specially prepared textbooks dealt with the learning of the mother tongue, the inculcation of moral and religious beliefs, and the mastery of numbers (*see* NUMBER). Later textbooks were concerned with the acquisition of knowledge in basic academic subjects and salable skills in the less academic subjects.

One of the first textbooks widely used in Britain's North American colonies was the *New England Primer* (1683), presumably modeled on European examples. It was followed by Lyman Cobb's *North America Reader* and Caleb Bingham's *Readers* (1799–1832). NOAH WEBSTER's influential *American Spelling Book Containing the Rudiments of the American Language for Use of the Schools in the United States* (the famous "Blue-Backed Speller") appeared first in 1783 and during the next hundred years passed through at least 236 editions, selling millions of copies. The McGuffey *Readers* dominated early READING instruction (1836–1907).

In most countries today virtually any widely taught course at any educational level has a textbook, usually more than one. In many nations, including developing nations, textbooks are prepared to national specifications and are supplied by centralized ministries of education to reflect governmental policies. When control of the content and methodologies of

education is not in the hands of the government, competing textbooks are prepared by various authors and publishers, and the schools select those that seem best to suit their purposes. At least forty publishers prepare textbooks for U.S. schools, ten being major (with annual revenues exceeding five to ten million dollars). However, educational PUBLISHING grows increasingly concentrated in the United States; during the mid-1980s five corporations accounted for 75 percent of all sales. In England, Canada, Australia, and other major English-speaking countries at least a half-dozen large publishers in each country vie for the textbook market.

Although an occasional textbook has been successfully adapted for use in various cultures, primarily at the tertiary or college level, the overwhelming majority of textbooks are indigenous to the CULTURE in which they are prepared and used and tend to reflect the values of particular societies. As the International Assessment of Education has made clear, the content taught, the degree of rigor, the pedagogy, and the emphasis on every subject vary from one national school system to another. Even a cursory study of textbooks on modern world history reflects sharp cultural differences in perception from country to country. Unlike trade titles prepared for general reading, textbooks seldom cross boundaries. Educational purpose is too closely allied to social and cultural priorities.

The largest market for textbooks in the world is in North America, where virtually universal schooling exists, at least through the secondary-school level, and where a substantial percentage of students engage in some form of higher education. In the mid-1980s U.S. schools spent about one and a half billion dollars annually for school textbooks, close to 1 percent of the annual expenditures for education, or about thirty-two dollars per pupil per year. Annual college textbook sales in the United States also exceeded one billion dollars. Of the total amount expended on textbooks by schools, about two-thirds went for elementary-school and one-third for secondary-school textbooks. Expenditures were greatest in the basic skill subjects (reading and basic mother-tongue books accounted for 40–45 percent of the total elementary-school expenditures; mathematics accounted for 20–22 percent).

Data are not easily available for other countries, but those checks that have been made yield strikingly similar patterns. In most countries textbooks are available in multiple-year series in all basic subjects, such as spelling, science, social studies, literature, composition, religion, and music, as well as in specific single-course subjects in high school and college, such as history, geography, economics, chemistry, biology, typing, and business education.

In many countries the more successful textbooks—those widely adopted and used by schools and col-

leges—tend to be revised every three to five years, sometimes more frequently. Thus some textbooks have a life cycle of two or three decades. Some distinguished textbooks—for instance, Samuel Eliot Morison and Henry Steele Commager's *The Growth of the American Republic*, Paul Samuelson's *Economics*, George Thomas's *Calculus and Analytic Geometry*, George Trevelyan's *History of England*, and James McCrimmon's *Writing with a Purpose*—have influenced generations of college students. Among the widely used English-language texts in the lower schools during the twentieth century have been the Scott Foresman Curriculum Foundations Series (the Dick and Jane readers, published 1930–1970), authored by William S. Gray; the Walter Rideout English-skill program in England, from Ginn Ltd. (1950–1980); the J. C. Tressler English programs of D. C. Heath (1930–1960); the Frank A. Magruder *American Government* program, published by Allyn and Bacon (from 1917); the six-year *Adventures in Literature*, published by Harcourt Brace Jovanovich (from 1930); *Modern Biology*, by James H. Otto and others, published by Holt, Rinehart, and Winston (from 1940); and the Mary Dolciani algebra programs of Houghton Mifflin (1960–1985). Each of these series has sold multiple millions of copies. The *Reading 360* program, authored by Theodore Clymer (Ginn and Company, 1969–1979), was a basal scheme separately adapted and widely accepted for a time in the four major English-speaking countries. But this phenomenon is an exception.

Textbooks frequently have been criticized for perpetuating a low standard of education, a criticism that gains some credence from CLASSROOM studies of the 1970s and 1980s, which reported that from 75 to 90 percent of all classroom decisions (in the United States, at least) were strongly influenced by the textbook used. Textbooks tended to limit not only the content covered but also the methods of teaching. Most textbooks are accompanied by a teacher's manual (extensive and prescriptive in the United States, Canada, and some other countries like Sweden and Japan; much less directive elsewhere); by tests that evaluate what pupils learn (and hence help to set the priorities of schooling); sometimes by workbooks that provide practice; and sometimes by supplementary materials such as print, visual, or auditory aids (see AUDIOVISUAL EDUCATION). An eight-year basal reading program in the United States or a multiple-year reading scheme in the United Kingdom could have as many as two hundred separate items.

Education reform efforts in various countries have frequently focused on developing new instructional material, such as the Nuffield mathematics and science materials in the United Kingdom or the instructional materials sponsored by the National Science Foundation in the United States during the academic reform movement of the early 1960s. Similarly, social

and cultural groups committed to influencing the ATTITUDES and beliefs of children frequently attempt to influence what is included or excluded. In Nazi Germany, for example, textbooks were used to implant the social attitudes desired by the regime. In countries with nationally directed schools, textbooks are frequently changed when the central government changes. In the United States and Canada, state and regional pressure groups frequently try to influence the content of textbooks (see PRESSURE GROUP). However, when the proposed changes differ markedly from the content widely accepted and used, attempts to influence the ideas in texts tend to set off strong counterpressures. The textbook is part of a complex social system that involves teachers, parents, and total educational systems. It reflects the attitudes and values of the society in which it has been developed. It is one of the major tools used by societies to acculturate the young.

Bibliography. Hillel Black, *The American Schoolbook*, New York, 1967; John Y. Cole and Thomas G. Sticht, eds., *The Textbook in American Society*, Washington, D.C., 1981; Nila B. Smith, *American Reading Instruction* (1934), rev. ed., Newark, Del., 1986.

JAMES R. SQUIRE

THEATER

The term *theater* designates forms of communication based on mimetic activity. It differs from the closely related PERFORMANCE arts of film and television by its requirement that the enactment be physically present to its observers (see MOTION PICTURES; TELEVISION HISTORY). It also differs from most other communication acts involving physical presence by the very different expectations and communication roles of the two parties in the process—the performer and the spectator. Essentially the performer may be considered the sender of a message that the spectator receives and interprets, although in fact the process is considerably more complicated than this. In most forms of theater the message emitted by the performer is supplemented by a great variety of other visual and auditory messages provided by costume, scenery, lighting, music, SOUND EFFECTS, and so on, according to variously codified systems in different theater cultures. The contemporary French theorist Tadeusz Kowsan proposed thirteen such systems for the typical theatrical experience. The audience also is involved in this process in a more complex manner than simple reception of a message. It contributes to the communication process by such traditional overt methods as laughter or applause and by the subtler psychic interplay of the performance situation.

Theater, as the art that most closely imitates the

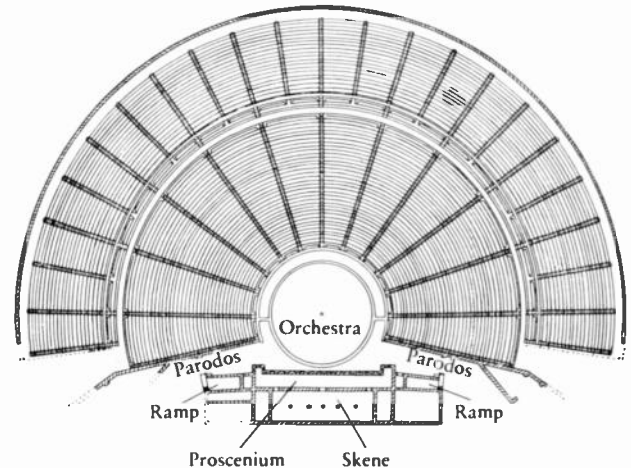


Figure 1. (*Theater*) Plan of the Greek theater at Epidaurus, ca. 350 B.C.E. From Allardyce Nicoll, *The Development of the Theatre: A Study of Theatrical Art from the Beginnings to the Present Day*, New York: Harcourt, Brace and World, 1966, p. 11.

ongoing processes of human society and CULTURE, has been used to communicate observations about almost every aspect of those processes—religious, historical, intellectual, emotional, political. It has served as a means of expressing the deepest emotional and spiritual intuitions of humanity as well as the lightest and most casual passing fancies. It has served to promulgate new ideas and attitudes and to confirm, celebrate, or challenge old ones. Its effectiveness in such matters has caused it to be, of all the arts, the most closely watched and regulated by civic and religious authorities.

A distinction is often made between theater and DRAMA, according to which drama refers to the written text that traditionally has served as the basis for the live enactment of theater. The proper relationship between the two has been a subject of controversy since the romantic period, when critics such as Charles Lamb (1775–1834) insisted that a drama, when placed onstage, necessarily communicated a different message. Modern semiotic theory regularly distinguishes between the written text and the spectacle text as different communicating structures, but controversy continues about their relative priority and autonomy. The primacy of the written text, generally accepted throughout most of the history of Western theater, has been challenged by many theorists and practitioners during the twentieth century. Some have suggested that the written text be considered only as a kind of preliminary outline, to be made complete by a potentially wide variety of interpretations in the theater. Some recent theorists, drawing on insights provided by anthropology, have urged that theater study and production move away even more radically

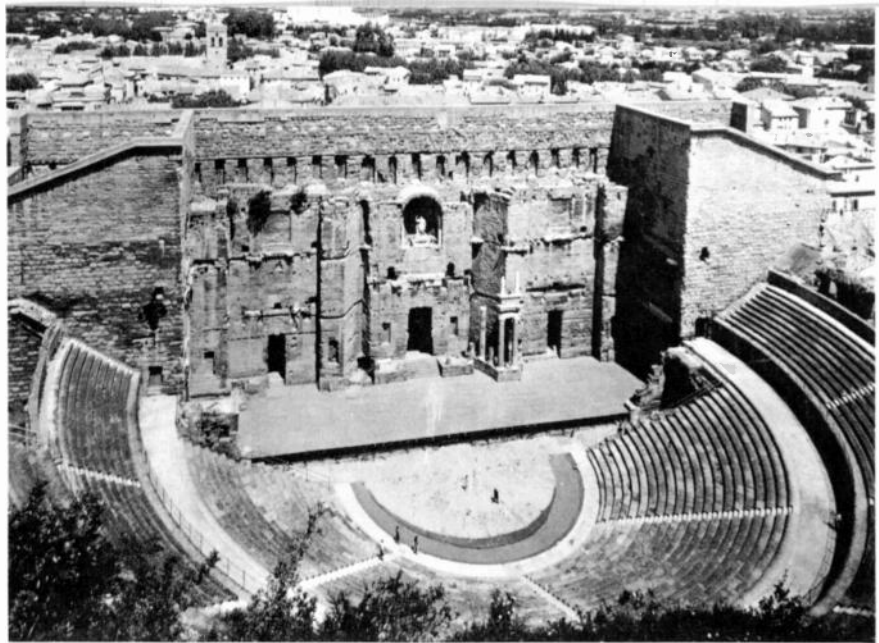


Figure 2. (*Theater*) Roman theater at Orange, France. Augustan period. Giraudon/Art Resource, New York.

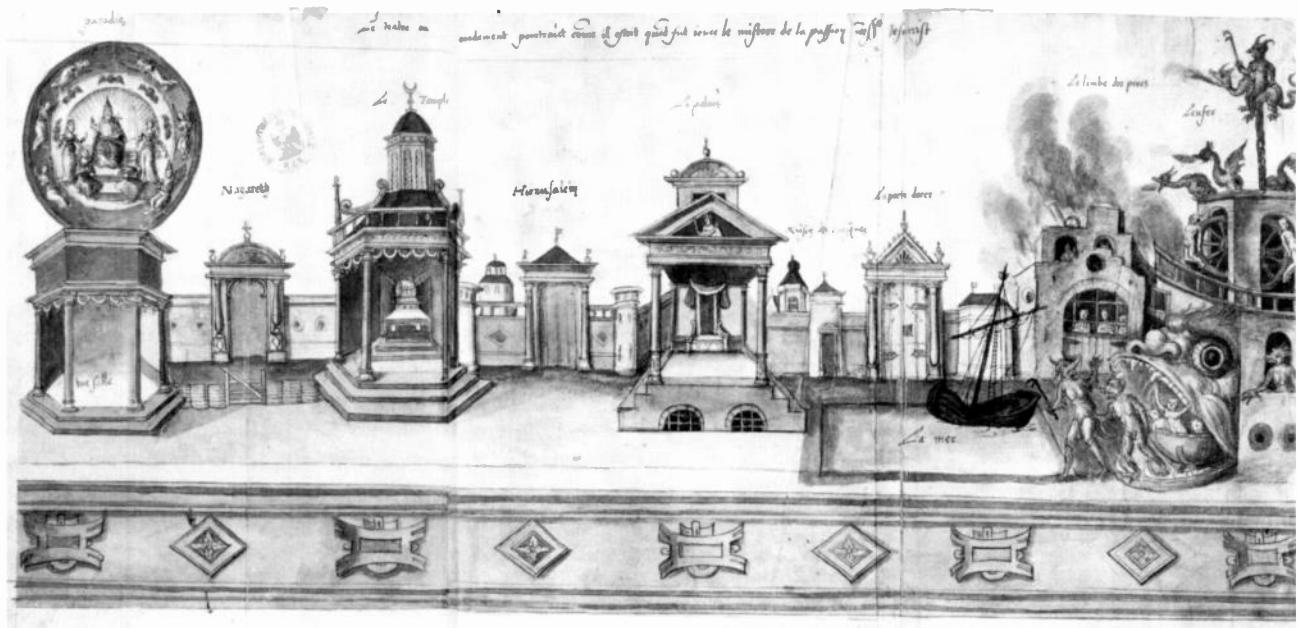


Figure 3. (*Theater*) The stage for the Passion Play, Valenciennes, France, 1547. The mansions represented are (from left to right) Paradise, Nazareth, the Temple, Jerusalem, the palace, the Golden Door, and Hell's mouth. Painting by Hubert Cailleau. Phot. Bibl. Nat., Paris.

from the traditional association with drama and that theater be considered not a subdivision of or supplement to literature but a branch of performance.

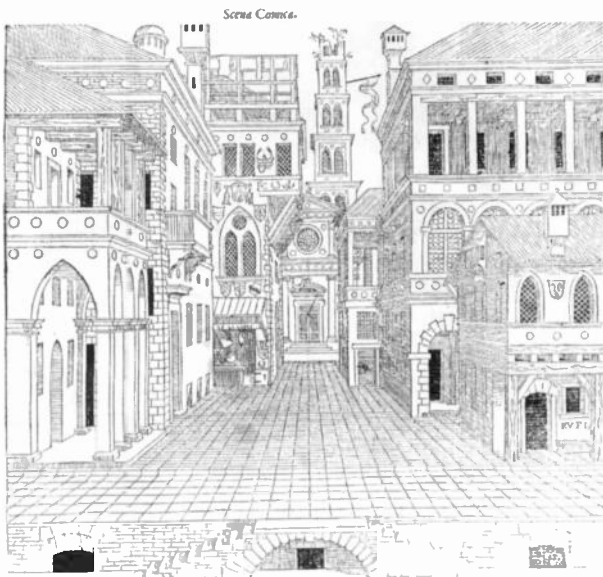
Early history. Performance exists in all cultures, but theater, especially if it is thought of as the physical enactment of a preexisting literary text, is not nearly so widespread. Its first appearance was apparently in Greece in the fifth century B.C.E. (see HELLENIC WORLD). From there it spread to Rome, disappearing with the collapse of the empire (see ROMAN EMPIRE). Scholars disagree on whether some elements of this tradition remained alive through subsequent centuries, but the theater did not appear

again as a significant element in Western culture until the late MIDDLE AGES. From the RENAISSANCE on, however, it spread gradually across Europe to become one of the major art forms and cultural expressions of Western civilization. Shakespeare in England, Goethe and Schiller in Germany, and Racine and Molière in France are regarded not only as preeminent creators of the drama and of theater in those countries but also as the leading figures in the heritage of their respective national cultures.

In East Asia, with the possible exception of Japan, drama, though widely found, has not been so central a form of cultural expression as it has been in the



Figure 6. (*Theater*) Matthäus Merian's view of London in 1638. Detail showing the following playhouses: the Swan (39), the Hope (38), and the Globe (37), with St. Paul's Cathedral to the north. By permission of The Folger Shakespeare Library, Washington, D.C.



a

Figure 7. (*Theater*) Renaissance stage sets: (a) comic scene, (b) tragic scene. From Jehan Martin's Paris edition of Sebastiano Serlio's *De Architectura*, 1545. The Metropolitan Museum of Art, New York, Harris Brisbane Dick Fund, 1937. (37.56.2)



b

read pamphlets against the theater and its practitioners (see PAMPHLET). In pre-Revolutionary France actors were commonly deprived of civic rights as well as of the sacraments of the church. Only in the latter part of the nineteenth century did actors begin to obtain membership in the respectable classes of European society.

The relation of theater to public morality has thus been a matter of concern since classical times, and it has by no means been restricted to church writers. The Greek philosopher PLATO, like Tertullian and Augustine, condemned theater as being a stimulus to the passions and thus a hindrance to the clearer view of reality that the intellect can discover. His follower Aristotle admitted the potential ill effects of uncon-

trolled passions but argued that tragedy, through a process he called catharsis, could in fact contribute to this control. The Romans, and the poet Horace (68–5 B.C.E.) in particular, tended to take a rather more pragmatic approach to moral utility. Horace's observation that drama should both please and instruct became a central precept for all subsequent classically oriented theory.

New audiences and institutions. The great dramatic festivals of Athens and the great medieval cycles of religious drama were major annual events in the religious and cultural life of their respective communities, involving many members of those communities in the lengthy preparations and the performances themselves, which were spread over a period

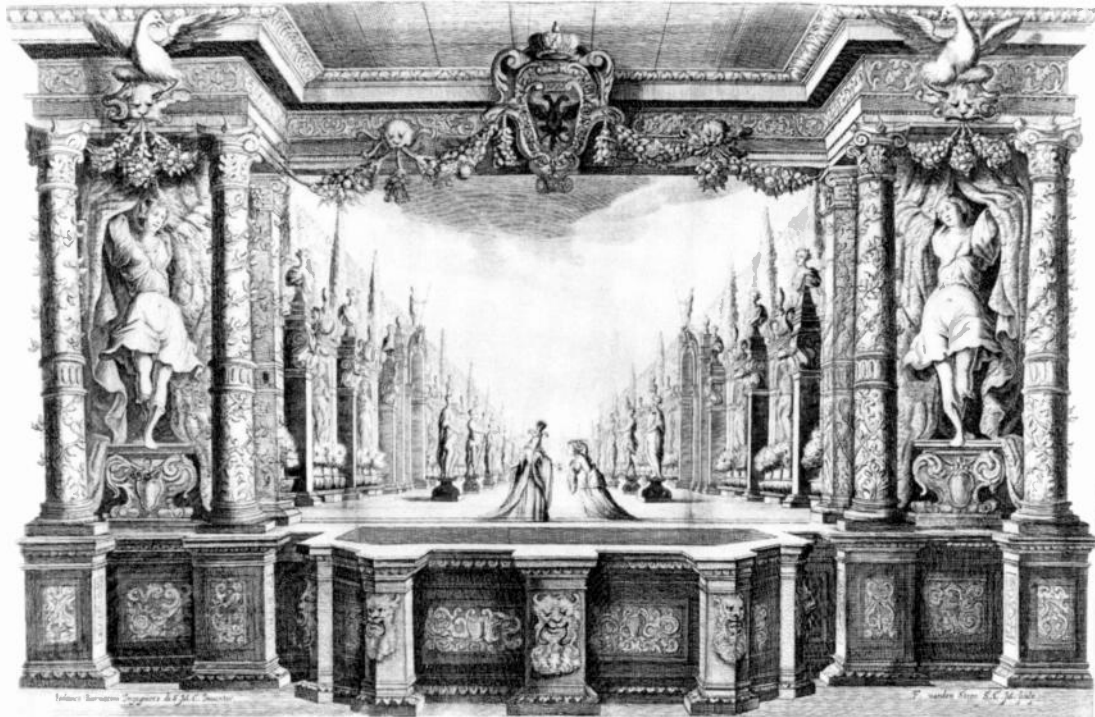


Figure 8. (*Theater*) Ludovico Burnacini, scene from *La Zenobia di Rodamisto*, Vienna, 1662. Harvard Theatre Collection.

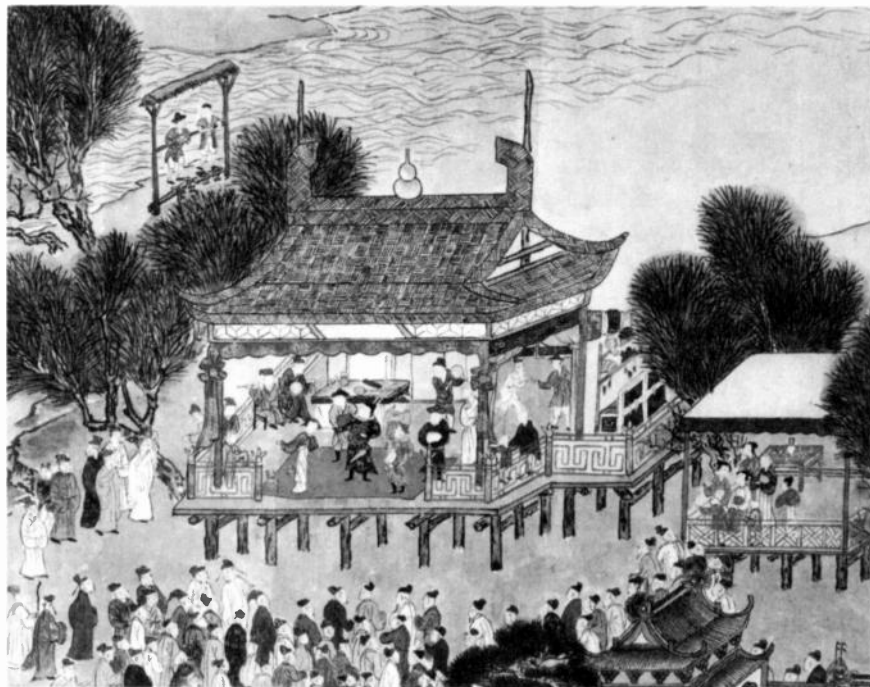


Figure 9. (*Theater*) A Chinese open-air theater. Detail of Chinese scroll no. 40. Reproduced by courtesy of the Trustees of The British Museum.

of several days and were attended by most of the community as well as a substantial number of visitors and guests. During the Renaissance the theater, so broadly based in earlier times, began to be fragmented into different forms for different levels of society, and although theorists continued to promulgate the Horatian formula, few of these forms were in fact much concerned with the instruction of their audience in the Horatian sense. The theater for the common people, probably owing much to the entertainment tradition of the wandering performers of the Middle Ages, was composed of such fare as folk farces and the beginnings of the *commedia dell'arte*—a highly popular form of largely improvised comedy built around stock characters, some wearing traditional masks, that eventually spread to all corners of Europe. Such performances were usually offered on temporary platform stages erected in such places of popular resort as markets and fairgrounds.

At the same time, a very different sort of theater was being developed by the aristocracy—a court entertainment often employing music, dance, allegorical figures, and lavish SPECTACLE, partially for entertainment but primarily as a display of the sponsor's power and wealth. Although magnificent princely entertainments were sometimes held in public spaces for a dazzled populace, the most common location was in rich theaters constructed within princely residences. Here the single-point perspective recently developed by Italian painters was used by court scenic designers in the construction of theatrical scenes so that the stage picture could be seen perfectly only from the sponsoring prince's seat, which was placed on a dais in the center of the auditorium or in an elaborately decorated box at the rear. The theatrical performance itself was in such surroundings largely a pretext for the political display of its prince.

By the end of the sixteenth century the popular street theater and the aristocratic private theater were supplemented in several parts of Europe by the first permanent commercial theaters, catering to a variety of social classes but tending to draw the major part of their audience from the emerging bourgeois population of merchants and tradespeople. Although popular, such theaters often experienced strong civic resistance. The private theaters of the Renaissance were protected from any external protest by the political power of their sponsors, and the temporary stages of wandering companies caused only occasional concern; they could be easily removed or even refused permission to enter a community if conditions were considered unfavorable. But permanent theater structures represented a continuing acceptance of theater within the social structure of a community, and many were opposed to this. In addition to religious leaders certain civic authorities resisted the development, fearing that the large crowds

drawn to performances might prove a disturbance to public tranquillity.

Misgivings such as these were sufficient to keep the first public theaters in England, built at the time of Shakespeare, in physical locations clearly reflecting their social marginality. Across the Thames from the city proper and thus beyond the control of civic authorities, they shared their district with other establishments of public entertainment but questionable social status, such as bear-baiting arenas and bordellos. In Spain, on the other hand, where profits from the public theaters supported charitable institutions and where ties among theater, church, and state remained strong, major theaters were centrally located in cities like Madrid and Seville, often adjoining the elegant town houses of leading citizens.

Unlike Renaissance London and Madrid, Paris had only a single public theater, the *Hôtel de Bourgogne*. A special dispensation from the king not only protected it from civic authorities but also gave it a MONOPOLY on theatrical performances within the city. During the seventeenth century this royal protection of a particular troupe led to the founding of the first national theater, the *Comédie Française*. Similar official recognition was given to other theaters specializing in OPERA, comic opera, and Italian comedy (see MUSIC THEATER—WESTERN TRADITIONS). During this century France served as a cultural and political model for much of Europe, and the idea of national theaters spread widely. In some places, as in London after the Restoration of 1660, this idea meant little more than that certain individuals were given a more or less restricted monopoly on theatrical presentation within a major city (the two traditional "patent houses" of London—Drury Lane and Covent Garden—are descended from these first monopolies). Elsewhere, as in Vienna, the national theater remained closely tied to the court, which provided substantial financial support and often strong control over administration and policy. These national theaters became in many places the center of a country's theatrical life, the goal of the best actors and playwrights.

Eighteenth through twentieth centuries. During the eighteenth century the monopolies supposedly held by a number of the national theaters eroded, and the more typical arrangement of the nineteenth century began to appear. The most lavish and usually best-situated theater of the city became the opera house, supported by state or private funds, but in either case at least as important as a symbolic place of assembly and display for the upper classes as for any artistic function. The possession of a box at the opera came to serve as evidence of membership in the privileged classes, and attendance was compulsory for those claiming social distinction. Next in importance and centrality were the national theaters, de-

voted to the spoken word or to light opera and dedicated increasingly to performance of the nation's classic repertoire and less to the welcoming of new works. Then, usually gathered together in a developing theater district convenient to public transportation, hotels, and restaurants, came a collection of commercial theaters. By the late nineteenth century these theaters were for the most part concentrated in those districts still primarily associated with such activity—the Paris boulevards, New York's Broadway, London's West End.

Such theaters were democratic in the sense that anyone who could afford a ticket could sit anywhere in them (with the occasional exception of the still-reserved royal box), but the range of prices for different seats naturally imposed a general class pattern upon the audience, and poorer citizens would often not appear even in the relatively inexpensive gallery seats at the top of these theaters. The commercial houses appealed largely to the middle classes, while the lower-class public, if they attended theater at all, favored the more accessible and more congenial music halls, melodrama houses, and similar entertain-

ments often located in their own sections of the city.

Thus in the course of the nineteenth century each of these types of theater became associated not only with a fairly consistent public but also with a fairly consistent repertoire. Opera and ballet, comic opera, classic revivals, new serious and comic works, and the great variety of popular forms such as melodrama, farce, vaudeville, and burletta each had a particular theater or theaters primarily concerned with its production. This system worked satisfactorily as long as no major changes occurred in the potential dramatic repertoire, but a crisis developed toward the end of the century when such dramatists as Henrik Ibsen, August Strindberg, Anton Chekhov, and George Bernard Shaw created a new sort of drama not easily assimilated by any of these theater organizations. Their work was not yet well enough established for the national theaters, and its radical form and content made it equally unacceptable for either middle- or lower-class popular theaters, where it faced the double enemy of possible CENSORSHIP and audience hostility.

To solve this problem a new sort of theater ap-



Figure 10. (Theater) Attributed to Okumura Masanobu, *Scene from Kanadehon Chushingura: A Play Given at the Nakamuraza Theater, 1749*. Japan, Edo period. William Sturgis Bigelow Collection. 11.19665. Courtesy, Museum of Fine Arts, Boston.

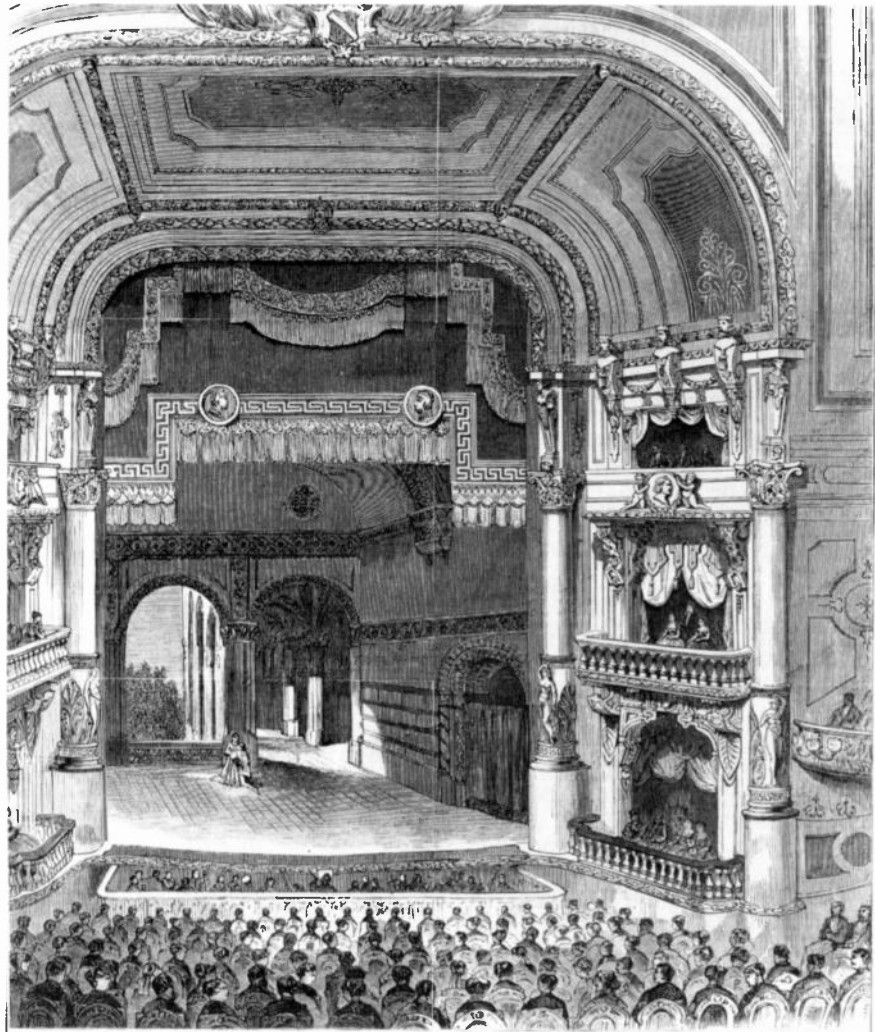


Figure 11. (*Theater*) Interior of Booth's Theatre, New York City, 1869. Harvard Theatre Collection.

peared—the experimental theater—a modest venture operating to a certain extent outside the established system and seeking to avoid that system's constraints on innovation in playwriting, staging, and performance in general. In the twentieth century such experimental theaters have become a significant part of theatrical culture, the favored location for the launching of new works or entire new movements. Sometimes they have been established as annexes to national theaters, but more often they are independent ventures, frequently found in sections of cities associated with artistic and bohemian culture. See AVANT-GARDE.

Theater is traditionally an urban art, often highly centralized. In some countries, most notably in England and France, the capital city has dominated national theater since the Renaissance. In these countries various governments, especially in modern times, have attempted to modify this pattern and to encourage decentralization of theater. Germany and Italy, probably because of their relatively late politi-

cal unification, both entered the modern era with a decentralized theater system already in operation. The United States, although its theater has been centered since the beginning of the nineteenth century in New York, has not in fact followed the organizational model of any European country. Except for the brief experiment of the Federal Theatre in the 1930s, theater in the United States has received little official government recognition or support, and a national theater in the European style has never been established. This, along with the great size of the country, has worked as a counterforce to the concentration of theater activity in any one city. During the nineteenth century almost every town in the United States had its theater, sometimes called an opera house (less to indicate performances in that GENRE than to suggest a socially more elegant and respectable art form), and countless traveling companies toured among these theaters, uniting the nation in a web of theatrical offerings.

Although these ubiquitous opera houses were in

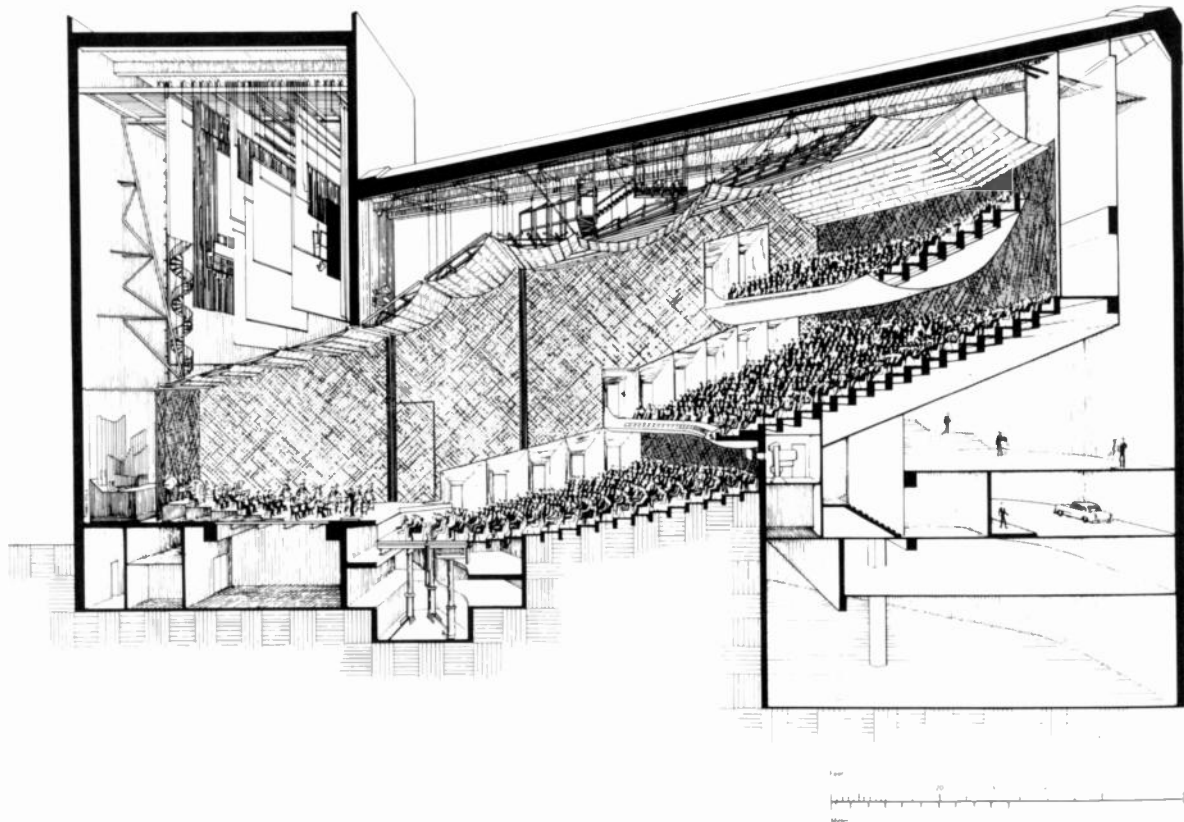


Figure 12. (*Theater*) Edward Thomas Performing Arts Hall, University of Akron, Akron, Ohio. Longitudinal perspective section, concert hall mode. From George C. Izenour, *Theater Design*, New York: McGraw-Hill Book Company, 1977, p. 376, fig. 7.75. George C. Izenour Archive.

time almost universally replaced by cinema theaters, the U.S. regional theater did not disappear with them. The traveling companies died out, but community theaters, drawing on local talent, began to appear in many parts of the country. These were supplemented by UNIVERSITY theaters, as U.S. universities began to exert more and more influence on the intellectual and cultural life of the nation. Theater studies, often originally developed in departments of English or ORATORY, became an independent discipline, a standard feature of U.S. university life as it rarely was in Europe. The production facilities of these programs often rival those of the best professional theaters, and the universities have become not only important regional cultural centers but also often the proving ground for new European and native works that more commercial theaters have been unwilling to attempt. More recently major regional theaters have also been established and have become important centers for classic revivals and the development of new works.

The arrival of cinema and subsequently of television has offered a major challenge to the theater, especially in one of its most important traditional roles as popular entertainment. A similar major challenge had appeared in the late nineteenth century with the rise of the novel when, as now, doubts were expressed about the future of theater. Despite their popularity, however, these newer arts lack the essen-

tial element of the theater experience—its physical presence—and the power of the relationship between living spectator and living performer has proven so durable across many cultures and many historical periods that theater in some form seems likely to remain an important element in the expression and transmission of human culture.

Bibliography. Jonas A. Barish, *The Antitheatrical Prejudice*, Berkeley, Calif., 1981; Oscar G. Brockett, *History of the Theater*, Boston, 1982; Oscar G. Brockett and Robert R. Findlay, *Century of Innovation: A History of European and American Theater and Drama since 1870*, Englewood Cliffs, N.J., 1973; Marvin A. Carlson, *Theories of the Theater*, Ithaca, N.Y., 1984; John Gassner and Edward Quinn, *The Reader's Encyclopedia of World Drama*, New York, 1969; Richard Southern, *The Seven Ages of Theatre*, New York, 1961.

MARVIN A. CARLSON

TOKUGAWA ERA: SECLUSION POLICY

When the Tokugawa shogunate (1600–1868) was established in Japan after long and bitter struggles, the newly born central government made every effort to fortify its authority and prestige vis-à-vis subjugated local lords and powerful religious sects. In 1639 it adopted a policy putting all contact with

foreign countries under strict control of the shogunate. This policy came to be called *sakoku* ("national seclusion") in the early nineteenth century, but its real purpose had been to consolidate the power of the shogunate. In fact, throughout the Tokugawa period trade and DIPLOMACY with Korea and Ryukyu were sustained, and trade with Chinese and Dutch ships at Nagasaki flourished, though always under strict centralized authority.

In addition to limiting diplomatic relations, the shogunate prohibited any international trade except that directly controlled at Nagasaki with Chinese merchants and the Dutch East India Company (and its later equivalent) and that indirectly controlled with Korea and Ryukyu in a station in each country. The shogunate effectively erased the possible danger of free trade, which could have allowed rival domestic powers to emerge by taking advantage of the lucrative business.

Another main element of the "seclusion" policy was the proscription of Christianity. Since the middle of the sixteenth century Portuguese and Spanish missionaries had been very successful in the country. More than seven hundred thousand Japanese allegedly had become Christians by the early seventeenth century. However, they gradually came to be regarded by the government as a threat to its authority. The foreign mission was felt to be the first step toward a military invasion, following the pattern of Portuguese and Spanish COLONIZATION in many parts of the world. Also, this RELIGION of fervent believers in a deity demanding a higher respect than that due any earthly powers reminded the shogunate of the die-hard rebellions of the Ikko Buddhists in the sixteenth century. The Shimabara Rebellion (1637–1638) of Christian peasants confirmed their apprehension.

In order to implement the policy, the shogunate left no possible loopholes. Overseas travel was prohibited for all Japanese except a limited number of traders and officials to Korea and Ryukyu. The construction of ships that could easily voyage to China or Southeast Asia was also banned. Portuguese and Spanish, including those of mixed Japanese and other parentage, were expelled. Chinese and Dutch merchants were confined to separate small compounds in Nagasaki, and their contacts with the Japanese were closely watched. Special magistrates inspected imported books one by one for any reference to Christianity. Christians who refused to renounce their faith were executed, and informing against secret Christians was encouraged. Registries of commoners, recording each individual's affiliation with a Buddhist temple, were maintained.

Thus the "seclusion" policy coupled with rigid book CENSORSHIP and other controls effectively shielded Japan from any disturbing impact from

abroad. This is one reason why the shogunate sustained its power and prestige for more than two centuries. Political and military institutions changed very little during the period. It was only after the forced "opening" of the country to the United States (in 1854 under the military threat of the squadron led by Commodore Matthew C. Perry) and to other Western countries that the shogunate lost its control over local lords and finally conceded its power in 1868 to the new government headed by the Meiji emperor.

The social and cultural effects of the policy were manifold. Before the implementation of the policy many Japanese traders had traveled to China, Southeast Asia, and even India. There had been prosperous settlements of Japanese ("Japan Towns") in Luzon, Annam, Cambodia, and Siam, but after the implementation of the policy no Japanese could go abroad (except to the above-mentioned stations in Korea and Ryukyu). Most Japan Towns vanished in a few decades. Christianity was completely swept away from the surface of society. Most of the Christians who had hidden in remote villages, mines, and other locations gradually died off. Only a few families in the Nagasaki area secretly continued as Christians for more than two hundred years. Some of them visited a newly built Catholic church in 1865 and declared their faith. However, some refused to return to the church because their views had been transformed while they were underground.

Within their clearly defined borders the Japanese were governed by the centralized political power in Edo (now Tokyo) and its subordinate local lords. Highways from Edo to local cities and towns were well arranged and well traveled. For example, there were fifty-three post towns on the 309-mile route from Edo to Kyoto. Commodities were sent and sold throughout the country. A member of a Dutch delegation to Edo in 1826 wrote that he had never seen a busier bay in the world than the bay of Osaka, the commercial center of the country with a population of three to four hundred thousand. Also, indigenous cultural activities like the Kabuki THEATER, the tea ceremony, flower arrangement, and the ukiyo-e art movement were popular nationwide. In sum, the communication network within the confined preindustrial archipelago developed very well. Under these circumstances the sense of unity among Japanese was further solidified, and insular self-complacency spread. On the other hand, the Japanese retained a keen curiosity about the outside world.

Since direct contact was limited to that involving sailors and merchants in Nagasaki, most information about China came in through books. Books about CONFUCIUS, literature, history, agriculture, and other topics were imported, and Confucianism became the mainstream philosophy among intellectuals. It was

held to contain universally valid teachings on ethics and politics, and the ancient sages and some later scholars of China were highly respected. Many Japanese intellectuals wrote philosophical essays in classical Chinese. At the same time, the China-centered image of the world order was often rejected and pride in Japan's political independence maintained. The fact that contemporary China was governed by the Manchus, a tribe of northern "barbarians," and China's divergence from Confucian ideals were pointed out with increasing frequency. The defeat of China by Britain in the Opium War (1840–1842) further colored Japanese estimation of China. By the time of the "opening" of Japan to Western countries, scorn for the politics and military of contemporary China had become visible beneath the veil of traditional admiration for Chinese CULTURE.

As for Japanese ideas of Western countries, there were three main aspects. First, they were seen as Christian, which was something magical, mystical, and frightening; the "Evil Sect" (Jashumon) was the contemporary name for Christianity. Second, especially from the late eighteenth century on, Western countries came to be regarded as having detailed knowledge of medicine, chemistry, physics, and geography (see CARTOGRAPHY). Many Dutch books were imported and translated by Japanese scholars who were called *rangakusha* ("scholars of Dutch learning"). More than a hundred Dutch medical books were translated and printed during the period from 1774 to 1867. The new learning gradually acquired high prestige, and admiration for some aspects of Western civilization spread. Information about the West that trickled into the country from Dutch sources prepared the Japanese mentally for the period of westernization after the Meiji Restoration. Third, from the end of the eighteenth century Western countries were thought to be a military menace. The Russian government sent envoys to request commerce in 1792 and 1804. Various Western ships appeared from time to time off the coast of Japan. At the same time, the continued colonization of many parts of Asia by European countries became well known, and intellectuals called for preparedness for a possible Western invasion. Some asked for the introduction of new, Western military technology. However, the traditional political system resisted major military changes, and reform was minimal. Government leaders realized how hard it would be to resist a modern Western navy when the steamship squadron appeared in Edo Bay in 1853. This may be one reason why the shogunate succumbed rather quickly to demands of Commodore Perry, as if a long-anticipated inevitable catastrophe had finally arrived. See also NAKAHAMA MANJIRO.

The outside world had little knowledge of Japan during this period of "seclusion." The Chinese government knew that its merchants had substantial

trade relations with Japan. In fact Japan was one of the main suppliers of the copper that China needed for its COINS. But Qing China had no formal contact with the shogunate and only a very vague knowledge of Japan.

Korea sent an envoy to Edo at the beginning of each shogun's reign, but no Japanese, to say nothing of a shogunate mission, traveled to Seoul. In Japan this was sometimes interpreted as proof of Japan's superiority to Korea. Koreans, however, thought it was a Korean precaution against ESPIONAGE by the Japanese, who had invaded Korea in the late sixteenth century. The literati-bureaucrats of Korea looked down on Japanese samurai rulers, and their interest in Japan was limited to the import of silver from Japan and the question of whether or not Japan would invade their country again. A Confucian scholar wrote in the early nineteenth century that since Japan seemed to have confucianized, or civilized, considerably in recent years, the possibility of a second invasion had diminished.

Members of the Dutch East India Company who lived in Nagasaki and paid regular visits to Edo "to show their gratitude to the shogun" represented the main information route between Japan and the Western world. Some of them, such as Engelbert Kämpfer, J. F. van Overmeer Fisscher, Hendrik Doeff, and Philipp Franz von Siebold, wrote books on Japan. But the flow of information was intermittent and slow. For instance, the book written by Kämpfer, who stayed in Japan from 1690 to 1692, was used as a source not only by Montesquieu in *The Spirit of Laws* (1748) but also by Townsend Harris, the first U.S. consul to serve in Japan, who arrived in 1856. Though exported Japanese pottery and "japaned" furniture were prized by nobility in Europe, information about Japan was extremely limited. This fact strengthened in the Western mind the image of Japan's "seclusion" and "strangeness," an image that lingered even into the twentieth century, making Japan a convenient mirror for European fancy, as in the OPERA *Madama Butterfly*, by Giacomo Puccini.

See also ASIA, TWENTIETH CENTURY; EAST ASIA, ANCIENT.

Bibliography. Naohiro Asao, *Sakoku*, Tokyo, 1975; Seiichi Iwao, *Sakoku*, Tokyo, 1971; Eiichi Katô et al., eds., *Sakoku*, Tokyo, 1981; Ronald P. Toby, *State and Diplomacy in Early Modern Japan: Asia in the Development of the Tokugawa Bakufu*, Princeton, N.J., 1984.

HIROSHI WATANABE

TOUCH

The largest organ of the human body is the skin, the organ of touch. It comprises about 17 percent of adult body weight and covers about eighteen thousand

square centimeters, a vast surface to receive messages. At eight weeks after conception the embryo can respond to tactile stimulation, the earliest sensory system to develop. Four reflexive behaviors present at birth emphasize our biological disposition for physical social touch: (1) in the grasp reflex the fist clenches when the palm is touched and holds on with enough strength to sustain body weight, (2) in the Moro reflex the arms make a grasping-embracing reaction in response to loss of support, (3) in the rooting reflex the head turns when the cheek is touched by a stimulating object such as the nipple, and (4) in the sucking reflex the mouth begins to suck when it finds an object (thumb sucking can occur before birth).

Role of Touching in Social Interaction

Touch continues to play an important role in social communication throughout infancy and early child-

hood, especially for reassurance and calming. Holding a crying child tends to calm it rather than reinforce its crying. Holding and caressing serve as primary bonding mechanisms of mother-infant attachment; human and primate infants deprived of touch suffer retarded physical development and social-emotional disorders.

In Western societies, there is a progressive reduction of physical contact between parent and child, as well as among children, during middle childhood. Even between one and two years of age, touching between peers declines and is replaced increasingly by talking to get attention and to express interest and positive and negative feelings. By adolescence parent-child touch is virtually absent or takes ritualized adult forms. Same-sex touch is also ritualized into conventional forms, sports, and horseplay, while opposite-sex touch becomes regulated by courtship rules.

Touch in adult social interaction can substitute



Figure 1. (*Touch*) Dorothea Lange, *Hands, Maynard and Dan*, ca. 1930. © The City of Oakland, The Oakland Museum, California.

for, emphasize, clarify, or contradict spoken words. How touch is interpreted depends on a number of features: location, duration, frequency, intensity, sequence, reciprocity, intention, setting, roles, and culture. Most important, the occasion, extent, and manner of touching in interaction closely reflect the nature of the social relationship between the participants.

Because of the association with sex, aggression, and status, occasions for physical contact in social interaction are carefully regulated in all cultures. The extent of its use may vary greatly, however. Thus, in friendly interactions in Middle Eastern, southern European, Latin American, and some African societies touching may be frequent. In contrast, touching in friendly interactions is quite infrequent in much of Asia, northern Europe, and North America.

Kinds of Touching

The communicative significance of touch may be classified into four categories depending on situation and relationship.

Task-oriented touch occurs when a professional function is being performed, such as the grooming touch of the barber or the diagnostic or treatment manipulations of the physician. Reciprocity of touch is not permitted, and patterns of touch are governed solely by the requirements of the task. Touch is also a part of faith healing and other spiritual and religious ceremonies. Individuals of special status, such as shamans and priests, heal by touching or what is called the laying on of hands. Medieval kings cured scrofula by a divine touch to the neck, and Eskimo shamans lick a wound as part of their healing ritual. Similarly, many aboriginal healers use touch as part of ceremonies for curing physical and spiritual problems. Medical and psychiatric research has documented the health-promoting and anxiety-reducing benefits of touch. Individuals undergoing physical or emotional trauma feel calmed and show concrete health gains (e.g., lowered blood pressure, enhanced postsurgical recovery) when touched by concerned professionals in a reassuring fashion.

Greeting-separation touch acknowledges and shows respect to casual friends, acquaintances, and strangers with special variation for people of rank. The handshake is the preferred mode in Western society. It is also used to express appreciation, congratulations, or the closing of a deal (e.g., palm touch among the Amhara of Ethiopia). Special (and sometimes secret) handshakes are used among members of fraternal organizations and ethnic groups (e.g., the palm slap or "soul" handshake among U.S. blacks) to express solidarity. Other cultures enact what Westerners might consider overintimate greetings by pressing the nose to the cheek and inhaling with a sniffing sound (e.g., Dasun of Borneo, Burmese, Lapp, Maori, Malay,



Figure 2. (*Touch*) San Bushmen: laying on hands, trance curing. Irvn DeVore/Anthro-Photo.

Mongol, Tikopia of Melanesia) or kissing the ring, knee, or foot of a superior to acknowledge his elevated status as cardinal, king, or chieftain. In contrast, in East Asian, Indian, and Arab cultures, greeting or separation demands little or no physical contact, although other forms of respect are shown, such as bowing, holding the hands together, or the self-touching salaam.

Friendly touch occurs in relationships in which the individuals are familiar and like each other (i.e., close friends, family). Liking or camaraderie can be expressed by a hand on the shoulder for sincerity or a pat on the back for encouragement among adults or by hand holding among small children. Status differences within friendly relationships allow older, stronger, or more dominant individuals greater touch liberties with less dominant or lower-status individuals (e.g., man-woman, boss-secretary, teacher-student). In North America, females may greet with a cheek kiss, while a vigorous handshake expresses familiarity and warmth among males. Mediterranean, French, and Latin American males are more likely to embrace and cheek-kiss upon meeting close male friends and family and to use touch for getting

attention or emphasis during conversation than are northern European and North American males.

Sport provides a special exception for touch taboos between men. Teammates may hug, kiss, and even pat buttocks in support or victory when such contact would otherwise be seen as homosexual displays. Similarly, rough-and-tumble play in childhood and mock fighting in adolescence are special settings where touch norms are suspended for affectionate or aggressive play. Social dancing, too, permits intimate physical contact between opposite-sex strangers, although there are cultures that consider such public contact even between husband and wife as too intimate (e.g., Orthodox Jews). Touch in opposite-sex friendships is regulated in all cultures. Misunderstandings can arise nevertheless, as when friendly touch gestures (e.g., hand on hand) are misinterpreted as erotic. Such gestures may, of course, be used intentionally to promote physical intimacy and move the relationship from friend to lover status.

Sexual intimacy, or love touch, is reserved for lovers and mates and involves a quality of touch far different from all other relationships. It allows a greater variety of reciprocal touch more responsive to emotion or passion than to social convention. Even so, each culture has its own emphasis on sensual and erotic practices, as shown, for example, by extensive Hindu and Taoist writings about spirituality and sexual touch. The need to touch or be touched and held may be exchanged for sexual favors because these occasions may provide the only opportunity to satisfy a "skin hunger" also suffered by isolated and elderly individuals.

The primitive message of not being alone that comes from touch and the immediate vulnerability of the body makes touch the most vigorously ritualized and regulated of all human communication channels.

See also GESTURE; INTERACTION, FACE-TO-FACE; INTERPERSONAL DISTANCE; NONVERBAL COMMUNICATION; PROXEMICS.

Bibliography. Ashley Montagu, *Touching: The Human Significance of the Skin*, 2d ed., New York, 1978; William Schiff and Emerson Foulke, eds., *Tactual Perception: A Sourcebook*, New York, 1982; John M. Wiemann and Randall P. Harrison, eds., *Nonverbal Interaction*, Beverly Hills, Calif., 1983.

STEPHEN THAYER

TOURISM

A form of travel for pleasure or edification that is also a particularly complex communicative system. Tourists take in tourist sites, not in isolation but as nodes in a network of attractions that constitute the tourist itinerary and recreational geography of a re-

gion. A vast, multinational tourist industry provides the infrastructure for developing tourist environments, moving millions of travelers from destination to destination and lodging and entertaining them at each place. The industry is global, and with the advent of space travel, tourism is potentially intergalactic. The consequences of tourism—processes of production and representation of CULTURE for outsiders, interactions between local people and more affluent visitors, and economic and social impacts—offer fertile areas for study.

History and development. Diverse in nature, tourism has a long history. In ancient Greece (see HELLENIC WORLD) and the ROMAN EMPIRE, the well-to-do sought edification and amusement when setting out on established itineraries in the Mediterranean basin. Pilgrims throughout the world have been making the rounds of sacred shrines for at least as long, journeying to Banaras (Varanasi), Jerusalem, or, at a later time, Mecca. By the seventeenth century the Grand Tour emerged: the European elite, especially the British, viewed travel on the Continent as an essential component in the education of a young man, and a somewhat standard itinerary persisted in various forms until fairly recently. By the eighteenth century the Japanese were touring various provinces of Japan and visiting hot spring resorts, as well as participating in the much older tradition of pilgrimage. With the advent of the railway and steamship by the mid-nineteenth century and the motor car during the first half of the twentieth, travel became less arduous and more accessible to more people, and the ground was prepared for the development of mass tourism. Inexpensive air travel and easier communication in the post-World War II period led to an unprecedented boom in international recreational travel.

Essential to the expansion of travel is the development of the tourist industry itself—travel agents, tour operators and guides, hotels and resorts, transportation networks and information and communications systems, mass media marketing, tourist regions and attractions, travel gear and souvenirs, travel literature and films, educational institutions that train industry personnel and foster scholarly research on tourism, regulatory and policy-making bodies, government agencies, professional associations, and international travel organizations and clubs. As the industry supports increasing numbers of tourists, particularly Westerners, in economically depressed areas such as Bali, Kenya, parts of the Caribbean, the South Pacific, and Southeast Asia, hosts come to depend on tourism as a major source of income and hard currency. In many regions tourism has become the number one source of foreign exchange.

Tourists, experiences, and productions. Tourists and tourist experiences are heterogeneous. Sociolo-



Figure 1. (*Tourism*) Duane Hanson, *Tourists*, 1970. Fiberglass with mixed media. National Galleries of Scotland, Edinburgh.

gist Erik Cohen distinguishes four tourist roles (organized mass tourist, individual mass tourist, explorer, and drifter) and five modes of tourist experience (recreational, diversionary, experiential, experimental, and existential) on a spectrum from “the experience of the tourist as the traveller in pursuit of ‘mere’ pleasure in the strange and novel to that of the modern pilgrim in quest of meaning at somebody else’s centre.” The tourist industry has become sufficiently diversified to accommodate this wide range of needs.

Tourist productions—the settings, events, and artifacts created for tourists—and their marketing constitute the most elaborated and expressive mode of communication in the entire tourism system. In tourist productions symbol takes precedence over information. Though tourist attractions are very diverse—natural wonders; distinctive neighborhoods, towns, regions, and life-styles; ARCHITECTURE and ART; historic landmarks, monuments, and museums; re-created villages and reenacted events; technology, work displays, and public works; expositions

and amusement parks; gardens and zoos; sporting facilities; performances; sound-and-light shows; festivals and rituals; conferences and conventions—they share certain processes and structural features. See also ARTIFACT; FESTIVAL; MUSEUM; PERFORMANCE; RITUAL.

How does something become a tourist attraction? According to U.S. sociologist Dean MacCannell, the process of “site sacralization” involves *naming*, whereby the site is authenticated and then marked off as worthy of special attention by SIGNAGE or decree; *framing* and *elevation*, during which the site is protected and enhanced by special security measures, staging, or lighting; *enshrinement*, as structures are created over a special place (Dome of the Rock in Jerusalem) or to house objects of value (museums); *mechanical reproduction* of the site through postcards, miniatures, and souvenirs; and *social reproduction*, as groups of people elsewhere name themselves after the attraction.

MacCannell also analyzes the structure of tourist settings in terms of “staged authenticity.” Building

on ERVING GOFFMAN's notion of front and back regions in social life, MacCannell distinguishes front regions that are intended for tourists (hotels, shops, international food franchises), front regions with back-region elements for atmosphere (hotel lobbies decorated with local products), front regions that simulate back regions (re-creations of traditional architecture or villages), back regions that are open to outsiders (tours of the homes of celebrities), back regions that are minimally modified to accommodate outsiders (film sets, dress rehearsals, factories), and back regions to which outsiders rarely if ever have access but for which they yearn.

Some students of tourism have suggested that not all tourist situations are ones of staged authenticity. According to Cohen, *authentic* situations may be encountered by adventurous tourists who move off the beaten track. *Covert* tourist space is created when the industry conceals the staging of a setting in order to present it as "real." Once tourists become cynical, they may adopt an attitude of *staging suspicion* and deny the authenticity of sites that have not been staged. Finally, there are *overt* tourist settings that are blatantly contrived and accepted as such.

Authenticity and authentication. The issue of authenticity has stimulated much of the writing on tourism, which has been highly critical of tourists and tourist attractions. Daniel Boorstin's pseudo-events, Richard Dorson's fakelore, and MacCannell's staged authenticity all characterize tourism in ways that both idealize and take for granted notions of authenticity and culture. Alternative perspectives suggest that all culture is invented, not just tourist attractions, and that authenticity is not given in the event but is a social construction. The preoccupation with the authentic is a culturally and historically specific phenomenon: eighteenth-century lovers of

ruins in England were rather permissive in the mingling of genuine and imitation antiques, whereas the makers of Plimoth Plantation in Massachusetts are fastidious about the historical accuracy of minute details of their re-creation of Pilgrim life frozen in the year 1627.

The issue is therefore less one of authenticity and more one of authentication: who has the power to represent whom and to determine which representation is authoritative? The representation of culture, what Richard Handler calls cultural objectification, is a complex ideological and political process. Edward Said, MICHEL FOUCAULT, James Clifford, George Marcus, and others have noted the relationship between knowledge and power and have suggested that the power to represent or to consume other cultures is a form of domination. One of the clearest instances is *orientalism*, defined by Said as the knowledge created by the West about the East and deployed ubiquitously in tourist productions. "Here history began . . .," the sound-and-light show at the pyramids produced by a French team for the Egyptian Ministry of Culture, traces the history of Egypt from the pharaohs to the discovery of the Rosetta stone by Napoléon's officers to the French sound-and-light show itself. Indeed, orientalism is one of tourism's dominant modes.

Tourist art. In addition to settings and events, artifacts are produced for tourists. Various known as tourist art, airport art, and the arts of acculturation, these objects are produced locally by one group for another. U.S. anthropologist Nelson Graburn classifies locally made artifacts along two axes: objects made for the local community versus those made for outsiders, and objects whose sources are traditional as opposed to "assimilated." Six categories emerge: the persistence of traditional objects for

Figure 2. (*Tourism*) A sign from Bali, directing tourists to respect the local customs. Photograph by Edward M. Bruner.





Figure 3. (*Tourism*) Tourist making a purchase of Masai jewelry at Mayers' Ranch, Kenya. Photograph by Edward M. Bruner.

local use; pseudotraditional objects made for sale (Masai spears); souvenirs (Maori carved key chains); reintegrated arts, in which acculturated objects for local use also enter the tourist market (Cuna reverse-appliqué *molas*); assimilated fine arts for sale to tourists (European-influenced Balinese paintings); and popular arts, defined as acculturated objects for local consumption (Kenyan printed cotton *khanga* cloths).

Like authenticity, acculturation has its limits as a model for the study of tourist productions because changes are attributed to contact between what are presupposed to be autonomous, relatively isolated, and clearly identifiable cultures and the West. In contrast, Bennetta Jules-Rosette views tourist art not as a deviation from a traditional form but as an object emerging from a new social context. She suggests that "artists and consumers are joint producers of tourist art as a communicative process." Situated in a "complex international network of communication and economic exchange," these objects are interpreted in relation to the diverse markets in which they circulate. Whereas Graburn's scheme is based entirely on the producer's intended audience and sources, Jules-Rosette focuses on the malleable and multivocal nature of tourist objects in multiple contexts of exchange.

Controversies. Tourism is a mixed blessing. Anthropologist Philip McKean shows how tourism stimulates both traditional and innovative cultural activity in Bali. Florence Syme, a Rarotongan, complains: "Tourism is like a plague—it destroys people, their culture and heritage, and the environment. Rarotonga would be better off without the pilgrims and temples of their new religion." The Workshop on Tourism in Manila in 1980 condemned tourism as



Figure 4. (*Tourism*) Tourists at the Colosseum, Rome. Courtesy of the Italian Government Travel Office.

bringing economic exploitation, displacement of local populations, prostitution, crime, and deterioration of the social fabric of the Third World. Many have noted the economic benefits of tourism. For MacCannell the tourist is "one of the best models for modern-man-in-general." As tourism continues to expand and to take ever more inventive forms, the controversies regarding its nature, value, and dangers will command an ever greater share of our attention.

See also BAEDEKER, KARL; DEVELOPMENT COMMUNICATION; LEISURE; MIGRATION.

Bibliography. *Annals of Tourism Research*, Elmsford, N.Y., 1974–; Daniel J. Boorstin, *The Image: A Guide to Pseudo-Events in America*, New York, 1964; Erik Cohen, "The Sociology of Tourism," *Annual Review of Sociology* 10 (1984): 373–392; Emanuel de Kadt, ed., *Tourism, Passport to Development?: Perspectives on the Social and Cultural Effects of Tourism in Developing Countries*, Washington, D.C., and New York, 1979; Günther Dress, *Wirtschafts- und sozialgeographische Aspekte des Tourismus in Entwicklungsländern*, Munich, 1979; Michel Foucault, *Power/Knowledge: Selected Interviews and Other Writings, 1972–1977* (in French), ed. and trans. by Colin Gordon, Brighton, Eng., 1980; Nelson H. H. Graburn, ed., *Ethnic and Tourist Arts*, Berkeley, Calif., 1976; Bennetta Jules-Rosette, *The Messages of Tourist Art: An African Semiotic System in Comparative Perspective*, New York, 1984; Hans J. Knebel, *Soziologische Strukturwandlungen in modernen Tourismus*, Stuttgart, 1960; Jost Krippendorf, ed., *Fremdenverkehr im Wandel*, Frankfurt and Berlin, 1974; Dean MacCannell, *The Tourist: A New Theory of the Leisure Class*, New York, 1976; Valene L. Smith, ed., *Hosts and Guests: The Anthropology of Tourism*, Philadelphia, 1977; Jill D. Sweet, *Dances of the Tewa Pueblo Indians*, Sante Fe, N.Mex., 1985.

BARBARA KIRSHENBLATT-GIMBLETT
AND EDWARD M. BRUNER

TRAGEDY

One of the two great subdivisions of DRAMA in Western tradition, the other being COMEDY. Since the flowering of Greek drama in the fifth century B.C.E. works in the Western THEATER have generally been categorized as either tragedy or comedy. This has not been true in the Asian theater, in which tragedy as a GENRE has scarcely existed, although tragic ingredients are often used. Especially in South Asia there has been a conviction that drama, in keeping with its religious ritualistic origins, should culminate in a message of affirmation, not defeat. This overview of the genre of tragedy will thus focus on the Western cultural heritage.

The meaning of tragedy. Throughout the ages tragedy has been lodged at the center of human

concern and interest. The writers of tragedy have felt the need to dramatize the terrible facts of death, determinism, suffering, failure, and mystery—the darker experiences of the human race. The forms used to express these experiences change with the passage of time, each age producing tragedies based on the beliefs and conventions of the age, but the substance of tragedy endures precisely because it touches what it means to be human, what it is that makes life a terrible puzzlement. Tragedy, emerging out of religious rituals (see RITUAL) of ancient Greece, has engaged the attention of audiences for a span of twenty-five hundred years. It is the most enduring and exalted of genres because it offers permanently valid truths about the human condition, affording pleasure even as it dramatizes the pain of life.

Classical traditions. How tragedy got its name is debatable. The Greek word *tragōidia* literally means "goat song," perhaps referring to the SONG sung by a chorus of goatlike satyrs, perhaps referring to the prize of a goat given to the chorus. Another explanation, touching the ritual origins of the genre and thereby directly related to the Greek religious festivals, posits the goat as a sacrifice, a scapegoat. Traditionally a virile animal, the goat, like the bull, was closely linked to Dionysus; in fact, Dionysiac ritual contained the symbolic dismemberment of the god with the goat serving as the god's substitute. This ritual connects Dionysus to Greek tragedy, supporting ARISTOTLE's view in his *Poetics* (ca. 330 B.C.E.) that tragedy developed from passionate choric songs honoring Dionysus, the god of fertility, connected with everything wet (blood, wine, sap, semen) and connected with vegetation—the dying and living god whose cycle of death and life paralleled the seasonal workings of nature. According to many scholars tragedy stemmed from this death-rebirth cycle, with the tragic protagonist representing both the god and the goat that had to be sacrificed, with the god's suffering and death expressed by the genre of tragedy and the god's resurrection expressed by the genre of comedy. (This is a pattern repeated in the later Christian story.)

The chorus is important to any discussion of Greek tragedy. Dancing and chanting, the chorus occupied the center of the theater that was erected as a shrine to Dionysus. The chorus celebrated a god as part of a ritual, and from ritual primitive drama was born. By the fifth century B.C.E., when the city-state of Athens witnessed its greatest tragedies, the chorus remained an intrinsic part of the PERFORMANCE of the play, not only providing background information but also responding philosophically and emotionally to what was happening in it. The chorus directed the larger response of the audience of approximately twenty thousand people who sat in the huge amphitheater, surrounding the orchestra or "dancing place"



Figure 1. (*Tragedy*) A scene from Euripides' *Alkmene* depicted on a Paestan bell-krater, third quarter of the fourth century B.C.E. The jealous husband, Amphitryon (*right*), is shown attempting to burn his wife off an altar onto which she has jumped in order to escape from him. Zeus (*top left*) sends Clouds, who pour water from jars to quench the flames with rain, and Eros (*top right*) observes the entire scene. The elaborate costumes of the three principal characters reflect the influence of the stage. Reproduced by courtesy of the Trustees of The British Museum.

of the chorus. Performed in the open air, the choric odes were complex presentations, combining words and music and DANCE, appealing to both eye and ear, controlling the emotions of the audience that the chorus itself represented. The three great Athenian tragedians—Aeschylus (525–456 B.C.E.), Sophocles (496–406 B.C.E.), and Euripides (484–406 B.C.E.)—used the chorus in different ways, placing different emphases on the relationship of choral ode to dramatic enactment.

The Greek tragedians took their subject matter from traditional myths and legends, each playwright using them to offer his particular tragic vision. In the *Oresteia*, the only surviving trilogy in Greek drama, Aeschylus dramatizes three important events in the story of the House of Atreus—the murder of Agamemnon in *Agamemnon*, the murders of Clytemnestra and Aegisthus in *The Libation Bearers*, and the trial of Orestes in *The Eumenides*—in order to examine the relationship between the gods and human justice, thereby touching the large tragic issues of suffering, evil, death, man's responsibilities, and the workings of the gods. In *Oedipus Rex*, the highest achievement of Greek drama, Sophocles uses the Oedipus myth to reveal man's tragic recognition of

the dark, irrational, demonic forces within him and the appalling mystery of the gods. In *Hippolytus* Euripides pushes his legendary characters Hippolytus, Phaedra, and Theseus along a destructive path, placing irrationality and contradiction at the core of human life. Only thirty-one plays of the three tragedians survive out of approximately three hundred written, but these are enough to secure for fifth-century Athens the distinction of having produced one of the two greatest periods of tragic drama.

The most significant critical document dealing with tragedy is the first one, also a product of Athens, the *Poetics* of Aristotle. It is a fragment, perhaps the lecture notes of the great philosopher, offering ideas and terms that are not closely explained and are therefore debatable. Aristotle was describing what he saw and what he knew, but his important ideas provide the basis for almost all discussions of tragedy. Aristotle defines tragedy as "an imitation of an action that is serious, complete, and of some magnitude, in language that is artistically varied, dramatic rather than narrative, through pity and fear effecting a purgation [*catharsis*] of these emotions." He considered plot, the imitation of the action, to be the most important element of tragedy, with char-

acter revealed through action, and he believed that the most exciting parts of the tragic action are the reversal (*peripeteia*) and the discovery or recognition (*anagnorisis*). After plot and character the important tragic elements are thought, LANGUAGE, song, and SPECTACLE. For the action of a tragedy to be "serious," Aristotle insisted that the protagonist be nobly born and more admirable than ordinary men, but he should not be morally perfect because his downfall should be the inevitable consequence of some defect in character, usually referred to as the tragic flaw (*hamartia*).

Each of Aristotle's ideas has been debated through the years, especially his notion of the purgation of the emotions of pity and fear, indicating that Aristotle considered the effect of tragedy to be purifying or exalting rather than depressing. His belief that an action should be complete led RENAISSANCE rhetoricians to insist on the famous classical unities of time, place, and action. The *Poetics* is a useful starting point for critical discussions of tragedy, but it was not meant to be a list of rules for writing tragedy; it was an empirical description of dramatic form.

Postclassical developments. The Greek tragedies provided the models for the most influential of Roman tragedians, Seneca (ca. 4 B.C.E.–65 C.E.), the Stoic philosopher who provides a bridge between the two most important periods of tragic drama, the ancient Greek and the Elizabethan. Seneca took his plots from the Greek legends, retained the chorus, observed the unities, and emphasized the theme of revenge and the power of necessity. He added passionate monologues, the ghost as a character, philosophical maxims, and a general sense of violence and horror. More melodrama than pure classical tragedy, Seneca's plays, not performed on a stage and there-

fore perhaps less sensational than they seem, did help to preserve the tragic tradition. Translated into English from the Latin in 1581, Seneca's *Tenne Tragedies* deeply affected Elizabethan tragic drama. The first English classical tragedy, *Gorboduc* (1561), written by Thomas Sackville and Thomas Norton, is heavily influenced by Seneca, as are the popular tragedies of Thomas Kyd (1558–1594), Christopher Marlowe (1564–1593), and William Shakespeare (1564–1616).

Before classical tragedy made itself felt in Elizabethan England, the term *tragedy* was applied to NARRATIVE rather than to drama. In the MIDDLE AGES any verse narrative describing the fall of a high-born man because of the turning of the wheel of fortune was a tragedy, ostensibly written to remind Christians of the frailty of human life. Geoffrey Chaucer's "The Monk's Tale" in *The Canterbury Tales* (1387–1400), John Lydgate's *The Fall of Princes* (ca. 1430–1438), and the popular Elizabethan miscellany of stories *The Mirror for Magistrates* (1559) are important works in the development of the tragic narrative. Medieval drama, the outgrowth of a religious ceremony of priests, with Jesus, like Dionysus, the starting point of the mimetic representation of death and life and resurrection, consisted of mystery or miracle plays (the dramatization of biblical stories) and morality plays (dramatized allegories of the battle of good and evil for the soul of man). The plays of the native medieval tradition offered REALISM and allegory, mingled mirth and seriousness, and provided unlocalized playing areas ranging from heaven to earth to hell.

These characteristics, mingling with Senecan characteristics and form and absorbing some of the ideas of the tragical verse narratives, resulted in the great

Figure 2. (*Tragedy*) Illustration from Giovanni Boccaccio's *De Mulieribus Claris*, 1473: "The fortunes of Portia, wife of Brutus: She dies by swallowing live coals." From William Farnham, *The Medieval Heritage of Elizabethan Tragedy*, New York: Barnes & Noble, 1956, p. 89.





Figure 3. (*Tragedy*) Sarah Bernhardt in the role of Phaedra. The Bettmann Archive/BBC Hulton.

flourishing of tragedy in the Elizabethan age. This heterogeneous blending, this Renaissance synthesis, did not produce classical tragedy, much to the disappointment of such exponents of CLASSICISM as Sir Philip Sidney and Ben Jonson. Closer to romantic tragedy—with its emphasis on character, its greater variety of style and mood, and its greater freedom of presentation—this form of tragedy, usually written in blank verse, reached its peak of excellence in the work of Shakespeare, whose *Hamlet*, *Othello*, *King Lear*, *Macbeth*, and *Antony and Cleopatra* are among the highest accomplishments of the genre.

The movement away from the free and complex tragic form of the Elizabethans and back toward the more austere classicism of ancient Greece produced its best results in France in the seventeenth century. The neoclassical tragedy of Pierre Corneille (1606–1684) and Jean Racine (1639–1699), influenced by critical writings based on Aristotle, observed the unities of time, place, and action and adhered to the neoclassical ideals of decorum. Racine's *Phèdre*, taking its story from the Hippolytus myth and its inspiration from Euripides, offers a terrifying study of passion within the strict confines of neoclassical art. Written in polished poetry, it represents French tragic drama at its best.

Reaction to the rigidities of neoclassical tragic

form found its most effective spokesmen in England's SAMUEL JOHNSON and in Germany's first important critic of drama, Gotthold Lessing. Johnson, himself a neoclassicist, in his *Preface to Shakespeare* (1765), defended Shakespeare's supposed irregularities, asserting, for example, that the mingling of the tragic and the comic is close to what we find in nature. Johnson felt that too great an insistence on the unities indicates a confusion between art and life because it is based on the false idea that spectators in a theater do not realize that "the stage is only a stage, and that the players are only players." Lessing, in his *Hamburg Dramaturgy* (1769), attacked the French neoclassical models for tragedy, urging greater flexibility. In fact, Lessing not only advocated but also wrote a different kind of tragedy, middle-class or bourgeois tragedy, the most important example being *Miss Sara Sampson* (1755). (Earlier in England, in 1731, George Lillo had written the first influential middle-class tragedy, *The London Merchant*.) These bourgeois tragedies—affected by the growing romanticism of the eighteenth century, written in prose, and dealing with the supposedly realistic affairs of middle-class people—were often ludicrously sentimental and essentially unreal, but they clearly reflect the tastes of new middle-class audiences throughout Europe, who demanded fewer neoclassical rules and

legendary heroes and more portrayals of everyday people. That is, the middle class wanted a theater that more directly reflected its own contemporary interests, a theater that rejected not only neoclassical rigidity of form but also the kind of romantic excess found in the work of Victor Hugo (1802–1885). This anticlassical and antiromantic attitude led eventually to the realism of the modern theater.

Realism and modern forms of tragedy. In the preface to his *Thérèse Raquin* (1873), Émile Zola clearly shouts out for a naturalistic drama, plays that adhere to the facts of heredity and environment, that offer a “slice of life,” that are written in prose spoken by characters who do not “play, but rather live, before the audience.” Four years later Henrik Ibsen, considered the father of modern realism, presented his first important realistic drama, *Pillars of Society* (1877). But the realism of Ibsen and the modern dramatists who come after him is not the limited photographic realism favored by Zola. It is a modified realism, more ambiguous, more imaginative, belonging to a dramatic art that seems more subjective, more self-conscious, and, because of the influence of Friedrich Nietzsche—who declared the death of traditional values and in *The Birth of Tragedy* (1872) celebrated the deeper, irrational, wilder side of humanity by claiming that Greek tragedy and all true tragedy was informed by the spirit of Dionysus—more rebellious and more romantic.

New ideas about humanity and the modern world, ideas clinging to no traditional frame of reference, fostered a wide variety of forms in the writing of tragedy. Biological determinism (CHARLES DARWIN), economic determinism (KARL MARX), psychological determinism (SIGMUND FREUD), and scientific determinism (Albert Einstein) helped to make modern tragedy seem less exalted than Greek and Elizabethan tragedy. In fact, many critics believe that tragedy is not possible in modern times. The title of George Steiner’s book *The Death of Tragedy* (1961) represents the belief of many commentators who claim that modern humanity has become too insignificant for tragedy, lacking greatness of spirit, an organic worldview, and any meaningful ritualistic or mythological context—in short, that tragedy, like Nietzsche’s God, is dead. Certainly the Greek and Elizabethan forms of tragedy can no longer serve modern dramatists, but the ambiguous condition of modern humanity—with its sense of aloneness, inability to explain the mystery of existence, confrontation with death, suffering and sense of terror, newly created myths and rituals—has given rise to new forms of tragedy, forms of unlimited variety. The tragic vision is authentic and enduring, and such different modern dramatists as Ibsen, August Strindberg, Anton Chekhov, Eugene O’Neill, Arthur Miller, Tennessee Williams, and Samuel Beckett have dramatized that vision in different forms, often mixed

forms with strong doses of irony and comedy. Each of these dramatists touches the same dark experiences that fascinated Sophocles and Shakespeare and Racine. Each testifies to the fact that tragedy cannot be defined by any one age and cannot be captured in any one form, that tragedy may be forced to speak in new languages but that those languages will always communicate the darkly terrible facts of human existence.

Bibliography. Eric Bentley, *The Playwright as Thinker*, New York, 1946, reprint 1963; Normand Berlin, *The Secret Cause: A Discussion of Tragedy*, Amherst, Mass., 1981; Faubion Bowers, *Theater in the East: A Survey of Asian Dance and Drama*, New York, 1956, reprint 1969; Barrett H. Clark, ed., *European Theories of the Drama*, Cincinnati, Ohio, 1918, reprint (rev. by Henry Popkin) New York, 1947; Robert W. Corrigan, ed., *Tragedy: Vision and Form*, 2d ed., New York, 1981; Francis Fergusson, *The Idea of the Theater*, Princeton, N.J., 1949; Robert B. Heilman, *Tragedy and Melodrama*, Seattle, Wash., 1968; Laurence Michel and Richard B. Sewall, eds., *Tragedy: Modern Essays in Criticism*, Englewood Cliffs, N.J., 1963; Herbert J. Muller, *The Spirit of Tragedy*, New York, 1956; Richard B. Sewall, *The Vision of Tragedy*, new ed., enl., New Haven, Conn., 1980; George Steiner, *The Death of Tragedy*, New York, 1961.

NORMAND BERLIN

TRANSBORDER DATA FLOWS (TDF). See COMPUTER: IMPACT—IMPACT ON THE WORLD ECONOMY; DATA BASE; NEW INTERNATIONAL INFORMATION ORDER; SPECTRUM; TELECOMMUNICATIONS NETWORKS; TELECOMMUNICATIONS POLICY.

TRANSLATION, LITERARY

The translation of literature makes possible the preservation and transmission of cultural knowledge that might otherwise be unavailable to wide circles. Despite the extinction of the languages in which they were first written, such literary works as the epic of Gilgamesh or of the Trojan War can still be read as informative and enduring expressions of the cultures that produced them. We can refer to “Homer’s Greece,” “Dante’s Italy,” or “Chaucer’s England” as naturally as if history and CULTURE were themselves by-products of their representations in literature rather than the other way around. READING these authors in translation can convey a sensation of cultural context to general audiences, not merely to specialists, historians, archaeologists, or philologists.

However, the process of literary translation remains one of the most problematic issues in LANGUAGE theory, still far from being adequately accounted for. Translating any type of text is an

inordinately puzzling activity to explain, as the early disappointments of machine translation showed. The most decisive obstacle has been the lack of a realistic SEMANTICS to mediate between the potential meanings of words (as known to speakers of a language or recorded in a dictionary) and the actual meanings of texts (see MEANING). LINGUISTICS generally proposes the inclusion of large quantities of specifications in the listings of some dictionary or lexicon yet disregards the selection and specification occurring in actual communication, that is, the ways in which context decides what things mean from case to case. Discourse is thus left seeming strangely indeterminate, and the processes whereby determinacy is in fact established have barely been explored.

An additional obstacle is that literature both affirms and modifies the systems it uses and addresses. Literature is free to foreground possibilities that are normally backgrounded, marginalized, or excluded in ordinary discourse. Whereas an adequate theory of ordinary language has to focus on central, commonly used options, a theory of literary language requires a more expansive and creative scope. Linguistics has not yet been able to bridge the gap between the abstract system and its concrete literary realizations. Only some ostensibly deviant or ungrammatical usages in POETRY have received much attention.

Meanwhile, a venerable tradition in the practice of literary translating continues despite the lack of an adequate theory. The translator is obliged to proceed in a pragmatic, ad hoc fashion from context to context, often without overarching principles to arrange priorities and promote consistency in solving interrelated problems. As a consequence, the quality of available translations is remarkably uneven and the role of the translator poorly defined. PUBLISHING houses tend to consider standards of quality less urgent than cost and profit.

When theoretical positions are advanced, they typically belie the complexities of literary translating. A prime example is the long-standing polemics setting "literal," word-by-word translation against "free" translation focused on global effects of "literariness." The two positions demarcate extremes, which, if rigidly followed, promote unsatisfactory results. The skilled translator navigates between the two.

A more productive approach is the postulate that what should be translated is neither words nor literariness but an experience comparable to that sought or elicited by the original text. That experience should not include interfering signals of a divergence between language codes (see CODE), such as literal translations convey, but neither should it assimilate itself so completely to the reader's own cultural idioms and expectations that the foreign culture is totally transformed or erased. The reader should be

able to sense unfamiliar possibilities, though in culture, not in GRAMMAR.

The literary translator should accordingly attempt to reconstruct a model response and to gauge the extent to which it depends on a margin between the individual work and readers' expectations based on the source language, both in ordinary discourse and in prevailing literary conventions. This margin should be preserved by using and adapting the resources of the target language and its literary conventions. The exactitude of reproducing this margin is promoted not by unduly literal or free methods but only by a detailed awareness of the various forces exerted on the reading process in two cultures.

Consequently, a theory of translating literature presupposes a workable theory of responding to literature. Recent decades have witnessed an impressive increase in efforts to develop such a READING THEORY. The net result so far, however, is more a sense of the vast perplexities involved than a consensus about the specifics of the process. The essence of literature is to elicit multiple ways of reading, each of which appears to be inspiring its own set of theories.

Nonetheless, some major points of convergence can be recognized. The main function of literature, as is generally acknowledged, is to reflect on any prevailing system of culture and discourse by treating it as one among other alternatives. FICTION is thus not the opposite of fact, nor set apart in some unrelated world, but a special MODE for examining and understanding how facts and worlds are constituted (see FACT AND FICTION). Literature is construed to convey not factual truths of circumstance so much as general truths about the human situation in all its richness and diversity. The aesthetic experience imposes a special framework for organizing and integrating knowledge of particularly diverse kinds. For the "great" work, many such frameworks can be provided, none of which exhausts the work or stabilizes its meaning once and for all.

Such theses suggest that what the literary translator should mediate is not a "message" but an open-ended problematic. The drive to solve problems and incorporate solutions or explanations into the translation must be strongly resisted so that the reader of the translation is not denied the opportunity to actualize the work and participate in its creativity. The translation should be a special act of reading and responding that makes possible a continuation and expansion of response beyond the confines of the original culture and language but that does not foreclose that response.

A theory of literary translating should accordingly try to model the ways in which the translator is interposed between author and reader. The translator should view his or her own response to the original

as a partial actualization of materials to be rerendered in terms that will continue to allow many other responses. The translator should read the original numerous times from as many perspectives as possible, noting the aspects and sections that come to the foreground in each case. The task is then to generate coincidences in the target language that can elicit a similar range of responses. The major difference between PROSE and poetry is the greater dependence of poetry on coincidences between forms and meanings, between forms and other forms, or between meanings and other meanings. When parallel coincidences cannot be found, a commentary can be included to indicate what has been reduced, altered, or lost. This recourse splits up the aesthetic experience, but at least strives to keep the range of actualizable meanings in view.

Literary authors might seem to be the best qualified for such a task. And in fact they have produced many great translations, as when Alexander Pope exerted himself for Homer, Dante Gabriel Rossetti for François Villon, Stefan George for Charles-Pierre Baudelaire, T. S. Eliot for Saint-John Perse, and so on. But this requirement is not necessary. A translator may well be able to reconstruct a performance that he or she would not have initiated; Walter Arndt's translations of Aleksandr Pushkin or Michael Kandel's renditions of Stanisław Lem demonstrate a fortunate convergence of talents in which the translator seems to be carried by the author's inspiration. Conversely, literary AUTHORSHIP is no guarantee of skill as a translator. An author is likely to foreground whatever best fits his or her own style (see STYLE, LITERARY) and AESTHETICS, which are again only part of the total space offered by art. Hence, the ideal author-translator would be able to adapt to other stylistic possibilities and to maintain a balance with those of the original author.

No doubt literary translating is a utopian enterprise, as José Ortega y Gasset remarked. A work can no more be definitively translated than it can be definitively read or interpreted. Yet by the same token the task always leaves room for improvement. And its vital service in the transmission of culture renders it worthy of all the exacting effort it may demand.

See also INTERPRETATION; LANGUAGE REFERENCE BOOK; TRANSLATION, THEORIES OF.

Bibliography. Robert de Beaugrande, *Factors in a Theory of Poetic Translating*, Amsterdam, 1978; Andrei Fedorov, *Vvednie v teoriju perevoda*, Moscow, 1958; Jiří Levy, *Die literarische Übersetzung*, Frankfurt am Main, 1969; José Antonio Ortega y Gasset, "Miseria y esplendor de la traducción," in *Obras completas*, Vol. 5, Madrid, 1966, reprint 1983.

ROBERT DE BEAUGRANDE

TRANSLATION, THEORIES OF

Translation serves communal aspirations, for it has always been the basic means of communication across the barriers of LANGUAGE and the cultures they separate. Not only does translation reach every corner of the present, but it also maintains contact with the remote past and thus provides at least the basis for a greater understanding of what it is to be human.

The word *translation* itself contains an ambiguity; it denotes both the process and the product, both the attempt and the achievement of translating. The practice of translation is an art rather than a science, and its success is relative rather than absolute. Translations are neither true nor false but more or less faithful to an original. The process thus requires as much skill as knowledge to manage the right balance of effects. The variety of theories that converge on translation come from LINGUISTICS and SEMIOTICS, from psychology and anthropology, making any serious study of the subject interdisciplinary.

The translation field comprises a very important body of evidence for any study of language and communication. By almost every account communication involves some kind of representation and transmission, with a message that cannot be perceived or transmitted directly and a signal that can, the whole point being that the one should represent and transmit the other. That point is also the problem: the message itself cannot be observed but has to be inferred from the signal. The problem in practice is to find the right inference, the one that gets the message right. The problem in theory is to find the right explanation for the entire process, all its elements and operations, its success as well as its failure. In the case of verbal communication, that requires cogent answers to some basic questions about the nature of MEANING and its relation to form. Here is where translation helps. Though it cannot show or reveal meaning as such, independent of any form, translation can do the next best thing: it can produce another form with the same meaning and thus provide evidence for the correlation of meanings in different languages.

Language as code. Translation is supposed to preserve meaning in the passage from one language to another. There are bound to be differences in translation, differences in form or language, but there are not supposed to be any differences in meaning, in substance or content. How can that be? The traditional idea of language, which is at least as old as ARISTOTLE, offers an explanation that has great appeal. It assumes that words represent thoughts and thoughts in turn represent things. Verbal communication is seen as a process of encoding and decoding that moves back and forth between words and the corresponding thoughts or things. Translation

would thus require only a method of transcription, the regular substitution of equivalent signals, much as it is done automatically by telegraph (*see* TELEGRAPHY) and TELEPHONE.

The old idea of language has a commonsense look but is hardly plausible. It has been discredited most notably by the dramatic failure of machine translation. The idea of devising an effective and fully automatic procedure for translation was obviously encouraged by the rapid development of the modern computer (*see* COMPUTER: HISTORY), and yet it also seems to have been inspired by the mystique of CRYPTOLOGY. U.S. mathematician WARREN WEAVER set the scene when he said that it was enough to consider an article in Russian as if it had really been written in English and then coded for protection. The rest would be ordinary cryptanalysis, difficult but not impossible, because there was a real solution. Though striking, the analogy did not hold; mistakes were simply too numerous and often quite ludicrous. As a result it seemed reasonable to conclude that Russian was not an encoding of English and, further, that no language was really a CODE in any strict sense. There lies the crux for any theory about translation: it has to explain why there is no strict correlation between form and meaning in verbal communication.

Language and thought. There could be no correlation whatsoever between form and meaning without the existence of both and a real difference between the two. Yet the most radical theories about language contend that the traditional correlation fails to hold precisely because those basic conditions fail to obtain.

Indeterminacy of translation is a negative thesis defended by the analytic philosopher W. V. Quine against claims about meanings, and other entities like thoughts and propositions, which he finds dubious for want of valid evidence. The argument relies heavily and rests finally on his objections to exhibits of translation as proof of synonymy. Before it can provide support for the identity of meaning and thus warrant the postulation of some such things, either mental or purely logical, translation must have evidence of its own. But in most cases Quine sees no reason, other than habit or convenience, to prefer one translation to another. He concludes that translation is indeterminate because meaning is not intersubjectively or even intrasubjectively verifiable. That is no fault or cause for change in practice, though it does argue for a change in thinking about what happens in translation. It argues specifically against the traditional notion that translation is the transfer of a determinate meaning from one language to another and argues generally against the very idea that language is the expression of thought. When faced with the question of what has been said in some other language, we readily assume there is a

definite answer that can be given in translation. Quine would dismiss both question and reply; in his view there is nothing objective to be right or wrong about.

Linguistic relativity covers a whole range of hypotheses about the relations between language and thought. The strongest version is commonly attributed to EDWARD SAPIR and BENJAMIN LEE WHORF for their contrastive studies of American Indian languages. They claim that grammatical structures determine cognitive capacities: because one cannot say what the native says, one cannot think what the native thinks. The evidence remains equivocal. It is tendentious to assume that every difference in language has significance in CULTURE. Compare, for instance, sex and nominal GENDER, or time and verbal tense; they are not equivalent. Also, it is circular to adduce differences in talk alone as proof of differences in thought. The argument for a causal connection requires evidence, independent of language, of the effects of thought. More modest claims are made for simple correlations between lexical items and cultural interests. The standard example of the Eskimo with many words for snow can be matched by the skier or anyone else who needs a special terminology for a specific purpose. Vocabulary is the most responsive and therefore the least restrictive part of language. And as shown in the case of terms for color, humans already see and know more than they can say. New ideas have to find new words, as when languages borrow from each other and thus increase their means of expression, sometimes by direct translation.

Contributions of cognitive science. It may still be possible to explain the facts of translation with theories that see language as a correlation of form and meaning. A new discipline, cognitive science, seeks to understand the workings of the human mind much as if they were the operations of a powerful computer. Cognitive science explores and elaborates the idea that thinking and computing are essentially the same because they both involve the regular manipulation of symbols and thus require something like an internal code. The analogy works either way. If the mind is really a system of rules and representations, then any device with an equivalent program could also think or at least simulate COGNITION. Hence the attempt to develop ARTIFICIAL INTELLIGENCE as a form of experimental psychology. The results have been mixed, and the project itself remains controversial. Yet there is a growing consensus, if only about the main requirements for a theory of verbal communication in the cognitive MODE. Major contributors to that part of the enterprise include Noam Chomsky in linguistics, Jerry Fodor in psychology, and Dan Sperber in anthropology. Their work provides the outline for a comprehensive, composite theory of language that would also explain both the possibilities and difficulties of translation.

In this theory, meanings are once again the thoughts expressed by sentences, and they are independent as well as different from those sentences because they exist in a different language. Like all thoughts they exist in the mind as the formulas of an internal language that is neither English nor Japanese but a regular mentales. Before a single word can be said or heard, communication needs translation in the form of an exchange between thought and expression.

See also INTERPRETATION.

Bibliography. Brent Berlin and Paul Kay, *Basic Color Terms: Their Universality and Evolution*, Berkeley, Calif., 1969; Noam Chomsky, *Reflections on Language*, New York, 1975; Jerry A. Fodor, *The Language of Thought*, New York, 1975; F. Guenther and M. Guenther-Reutter, eds., *Meaning and Translation: Philosophical and Linguistic Approaches*, London, 1978; W. V. Quine, *Word and Object*, New York and London, 1960; Dan Sperber and Deirdre Wilson, *Relevance: Communication and Cognition*, Cambridge, Mass., 1986.

JOSEPH F. GRAHAM

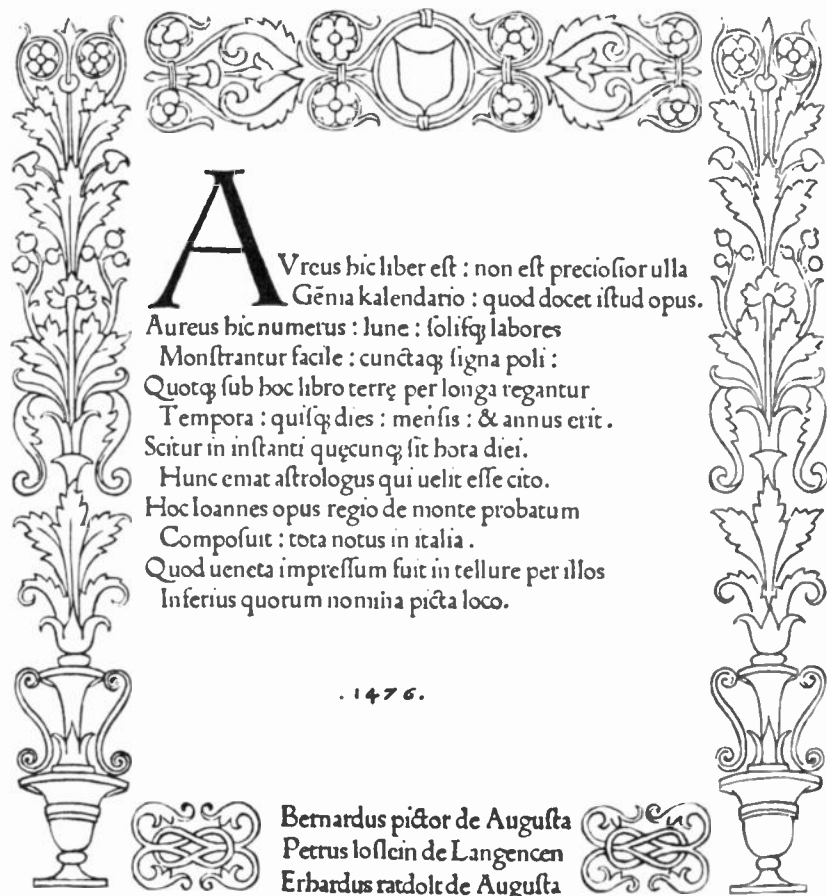
TYPOGRAPHY

The technical processes used to produce printed words; it also means the style, appearance, and arrangement

of printed material. JOHANNES GUTENBERG invented typography, the letterpress PRINTING of books from movable types, around 1450 in Mainz, Germany (see BOOK). For 450 years of letterpress printing, typographic DESIGN was primarily handled by compositors who set type by hand. In contemporary society a graphic designer is an individual, usually with ART training, who plans and designs the visual aspects of printing and other graphic communications.

Development. During the Incunabula—the first fifty years of book printing in Europe—the design of the earliest typographic books imitated hand-lettered manuscript books as closely as possible. The first type styles were based on the traditional black letter of the medieval scribe (see MIDDLE AGES). An early practice of printing type, then manually adding ornaments, illustrations, and illuminated initials, declined after Venetian printers of the Italian RENAISSANCE made major innovations in the typographic book. The evolution of roman typefaces with capitals based on Roman inscriptions and lowercase letters patterned after the humanistic WRITING styles of Italian scribes reached full flower in the fifteenth century in the designs of Nicolas Jenson. In the earliest extant title page design for a typographic book (Figure 1), Erhard Ratdolt and his partners used roman letterforms, a large initial, and a decorative woodcut border design. Venetian scholar Al-

Figure 1. (Typography) Erhard Ratdolt, Peter Loeslein, and Bernhard Maler, title page for *Calendarium*, by Regiomontanus, 1476. All artwork in this article appears courtesy of Philip Meggs.



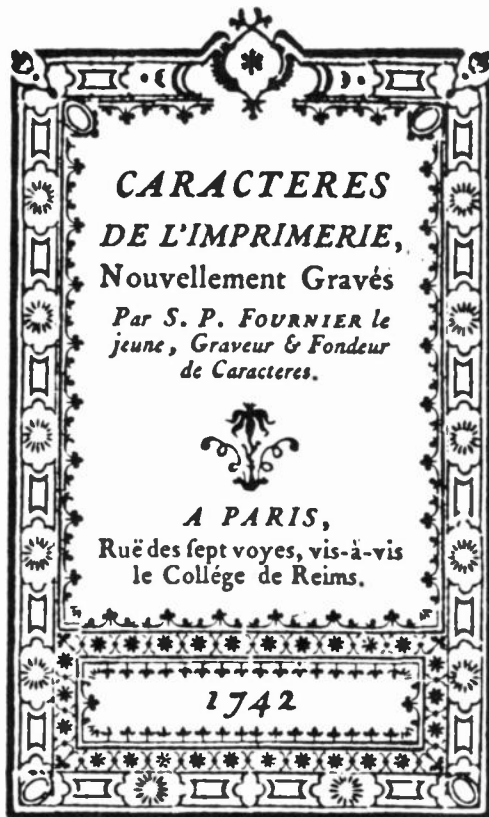


Figure 2. (Typography) Pierre-Simon Fournier le Jeune, title page from *Caractères de l'imprimerie*, 1742.

dus Manutius established a press in 1495 to print major works by the great thinkers of the Greco-Roman world. His typeface designer, Francesco da Bologna, surnamed Griffo, designed a major typeface, Bembo, which became a prototype for later developments and is still used in books today. In 1501 Manutius revolutionized PUBLISHING by producing the first "pocket book," a 3¼-by-6-inch edition of Virgil that could be carried easily in a pocket. To increase the number of words in each line of text, Griffo designed the first italic type style, which increased by 50 percent the characters per line. Together Manutius and Griffo achieved great elegance, legibility, and clarity. Other Italian innovations included printed page numbers, fine-line woodcut illustrations, cast-metal ornaments, and original approaches to the layout of type and illustrations. Italian Renaissance printers passed down the basic format of the typographic book, which has continued to the present. Further design refinement occurred in sixteenth-century France, where type designers including Claude Garamond created roman typefaces as we know them today, and printers in Paris and Lyons brought an unsurpassed elegance to book design. Contemporary typefaces based on these French designs are called Old Style.

Typographic innovation declined until the eighteenth century, when Paris typefounder Pierre-Simon Fournier le Jeune established a standard measurement system and pioneered the "type family" concept with a variety of compatible weights and widths that could be easily mixed in page designs. He designed florid ornamental letterforms and typographic flowers for richly garlanded pages paralleling the fanciful designs of decorative art and ARCHITECTURE of the French rococo era (Figure 2). Fournier's type designs evidence a tendency toward sharp, tapered serifs and increased weight contrast between thick and thin strokes that occurred during the 1700s. At midcentury John Baskerville designed transitional letterforms that articulated these qualities so beautifully that typefaces based on his designs and bearing his name are used today. Baskerville's book designs were free of ornamental treatments and relied on an exquisite typographic arrangement on smooth, hot-pressed paper for a refined design effect. Transitional type designs evolved into the Modern Style typeface designs (Figure 3) of Giambattista Bodoni and François-Ambroise Didot, characterized by geometric proportions, extreme contrast between thick and thin strokes, and hairline serifs. Closely related to the late-eighteenth-century classical revival in painting and architecture, book designs of this period featured simple, symmetrical page layout with severe proportions and meticulous engraved illustrations with classical motifs (see CLASSICISM).

Industrial Revolution. The Industrial Revolution radically altered typographic design. As Western civilization shifted from an agrarian base to factory and mass production, typographic expression was adapted to the needs of the new industrial culture. To meet the demand for bold posters (see POSTER), announcements, and ADVERTISING, an explosive production of typeface designs occurred: Fat Faces, roman styles whose strokes are bloated to a 1:2 stroke-width-to-capital-height ratio; Egyptians, with bold, slablike serifs; sans serifs, denuded of the serifs that had existed on ALPHABET forms since the ROMAN EMPIRE; and a Pandora's box of novelty and special-effect styles, including outlines, perspectives, and decorated faces. This design expansion was hastened in 1827, when U.S. printer Darius Wells invented a lateral router that enabled the economical manufacture of large wood types.

Nineteenth-century letterpress printers designed posters and other typographic matter by mixing a variety of type styles. A different typeface was generally used for each of the lines, which were then centered on a medial axis and often letterspaced to be flush with the left and right margins. Figure 4 combines decorative, sans serif, Fat Face, and Egyptian styles.

As the setting of type by hand was a slow and

costly process, numerous efforts were undertaken to perfect a typesetting machine. In 1886 OTTMAR MERGENTHALER perfected the Linotype machine, which cast lines of lead type from keyboard-controlled circulating matrices. The increased efficiency and economy of machine typesetting dramatically reduced the cost of newspapers (see NEWSPAPER: HISTORY), magazines (see MAGAZINE), and books, with a concomitant growth in circulation. See GRAPHIC REPRODUCTION.

During the nineteenth century the quality of book design and typography fell victim to the manufacturing expediencies of the Industrial Revolution. English artist and author William Morris rejected the mass-produced goods of the Victorian era and advocated a return to handicraft, respect for the nature of materials and production methods, a fitness of design to purpose, and individual expression by both designer and skilled worker. Morris led the English Arts and Crafts movement in a reaction against the social and aesthetic abuses of industrialism during the last quarter of the century. In 1888 Morris plunged into typeface design and printing in an attempt to

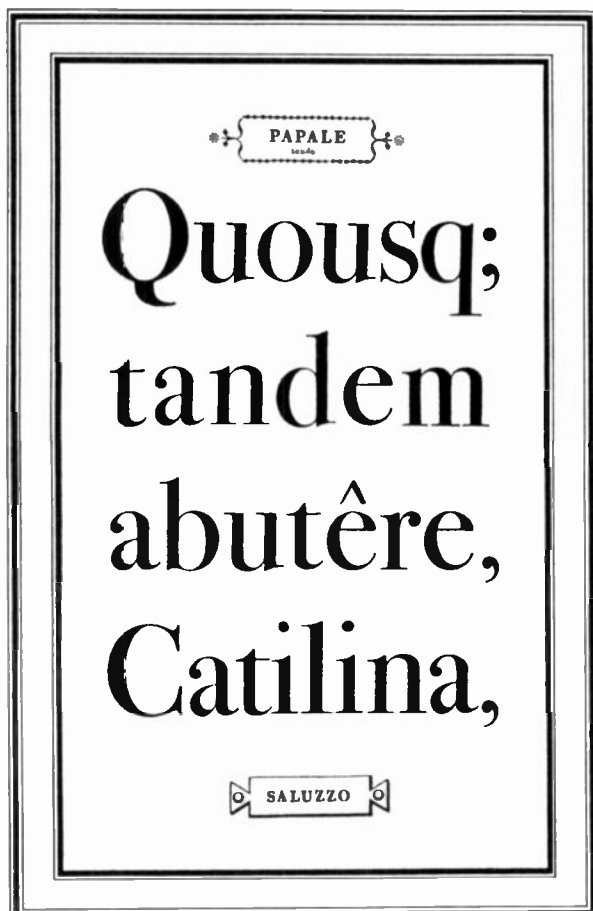


Figure 3. (Typography) Giambattista Bodoni, page from *Manuale tipografico*, 1818.



Figure 4. (Typography) Fairman's Job Printing Office, letterpress poster, 1853.

reclaim the lost design and production qualities of Incunabula books. He established the Kelmscott Press, which used handmade paper, handpresses, hand-cut wood-block illustrations and decorations, and hand-cast types in three typefaces designed by Morris after Incunabula styles. The Kelmscott approach (Figure 5) inspired the private-press movement at the turn of the century, as designers and printers sought to produce limited-edition books of high quality. Even more important, it inspired a rejuvenation of typographic design encompassing the development of improved typefaces based on historical precedents and better design of mass-produced books and other commercial printing. The Arts and Crafts movement blended with the art nouveau style of the late nineteenth and early twentieth centuries to produce stunning typography and graphics. Original visual properties are found in the Parisian posters of Henri de Toulouse-Lautrec and Alphonse Mucha, book designs by Belgian architect Henri van de Velde, and posters and periodicals by Will Bradley in the United States.

Influence of modern art movements. Technological innovation and political and social ferment in Europe before and during World War I profoundly influenced visual art, which in turn affected the course of

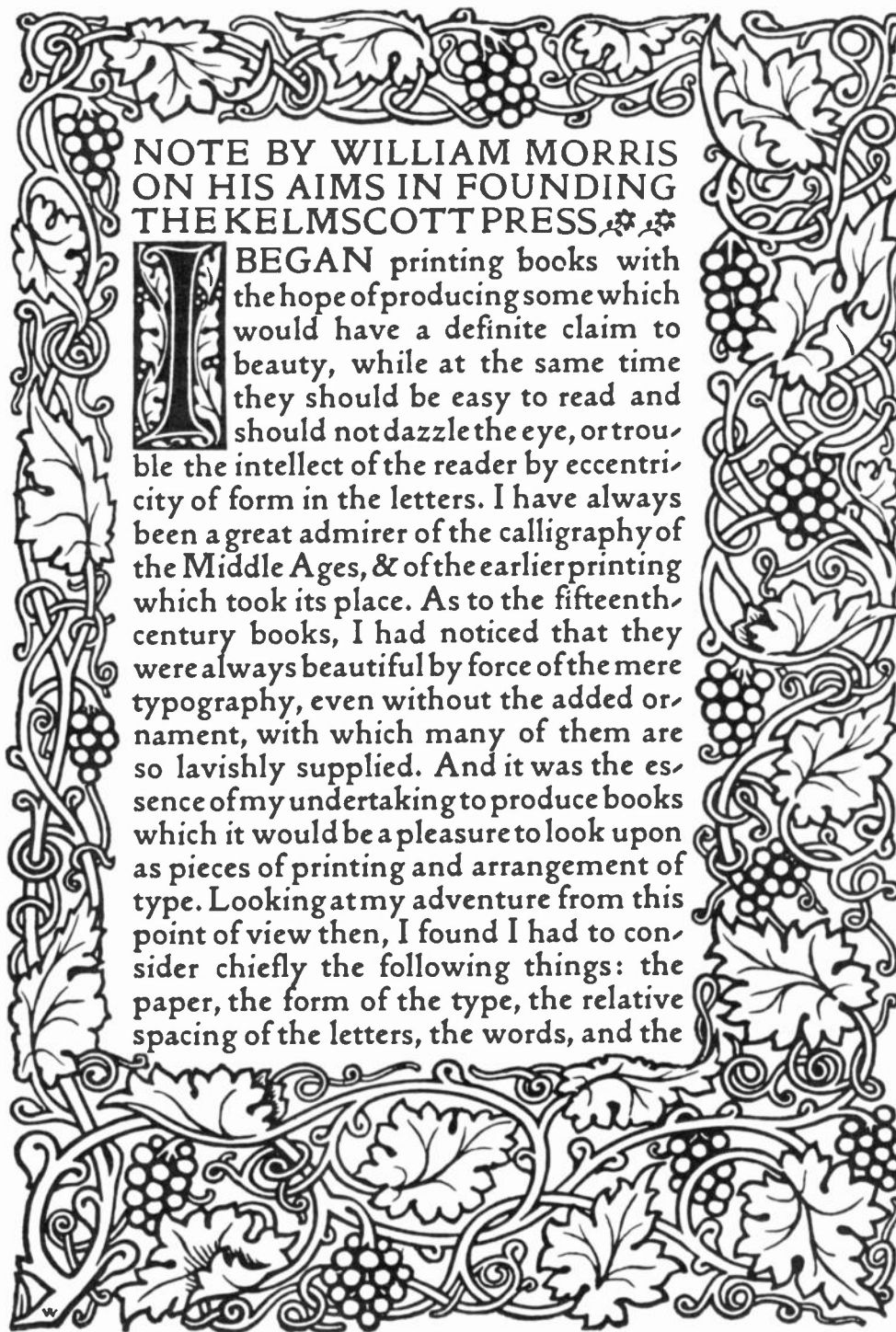


Figure 5. (*Typography*) William Morris, last publication of the Kelmscott Press, 1898.



Figure 6. (Typography) Filippo Marinetti, frontispiece to *Zang tumb tumb*, 1912.

typographic design. Typography was freed of its traditional syntax and structural conventions as the futurist poets sought dynamic, nonlinear composition in an effort to express the circumstances of twentieth-century life (Figure 6). The cubist painters used letterforms in their paintings, calling attention to the optical and formal properties of type. The dada movement, spawned in Zurich by an international group of writers and artists protesting the war, further challenged conventional typographic precepts and continued cubism's concept of letterforms as both concrete visual shapes and phonetic symbols. The attitudes and experiments of these movements seeped into general typographic practice.

Geometric abstract painting, particularly the Russian suprematist and constructivist movements and the Dutch de Stijl movement, proved to be more directly influential on typographic design. The modernist typographic aesthetic that emerged from these influences coalesced at the Bauhaus, a German design school founded in 1919 and closed by the Nazis in 1933, which became a confluence for advanced ap-

plied art. Herbert Bayer became master of the printing and advertising workshop in 1925 and played a major role in developing the basic precepts in this new typography. Bayer's design of a Bauhaus catalog (Figure 7) displays major attributes of this modern typographic style that spread through Europe during the 1920s and 1930s, seeking to sweep the slate clean of "degenerate typefaces and arrangements" and create a typography that would capture the visual sensibility of a new technological age. Ornament was rejected absolutely, and sans serif typefaces were embraced as elemental alphabet forms that best expressed the spirit of the century. Symmetrical arrangements were shunned, for it was believed that dynamic, asymmetrical design best interpreted content and expressed the machine age. A young master calligrapher, Jan Tschichold, attended the 1923 Bauhaus exhibition and through his design work and writing disseminated the new typography to a broad audience of compositors and designers.

After World War II the new typography evolved into a cohesive movement called the International Typographic Style, or Swiss design, after the country of its origin. Josef Müller-Brockmann emerged as a leading Swiss theoretician and practitioner. Carlo Vivarelli's cover for the magazine *New Graphic Design* (Figure 8) shows major aspects of this style:



Figure 7. (Typography) Herbert Bayer, page from a Bauhaus catalog, 1925. Copyright Joella Bayer.



Figure 8. (Typography) Carlo L. Vivarelli, cover for *New Graphic Design*, 1958.

type and pictorial material are organized on a geometric grid system; the number of typefaces used in any instance is reduced, often to two sizes, one for display material and the other for text; and only sans serif typefaces are selected. Objectivity is stressed, and the designer's subjective interpretation is minimized. This approach found great favor worldwide, particularly in visual identity programs for multinational corporations, SIGNAGE and information systems for airports and international expositions, and other situations involving large international audiences.

New typesetting technologies. During the 1960s metal type was rapidly replaced by photographic typesetting systems for display material and keyboard-controlled, computer-driven photographic systems for text material (see PHOTOGRAPHY). This freed designers from the rigid size limitations and spatial constraints of metal type, enabling them to use an infinite variety of sizes, optically distort let-

terforms, and overlap characters at will. U.S. designer Herb Lubalin demonstrated an exceptional understanding of these new design freedoms, manipulating typographic material into original configurations that intensified messages in unexpected and imaginative ways (Figure 9). Another leading figure was English typographer and journalist Stanley Morison, who directed the design of the Times Roman typeface, wrote several influential books on type, and in 1945 became editor of *The Times Literary Supplement*.

The introduction of a new typeface once required a costly investment in hundreds of matrices and metal types in a range of sizes. The simple, inexpensive film fonts needed to introduce phototypesetting typefaces dramatically reduced their cost. The piracy of typeface designs, which are not protected by COPYRIGHT in many countries, seriously discouraged new designs; but establishment of the International Typeface Corporation in 1970 provided a mechanism for licensing new designs to all equipment manufacturers

**"MEN WOULD RATHER HAVE THEIR
FILL OF SLEEP, LOVE, AND SINGING
AND DANCING THAN OF WAR," SAID
HOMER. THE EDITORS OF AVANT-
GARDE AGREE, AND DO HEREBY
ISSUE A CALL FOR ENTRIES FOR
AN INTERNATIONAL POSTER COM-
PETITION BASED ON THE THEME:**

NO MORE WAR

Judges: Richard Avedon, Leonard Baskin, Alexander Calder, Milton Glaser, Art Kane, Jack Levine, Herb Lubalin, Dwight Macdonald, Robert Motherwell, Robert Osborn, Larry Rivers, Ben Shahn, Edward Steichen & Sloan Wilson.

THE RULES OF THE CONTEST ARE AS FOLLOWS:
All professional painters, designers, illustrators, photographers, cartoonists, and other graphic artists are eligible. Amateurs may enter, too, but only after elimination contests at colleges, art and photography schools, museums, and similar institutions.
Ten winners will be selected. All winning posters will be reproduced and sold for \$1 each through bookstores, art supply shops, coffeehouses, boutiques, and similar retail outlets. Sales will be promoted by vigorous advertising and publicity campaigns. Profits will be donated to peace causes as designated by the judges.
Artists will receive a 10% royalty on sales. Advances totaling \$1,400 will be presented as

follows: \$500 to a grand prize winner and \$100 to each of the other nine winners.
All winning posters will be featured in an issue of *Avant Garde* Magazine. Fifty of the best entries will be exhibited at a New York museum or gallery and sent on tour of the United States.
Choice of subject matter is at the discretion of individual artists (though posters must bear some relationship to the theme of the contest, world peace). Posters may carry any related slogan, caption, or title, or none at all, and may relate to specific conflicts, such as the war in Vietnam. Entries will be judged on the basis of artistic merit and impact of anti-war message.
Judging will take place in New York on May

30, 1966, Memorial Day. Winners will be announced at a press conference held immediately thereafter.
Deadline is 5 p.m. Monday, May 27, 1966. Entries may not exceed 19" x 29" in size and must be accompanied by artist's name and address.
The address of *Avant Garde*, both for entries and inquiries, is 110 W. 40th St., New York, N.Y. 10018, U.S.A.
©1966, AVANT GARDE. This notice is not printed understanding the publishers retaining both copies of all items and equipment of magazines and will of our proprietors of the paper to print it in any case granted by the copyright laws of the United States and the laws of other countries. All rights reserved. No part of this notice or the contents of this notice may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written permission of AVANT GARDE.



Figure 9. (Typography) Herb Lubalin, poster competition announcement for *Avant Garde* magazine, 1967.

while paying a royalty to designers. This innovative concept combined with the economy of film fonts to promote an outpouring of new typefaces.

At the same time the simplified geometric approach of the modern movement was rejected by a new generation of designers who introduced greater visual complexity and personal expression into their work. The postmodernist work of architects and graphic designers such as Swiss designer Wolfgang Weingart and U.S. designer April Greiman expanded and enriched the vocabulary of typographic design.

The rapid advance of digital computer technology opened a new era of typographic communication during the 1980s (see COMPUTER: IMPACT). Typesetting became an extension of word-processing systems, allowing improved quality of typographic output for routine business communications and more efficient production of newspapers and magazines. Elec-

tronic workstations afford designers the opportunity for an interactive design process. The unification of the design process and production of final reproduction proofs into one procedure is rapidly becoming a reality. See ELECTRONIC PUBLISHING.

Bibliography. Aaron Burns, *Typography*, New York, 1961; Rob Carter, Ben Day, and Philip B. Meggs, *Typographic Design: Form and Communications*, New York, 1985; Philip B. Meggs, *A History of Graphic Design*, New York, 1983; Emil Ruder, *Typography, A Manual of Design* (in German, French, and English), Teufen AR, Switzerland, 1967; Ruedi Rüegg and Godi Fröhlich, *Basic Typography* (in German, French, and English), Zurich, 1972; Herbert Spencer, *Pioneers of Modern Typography*, London, 1969; Daniel Updike, *Printing Types: Their History, Forms, and Use* (1922), 2 vols., 3d ed., Cambridge, Mass., 1962.

PHILIP B. MEGGS

A large, bold, red capital letter 'U' is positioned on the left side of the page. It has a classic serif font style with a slight curve at the bottom and a flat top.

(yū), the twenty-first letter of the modern English and the twentieth of the ancient Roman alphabet, was in the latter identical in form and origin with V . . . , the same symbol being employed both as a vowel and a consonant. In Latin manuscripts written in capitals the form V is retained; but in uncial manuscripts, of which the earliest specimens belong to the third or fourth century, the modified form **U** appears, and is continued in [later manuscripts] as **U**.

UNITED NATIONS (UN). See INTERNATIONAL ORGANIZATIONS.

UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION (UNESCO). See INTERNATIONAL ORGANIZATIONS.

UNIVERSITY

The emergence of the European universities in their traditional form would hardly have been possible without other developments of the late MIDDLE AGES, including especially an improved climate of communication within western Europe and between the Arabic and Christian worlds. Once firmly established, universities played at different periods major or minor roles in the communication of knowledge, ideas, and cultural ATTITUDES. As the economic and political power of Europe was imposed on other parts of the world, universities passed overseas their structure and organization.

Early history. Relative peace in Europe as a whole from the eleventh century on stimulated the growth of commerce and trade, enabling individuals to move in greater safety. As cities expanded, especially in northern France, the judicial and administrative work of their bishops increased, and the bishops' chancellors found it necessary to communicate with other ecclesiastics, the pope, and secular statesmen. To do this they needed educated clerics well trained in Latin. The schools they established were also attractive to those seeking EDUCATION, not in a monastery but in the less restricted social milieu of a French city. By the time of the death of the controversial French scholar Abelard in 1142 large numbers of students and masters were gathering in these centers in search of education.

Their studies were hampered, however, by a lack of scholarly materials. The legacy of the Greek and Latin world had been better received and sustained by the Arabs (see ISLAM, CLASSICAL AND MEDIEVAL ERAS). With the return of more peaceful times European scholars set out to recover their lost inheritance. Journeys to Muslim schools in Spain by scholars such as Gerard of Cremona and the encouragement of translations by King Roger in Sicily provided the West in the twelfth century with Latin versions of many Greek, Arabic, and Hebrew philosophical, medical, and scientific texts. It has also been suggested that the Arabic world communicated to the West some of the nomenclature that we associate today with the structure and organization of the medieval universities. At the same time scholars in northern Italy, especially at Bologna, were attempting to recover and comment on the corpus of Roman law. Canonists also codified ecclesiastical law, and theologians provided texts to be used for educational

purposes. The schools of the late twelfth century now had usable advanced material to communicate to their students.

It was this subject matter that the universities spread and developed before the early sixteenth century. Expanding largely under the umbrella of ecclesiastical protection and using a common LANGUAGE (Latin), they were able to encourage intellectual communication among all parts of Christian Europe. From the early centers of Paris, Oxford, and Bologna scholars were sent to other cities able to provide resources for the establishment of a university. During the fifteenth century most populous areas of western Europe had reasonable access to a university. Teaching material spread quickly as it was carried by wandering scholars from place to place, even though books were still written by hand and therefore were expensive (see BOOK). By 1500 most universities had libraries, often created by teams of copiers employed for this purpose (see LIBRARY); the advent of PRINTING greatly eased this problem. Lines of intellectual communication varied according to the position and status of a particular university. Established centers such as Oxford, Paris, Vienna, Montpellier, Bologna, and Padua attracted many foreign students. Marsilius von Inghen, earlier rector of the University of Paris, was the first rector of Heidelberg University, founded, according to its statutes, "after the fashion of Paris." Other local, smaller



Figure 1. (*University*) Seal of the University of Paris, thirteenth century. The relationship between religion and medieval learning is illustrated: The Virgin and Child (divine source of wisdom) are at the top, flanked by a saint and a bishop. Below, two professors teach. Phot. Bibl. Nat., Paris.

universities, such as most of the German ones, attracted few foreign students. At the close of the medieval period the universities of Italy were enticing many wishing to gain acquaintance with the "new learning." These Italian universities trained many scholars who communicated the ideas of the Italian RENAISSANCE to their contemporaries north of the Alps.

The Reformation era. The conflicts of the Reformation seriously damaged this ease of communication among the various European universities. It was usually not possible for a Catholic to study in the universities of Protestant lands or vice versa. Divisions among Protestants further split Europe. Michael Servetus, the Spanish physician who denied the doctrine of the Trinity, escaped from Catholic persecution to be burnt in Calvin's Geneva in 1553. Some states, such as Venice, attempted to keep open lines of intellectual contact: the English and Scottish nations were represented at Padua University until 1738. Refugees from persecution played a major role in communicating their scholarship to countries that protected them. John Drusius, the Flemish biblical scholar who fled to Oxford and Cambridge during the reign of Elizabeth I, greatly encouraged the study of Hebrew in England; English Catholic refugees helped to establish the university of Douai; many Italian theologians, fleeing from the Inquisition, enrolled at the universities of Basel and Krakow.

Such Italian scholars were particularly at risk because their country had been well advanced in the early modern period in the application of scientific discovery to such areas as medicine and astronomy. The debt of Galileo to the works of fourteenth-century scientists from Oxford and Paris, made available in northern Italy especially by the printing presses of Venice, has been challenged, but there is no doubt that many Italian scientists were aware of earlier hypotheses and were interested in developing them. As the interests of academics during the sixteenth, seventeenth, and eighteenth centuries switched more to the natural sciences, attempts were made by the Catholic church to restrict the reception of new scientific theories. After the suppression of Galileo and the Accademia del Cimento in Florence most important scientific advances were made in northern Europe, especially in the rich commercial centers of England, Holland, and northern Germany.

However, much of this scientific work, especially the application of "useful knowledge" to the needs of society, was not communicated to the educated populace by the older universities but rather by academies and learned societies founded by concerned individuals, not all of whom had academic experience. The Lunar Society of Birmingham brought together individualists such as Josiah Wedgwood and

scientists such as Joseph Priestley, the discoverer of oxygen. The Academy of St. Petersburg was responsible for the attempt to spread Newtonian science among the educated elite of Russia. The eighteenth century also saw an attempt to spread enlightened ideas in eastern Europe. As the Turkish threat receded and Poland and Russia established themselves as powerful states, educational reformers in such countries owed much to the support of graduates from the universities of Jena, Halle, and Leipzig, and their influence helped to stimulate the national educational reform movement in Poland and the founding of the Universities of Warsaw and Moscow.

Enlightenment reforms. The educational role of the eighteenth-century enlightened despot culminated in the reforms of Napoléon I. With the establishment of the University of France and through the influence of his educational policies in the European lands conquered by the French, we see the demand for efficient, practical, useful, and scientific TEACHING. In Italy and Spain Napoléon's satellite kingdoms introduced major reforms, but it was in Germany that his policies were especially influential. Although resenting French political dominance, the German states adopted many Napoleonic educational principles. About half of the German universities were suppressed; the new university of Berlin, the Humboldt University, emphasized the coordination of teaching and research. Following these reforms the German universities provided the stimulus for wider developments and reform. The role of the doctoral degree, the importance of the seminar, the encouragement of research into the natural sciences, and the division of the faculty of arts into its independent constituent parts owe much to the German example.

Colonization. Such developments came at a crucial time for the communication of ideas, attitudes, and concepts beyond Europe itself (see COLONIZATION). From the late fifteenth century on, European powers had been establishing their authority overseas. Especially in large settlements of people from any one country, there arose a demand for local educational facilities. As would be expected, this was first experienced in the overseas territories controlled by Spain: seven universities were established in South America under the influence of the University of Salamanca alone in the sixteenth century. As Britain and France followed the Spanish and Portuguese in the creation of overseas empires, so the spread of European ideas through new universities increased. Harvard, the first university in the United States, was established as a college in 1636–1638, influenced by Cambridge University; by 1776 there were nine colleges in the British colonies in North America. Movement between such colonial institutions and the home countries strengthened cultural links, especially as an

few cities in the twelfth century had established its intellectual and cultural traditions in higher education throughout the world.

See also COMMUNICATIONS, STUDY OF.

Bibliography. Hans Daalder and Edward Shils, eds., *Universities, Politicians, and Bureaucrats: Europe and the United States*, Cambridge, 1982; Konrad H. Jarausch, ed., *The Transformation of Higher Learning 1860-1930: Expansion, Diversification, Social Opening, and Professionalization in England, Germany, Russia, and the United States*, Chicago, 1983; James M. Kittleson and Pamela J. Transue, eds., *Rebirth, Reform, and Resilience: Universities in Transition 1300-1700*, Columbus, Ohio, 1984; Hastings Rashdall, *The Universities of Europe in the Middle-Ages*, new ed., 3 vols., Oxford, 1936, reprint (ed. by F. M. Powicke and A. B. Emden) 1964; Agueda María Rodríguez Cruz, *Salamanca Docet: La proyeccion de la Universidad de Salamanca en Hispanoamérica*, 2 vols., Salamanca, 1977; Helmut Rössler and Günther Franz, eds., *Universität und Gelehrtenstand 1400-1800*, Limburg, FRG, 1970; Lawrence Stone, ed., *The University in Society*, 2 vols., Princeton, N.J., 1974.

JOHN M. FLETCHER

USES AND GRATIFICATIONS. See MASS COMMUNICATIONS RESEARCH; MASS MEDIA EFFECTS.

UTOPIAS

The term *utopia* comes from the Greek and ambiguously combines two words: *topos*, meaning "place," and *eu*, meaning either "good" or "no." Literally, then, *utopia* means both the good place and nowhere. In the GENRE of utopian writing, the term was first used in its modern sense by English humanist Thomas More (1478-1535) in a small book entitled *The Best State of a Commonwealth and the New Island of Utopia*, which appeared in 1516 and is commonly referred to simply as *Utopia*. In that work More sketched a society that was both ideal and existed nowhere, thus satisfying both meanings of the Greek term. A literary piece in RENAISSANCE style, *Utopia* mocked contemporary customs and values, and proposed alternatives, but without any hint that these alternatives could serve as a realistic model for social practice.

Before More's *Utopia* there were many literary examples of the utopian genre in both the Judeo-Christian and Greco-Roman traditions. The Garden of Eden, the biblical millennium, the Golden Age, the Elysian Fields, the Blessed Isles, and the Land of Cokaygne are but a few of the many mythic images of a world without pain, sorrow, and strife, a perfect place beyond the reach of mortals. More extensive writings like PLATO's *Republic* and Lucian of Samosata's (ca. 117-ca. 180) *True Stories* also contain

utopian elements and were certainly known to More and later writers. Yet there is agreement among scholars that not until More did a true utopian genre emerge. After More's *Utopia* there was a steady stream of writings that proposed to represent an ideal society, one that did not exist and could not be realized.

Visionary utopias. The Morean tradition of utopian writing, one that continued to the time of the French Revolution, is characterized by a static or atemporal quality. The ideal community depicted in these writings is remote, timeless, unchanging, and, most important, without any connection to the actual world; utopian writers restricted themselves to unattainable dreams of perfection. Oneiric (dream) worlds of the Renaissance were not plans for action, manifestos of revolution, or practical guides to remedy social ills. While they mocked and satirized the authority of the great, the kings, prelates, and aristocrats of the day, and called for economic and political justice, in general they assumed that the

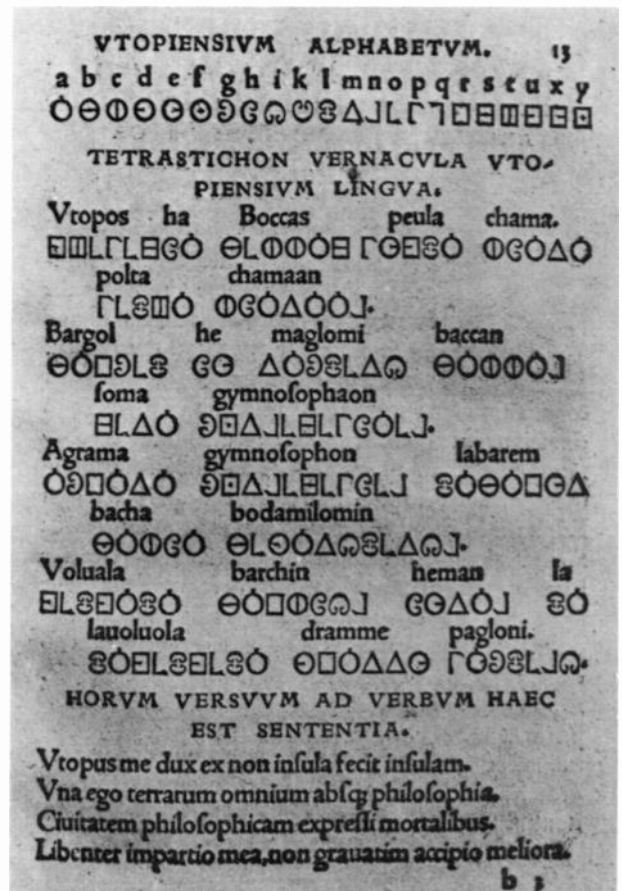


Figure 1. (*Utopias*) The Utopian alphabet. Woodcut (facsimile). From J. H. Lupton, ed., *The Utopia of Sir Thomas More*, London and New York: The Clarendon Press, 1895, p. xciv.

THE CRISIS,

OR THE CHANGE FROM ERROR AND MISERY, TO TRUTH AND HAPPINESS

1832.

IF WE CANNOT YET

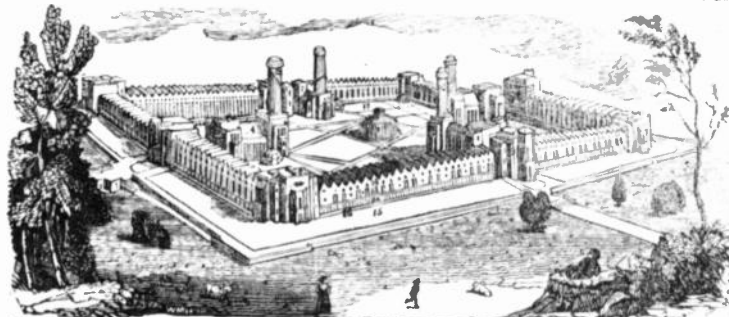
LET US ENDEAVOUR



RECONCILE ALL OPINIONS,

TO UNITE ALL HEARTS.

IT IS OF ALL TRUTHS THE MOST IMPORTANT, THAT THE CHARACTER OF MAN IS FORMED FOR—NOT BY HIMSELF.



Design of a Community of 3,000 Persons, founded upon a principle, commended by Plato, Lord Bacon, Sir T. More, &c.

EDITED BY
ROBERT OWEN AND ROBERT DALE OWEN

London.

PRINTED AND PUBLISHED BY J. EAMONSON, 15, CHICHESTER PLACE,
GRAY'S INN ROAD

STRANGE PATERNOSTER ROW PURKISS, OLD COMPTON STREET
AND MAY BE HAD OF ALL BOOKSELLERS

Figure 2. (*Utopias*) Title page from *The Crisis, or the Change from Error and Misery, to Truth and Happiness*, ed. by Robert Owen and Robert Dale Owen, 1832. The Bettmann Archive, Inc.

powers of reason and imagination available to the writer were not potent enough to break the repetitious cycle of the rise and fall of nations or to dispel “the vale of tears” that was humanity’s lot.

Explicit concern for problems of communication is largely absent from these early, visionary utopian writings. Even though the period is known for the PRINTING revolution in the reproduction of written texts, utopians tended to concentrate on institutional reforms and changes in the education of the self—the development of a more rational human being. Problems of transmitting knowledge and information were not emphasized in these utopian writings. In More and Francis Bacon (1561–1626) there is discussion of libraries that would be available to every-

one (though women are generally not mentioned), and Bacon in *The New Atlantis* devotes some attention to the problem of institutionalizing scientific research and transmitting this knowledge (see LIBRARY). One may deduce that, until the nineteenth century, face-to-face interaction was so prominent in the minds of Europeans that the question of alternative forms of communication was not high on the agenda.

There was a body of writing, mostly at the turn of the eighteenth century, that sought to reshape LANGUAGE into a utopian form. Writers like John Wilkins (1614–1672), an English scientist, and, to a lesser extent, Gottfried Wilhelm Leibniz (1646–1716) proposed revisions to their native languages to excise

all ambiguity, often meaning emotional tones, so that communication would become precise, clear, scientific. But such projects did not find their way into sketches for ideal societies.

Given the unreality of utopia in the Morean tradition it is not surprising that the period witnessed few efforts to build ideal communities. The only major exception to this assertion is found in the Puritan emigrants to the New World. Some of the charters written for the travelers to the Americas seem to express the intention to establish an ideal society or the New Jerusalem. With the Bible as their guide many of these Protestants conceived their venture as a practical utopia, an innovation that became widespread in the United States, particularly in the nineteenth century. *See* RELIGION.

Reformist utopias. Some movement toward bridging the gap between the utopian imagination and social change was made in the period before 1900. Renaissance architects, like Leon Battista Alberti (1404–1472), drew up plans for ideal cities that they hoped would be constructed by informed princes. During the Reformation utopian impulses grew still

more insistent, as in the case of radical sects like the English Fifth-Monarchy Men, who boldly envisioned a Christian millennial society on earth that would fulfill the predictions in the Bible. The increase in utopian visions that were considered feasible was encouraged by reports of European explorers, whose contact with foreign cultures stimulated a vast body of travel and voyage literature, a great deal of which depicted ideal societies—perfect worlds that, the reader was led to believe, actually existed (*see* EXPLORATION). Examples of this version of utopia are Voltaire's (1694–1778) *Candide* with its land of El Dorado, the unrepressed sexuality of Tahitians in DENIS DIDEROT's (1713–1784) *Supplement to the Voyage of Bougainville*, and the wise oriental potentate of Baron de Montesquieu's (1689–1755) *Persian Letters*. In these instances the cloudy dreams of equality, wealth, and happiness found in More's utopia were transformed into vivid sketches of perfect worlds that were distant but not beyond reach.

At the end of the eighteenth century utopian writing abandoned the model of More entirely and followed new directions. The deep abyss between the ideal and the real was spanned by a new historical consciousness, in which ideal societies were considered fully attainable in the ensuing stages of history. Utopian fantasies had become linked to the dynamic of historical change, the evolution of humanity. A new sense of the malleability of institutions and the perfectibility of humanity characterized the new utopian imagination. A mood of urgency pervaded the literature, enhancing its importance in social and political movements. The new writers designed their dream worlds with a practical eye for the imminent realization of their utopias. The Marquis de Condorcet (1743–1794) wrote his *Sketch for an Historical Picture of the Progress of the Human Spirit* while in hiding from Robespierre's police, who had a warrant for his execution. In this tense atmosphere of revolution and personal danger, Condorcet gave shape to the modern utopian dream: the ideal society was the final epoch in the linear progress of humanity, and this epoch was not far off; humanity was perfectible; the process of improving the world was infinite; above all, the question of the future utopia was knowable with certainty. Reason, in particular mathematical reason, was the source of this knowledge and the basis for the rosy prospect of humanity.

Condorcet's utopia was that of the liberal philosophe, but the model he drew of the perfect society was applicable to all major utopian writers in the age of political and economic modernization. Given his assumptions, it is not surprising that Condorcet devoted little attention to the issue of communication. For him humanity's essence was reason, an attribute of consciousness that was transparent to others. Language was no more than a tool for the

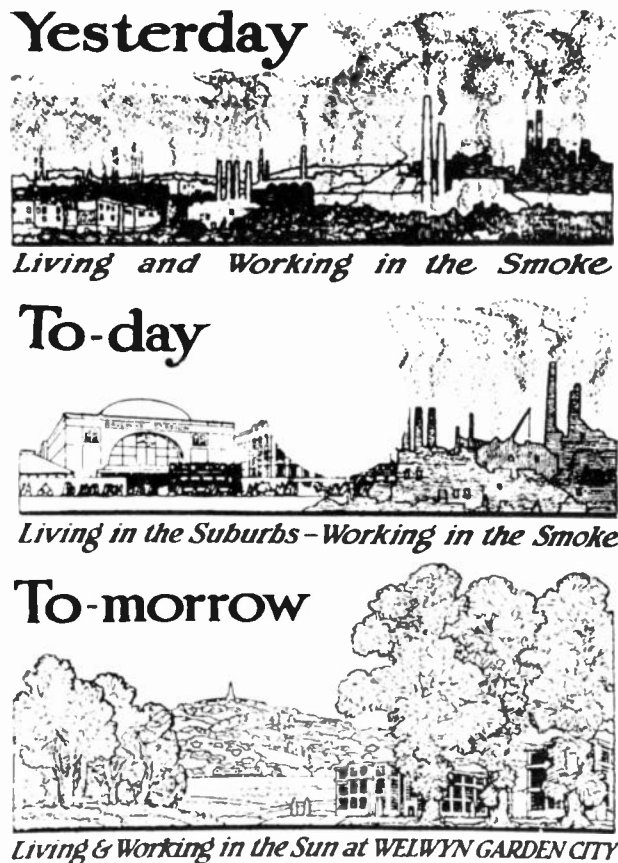
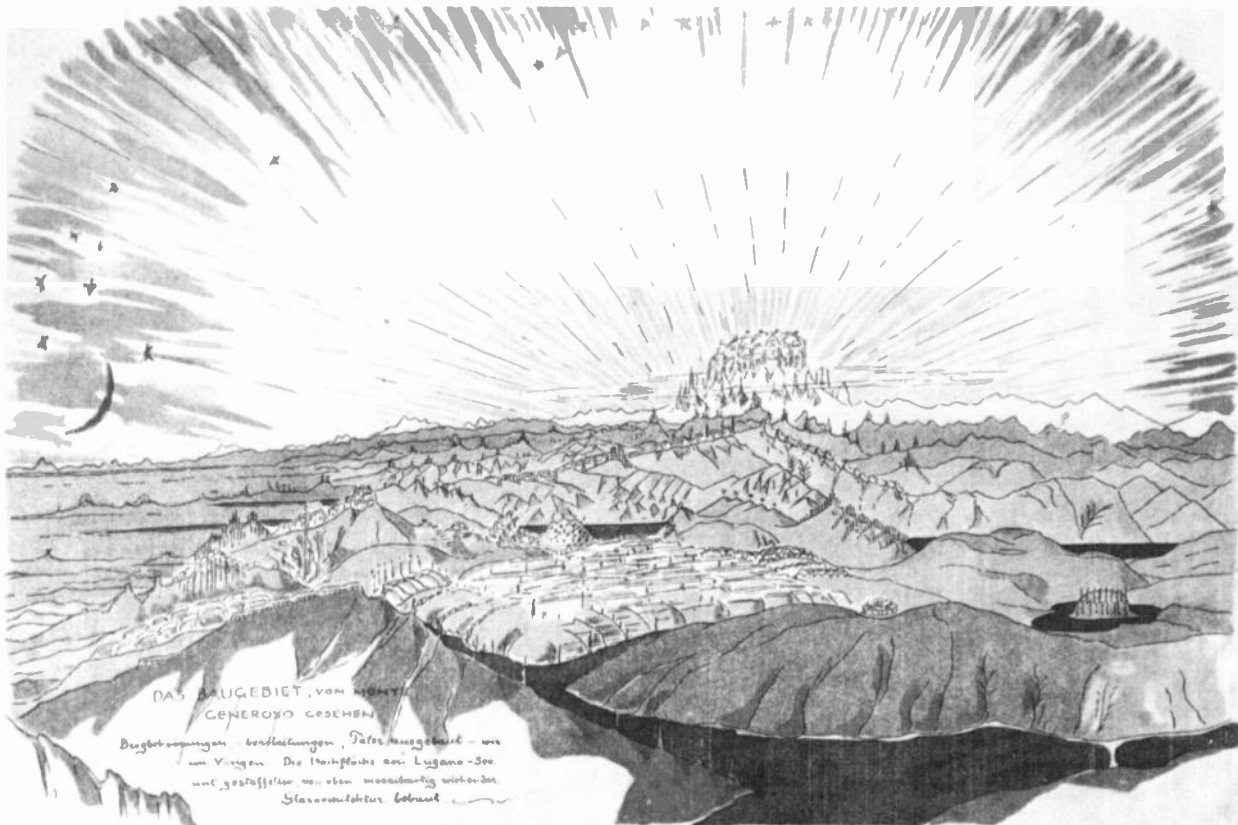


Figure 3. (*Utopias*) Publicity poster for Welwyn Garden City, Hertfordshire, England. Early twentieth century. From I. Tod and M. Wheeler, *Utopia*, London: Orbis Publishing, 1978, p. 122.



DA S BAUGEBIET VOM MOUNT
GENEROSO GEGEHEN

Bergbauerngenossenschaften, Pflanzengärten - wie
um Vindonissa. Die Hauptfläche am Lugano-See
wird gestaffelt und eben mosaikartig wieder der
Glasmittelbauern bebaut.

Flugzeuge und Luftschiffe fahren Stübchen, die frei sind, von Krankheit und Leid durch
Anschauen ihres Wertes befreit zu sein - in seligen Augenblicken. Reisen! und auf der
Reise bei hoch aufsteigen und erfüllt zu sein, an dem man als Arbeiter irgendeine in fernem Lan-
de zumacht hat! Unserm Leben, das eine schlechte Wohnung, werde eine gute Wohnung!

Figure 4. (*Utopias*) Bruno Taut, *The Building Region Seen from Monte Generoso*. "Crowns on the mountains—decorations, valleys transformed as in the foregoing. The plateau round the Lake of Lugano built over with graduated glass architecture, which gives the effect of mosaic when seen from above. Aircraft and airships transport their passengers on pleasure trips to find joy and release from sickness and sorrow through the contemplation of their own handiwork. To travel! And on the journey to see the growth and completion of the work to which one has in some measure contributed as a worker in a far-off country! Let our Earth, till now a poor habitation, become a pleasant place to live in." From *Alpine Architecture*, 1919–1920. British Architectural Library/RIBA, London.

perfect transmission of rational states of consciousness and, in its mathematical form, contained no ambiguity. The primary challenge to the fulfillment of utopia was to ensure that science had a strong institutional base and that nothing impeded the flow of scientific knowledge from one person to another. Social statistics, Condorcet predicted, would provide total knowledge of the state of society, and reason would direct the process of reform toward perfection. Here was the basis for a world without monarchs, a liberal, democratic world of complete freedom and equality.

In the next generation Claude-Henri de Saint-Simon (1760–1825) and Charles Fourier (1772–1837) refined and expanded the liberal utopian vision to account for different capacities of reason and for the emotions. In the context of a free and equal world

Saint-Simon recognized a need for a division of labor. In addition to intellect, humans had will and emotion; individuals had these capacities in varying mixtures, and social organization had to reflect this fact. Thus each individual would contribute to society "according to his capacity." Such inequality would not lead to domination because it perfectly mirrored the souls of individuals. Fourier went further, insisting on the primacy of feeling and sensation. He imagined a world of countless varieties of people, based on their particular emotional configurations. Utopia would make possible the uninhibited expression of feeling and the expansion of the capacities for sensual and affective pleasure. With his romantic dream of emotional fulfillment, Fourier encountered a communications problem that Condorcet's rationalism had avoided. Fourier recognized that emo-

tions are not transparent to the self or to others. He therefore envisioned a kind of proto-psychotherapy: people experienced in the ways of the feelings, usually older individuals, would advise the confused and distressed about the true nature of their desires. See ROMANTICISM.

For the rest of the nineteenth century and well into the twentieth, utopian writers revised and expanded the vision of Condorcet, choosing between Saint-Simonian and Fourierist varieties. KARL MARX (1818–1883) himself falls into this tradition with his motto: “From each according to his capacities, to each according to his needs.” Like the liberals, Marx avoided the question of communication in utopia on the assumption that a classless society removed the walls between individuals. Once free individuals fulfilled themselves in work and love, they would become transparent to others. But Marx added a new element to the utopian tradition: he found agents in present-day society that would bring about the ideal world—the working class. By outlining the strategy and mechanisms for change he drew even closer the connection between the vision of perfection and its realization.

Countless experiments deriving from this Marxian impulse to realize utopia in practice were tried in the nineteenth century. From a castle in Romania to the wilds of Louisiana, groups set out bravely to build ideal communities. In the United States, where a majority of the utopias were attempted in the 1840s, the ideas of Fourier were popular, but so were those of Robert Owen and others. These communities were with few exceptions short-lived and ill conceived. One of the more enduring utopias was Oneida (1848–1881), which instituted a practice of public mutual criticism, one of the rare examples of an experiment in communication.

Twentieth century. After World War I utopian writing took yet another turn. In Yevgeny Ivanovich Zamyatin’s (1884–1937) *We*, Aldous Huxley’s (1894–1963) *Brave New World*, and George Orwell’s (1903–1950) *1984* and *Animal Farm*, among others, the future was bleak. Dystopia, a perfectly evil society, was now a model, and for the first time the question of communication rose to prominence, especially in *1984*. In Orwell’s dystopia totalitarianism was sustained by control of information. Information about the present was controlled with extensive surveillance techniques, and information about the past by means of the continuous rewriting of history. So important is the question of communications that the hero of the novel is an information worker who labors at revising history to reflect the official IDEOLOGY of the government. What makes the regime so repugnant is not so much the exercise of undemocratic authority but its capacity for total information control. The government in this dystopia has accurate knowledge of the innermost thoughts of individuals,

even their dreams and nightmares. In the dystopian tradition advanced technology, once expected to benefit humanity by the elimination of toil, leads not to a rational and free community but to complete tyranny.

In the midst of the hopelessness of the 1930s experiments in utopia were continued by the kibbutz movement in Palestine. The kibbutzim were small agricultural communities based on democracy, free labor, and collective child rearing. They foreshadowed in many respects the flowering of “intentional communities” among hippies and radicals throughout Europe and North America in the late 1960s. In most cases the latter utopian experiments did not avail themselves of high technology and limited their reform of communication practices to an ethos of openness, emotional honesty, and love.

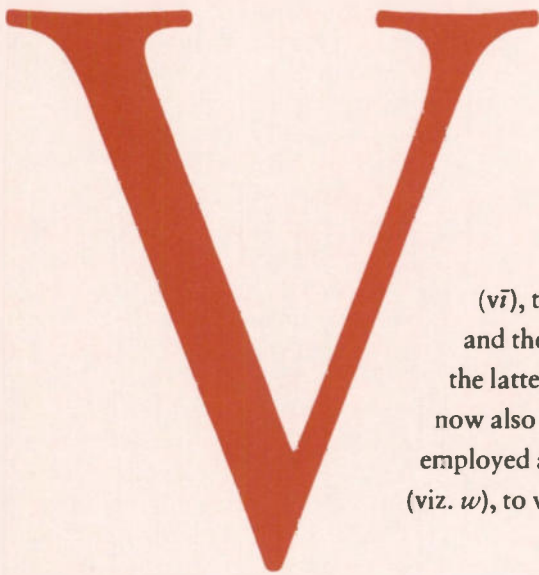
With the astonishing advance in information technology in the second half of the twentieth century, many writers addressed themselves to building an ideal society through the democratization of the means of communication. Countless schemes were devised in which radio, television, the computer, and communications satellites were employed to extend the ability of humanity to exchange ideas and facilitate life in general. Alvin Toffler’s *The Third Wave* (1980) is one of the best expressions of this hope. The general principle of this communicational utopia is that through the mediation of information technology the needs of individuals can be more completely and directly realized.

Confronted by high-technology communications media, utopian thinkers have moved in two opposite directions: one toward the dystopia of tyranny enforced by centralized control, the other toward the dream of freedom enhanced by democratic and communal social organizations. In both cases, however, a significant erosion in the level of imaginative thinking is apparent in these writings: both camps simply translate the new technology into their dream mood. One finds little fundamental rethinking of the nature or significance of communications among the modern utopian writers, nor is there the deep recasting of this thinking into a utopian form that matches the creativity of More and Condorcet.

See also REALISM; SCIENCE FICTION.

Bibliography. Lawrence Foster, *Religion and Sexuality: Three American Communal Experiments*, New York, 1981; Frank E. Manuel and Fritzie P. Manuel, *Utopian Thought in the Western World*, Cambridge, Mass., 1979; Richard Ofshe, compl., *The Sociology of the Possible*, Englewood Cliffs, N.J., 1970; Melford E. Spiro, *Kibbutz: Venture in Utopia*, augmented ed. (Studies in the Libertarian and Utopian Tradition), New York, 1970; Sallie TeSelle, ed., *The Family, Communes, and Utopian Societies*, New York, 1972.

MARK POSTER

A large, bold, red letter 'V' is positioned on the left side of the page. It has a classic, slightly stylized font with a sharp point at the bottom and horizontal bars at the top.

(*vī*), the twenty-second letter of the modern English and the twentieth of the ancient Roman alphabet, was in the latter an adoption of the early Greek vowel-symbol *V*, now also represented by *U* and *Y* . . . , but in Latin was employed also with the value of the Greek *digamma* (viz. *ω*), to which it corresponds etymologically.

VERTOV, DZIGA (1896–1954)

Russian filmmaker, considered one of the pioneers of the DOCUMENTARY. Dziga Vertov was born in Bialystok, a city that was then part of the czarist empire and inhabited mostly by Russian-Polish Jewry. Born Denis Arkadyevitch Kaufman, he changed his name to a pseudonym that roughly means “restless spinning,” suggesting the power packed into reels of film.

Vertov belonged to the generation of Soviet filmmakers of the 1920s who had a profound impact on world cinema. His films of everyday life played a major role in shaping the documentary movement of the 1930s, the CINÉMA VÉRITÉ school of the 1960s, anthropological cinema, and the Third World documentary. His metaphorical editing and contrapuntal use of sound have been a major source of inspiration for the AVANT-GARDE FILM movements of the twentieth century. Vertov is a filmmaker’s filmmaker: SERGEI EISENSTEIN, JOHN GRIERSON, Jean Rouch, Santiago Álvarez, Peter Kubelka, Dušan Makavejev, and Jean-Luc Godard, among others, have considered his work essential to the development of their craft.

Vertov’s practice of working with a regular team and in a collective fashion is also part of his legacy. His Cine-Eye group was formed in 1919 and survived until 1928. Its other leading members were his wife, Elizaveta Svilova, and his brother Mikhail Kaufman. Svilova edited almost all of Vertov’s films, under his supervision. Kaufman was Vertov’s cameraman throughout the 1920s and must be credited with the major SPECIAL EFFECTS and shooting techniques evolved by the group. However, Vertov remained the

mind and mover behind every aspect of his films, as well as the author of the manifestos signed by “The Council of Three” and “The Cine-Eye.” These manifestos were assembled posthumously in a collection of Vertov’s writings titled *Stat’i, dnevniki, zamysly* (articles, diaries, notes, 1966) and were translated into many languages.

Life and work. During his childhood and adolescence in Bialystok, Vertov experimented with written and oral POETRY. As a medical student in Leningrad, he created a “Laboratory of Sound” and became fascinated by the poetry of Vladimir Mayakovsky and the futurists. The year 1917 found him in Moscow, where he discovered filmmaking and revolutionary politics at the same time. In 1918–1919 Vertov helped to organize the weekly film journal *Kinonedelia* (Film Weekly). Editing incoming footage from the civil war front, he went on to make a series of compilation films, *Istoriya grazhdenskoj vojni* (A History of the Civil War, 1922). His experience of that period—in particular, his work for the agit-trains that showed films throughout the nascent Soviet Union—remained a major influence on him. Given a free hand by the film committees, Vertov and his Cine-Eye group then produced a thematic NEWSREEL series, *Kinopravda* (Film Truth, 1922–1925), and such feature documentaries as *Kinoglaz* (Cinema Eye, 1924), *Shagai, Soviet!* (Forward, Soviet!, 1926), and *Shestaya chast mira* (One-Sixth of the World, 1926).

By 1927 Vertov’s increasingly experimental editing style and his vitriolic attacks on the acted cinema had alienated the film administration. He was sent away from Moscow to the Ukraine, where he made two masterpieces, *Chelovek s kinoapparatom* (The

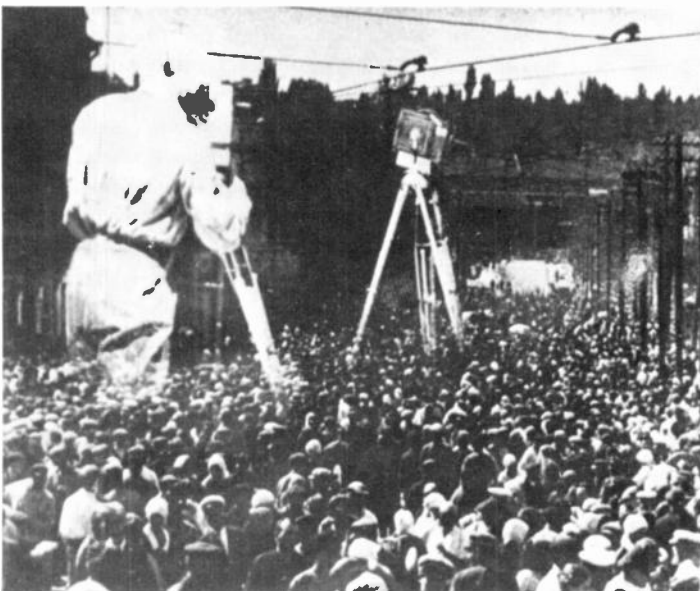


Figure 1. (Vertov, Dziga) *Chelovek s kinoapparatom* (The Man with the Movie Camera), 1929. Courtesy of the Amos Vogel Collection.

Man with the Movie Camera, 1929) and his first sound film, *Entuziazm: Simfoniya Donbassa*, (Enthusiasm: Symphony of the Don Basin, 1930). Both were acclaimed in Paris, Berlin, and London, but not at home. Back in Moscow, Vertov came under increasing attacks from the Stalinist film bureaucrats for his formalist style and made his last great film, the lyrical *Tri pesni o Leninye* (Three Songs of Lenin, 1934). The last twenty years of Vertov's life were spent in shadow and frustration. Most of his projects were rejected; the few that were accepted were often reedited, such as *Kolibelnaya* (Lullaby, 1937). Largely ignored, he worked on newsreels until his death.

Theory and practice. Vertov wanted his films to demonstrate to millions of illiterate people that they were the owners of the land. Vertov felt that this goal could not be achieved by the acted cinema, which distracted rather than empowered the masses. As a result he relentlessly attacked FICTION films.

If the people were to see themselves on the screen, it followed that the camera had to be brought out from the world of the studio into the street. This became a cornerstone of Vertov's theory and practice. Instead of using a static camera to film STARS under heavy lights, Vertov's cameramen ran after people involved in everyday activities and photographed them in natural lighting. In order to film people at work and play without disturbing them, it became necessary to develop devices such as the candid camera. This ability of the camera to make people observe themselves in an unprecedented way led Vertov to contend that the "cine-eye" was superior to the human eye.

Vertov's theory was futurist in concept, yet in practice it was also subservient to his realist goal of showing "man, his behavior and emotions." This is precisely what makes Vertov's theories difficult to unravel: they often subscribe to two apparently opposite traditions, the realism of an objective observer and the idealism of a revolutionary. It was Vertov's peculiar genius to document "life as it is" with his camera and to turn these "pieces of truth" into fiction and poetry on the editing bench. *See* FILM EDITING.

Vertovian editing can be seen at its best in *The Man with the Movie Camera*. It organizes images not only according to a political theme but also metaphorically and rhythmically. Not until all the parts of the film fit with one another, as in a poem or a musical piece, does the work find its completed form. It is this interdependence of all the shots in his films, along with the skillful use of sound (in the sound films that followed), that distinguishes Vertov's editing from that of the other Soviet innovators of his time.

Vertov is an essential filmmaker, but he is also a paradoxical and elusive one. His writings on film show a rare poetic insight into the nature of the

medium, but, like his films, they are often enigmatic. The paradox that perhaps best epitomizes Vertov is that his films are the work of a poet, a musician, and a storyteller who claimed, most of the time, that one should do away with art, music, and storytelling in the cinema. Yet it is precisely this turn of mind that led him to demonstrate, perhaps in spite of himself, that the nature of cinema is to turn newsreels into fairy tales.

See also FILM THEORY; MOTION PICTURES.

Bibliography. Seth R. Feldman, *Dziga Vertov: A Guide to References and Resources*, Boston, 1979; Annette Michelson, ed., *Kino-Eye: The Writings of Dziga Vertov*, trans. by Kevin O'Brien, Berkeley, Calif., 1984; Georges Sadoul, *Dziga Vertov*, Paris, 1971; Dziga Vertov, *Stat'i, dnevniki, zamysly* (articles, diaries, notes), Moscow, 1966.

BERTRAND SAUZIER

VIDEO

The term *video* is often used interchangeably with television, although video as a medium encompasses television and extends far beyond it. Video is both a production and a distribution medium, a vehicle for ART, ENTERTAINMENT, and information, used by broadcasters, cablecasters, visual artists, teachers, children, psychiatrists, businesspeople, musicians, and HOLLYWOOD filmmakers, among others. Linked with a computer, video can produce complex interactive programs, high-density storage of audiovisual information, astounding art, and intriguing games. It is one of the latest technological innovations for the recording of moving images and sound. *See* COMPUTER: HISTORY; TELEVISION HISTORY.

Unlike film, which consists of a series of still photographs, video is a series of messages, or magnetic patterns, on a field of oxide-coated plastic tape. Exposed film consists of actual pictures, visible to the naked eye, which when projected in rapid succession—usually at twenty-four frames per second—give the impression of a moving scene (*see* MOTION PHOTOGRAPHY). A strip of videotape reveals no images to the eye; it must first be scanned electromagnetically and its signal decoded before black-and-white or color pictures and sound emerge from a television monitor. These images and sounds can be played back immediately—no processing is required as in film—and because the electronic impulses virtually duplicate the live transmission, videotape creates the feeling of a live event.

Evolving technology. The development of video depended on progress in miniaturization, magnetic tape, assembly mechanisms, and electronics. Its first public appearance in the United States was in 1951, when the Electronics Division of Bing Crosby Enterprises demonstrated the features of videotape. Two

years later DAVID SARNOFF demonstrated RCA's magnetic tape for recording both black-and-white and color television programs. By 1956 the Ampex Corporation had developed what would become the U.S. broadcast industry standard for nearly twenty years: two-inch "quadruplex" videotape, requiring big, expensive machines with four separate recording heads.

The quest was on to develop a format and equipment that would be lighter and more portable than the stationary Ampex prototype. During the mid-1960s helical scan video equipment was introduced. With tape running at a slant against the moving recording heads, information was condensed onto narrower tape, and narrower tape meant lower cost and greater portability. Half-inch helical scan equipment was initially aimed at the audiovisual market—industry, schools, libraries, hospitals, and other institutions—thus opening the video market beyond broadcast.

In 1966 Japan Broadcasting Corporation (NHK) introduced a lighter-weight camera using a vidicon tube for its more mobile TELEVISION NEWS coverage. By 1971 a new, one-inch broadcast format was developed for CBS. In 1972 Sony announced the three-quarter-inch U-matic cassette, which became the standard for both broadcasting and the burgeoning educational and industrial markets.

Electronic news gathering. The arrival of truly portable equipment coupled with the advent of mobile microwave transmission and electronic editing ushered in a revolutionary new approach to broadcast news reportage known variously as ENG—electronic news gathering—or EJ—electronic journalism. Prior to ENG, live television newscasts depended mainly on prearranged events such as an inaugura-

tion or a convention. ENG meant that spontaneous events could be covered live—and broadcast within hours or minutes. In 1974 St. Louis television station KMOX became the first to use ENG exclusively. At that time only 10 percent of U.S. television stations were using any ENG equipment, but seven years later only 8 percent still used news film. Even as some countries converted to ENG—in 1979 Israel began its first ENG operations—others, like Great Britain, lagged behind owing in part to stiff union resistance to the new technology. The advent of ENG equipment had an impact on both the style and the content of television news. Some critics accused "live" or "eyewitness" news programs of trivializing and sensationalizing the news, although others praised the new technology for increasing television's ability to cover unplanned newsworthy events. Though the availability of the technology made the reporting of live news possible, the quality of that news continued to depend on the journalists in front of and behind the cameras.

Video became known popularly not so much for the news but for coverage of SPORTS, where instant video replay and slow motion were pioneered. Television drama and comedy programs more slowly switched over from film to video, as did commercial television advertising.

A personal medium. The invention of movable type in the fifteenth century made books portable and private; video did the same for the televised image. By 1969 the Portapak—the first portable video recorder—was available throughout the United States, offering the first generation of viewers raised on television the tool to make it their own way while exploring the unique aesthetic properties of the medium. Artists, hippies, journalists, filmmakers, actors,



Figure 1. (Video) Dan Reeves on location shooting *Smothering Dreams*, 1981. Photograph by Debra Schweitzer. Courtesy of Electronic Arts Intermix, Inc.



Figure 2. (Video) Ant Farm's *Media Burn*, San Francisco, July 4, 1975. Photograph by Diane Andrews Hall, 1975.

students, and others picked up the Portapak to experiment with feedback, document a riot or a love-in, or simply turn the camera on themselves.

In the United States video groups sprang up all over—the Videofreex, Raindance Corporation, Video Free America, People's Video Theater, Global Village, Top Value Television (TVTV), and Optic Nerve were some of the better known. By 1971 they had their own magazine devoted to video, *Radical Software*, linking them and spreading information about technical developments, access to equipment, sources of funding, and distribution networks for their tapes. In Canada, the Satellite Video Exchange Network in Vancouver developed an annual directory of people working in video all around the world.

Sony Corporation, the company most responsible for developing the small-format video industry and its market, decided to focus its first marketing of the Portapak in the United States. As a result, European, Asian, and Latin American experiments with the medium came later, but proliferated rapidly when they did.

In time two camps emerged within the international video scene—the video artists, many of whom had crossed over from other media such as painting,

sculpture, and music, bringing their established reputations and artistic credibility to the new form; and the video activists, who were more concerned with communications issues than with art per se.

Video art. Video art was largely influenced by the “happenings,” performances, dance, theater, music, and painting of the late 1960s. With the international interest in popular culture celebrated by pop artists like Andy Warhol, not only television images but the medium itself became a source for creativity and experimentation. At the studio for ELECTRONIC MUSIC in Cologne, supported by the Federal Republic of Germany's broadcasting system and directed by Karlheinz Stockhausen, Korean Nam June Paik met Wolf Vostell. Together they, along with others, inaugurated the Fluxus movement and the first video art “happenings” of the early 1960s. Before the Portapak made tape available, Vostell hammered, painted, and even shot at a group of television sets in *Ereignisse für Millionen* (Happenings for Millions, 1963), and Paik used magnets to distort television images in *Electronic TV* (1963). In 1965 Paik, who by then was living in New York, bought one of Sony's first portable video recorders and taped Pope Paul's United Nations visit from the window of a

Fifth Avenue taxicab. That evening he showed the first independently produced videotape at the Café au Go-Go in Greenwich Village, launching portable video as a medium for personal artistic expression.

Some artists saw video as a means of integrating their art in popular culture via television; others saw it as a new and interesting way of making images and artistic statements; still others saw it as a means of documenting their performances and extending the audience for their work. PERFORMANCE art, conceptual art, and imagist art all flourished in the early days of video as new kinds of environments for viewing video and new tools such as the synthesizer and colorizer were invented. Sculptural environments utilizing large-screen video projections or multiple monitors as well as time-delayed cameras or recording decks permitted such artists as Bruce Nauman, Dan Graham, Peter Campus, and Keith Sonier to experiment with video space and time. *Wipe Cycle* (1969), by Frank Gillette and Ira Schneider, was one of the first multimonitor installations, presenting viewers with a pyramid of video monitors where they could see themselves in the present and then, wiping across the monitor bank, in time-delayed pasts. This "attempt to integrate the audience into the information" was shown at "TV as a Creative Medium" at the Howard Wise Gallery in New York, the first all-video art exhibition in the United States.

Artists concerned with more abstract art and the nature of electronic imagery collaborated with engineers and computer specialists to invent unique tools for manipulating the medium. Steina and Woody Vasulka developed the Digital Image Articulator; Dan Sandin invented the Sandin Image Processor; Paik collaborated with Japanese engineer Shuya Abe on the Paik/Abe synthesizer; and Tom DeFanti in the United States developed a personal-computer graphics system known as the ZGRASS. These video tools often contained the seeds of costly SPECIAL EFFECTS equipment like the Quantel or Mirage that were later developed commercially for broadcast and industrial use.

In 1967 San Francisco's public television station KCET began a short period of experimentation in video art—one of the first signs of interest by U.S. broadcasting in the video art movement. Not until the arrival in the 1970s of music videos—videotape recordings of popular music pioneered by the British—was the legacy of video art absorbed by commercial media and transformed into a popular art form.

The principal outlets for video art have been galleries, museums, and festivals. In the late 1960s Gerry Schum opened the first gallery of films and tapes, the Television Gallery, in Dusseldorf. In time, museums like the Whitney Museum of American Art and the Museum of Modern Art in New York, the Centre

Pompidou in Paris, and the Stedelijk Museum in Amsterdam all began regular exhibition of video art. One of the most celebrated museum exhibitions of video art was the Nam June Paik retrospective at the Whitney in 1982, the first such retrospective of a video artist's work by a major American museum, followed in 1986 by the Museum of Modern Art's major exhibition of Bill Viola's work. The Kijkhuis in the Hague, the São Paulo Biennale in Brazil, the San Sebastian Film Festival in Spain, the American Film Institute's National Video Festival, and the Federal Republic of Germany's Documenta likewise recognized video as an art medium. Such festivals served as the meeting place for MonitEur, an association of video critics and programmers from Italy, Belgium, the Netherlands, France, England, and the Federal Republic of Germany. Started in 1982, MonitEur awarded prizes to outstanding video work and otherwise helped promote the exhibition and serious study of European video art.

In recent years, video art has taken off in new directions. Experimental NARRATIVE has become an important interest of international video artists along with increasing formal sophistication paralleling developments in the technology for producing and editing video work. With the accessibility of the SATELLITE, video artists have also created bicoastal and multinational media art events.

Guerrilla television. Just as the development of offset PRINTING launched an alternative press in the 1960s, video's introduction hailed the arrival of an alternative television movement in the 1970s. The technological radicalism of the video activists was articulated in a manifesto written by Michael Shamberg in 1971, titled *Guerrilla Television*. Video was the tool that would decentralize broadcast television and give ordinary people a chance to get their messages out via CABLE TELEVISION. Cable was on the rise in the United States during the early 1970s, and federal regulations mandating local programming on cable, and for a time mandating public access to one or more of cable's multiple channels, made the utopian dreams of the video guerrillas seem attainable. A new style of video journalism was popularized by the award-winning tapes of the U.S. group known as TVTV—Top Value Television. Capitalizing on the immediacy and intimacy of the video medium, TVTV avoided the "voice of God" narration familiar to television viewers and replaced it with imaginative graphics, irreverent humor, and outspoken interviews with ordinary people as well as people at the power centers of the United States. Because small-format video was so new and so "low-tech," subjects tended to be unintimidated by the equipment and the hippie journalists. And since the equipment did not whirl like television film cameras, many did not even realize that tape was running, which encouraged

outspoken, off-the-cuff comments. *Four More Years* (1972), TVTV's DOCUMENTARY coverage of the 1972 Republican convention, was shown on cable and later on public television to much critical acclaim, proving that the alternative media could beat the networks at their own game and for a fraction of the cost.

Video guerrillas proliferated, using video to explore cultural roots, give voice to groups of people ignored by the mass media, and stimulate communication between such groups. In Canada the National Film Board's Challenge for Change program pioneered early uses of video to stimulate community awareness. The film *VTR: St. Jacques* (1968) documented the catalytic use of the medium in a depressed Montreal neighborhood. Projects with a similar community focus sprang up in some western European countries. In the Federal Republic of Germany, the Telewissen group, dedicated to making community television, was formed in 1970 in Darmstadt, while Community Video Viewing Shops appeared in the Netherlands. In England, John Hopkins founded the Fantasy Factory in London and became a key figure in the British video movement.

An important new stimulus to the movement was provided by the development of the stand-alone time base corrector, a black box that stabilized helical scan tapes and made them broadcastable. This event led many independents in the United States to aim their work toward broadcast television, especially because cable systems were proving a disappointing market. A number of the independents won a foothold in public television. The commercial networks at first flirted with the video guerrillas, sometimes purchasing their tapes, particularly of news events the networks themselves had failed to cover.

In general, however, the networks broadcast only excerpts, which were narrated by network commentators, beyond the editorial reach of the originators. The video guerrillas had done much of the research and development in the video medium, of ultimate value to the networks. In various programming genres, the stylistic and content innovations of the guerrillas were absorbed into mainstream television. Video guerrillas having been significant pioneers, remained on the outside. The growing tide of conservatism in the 1980s slowed the video guerrilla movement but did not halt it.

Video and the movies. Video has had a significant impact on the motion picture industry. Used to rehearse a scene and frequently to record actual takes, video saves time and money in costly film production and has become common on most movie sets. Material shot on film has also been transferred to videotape and edited with all the computerized special effects of state-of-the-art video. George Lucas, famed for his *Star Wars* films, added a computer division to Lucasfilm, which pioneered the EditDroid, a sophisticated video editing system for motion pictures. High-definition video, which is closer to film in resolution and tonal range than to video, has been developed especially with the commercial film market in mind. It was thought that satellite distribution of movies made on tape to theaters with wide screens and high-definition video projection would further marry the two worlds of film and video while streamlining movie distribution to theaters.

Home video. In 1975 the introduction of half-inch cassettes for the home market brought still another boom to the video field. Consumers bought the equipment primarily to record television and cable programs off the air, a phenomenon known as time-



Figure 3. (Video) Nam June Paik during the installation of his video work *Fish Flies on Sky*, Galeria Bonino, New York, January 1976. © 1976 by Peter Moore.



Figure 4. (*Video*) Charlotte Moorman with *TV Cello* and *TV Glasses*, 1971. © 1971 by Peter Moore.

shift viewing. But when miniature cameras and recording decks became available, video began to encroach on the home movie as the preferred way to record baby's first steps, daughter's wedding, and other family rituals and rites of passage traditionally memorialized with images.

The home video boom offered the film industry an important, new subsidiary market, and thousands of films were transferred to tape cassettes for home video sales and rentals. Pornographic films on tape proved to be home video's first best-sellers. And with inflation, the traditional Saturday night date—a movie down at the Bijou—was often replaced by watching one at home on tape or on cable television. Although this presented a financially attractive alternative for movie lovers, it also brought a change to viewing habits and expectations. The ambience of television viewing—random, lighted, interruptable—was extended now to film viewing. Younger viewers behaved in movie theaters the way they did at home watching television, while films, made now with the home video market in mind, were often structured more as made-for-TV movies than as theatrical events.

Unexpected social uses. The availability and relatively low cost of video technology in the 1970s and 1980s occasioned many unanticipated social uses. When used for security surveillance in banks, stores,

and homes, it evoked the Big Brother of Orwell's 1984. Police departments used video to nab drunk drivers and document highway violations as well as to entrap criminals in the act. Videotapes became a means of applying for a job, recording a will, submitting evidence in a trial, documenting inventories for insurance records, and organizing a dating service. Video, able to go where the human eye could not, could be used to inspect for termites or troubleshoot clogged sewers. Industry seized upon video early as a way of communicating with far-flung branch offices, instructing salespeople, or pitching to potential customers. In education, video could supply canned lectures or a more convenient way of viewing films, but more innovative approaches were also used, in which students and teachers made their own tapes. For the training of dancers, gymnasts, machine operators, and others involved in movements requiring extreme precision, video proved a boon. In psychiatry, Dr. Milton M. Berger of Columbia University blazed a path in the therapeutic uses of video in psychoanalysis and group therapy. Video games, the electronic version of the pinball gallery and pool hall, became a youth craze in the late 1970s. In the 1980s video games for the elderly appeared; they were aimed at developing hand-eye coordination and manual dexterity while generally stimulating brain functioning.

The decades of the sixties, seventies, and eighties informed and were transformed by video. Once envisioned by some as a tool capable of creating a new society through the decentralization of television, video had by the eighties become an adjunct of mainstream broadcasting and Hollywood film, and a middle-class status symbol of conspicuous consumption. However, new and imaginative applications—unforeseen by the video pioneers—continued to proliferate.

See also AVANT-GARDE FILM.

Bibliography. Deirdre Boyle, *Subject to Change: Guerrilla Television Revisited*, New York, 1987; Douglas Davis and Allison Simmons, eds., *The New Television: A Public/Private Art*, Cambridge, Mass., 1977; Ira Schneider and Beryl Korot, eds., *Video Art: An Anthology*, New York, 1976; Michael Shamberg and Raindance Corporation, *Guerrilla Television*, New York, 1971.

DEIRDRE BOYLE

VIDEOTEX

Data transmission systems that bring text and graphic information to viewers through TELEPHONE and CABLE TELEVISION circuits and display it using modified television sets. Videotex systems provide businesses and homes with a range of informational,



a



b

Figure 1. (Videotex) Two Antiope teletext magazines on the air in France. (a) Courtesy of Antiope Antenne 2. (b) Courtesy of Antiope SNCF.

educational, and leisure services. Pioneered in Britain, videotex soon found its way into other European countries, North America, and Japan. But despite substantial investment by government and business, videotex services have not met with much market acceptance, particularly outside the area of business services. The development of videotex also raises a number of social concerns about PRIVACY, access to the service, and social isolation.

Videotex is not to be confused with teletext, a less sophisticated system, which is broadcast rather than transmitted by cable. It is a one-way system that supplies digital data on the normal broadcast channel by placing messages in the unused lines of the standard television signal or the *vertical blanking interval* (VBI). The VBI is the dark bar that sometimes appears when the television picture rolls, requiring the viewer to adjust a dial. A teletext subscriber uses a control keypad, typically resembling a hand calculator, to display desired frames, or "pages" of text and pictures. One ordinarily begins with an index that indicates what is available on different pages and proceeds to specific stories. Information is edited in a broadcast studio and coded in digital form for transmission at a rate commensurate with an ordinary television. Transmission rates are important because low rates mean a longer wait for pages. This digitized information is inserted into the television signal on the VBI or a full channel set aside solely for teletext use. Information is detected by a decoder built into the television receiver or wired as an accessory to an ordinary television. The decoder receives, stores, and ultimately displays the data on viewer command. A typical teletext subscriber pays a monthly fee to receive updated information roughly comparable in volume to a weekly NEWSMAGAZINE.

Videotex proper, or *viewdata* as it is sometimes

called, makes use of telephone or cable for distributing information. This wire connection provides subscribers with the opportunity to use large amounts of information. Rather than simply selecting from the two hundred or so pages that the teletext service broadcasts, the videotex user can process thousands of pages of information, contribute to an existing data base, and communicate this action to other subscribers. Videotex analysts envision the service opening the way to new forms of learning, shopping, banking, communication, and working.

Videotex systems include information retrieval and display terminals. These may be ordinary color television sets equipped with a digital decoder or a modified computer terminal capable of color display. Retrieval-response devices range from the simple keypad to a typewriterlike unit that expands the range of commands. Systems also include transmission lines for interactive communication such as ordinary telephone lines, a coaxial cable television network, communications satellites, microwave facilities, and combinations of these. Finally, videotex systems require computer systems and software. Specific programs permit users rapid access to information and record subscriber activity for billing. In addition to paying for a connection (i.e., phone charges), users are charged by the month, by the amount of time they use the system, by the page, or by some combination of these.

Videotex enjoys a number of advantages over its major competitors, the print media. Foremost among the advantages is speed—the amount of time it takes for a page of information to go from writer to reader. The months it takes for a book page, the days or weeks for a magazine page, the hours for a newspaper are reduced to seconds with videotex. Videotex also offers the user wider choice among comprehen-

sive collections of data. In essence, a user can choose the specific kind of information desired when the user wants it. Moreover, videotex is interactive; it allows the user to respond to material on the screen, an advantage in learning, shopping, and working at home.

Videotex also suffers from a number of disadvantages. The display terminal is not as convenient as the printed page for conveying information. The screen holds fewer than two hundred words, less than half the number on a paperback book page, and can display only a page at a time. It is not nearly as portable as a newspaper, magazine, or book. Moreover, the cost of using videotex is far higher than that of traditional print media. Though the trend is toward decreasing component costs, analysts doubt that anything more than a simple teletext service will attract widespread interest in the foreseeable future. Consequently, most videotex promoters see banks, large retailers, travel agencies, and other businesses, rather than individual households, as their major market.

Despite these drawbacks, videotex soon attracted developers in several countries. Among these were governments, which saw videotex as a way to promote their national information industries, particularly in international markets. The British government took the lead with its Prestel videotex and the BBC's Ceefax teletext. France followed with Teletel (videotex) and Antiope (teletext), Canada with Telidon, Japan with Captain, and the Federal Republic of Germany with Bildschirmtext. In the United States, several large businesses, including AT&T, the television networks, major publishers, banks, and retailers moved into videotex.

Analysts agree that videotex services offer potential advances in information distribution and use. Many question whether this potential will be fully realized. Considerable differences exist among national technical STANDARDS, particularly between Europe and North America. Standards influence the type and cost of videotex systems, and the lack of agreement limits the investment incentive. Agreement or not, there is concern that consumers will find the cost and effort of use to be substantial barriers. It is uncertain whether this can be overcome by decreases in component costs and the growing consumer education in interactive electronics through automatic teller machines, cable television, videocassette recorders, and personal computers.

Observers also raise questions about the social implications of videotex. They wonder about the gap that videotex may widen between those who can and cannot afford access to these services. Moreover, there is concern about the potential for encroachments on personal privacy. This arises from the ability of videotex systems to monitor user choices for

billing, marketing surveys, and so on. Finally, there are questions about the social consequences of providing people with the ability to perform many activities normally conducted outside the home in the convenience—but also the isolation—of their individual homes.

See also TELECOMMUNICATIONS POLICY.

Bibliography. Vincent Mosco, *Pushbutton Fantasies: Critical Perspectives on Videotex and Information Technology*, Norwood, N.J., 1982; Richard M. Neustadt, *The Birth of Electronic Publishing*, White Plains, N.Y., 1982; Efreim Sigel, *The Future of Videotex*, White Plains, N.Y., 1983.

VINCENT MOSCO

VIOLENCE

Violence in the mass media has been the subject of continuing controversy, principally in the United States, since the end of World War II, although neither media violence nor concern over it has been confined to the United States. Japanese television drama is acknowledged as among the most violent in the world, yet in Japan there has been little controversy over it; in Sweden the portrayal of violence but not the portrayal of sexual encounters has been sharply restricted on television.

In the United States the focus has been primarily on television because of its rapid rise to prominence among ENTERTAINMENT media (*see* TELEVISION HISTORY) and because television has been very violent since early in its history, with a violent crime rate at least fifty times greater than in real life and with children's programming far exceeding general audience programming in violent episodes. However, no mass medium has escaped the controversy because none is without a substantial quantity or prominent instances of violent depictions, representations, and symbols. The possible negative influences of newspapers, magazines, comic books, theatrical films, radio, videocassettes, popular recordings (and their album covers), and music videos have all been and continue to be subjects of debate.

The controversy in the United States over violence in the mass media, especially television, may be divided into two periods:

1. *Growing attention* (1952–1967). The first congressional hearing concerned with television content was held in 1952 by the House Committee on Interstate and Foreign Commerce; the topics were "sex and violence." Widely discussed Senate hearings—in 1954, 1961–1962, and 1964–1965—examined the possibility that juvenile delinquency was encouraged by violent television entertainment. Meanwhile, between the mid-1950s and mid-1960s the medium itself became markedly more violent as

action-and-adventure series became a staple of prime-time television.

2. *Scrutiny, controversy, and confrontation* (after 1968). Between 1968 and 1972 the question of whether the media increase antisocial behavior was examined by three federal task forces. In 1969 the National Commission on the Causes and Prevention of Violence concluded that violence in television drama was a "contributing factor" to "violence in society." By contrast the Commission on Obscenity and Pornography in 1970 concluded that PORNOGRAPHY did *not* contribute to antisocial behavior. The Surgeon General's Scientific Advisory Committee on Television and Social Behavior in 1972 reached the conclusion that violent television entertainment increased the aggressive behavior of *some* young viewers.

The succeeding years have seen continuing controversy among social scientists, and between social scientists and citizen groups on the one hand and broadcasters on the other, over the way television violence should be measured and over its effects on viewers. There have also been repeated House and Senate hearings; an *ex officio* attempt by the Federal Communications Commission (FCC) to impose a "family viewing" period in early prime time, restricting violent and sexually provocative content (this was overturned by the courts); and several campaigns by such groups as the National Parent-Teachers Association and the American Medical Association to reduce violent programming. The confrontation between broadcasters and their critics continues.

Empirical Evidence

In 1963 two experiments conducted by psychologists, demonstrating that within the laboratory setting exposure to violent film portrayals increases subsequent aggressiveness, were published in the United States. Albert Bandura demonstrated that children of nursery-school age would imitate aggressive acts seen on a film screen as well as those performed for them firsthand. Imitated screen behaviors included those of a "Cat Lady" costumed like a character in children's entertainment. Leonard Berkowitz demonstrated that college-age subjects expressed greater hostility toward an experimenter (who had mildly provoked them) after they had seen a portrayal in which violent retribution seemed justified. By the time of the surgeon general's inquiry (early 1970s) more than forty published experiments had documented a cause-and-effect relationship in an experimental setting. However, many remained skeptical of this experimental evidence because of characteristics inherent in laboratory experiments, among them the short time span, the improbability of retaliation by a "victim," and the simulated and

unreal qualities of viewing and behavior in that context.

The surgeon general's inquiry added, as inferential material, data from surveys of everyday viewing and everyday aggressive behavior by young people. Survey data are rarely compelling in regard to causation, but they can be called upon when addressing the issue of whether everyday events occur in ways consistent with a particular causal interpretation. In this instance the surveys documented small but definitely positive associations between the regular viewing of violent television entertainment and everyday aggressiveness not wholly attributable to any alternative explanations, such as more aggressive children preferring violent entertainment.

This is what the surgeon general's committee called a "convergence" between the findings of experiments and surveys. Experiments demonstrate increases in aggressiveness unambiguously attributable to media exposure in settings that arguably limit the real-world circumstances and settings to which these findings can be generalized. Surveys document an everyday association between violence viewing and aggressiveness, thereby increasing the credibility that may be ascribed to generalizations from the experimental evidence to the real world.

Nothing has occurred since the surgeon general's inquiry to alter this pattern, despite the many new experiments that have been conducted and the quantity of new survey data analyzed. There has been little support for the catharsis hypothesis, which holds that violent portrayals will drain off or diffuse aggressive impulses; such portrayals, however, have been shown to inhibit aggressiveness when they make the viewer anxious over such impulses. Although the survey evidence is stronger in regard to interpersonal aggression (stealing, hitting, name calling) than for more serious and harmful forms of antisocial behavior, it also supports the view that violence viewing is associated with seriously harmful as well as less serious antisocial behavior. Most persons familiar with the scientific evidence interpret it as supporting the hypothesis that exposure to violent television entertainment increases the likelihood of subsequent aggressive or antisocial behavior. This majority view is reflected in the passage in 1985 of a resolution by the American Psychological Association's council of representatives calling for ameliorative action by parents and the media.

Theory and Process

Since the 1963 experiments, three theoretical explanations for behavioral effects in connection with media violence have been advanced. These are complementary theories; experiments have demonstrated

that each explains a different but interrelated way in which media effects occur.

Bandura's SOCIAL COGNITIVE THEORY posits that the capability of performing an act is enhanced by—and, if the act is wholly unfamiliar, may be attributed to—observing another perform it. The appropriateness and efficacy attributed to a particular act are said to be influenced by the observed setting and outcome of another's behavior. Firsthand observation and observation through television and film media are held to influence behavior analogously; visual media are thus said to teach the how, when, and why.

Berkowitz's disinhibition and cue theory posits that portrayals alter the meaning attached to internal and external experience by modifying either the restraint associated with an internal state, such as anger, or the response elicited by an external stimulus. This theory argues that visual media are able to inhibit or disinhibit behavior and to affect the degree to which it is influenced by cues in the environment. This perspective emphasized the singular incident. Later, under the label "cognitive neoassociationism," Berkowitz speculated that the media, by such means, may shape mental scenarios that serve as guides to behavior.

Arousal theory, developed by Dolf Zillmann and Percy Tannenbaum, posits that the excitation created by exposure to violent or otherwise stimulating portrayals may transfer to subsequent behavior, so that when behavioral inclinations are aggressive such portrayals will heighten aggression. Arousal almost certainly plays a greater role in effects recorded for children because of their greater impressionability and emotional volatility. Arousal does not fully explain the effects encompassed by social cognitive theory or cognitive-neoassociation, however, because it does not explain why televised models are emulated or why, when equally violent portrayals are viewed, those with particular features should more greatly influence subsequent behavior.

The experiments provide a catalog of the factors on which effects are contingent (Table 1). These represent four broad dimensions, although some factors arguably fit more than one dimension: (1) *efficacy* (is the violence effective?); (2) *pertinence* (does it apply to real-life circumstances?); (3) *normativeness* (is it ordinary and acceptable—i.e., for the behavior in question?); and (4) *susceptibility* of the viewer. This body of psychological research implies that whenever an individual's position on these dimensions is raised or lowered in conjunction with media exposure, so too is the likelihood of a media effect.

Because of the experimentally demonstrated influence of these factors and dimensions, they would

Table 1. Factors Experimentally Demonstrated to Enhance the Likelihood That Television Violence Will Heighten Antisocial or Aggressive Behavior

1. Reward or lack of punishment for the portrayed perpetrator of violence
2. Portrayal of violence as justified by the behavior of the victim
3. Cues in the portrayal likely to be encountered in real life, such as the victim resembling a real-life antagonist
4. Portrayal of the perpetrator of violence as similar to the viewer
5. Portrayal of violent behavior ambiguous in intent as motivated by the desire to inflict harm or injury
6. Violence portrayed so that its consequences do not stir distaste or arouse inhibitions over such behavior
7. Violence portrayed as representing real events rather than events concocted for a fictional representation
8. Portrayed violence that is not the subject of critical commentary
9. Portrayal of violence whose commission particularly pleases the viewer or whose perpetrator is particularly liked by the viewer
10. Portrayals in which the violence is not interrupted by violence in a light or humorous vein
11. Portrayed abuse that includes physical violence and aggression instead of or in addition to verbal abuse
12. Portrayals, violent or otherwise, that leave the viewer in an unresolved state of excitement
13. Viewers who are in a state of anger, frustration, or provocation *before* seeing a violent portrayal
14. Viewers who are in a state of anger, frustration, or provocation *after* seeing a violent portrayal

retain a strong claim to validity were such media effects so rare that the social impact was judged to be insignificant; that is, they explain effects, whether bizarre and shocking or humdrum.

Other Effects

Effects of media violence other than those on aggression and antisocial behavior also have been investigated empirically. These include the following factors:

1. *Desensitization and habituation: Are sensitivity and responsiveness lessened?* Among males, continuing exposure in fairly ordinary viewing circumstances to films featuring extreme violence against women in a sexual context apparently reduces the likelihood that they will label a particular film scene as violent and increases their acceptance of the "rape myth" (i.e., the belief that women long for violently imposed sex). The evidence of several experiments

that used children as subjects suggests that violence in the media deadens response to media violence. It is a demonstrated principle of psychology that desensitized and habituated responses will approach and often return to their initial levels when the stimuli are removed for a period. The implication is that the prominence of media violence in modern society is itself fostering greater acceptance of the presence of such violence and that those individuals heavily exposed become even more accepting. The same argument appears valid for the rape myth and applies analogously to pornography. It is implausible that media violence would deaden responsiveness to violence in one's immediate vicinity, and there is no evidence to support this notion (although the readiness to intervene between a victim and an attacker arguably might be reduced by media accounts of the perils of intervention). However, in addition to the rape-myth data, the apparent effectiveness of the mass media in times of war in labeling a people or a country as deserving to be destroyed supports the view that the media can alter sensitivities regarding the fate of others.

2. *Aggression against women: Do the media make a difference?* Some experiments suggest that the Commission on Obscenity and Pornography may have erred in 1970. The commission focused on erotica and unlawful acts. The new research focuses on portrayals of violence against women in an erotic context and on aggression against women. The experiments find aggression increased by a portrayal of the physical abuse of a woman by a man with no apparent sexual motive, by a portrayal of a rape that the victim eventually enjoys, and by the portrayal of a rape in which the woman suffers when the male subjects have some reason to be antagonistic toward their victim. Although subject to the same skepticism as the laboratory-type experiments on television violence, these findings imply that "stalker" and "slasher" films (in which men brutalize, torture, and murder women), violence in erotica, and the popular theme in entertainment of the violent harassment with sexual overtones are problematic for sexual relations in general and for the well-being of women in particular.

3. *Public perceptions and beliefs about reality: What do the media contribute?* Obviously the media must at least occasionally make some contribution, because sometimes in entertainment and often in news they are the principal or sole sources of information. In regard to media violence the research focus has been on the possible influence of television exposure on "mean-world" beliefs about the integrity of public officials, the future of today's children, and safety when walking alone at night. George Gerbner and colleagues at the University of Pennsylvania have labeled any possible effects "cultivation"

to connote a continuing facilitation of an outlook (see CULTIVATION ANALYSIS). In this instance the hypothesized cultivation is of a pessimistic and fearful outlook. Survey data on television exposure and mean-world beliefs give some support to this hypothesis, at least for North America, although data from other regions are not devoid of support. There seems to be little question that in North America such beliefs are positively associated with television exposure; the evidence for their being attributable to greater exposure is less strong than for association but not absent. The evidence for both association and causation is decidedly stronger for measures of pessimism than for measures of fearfulness. The distinction is made clearer when alternative labels are reviewed for "pessimism" (cognitions, societal-level beliefs, perceptions about the world) and "fearfulness" (affect, personal-level anxiety, perceptions about self). See CULTURAL INDICATORS.

4. *Events transiently prominent in the media: What is the impact?* These "flash effects" are the other side of the coin from cultivation: short-term public response to irregularly repetitive classes of media content. Social statistics analyzed by U.S. sociologist David Phillips suggest that media attention to events such as prominent suicides, televised boxing matches, and publicized executions temporarily increases suicides, increases homicides, and decreases homicides, respectively. These analyses have been the target of much criticism, primarily methodological. Although they cannot be faulted for failing to deal with real-life events, there is no way to specify the exact expected time lag between media attention and public response, so that increases or decreases in reported behavior (as collected by police and other public agencies) occurring by chance might be falsely attributed to the media attention. The sole safeguard is replication, and data other than that originally analyzed are often not available.

International Comparisons

There is no survey of media violence worldwide, although comparisons of the amount of violent programming on television suggest that it is typically more frequent when programming must be supported by ADVERTISING revenue. From the viewpoint of broadcasters the principal purpose of violent portrayals is to attract viewers, a particularly significant criterion when financial support for a broadcasting system is dependent on audience size and quality, the two determinants of the value of (or price to be charged for) advertising accompanying a program.

One would expect both the character and the influence of television to be culture contingent, although the general principles developed in social learning (or social cognition), disinhibition and cue

(or cognitive-neoassociation), and arousal theories apply. For example, an examination of violence in Japanese television found that quantitatively there were scarcely discernible differences between Japanese and U.S. television but that qualitatively there were great differences. Much more frequently in Japanese than in U.S. television, violence befell a figure the audience would like and with whom it would identify; in U.S. television violence more frequently was used with success by the hero. This difference reflects the differing norms for entertainment that hold in the two societies. The theories developed in U.S. research would predict far less, if any, increase in aggressive or antisocial behavior as a consequence of exposure to television emphasizing the noninstrumental or tragic character of violence. Thus the lack of concern over media violence in Japan has some theoretical and empirical justification.

Audience Response

When people respond as members of an audience, they are extending conscious patronage to a medium. Audience response, then, is distinct from such incidental and unintended (but not necessarily unimportant) responses as aggressive and antisocial behavior or pessimistic or fearful outlooks. Audience response is exemplified by television research in the United States, where dependence of the medium on popularity makes the behavior of people acting as audience members important to broadcasters, advertisers, reformers, and critics alike.

CONTENT ANALYSIS of *TV Guide* plot synopses has documented that the proportion of synopses describing a violent story oscillates, peaking every four or five years, and that this proportion is positively associated with the average ratings for such programs the previous year. The rise and fall reflect the rush of the industry to imitate programs that have proved popular and the consequences of programming by GENRE, with program cancellations rising as the audience for violence becomes dispersed and satiated, a process furthered by the tendency of dramatic imitations to be inferior to their models. There is no sign of a sustained, long-term trend, and this oscillation implies a ceiling on the quantity of programs featuring violence imposed by limits in the magnitude of the audience for violence.

Violence is a staple of programming, however, because it meets certain industrial criteria of television and other media as well: ready-made formulas, dramatic conflicts, compelling narratives, vehicles for popular stars, and clear-cut denouements. Undeniably a sizable proportion of the audience responds favorably to such programming. This raises the issue of conflict and action versus interpersonal violence. Empirical data help provide an answer. Over a fall-

winter prime-time season, television ratings by the A. C. Nielsen Company were not correlated with amount of interpersonal physical violence in the programs (see RATING SYSTEMS: RADIO AND TELEVISION). When versions of a popular police series high and low in interpersonal violence were created by editing an episode, there were no differences in the degree of liking expressed for the two versions. Thus violence that is interpersonal and physical does not heighten series popularity or elicit more favorable expressions of opinion. The implication is that programs containing violence are popular because of the characters and the conflict and action, not because of interpersonal physical violence.

The public also has decided opinions about television violence. Typically when adults in the United States are asked whether they agree or disagree with statements that there is too much violence on television or that television violence is a serious problem, about two-thirds of a representative national sample will agree. When similar queries are made in regard to sex, slightly fewer agree. Far fewer adults express concern over sex and violence when, instead of opinions about the medium in general, objections to sex and violence are sought on a program-by-program basis with no hint of the kind of objections that might be offered. In such cue-free circumstances only about one out of ten persons offers an objection relating to violence or sex for the program receiving the most objections on these grounds, and for most programs the proportion receiving objections over sex or violence is decidedly smaller. It is not illogical, of course, to object to the programming schedule as a whole without seriously objecting to any particular program, although some of the difference may represent the respondents' giving what is thought to be the normative opinion when asked to agree or disagree. The discrepancy implies that media violence is not really of much salience to the public; that is, it is not something that is foremost when respondents are asked to give their opinion about one or another television program.

Policy

If media violence has negative social consequences, should it not be constrained? The problem is how to do so without impinging on one or more important values, such as freedom of expression, artistic integrity, honesty, and truthfulness. This is the issue that must be dealt with in policy-making everywhere in regard to media violence.

In all societies the three principal actors in the making of public policy are the government, the media organizations, and the general public. Because of the limitations on SPECTRUM space, among other factors, broadcasting everywhere is a matter for some

GOVERNMENT REGULATION. In the United States, for example, regulatory guidelines for serving the public interest have been imposed in exchange for broadcast licenses, whose periodic renewal is theoretically contingent on adequate performance. Violent content, however, has not figured in such review.

Direct action by the FCC or by Congress against any class of content, which implies prior restraint of expression, although frequently proposed, almost certainly would be declared invalid by the courts on First Amendment grounds. The FCC could proceed by requiring programming inherently antithetical to violence, such as that for children and family viewing, but it has never done so formally beyond the issuance of policy statements that only threaten, and it is unlikely to impose any rules for any class of television content. Meanwhile, technology reduces the power of any regulatory authority by making available distribution and playback systems that do not qualify for control or that elude control. Thus CABLE TELEVISION, pay television, and satellite transmission do not share with broadcasting the same spectrum limitations and therefore are not subject to the same regulatory restraints as a broadcast licensee—although cable systems, being locally franchised, may be subject to local pressures. In-home playback devices elude all reception restraints; only distribution can be restrained, and in the United States there is very little that is not deemed acceptable for self-consenting consumption. Technology thus withers an already ineffectual force.

Economic incentives ensure the continuing production of violent television programs and theater films, disseminated by cable, pay television, video-cassettes, and/or typically later broadcast on television, including violent entertainment arguably unredeemed by any claims to topical, political, aesthetic, moral, or dramatic importance. Many would say stalker and slasher films fall into this latter category.

In rich and free circumstances of dissemination, self-regulatory industry codes are imperiled internally because such circumstances fuel competition among the media; externally they constitute a useful defense against critics of regulatory intervention. Thus the entertainment industry cannot be expected to constrain violence voluntarily. By default, responsibility falls to the public and various institutions such as churches, schools, private foundations, and professional and voluntary associations. The two means open to them are public pressure and the financing of nonviolent programming, neither of which historically has much affected the degree, quantity, or character of violence in the television programming available to the public.

Conditions in the United States exemplify to some degree the factors affecting public policy in regard to media violence in many societies. They include the

authority of the government over the media; statutory and constitutional rights, privileges, and restrictions of the media; the priorities given freedom of expression and the minimization of social harm; the control, ownership, and sources of financial support of the media; the cultural setting, including societal values and traditions in regard to violence in real life and storytelling; and the changes being brought about by new technology. When greater authority is extended to the government, statutes, and regulatory bodies, the role of nongovernmental bodies may be sharply reduced, and violence in entertainment—as well as other media content, including news reportage and editorial commentary—may be effectively constrained.

See also CHILDREN—MEDIA EFFECTS; MASS COMMUNICATIONS RESEARCH; MASS MEDIA EFFECTS; PERSUASION.

Bibliography. Albert Bandura, *Aggression: A Social Learning Analysis*, Englewood Cliffs, N.J., 1973; Leonard Berkowitz, "Some Effects of Thoughts on Anti- and Prosocial Influences of Media Events: A Cognitive-Neoassociation Analysis," *Psychological Bulletin* 95, no. 3 (1984): 410–427; George Comstock, "Media Influences on Aggression," in *Prevention and Control of Aggression*, ed. by Arnold P. Goldstein, New York, 1983; idem, "Television and Film Violence," in *Youth Violence: Programs and Prospects*, ed. by Steven J. Apter and Arnold P. Goldstein, New York, 1985; George Comstock, Steven Chaffee, Nathan Katzman, Maxwell McCombs, and Donald Roberts, *Television and Human Behavior*, New York, 1978; David Pearl, Lorraine Bouthilet, and Joyce B. Lazar, eds., *Television and Behavior: Ten Years of Scientific Progress and Implications for the Eighties*, 2 vols., Washington, D.C., 1982; Surgeon General's Scientific Advisory Committee on Television and Social Behavior, *Television and Growing Up: The Impact of Televised Violence*, Washington, D.C., 1972.

GEORGE COMSTOCK

VISUAL IMAGE

Discussion of the nature of visual images has always centered on the question of their relationship not so much to reality as to the perception or conception of reality, and questions of representation (see REPRESENTATION, PICTORIAL AND PHOTOGRAPHIC) in ART have therefore been closely related to questions of psychology and epistemology. Socrates said that the senses paint on the soul, PLATO compared the imitation of things by words to that of painting, and ARISTOTLE wrote that the images of memory are something like a picture—these comments setting a pattern followed to the present time.

Image and Reality

In everyday usage "imitation" in painting means not simply the replication of things but the replication

of something like our first experience of them. When Leonardo da Vinci wrote of painting as a universal LANGUAGE, he based this on the assumption that painting corresponds to common visual experience, to which all have equal access. But this assumption raises familiar problems. For over two millennia it was more or less agreed in a generally Platonic way that the level of reality treated by simple imitation was not true reality, which suggested that what should be imitated was not perceptual but rather conceptual: the forms of the mind rather than the traces of external things. This in turn involved the question of the relation between the perceptual and the conceptual. The question of how we know the true (is it mathematical, universal, beautiful, or all three?) raised aesthetic issues that have had the most pervasive consequences in both the theory and practice of Western art (see AESTHETICS).

At the other, perceptual end of the scale, questions regarding the nature of perception itself also affected art and reflection about it. The tonal painting that began in the RENAISSANCE was based on the understanding that the sense of sight distinguished light and dark, a distinction that provided the framework within which color could be placed. This understanding was of course susceptible to changes in the theory of visual perception. The Newtonian definition of the prismatic nature of light demanded a revision of this scheme. Painting is more real, both of these formulations imply, as it makes use of the elements of perception itself. In such terms an art made up simply of visual elements could be conceived that, although "abstract," could be justified as "more real" because grounded in the foundations of visual sensation itself. At higher levels of perception (as opposed to mere sensation) art could also be justified on the basis of its conformity with the structures by means of which we make sense of sensation (see PERCEPTION—STILL AND MOVING PICTURES).

The same issues are raised in more recent discussions. The problem concerning the question of the "realism" of images arises in part from the false assumption that all images are completely defined by iconicity, that is, reference by resemblance. This only translates into another language the further assumption that all art is at base naturalistic. If we follow that assumption, then in the face of the variety of styles there must be as many ways of seeing as there are ways of representing the world. This point of view is apparently corroborated by the analogy of the visual arts to language. Styles become modes of arbitrary signification (see MODE). But if many things about images are not determined by resemblance, then it is easier to see how images are rooted in the usages, paths, rituals, and routines of which they are an integral part.

If we define style in a narrow sense, not as the general "visual character" of a group of artifacts but

rather as the manner in which artifacts are presented, or forms are represented, as the peculiar character of contour and line, color, and modeling in the art of a place or period, then the differences among styles are less problematical (see ARTIFACT). There are, after all, characteristic differences among groups of artifacts of all kinds—among tools, objects of use and decoration—and in the case of such artifacts questions of vision need not come into play in attempts to explain them. There is no reason why all the features of a work of art should be reduced to MEANING apprehensible only through what might be called the uniform visual and aesthetic surface given to them by facture.

Style in this restricted sense of characteristic facture is the result of the activity of a specialized community of artisans, and its continuity is a consequence of technique and traditions of technique (see ARTIST AND SOCIETY). There are any number of particular ways of shaping and ornamenting a bowl, and the election of one is arbitrary in that any number of choices might have been made—and also arbitrary in the more positive sense of being subject to judgment. Once a style is established, it becomes naturalized; that is, characteristic facture shapes the expectation that artifacts done in that way simply *are* artifacts of that kind, and artifacts done in other ways are viewed as alien. Both traditions of craft and the naturalization of styles may thus encourage conservatism, although styles are easily changed and easily influence one another simply because they are radically arbitrary. The conservatism of styles is less strict than that of function or ICONOGRAPHY, which are rooted in other dimensions of meaning and value.

Defining the Image

Significant implications follow from the argument that images are not defined by iconicity. The face on an Olmec hand ax (Figure 1) does not simply refer by resemblance; rather, it anthropomorphizes a power given to the implement by the very addition of the image. In order to do so, of course, the face must also be recognizable (at least in reference to previous comparable images, which means that it may become recognizable primarily by placement in succeeding versions), but it need not refer in any direct way to a model. Still, it may be seen as referring in the most general sense of being "of" something, and from this example may be derived an important principle: to make an image of something implies (or may imply) its existence.

An important part of the language surrounding images might be called genetic. Images are by or of their makers and are also of their model, who is often also their patron. Both *pattern* and *patron* are from the Latin *pater*, the first term preserving the genetic relation between model and image, the sec-



Figure 1. (*Visual Image*) Jade hand ax, ca. 1000 B.C.E. Olmec. Reproduced by courtesy of the Trustees of The British Museum.

and the genetic relation between an image and the person who caused it to be made. These relationships of image to model, artist, and patron are integral to the magical identification of images with what they represent.

The “of” in the phrase “image of” entails vital connection, but it also implies difference. The image is not that of which it is the image. Solutions to the problem posed by this difference may run the gamut from the identity of image and model (the image is what it is not; the statue *is* the god) to the complete disrelation of the two (the model cannot be imitated, and the image is worthless). The recurrent iconoclastic controversy in Christian art was not simply the result of the prohibition against graven images but also turned on questions of the difference between image and prototype and the nature of the relation between the two.

In Plato’s *Cratylus* Socrates entertains the possibility that words imitate things the way pictures do. This can only be so, he says, if letters somehow have qualities matchable to things, as the colors of pig-

ments may be matched to things by the painter. It has been argued that Plato meant to refer to painting as a natural SIGN or icon. However, he also insisted that an image is always different from and less than that of which it is an image; otherwise it would not be an image but a double, or the thing itself. Perhaps Plato meant to say that materials used by artists are like what is imitated in such ways that they are able to stand for them. For example, a color is like a thing not simply in possessing “redness” or “blueness” but in that it has extent on a surface, and it may be further like a thing in that this extent is circumscribed to give it definite and recognizable shape. Making an image of something, in other words, is a transference from one extent to another, from one colored surface to another, or, to move from painting to SCULPTURE, from volumes of flesh to volumes of stone. The important thing is not that stone is not flesh but rather that stone can take the place of flesh by virtue of certain qualities they share. In an image the qualities of stone may become meaningful in relation to what it stands for (the permanence and hardness of stone instead of the mortality and vulnerability of flesh).

This argument provides an important general definition: images are realized together with some specific extent, and this extent in itself constitutes a separate and irreducible realm of human meaning. Extent is spatial by definition, and the basis of images thus places them in the vast phenomenological and historical realm of significant space. The significance of extent also separates images at once from verbal signs, whether spoken or written. Spoken words have no extent at all, and one must only consider the severe limitations of extent required for written texts to be intelligible—the uniformity of size of letters, lines, columns, and paragraphs—to understand by contrast the endless possibilities of the spatiality of images. Extent also has implications for the question of the conventionality of visual images. Precisely because they are always spatial objects configured to human use, images (and works of art in general) are accessible in ways that texts are not. This is not to say that works of art are natural signs but rather that their interpretation entails not merely their decoding but the examination of their evident spatial character and the recovery of the significance of spaces either implied or stated by them.

The idea of extent might be reworded to say that images are always made of some material. Material is not simply that which is given form, however. It is rather specific and in some way envalued, and this envaluation is integral to the final significance of an image. Materials may be distinguished by some striking qualities (gold or jade, for example) usually associated with rarity and some difficulty in finding or extracting them. Some materials may also be thought

to possess magical powers, and realization of an image in rare or magical materials distinguishes it and irreducibly states its own value.

A more complex envaluation is given to material by labor. As a result of its quarrying, the stone out of which the image of the pharaoh was carved already had a determinate configuration before the image began to be made. The stone was cut out of the earth with great expense of labor in a way defined both by the nature of stone and by the state of technology, and it was transported with similar effort, so that by the time the stone began to be carved it had been given a prismatic form and a value immediately evident as a record and sign of the pharaoh's power to command the dressing, moving, and working of stone. In general, such envaluation entails a certain decorum, and those of or for whom images are made are those with the power to bring about their creation.

Images are also given value by the display of skill. The same pharaoh who moves the stone also commands the services of specialists able to work it, and centers of artistic skill are usually centers of political power. The evidence of skilled facture and, beyond that, of ingenuity of facture or elaboration also in themselves indicate value. This is as true of modern art as it is of ancient or primitive art.

There is a continuous relationship between the decorum implied by envaluation and that to which ornament is subject. The cathedral is bigger than other buildings in a city, and it is also more ornate. Ornament thus provides embellishment, makes status visible, and provides an endless justification for formal invention and the display of virtuosity. The Mayan lord (Figure 2) is distinguished not only by his copious ornamentation but also by the skill with which it is conceived and executed. When simplicity is identified with such distinction, this presupposes the decorum of distinction by elaboration and is meaningful in opposition to it.

Freestanding sculpture identifies an image with the material out of which it is made. When an image is placed on a two-dimensional support, or surface, however, it is immediately related in significant ways to what of the support is not image. The image is of course distinguished from the rest of the support, but it is also related to it according to two fundamental modes, the *surficial* and the *planar*. These two modes tend to be fitted to subject matter and therefore to the uses to which images are put.

The element of surficiality is the *mark*, that is, the actual pigment added to the supporting surface to represent something. The characteristic order of these marks is random and therefore determinable by content, which is perceptual and descriptive. The significance of individual marks is determined not so much by resemblance as by context. It is in relation to



Figure 2. (*Visual Image*) Mayan stela, Copán, Honduras, ca. 500 C.E. Art Resource, New York.



Figure 3. (*Visual Image*) Marching warriors, Cingle de la Mola Remigia, Gasulla Gorge, Castellón. From Johannes Maringer and Hans-Georg Bandi, *Art in the Ice Age*, New York: Praeger Publishers, 1953, p. 130. Reprinted with permission.

other marks that each is meaningful. Figure 3 shows a scene made up of marks freely disposed to record or imagine what we see as an event. Here nonimage is significant as a visual field, and the substantial identity of image and nonimage is sustained in the concreteness of the surface itself, an implicitly optical surface on which things are placed before our gaze. Surficiality occurs with descriptiveness of proportion and movement and with the informal order of chronicling or showing. As a basic mode of presentation of images, surficiality appears early in the history of art and still underlies impressionist painting or PHOTOGRAPHY.

Image and Planarity

Most of what we usually consider to be pictorial arrangement presupposes the uniformity of an underlying flat surface. Axiality presupposes a surface sufficiently regular for lines drawn on it to be treated as geometric lines. The operations of rotation and translation also presuppose a surface sufficiently flat to be manipulated as if it were a conceptual plane. These two operations yield symmetry and repetition, which are basic not only to ornament but also to bilateral symmetry and the frieze as fundamental ways of organizing images. These operations also yield regular division of the plane. In fact there is a close connection between the appearance of planar surfaces in human artifacts and the appearance of these kinds of visual arrangements. Paleolithic art is strikingly lacking in such features as symmetry and repetition, and in the few instances in which they occur they may be viewed as steps toward the definition of the relations they display rather than instances of them. The definition of the plane as a set of uniform points was a conceptual triumph as great

as the discovery of metals or the invention of simple machines: it is essential to the keeping of records, to WRITING and MATHEMATICS, to city planning and the division of land, to the deepest forms of civilized order.

In Paleolithic art, images are superimposed and placed in all manner of sizes and locations. Such images might be called preplanar, simply not subject to planar definition. The importance of planar order then becomes evident. It is in relation to the plane itself that images are equal or unequal in size, high and low, left and right, central or peripheral. Even the randomness associated with surficiality is clearest as a relation in the plane. Planes are also intrinsically coordinate. Regular surfaces appear together with the right angles of the walls of Neolithic towns, and planarity is necessary not only to axiality and division but also to framing, to the regular definition of extent.

This raises the simple and important question of the real plane. An ideal plane may be of any extent, but any actual plane is always of some particular extent, and this particular extent defines it as a format, as *that* canvas or *that* lunette. This particularity determines the conditions of the division, measurement, and organization fundamental to any image placed on it, and it also means that in any instance the plane underlying an image is in an absolutely definite relation to those who see and use the image.

Planarity as a fundamental mode of visual order is associated with definition by uniform outline, that is, by drawing that is in the plane and tends to have the uniformity of the plane itself. This outline encloses shapes, some of which may be iconic. Although these iconic shapes refer by resemblance, they are descriptive only to the degree that their presentation is consistent with the real plane; that is, they are shown full-face or profile and are not foreshortened. Just as uniform contour brings the definition of the varying contours of a real thing into a univocal relation to the plane (and to the space of the viewer), so conceptual images bring the defining elements of a thing into equivalence on the plane. The frontality of such an image stands for the wholeness of what it represents. Conceptual images may be so called because they are definitionlike (and thus like the reality of the plane itself) and not because they correspond in some way to a mental concept. The upper register of Figure 4 is a good example of a conceptual image.

Conceptual images are also subject to the order of the plane itself. An ideal plane is nowhere and of any extent, but a real plane is always somewhere and of some specific and measurable extent. A real plane is always of a certain size and oriented so that it is in a specific and concrete relationship to a larger space and to a viewer. This same specification is also

the condition of the division of the plane and the relation of these divisions to the viewer. Most real planes are vertical, like walls or framed canvases, and face the viewer. If they are divided in half vertically, then the resulting axis is of a specific size in relation to the viewer, whose own verticality and orientation it mirrors. Vertical axial division of the plane both defines and articulates the facing relation of viewer and image. It also establishes basic semantic relations in the plane itself. The halves resulting from the division are equal, but they are different with respect to the axis, which is a unity in opposition to their duality. The axis is also fixed relative to the halves, which may be seen as having been translated or rotated relative to the axis, yielding series (essential to NARRATIVE) or bilateral symmetry.

Out of these relationships planar order may be defined. From orientation (assuming the real plane is vertical) arises, in addition to facing and the possible significance of left and right, the significance of rel-

ative height. Figures are more important the higher they are in the plane, when they are raised up either in relation to the viewer or in relation to other images in the same plane. Relative size also signifies relative importance. Size may have two kinds of significance. The simpler, which might be called sculptural, is based on the actual size relation between viewer and image; the second is properly planar and has to do with the size relation between one shape and another in the plane and establishes an abstract relation of proportion that holds regardless of the actual size of the image. Both figures and images may be subject to these rules. The typical large-headedness of conceptual images states the importance of the head in relation to other parts of the body, as in Figure 4. Finally, from the division of the plane arise significant relations of center and periphery, identity and difference, unity and multiplicity.

Planar order should be understood not simply as a set of related qualities of certain images but as a

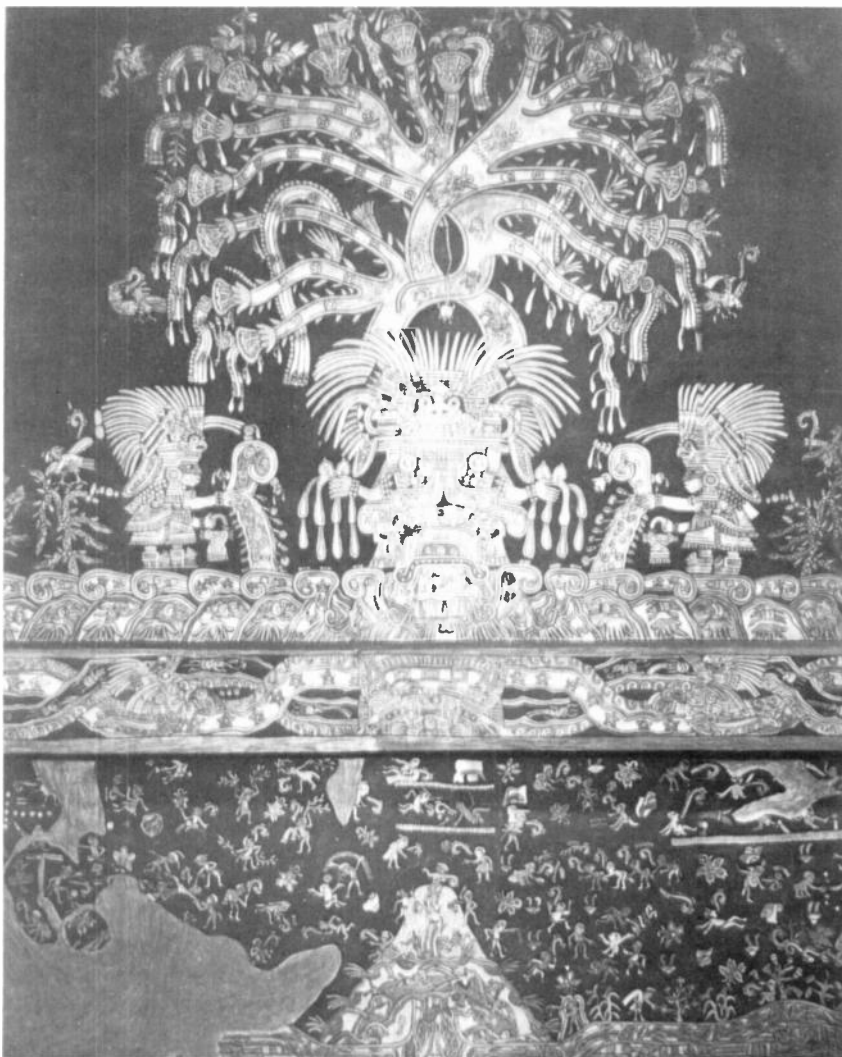


Figure 4. (*Visual Image*) Reconstruction of the Tlalocan (Paradise of the Rain God), Tepantitla, Teotihuacán, Mexico, ca. 500 C.E. From Pedro Ramírez Vázquez, *The National Museum of Anthropology, Mexico: Art, Architecture, Archaeology, Anthropology*, New York: Harry N. Abrams, in association with Helvetica Press, 1968, p. 79.



Figure 5. (*Visual Image*) *Hesire*, from Saqqara, ca. 2750 B.C.E. Egyptian Museum, Cairo. Marburg/Art Resource, New York.

set of significant elements in an embracing RITUAL space. The same holds true when images governed by planar order are reduced in size. Then they may be reduced or abstracted from collective ritual space but bring the reality and the power of the image into the significant realms of the portable, manipulable, and possessable.

Taken together the characteristics of planar order

constitute a decorum that governs the presentation of images in many cultures and must be supposed to inhere in real planarity, which thus provides a universal potential mode for the presentation of images. Consider Figure 4 as an example of a planar image. Differentiation of parts of the image is made by uniform outline. Color differences emphasize this differentiation. The image is defined by central vertical division, the unity and centrality of which the figure of the central deity is identified with. This figure is frontal and whole relative to the attendant figures, which are shown in a subordinate but still planar profile aspect. The central, frontal figure is also larger, higher, and more ornate (and more replete with the powers indicated by the various symbols the ornamentation contains). The same axial order holds throughout. In the interlace band beneath the large central deity an entire rain god MASK is shown frontally, flanked by the subordinate, half-profile masks at either side. In the bottom register a mountain is central to a scene of sporting figures and butterflies. Despite the outline contours of these little figures, this lower scene is essentially a surficial image, and its location is significant as the subordination of the human to the divine, the lower to the higher. In general, planar images bring hierarchical relations into real space.

Planar images may be said to be organized on the plane considered as a uniform limit of the viewer's space. *Virtual* images have their own fictive spatial dimension and seem to exist on the other side of the plane. *Surficial* images are virtual, but in limited ways, and in order for virtuality to develop fully it is necessary that planarity be developed into the virtual dimension.

The upper register of the *Tlalocan* is a strongly planar image, the meaning of which is elaborated in terms of the order of the plane itself. At the same time, it possesses certain characteristics that contradict this planarity. The flat areas of the color imply three-dimensional forms; the front of the central figure implies a back; the profile presentation of the attendant figures demands foreshortening and overlapping. In Figure 5 the pull of the plane is still strikingly evident in the figure, its head in sharp profile, the chest turned into full view; but the figure also displays descriptive rather than conceptual proportions, and close attention has been paid to the description of the surfaces of the body. Hesire stands on the inner edge of the frame of the relief, which serves as a ground line. His legs, one before the other, seem also to be one behind the other, and it is as if there were a plane upon which he stands, a development into the third dimension of the ground line, perpendicular to the plane of the relief itself. This is the virtual plane, the implicit depth of which may be extended by overlapping forms, as in Figure 6.



Figure 6. (*Visual Image*) “Battle of Gods and Giants.” Detail from the north frieze of the Treasury of the Siphnians, Delphi, ca. 530 B.C.E. Archaeological Museum, Delphi. Marburg/Art Resource, New York.



Figure 7. (*Visual Image*) Detail of a frieze from the Villa of the Mysteries, Pompeii, ca. 50 B.C.E. Alinari/Art Resource, New York.

The Virtual Plane

By later classical times a fundamentally important change had taken place in the virtual plane, which came to be shown as if seen from an optical angle. The virtual plane now ends in a horizontal division of the original plane, which is understood to be the far edge of the receding virtual plane (Figure 7). When this occurs, a number of important, system-

atically related changes occur. In painting, shapes become forms: that is, as the image is located and clarified on the virtual plane, modeling begins to be placed within outlines that are understood as the boundaries of changing surfaces in light. Modeling in turn implies a source of light. The image thus becomes physical at the same time that it becomes optical. This cluster of characteristics forms the basis of the naturalism that has dominated Western art.



Figure 8. (*Visual Image*) Figures of prophets, Sant'Apollinare Nuovo, Ravenna, ca. 504 c.e. Alinari/Art Resource, New York.



Figure 9. (*Visual Image*) Lorenzo Ghiberti, "The Story of Jacob and Esau." Detail from the east doors (*Gates of Paradise*) of the Baptistery of S. Maria del Fiore, Florence, 1425–1452. Gilt bronze. Alinari/Art Resource, New York.

On the optical virtual plane—the *explicit* virtual plane—forms could be located with a new degree and kind of clarity, and the geometry of light could also be plotted. The application of the notion of the virtual plane to the ground of the real space of vision seems to have yielded the horizon, which appears late in the history of art.

The optical virtual plane persisted in Early Christian, Byzantine, and medieval art (see MIDDLE AGES) as a horizontal division of the format and, however purely ornamental it may have become, preserved a definite relation, or the possibility of a definite relation, between viewer and image (Figure 8). It also preserved the possibility of the translation of planar order into the virtual dimension. One-point perspective (Figure 9) projects the modular division of the real plane onto the virtual plane seen from a fixed visual angle. Figure 10 is a perspective construction whose viewpoint is lower than the line establishing the virtual plane; it displays a new accommodation of planar order to order on the virtual plane. Forms are both higher on the plane and deeper on the virtual plane as they are more sacred, making fictive depth

Figure 10. (*Visual Image*) Masaccio, *The Trinity, with the Virgin, St. John, and Donors*, ca. 1428. Fresco, Santa Maria Novella, Florence. Alinari/Art Resource, New York.

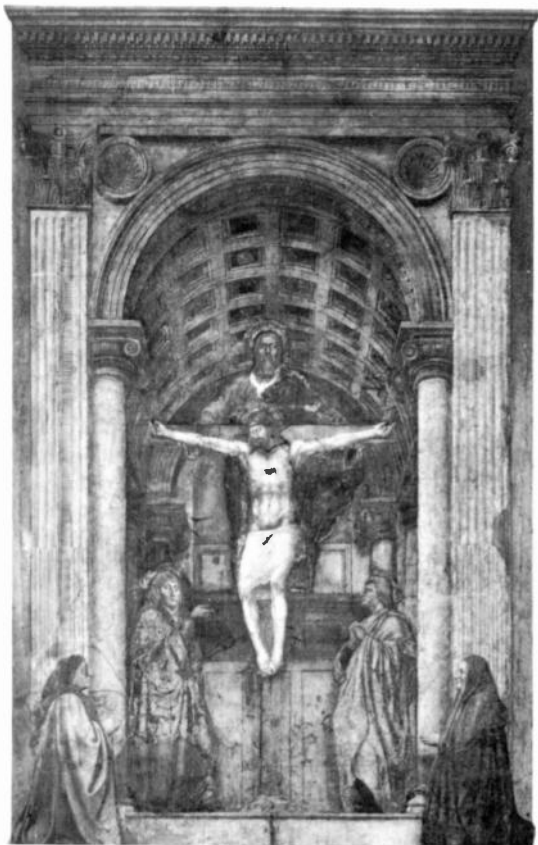


Figure 11. (*Visual Image*) Hubert and Jan van Eyck, altarpiece of Saint-Bavon Cathedral, Ghent, completed 1432. Open, center panel. Giraudon/Art Resource, New York.

into a powerful METAPHOR. The vanishing point, which coincides with the viewer's line of sight and with the horizon, realizes in the virtual dimension the possible infinity of a mathematical plane.

In general, planar images make entities present in real space. They are understood as magical and as integral to the organization of ritual space that their configuration implies. Their axiality typically coincides with the axiality of the architectural space in which they are set (see ARCHITECTURE).

Virtual images imitate in a simple sense; they represent appearances or state all meaning insofar as it can be made into appearances—hence the perennial significance of allegory and personification in Western art. In most cases planarity and virtuality are intertwined. In Figure 11, for example, the overall significant order of the image, much like that of the *Tlalocan* (Figure 4), is planar and integral with the real space of worship. At the same time, the figures themselves are treated naturalistically, as if represented to the viewer.



Figure 12. (*Visual Image*) Claude Monet, *Impression, soleil levant* (Impression: Rising Sun), 1872. Musée Marmotton, Paris. Giraudon/Art Resource, New York.

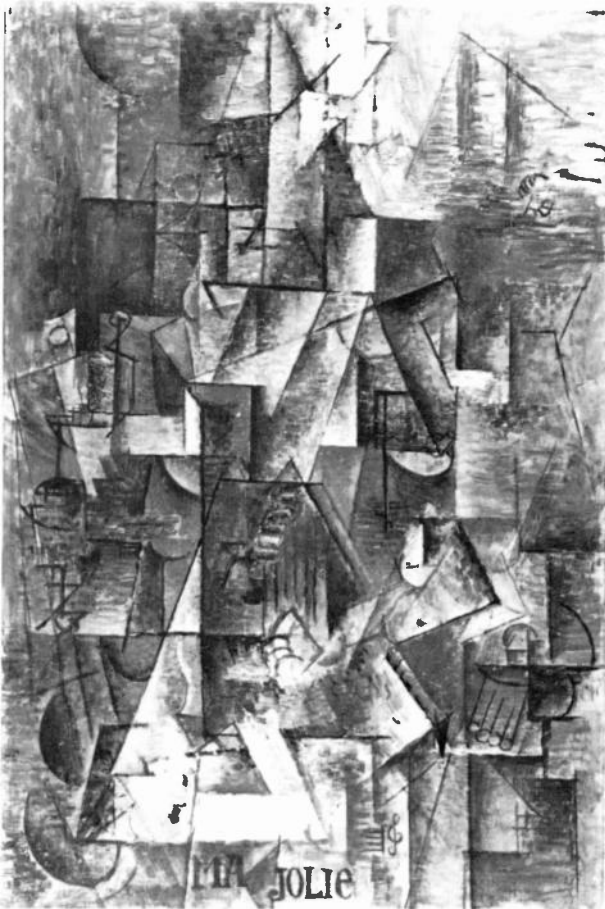


Figure 13. (*Visual Image*) Pablo Picasso, *Ma jolie* (woman with a zither or a guitar), Paris, 1911–1912. Oil on canvas, 39 3/8 by 25 3/4 in. Collection, The Museum of Modern Art, New York. Acquired through the Lillie P. Bliss Bequest.

Virtual planarity and surficiality are closely related. When the virtual plane was made explicit and forms began to be modeled, marks representing light and dark became elements of the structure of images in a way they had not been before. Perspective, on the other hand, developed the potential descriptive modularity of the plane in the virtual dimension. In impressionist painting surficial treatment defines not just figures but the whole visual field, the configuration of which is determined by the descriptive modularity dependent on virtual planarity (Figure 12).

These categories, in one or another degree of purity or combination, account for the vast majority of the images in world art. All depend on the assumption that images may adequately present or represent, that the image is the god or may be seen as the god. The means of presentation and representation might therefore be called transparent over very long and broad traditions. But modernism has been premised on the opacity of the means of representation. In analytic cubism (Figure 13), for example, the elements of representation lift away from the image they ostensibly set forth to become themes for development in their own right. This signals the beginning of a kind of art in which problems of representation and of making and acting with respect to art in general become central and in which images may become secondary or of no concern.

Bibliography. Moshe Barasch, *Theories of Art: From Plato to Winckelmann*, New York, 1985; Ananda K. Coomaraswamy, "Ornament," in *Selected Papers*, Vol. 1, ed. by Roger Lipsey, Princeton, N.J., 1977; Umberto Eco, *A Theory of Semiotics*, Bloomington, Ind., 1976; Ernst H. Gombrich, *Art and Illusion: A Study in the Psychology of Pictorial Representation*, 4th ed., London, 1972; idem, "Visual Metaphors of Value in Art," in *Meditations on a Hobby Horse*, 4th ed., Chicago, 1985; Rosalind Krauss, "Photography's Discursive Spaces: Landscape/View," *Art*

Journal 42 (1982): 311–319; W. J. T. Mitchell, *Iconology: Image, Text, Ideology*, Chicago and London, 1986; Avigdor W. G. Poseq, *Format in Painting*, Tel Aviv, 1978; Meyer Schapiro, "On Some Problems in the Semiotics of Visual Art: Field and Vehicle in Image-Signs," *Semiotica* 1 (1969): 223–242; David Summers, "Conventions in the History of Art," *New Literary History* 13 (1981): 103–125; idem, "The 'Visual Arts' and the Problem of Art Historical Description," *Art Journal* 42 (1982): 301–310.

DAVID SUMMERS

VISUAL PERCEPTION. See PERCEPTION—STILL AND MOVING PICTURES.

VON NEUMANN, JOHN (1903–1957)

Hungarian-born U.S. mathematician. John von Neumann led the development and construction of the world's first electronic computer and was the principal architect of game theory, which provided a mathematical approach to many forms of social behavior and has had wide influence on communication theories. Born in Budapest into a prosperous banking family, the young von Neumann's mathematical precocity and intellectual talents were recognized and encouraged. While still a teenager he entered the University of Berlin, attending lectures by Albert Einstein on statistical mechanics. In 1925 he received a degree in chemical engineering from the Federal Institute of Technology in Zurich and a year later a doctorate in MATHEMATICS from the University of Budapest. At the age of twenty-four he became a lecturer in mathematics at the University of Berlin.

Although von Neumann's genius ranged over many areas within pure and applied mathematics, he achieved particular eminence in three major fields: mathematical formalizations of quantum theory, the design of electronic computers, and the development of game theory, which has had a lasting importance for theories of conflict and communication in organizations. His contributions in these and other seemingly diverse areas reflected his continuing interest in the use of mathematical formalisms to illuminate difficult empirical problems in both the social and physical sciences.

Stimulated by German mathematician David Hilbert's pioneering work on the logical description of an infinitely dimensional space ("Hilbert Space"), von Neumann's early work pushed toward the formalization of the empirical theories of quantum mechanics. In *Mathematical Foundations of Quantum Mechanics* (1932) he set forth a rigorous logical and axiomatic basis for atomic physics.

In the early 1930s growing political instabilities in Germany and in his native Hungary led von Neumann to emigrate to the United States. At Princeton University's Institute for Advanced Studies, where he

became professor of mathematics, von Neumann developed the logical basis for electronic computer design and built the giant computer known as MANIAC (Mathematical Analyzer, Numerical Integrator and Computer), which in turn made possible the construction and testing of the first model of the hydrogen bomb in 1952. Throughout his career von Neumann's advice was sought on matters of U.S. scientific policy, and he served as a member of the U.S. Atomic Energy Commission from its inception. Von Neumann's fascination with computational methods and computer design raised further questions regarding the nature of COGNITION and PERCEPTION. His theory of automata, which established the logical possibility of self-reproducing machines, includes some of the first mathematical descriptions of cognitive processes. See also COMPUTER: HISTORY; COMPUTER: IMPACT.

Von Neumann's theory of games has had the greatest relevance for the social sciences. Conceptually, the primary achievement of game theory lay in its formulation of the purely logical scheme of the game-like situation. The "zero-sum two-person game," as it was explicated in a 1928 treatise, provided a paradigm for a competitive situation involving two individuals: after each round of the game the loser pays some money or gives points to the winner, but the total pot or winnings available never changes (hence the name "zero-sum"). The model assumes complete rationality on the part of the participants, in the sense that they possess the ability to choose from alternatives and to calculate the ranges of consequences associated with each choice. It rests on the notion that there exists, for each player, an optimal strategy that enables the player to do the best he or she can against an opponent. This work was developed further in *Theory of Games and Economic Behavior* (1944), published with economist Oskar Morgenstern. The assumptions of game theory, particularly the notion of the rational player motivated by self-interest, have since been challenged as an adequate description of human social behavior. However, in calling attention to the nature of logical reasoning in situations of competition and conflict, game theory has been a useful model for many problems in economics, political science, and other fields.

A well-known simulation based on von Neumann's work is the Prisoner's Dilemma, which has provided theoretical insight into the nature of conflict and decision making in organizations. Many variations of the Prisoner's Dilemma have been devised; in a well-known version, two persons suspected of being partners in a crime are being questioned in separate rooms. Each is told either to confess or to remain silent. If only one confesses, he or she will be released and given a reward, but the other will receive a stiff sentence. If both confess, they will both be

jailed with light sentences. If both remain silent, the police will have no case, and both will be released. In its delineation of outcomes, or "payoffs," the Prisoner's Dilemma illustrates the consequences of interpersonal collaboration in competitive situations. More generally, such extensions of the original model have been instrumental in focusing attention on the role of communication in group decision-making processes. *See also* GROUP COMMUNICATION.

Bibliography. Morton D. Davis, *Game Theory: A Non-technical Introduction*, 2d ed., New York and London, 1983; Steve Heims, *John von Neumann and Norbert Wiener: From Mathematics to the Technologies of Life and Death*, Cambridge, Mass., 1980; Anatol Rapaport, *N-Person Game Theory*, Ann Arbor, Mich., 1970; S. Ulam, "John von Neumann, 1903–1957," *Bulletin of the American Mathematical Society* 64 (1958): 1–49.

JANE JORGENSON

VYGOTSKY, LEV (1896–1934)

Soviet psychologist and semiotician whose major interest was the relationship between communication and human consciousness. After receiving a university education in Moscow in law and philology, Lev Semenovich Vygotsky returned to provincial Belorussia, where he taught in a high school and a teachers college. His career as a major theoretician of psychology began in 1924 when a presentation he made at a psychoneurological conference brought him to the attention of the major figures in Soviet psychology. From that time until he died of tuberculosis in 1934 Vygotsky carried out his teaching and his theoretical and empirical research in major research centers in the USSR. During this period he produced about nine volumes of writings, most of which were collected and published in a six-volume series in the USSR in the early 1980s.

The ideas Vygotsky developed laid the foundation for a major school of psychology in the USSR and later were influential in the West. These ideas can be understood in terms of three general themes. The first of these—genetic, or developmental, analysis—provided Vygotsky's basic methodology. In accordance with this theme it is possible to understand human mental functioning only by understanding its origins and the transformations it undergoes. Vygotsky developed this theme by carrying out research in several genetic domains: in addition to the development of the individual, he examined phylogenetic and social-historical differences. The social-historical comparisons, which grew out of his desire to devise a Marxist psychology, played such a central role in his thinking that his ideas are often referred to in the USSR as the "cultural-historical" approach to mind.

The second theme that runs throughout Vygotsky's writings is the claim that higher (i.e., uniquely hu-

man) mental functions such as memory, thinking, attention, and PERCEPTION have their origins in social life. A basic formulation of this theme can be found in his "general genetic law of cultural development," in which he states that higher mental functions appear twice, or on two planes, in the development of the individual. They first appear on the social or "interpsychological" plane and then on the individual or "intrapsychological" plane. In his studies of interpsychological functioning Vygotsky was concerned primarily with the kind of dyadic or small-group communicative processes that occur in socialization contexts such as adult-child interaction in the classroom. He argued that various aspects of the structures and processes involved in this communication are mastered and internalized in the formation of mental functioning in the individual. *See also* STRUCTURALISM.

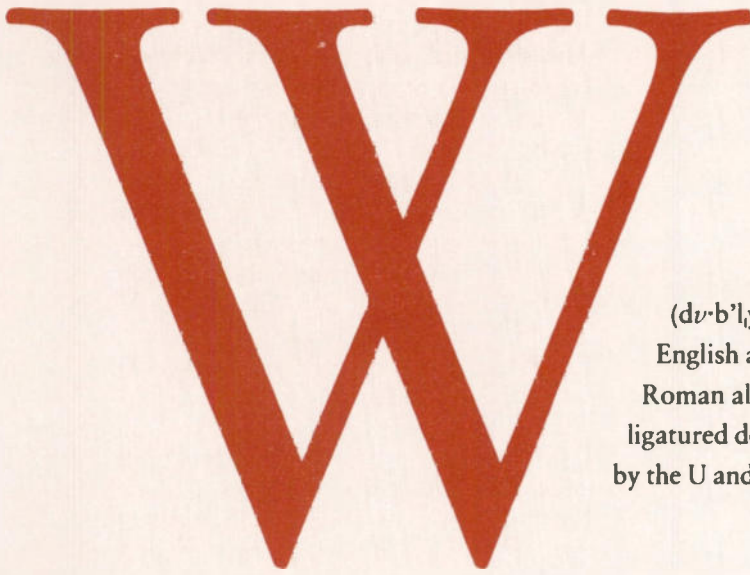
Vygotsky's third theme was that human activity, on both the social and the individual planes, is mediated by tools and signs (*see* SIGN). This "instrumental" theme, which became increasingly important in his later writings, was the area in which Vygotsky made his most important and unique contributions to the study of communication and mind. Drawing on ideas being developed in the USSR and the West during the 1920s and 1930s in literary analysis, philology, and philosophy, Vygotsky developed this theme in such a way that it is analytically prior to the other two in the sense that the other two are defined, at least in part, in terms of mediation. In the case of genetic analysis this precedence is manifested in his tendency to define developmental shifts in terms of the appearance of new forms of mediation. In the case of the social origins of individual mental functioning his point is that human interpsychological (and hence intrapsychological) functioning can be understood only by taking into consideration the forms of mediation, especially semiotic mediation, that are involved.

Vygotsky developed these themes in a wide range of empirical studies that he conducted on clinical, developmental, and cross-cultural issues. His research on the process whereby inner speech derives from the functional differentiation of "egocentric" from social speech and his studies of "complexes," "everyday concepts," and "scientific concepts" are particularly important in this connection.

See also CHILDREN; PIAGET, JEAN; SEMIOTICS.

Bibliography. Lev Semenovich Vygotsky, *Mind in Society*, ed. by Michael Cole, Cambridge, Mass., 1978; idem, *Thought and Language* (in Russian), newly rev. trans., ed. by A. Kozulin, Cambridge, Mass., 1986; James V. Wertsch, *Vygotsky and the Social Formation of Mind*, Cambridge, Mass., 1985.

JAMES V. WERTSCH

A large, bold, red letter 'W' is centered on the page. The letter is composed of four vertical strokes, with the first and third strokes being the tallest, and the second and fourth strokes being shorter and positioned between the first and third. The strokes are connected at the top and bottom, forming a continuous shape.

(dɪˈbɪlyū), the twenty-third letter of the modern English alphabet, is an addition to the ancient Roman alphabet, having originated from a ligatured doubling of the Roman letter represented by the U and V of modern alphabets.

WEAVER, WARREN (1894–1978)

U.S. mathematician who, with CLAUDE SHANNON, coauthored the foundational work on INFORMATION THEORY, *The Mathematical Theory of Communication*. After completing studies in civil engineering at the University of Wisconsin in 1917, Warren Weaver joined the Department of Mathematics at the California Institute of Technology. In 1920 he returned to the University of Wisconsin, where he remained as professor of MATHEMATICS for twelve years. During this period he collaborated with mathematician Max Mason in writing a book on electromagnetic field theory.

In 1932 Weaver was invited to join the Rockefeller Foundation as director of the Natural Sciences Division, a position he held until 1952. The well-known collaboration between Weaver and Shannon began in 1948, when Rockefeller Foundation president Chester Bernard invited Weaver to translate Shannon's mathematical theory of communication into less formidable language. Weaver's exposition of the theory was subsequently published, together with Shannon's original article, in *The Mathematical Theory of Communication* (1949).

Addressing engineering problems concerning the telegraphic encoding of messages (see TELEGRAPHY), Shannon had shown that there was a well-defined mathematical relationship between general properties of a physical system and the maximum rate at which information could be transmitted through it from a sender to a receiver, regardless of the specific nature of the information. Weaver argued that, in diagramming the basic system of relationships characteristic of the communication situation (i.e., an "information source" who selects a desired "message" out of a set of possible messages; a "transmitter" who changes the message into a "signal" that is sent over a "communication channel" to a "receiver"), Shannon had put forth a theory so powerful in its range of applications that it constituted a general theory of communication.

In his essay Weaver identified three levels of problems implicit in the communication process: (1) technical problems (i.e., how accurately can symbols be transmitted from sender to receiver?), (2) semantic problems (i.e., how precisely do the transmitted symbols convey the desired MEANING?), and (3) effectiveness problems (i.e., how effectively does the received meaning affect conduct in the desired way?). Shannon's theory of communication applied only to the first level, the technical problems associated with accurate transmission of signals from sender to receiver. However, Weaver was concerned with showing the interdependence among these levels, namely, that technical problems of accuracy in transmission have a critical importance for questions of SEMANTICS and effectiveness. Essentially, levels 2 and 3

make use only of those signal accuracies possible at the technical level of transmission.

Weaver was careful to point out the special sense in which the word *information* is used in this context. In its technical sense information refers to the freedom of choice available to one who constructs a message (i.e., the sender). When the range of possible messages is great, the amount of information associated with the selection of any one message is high. The concept of information in this sense applies not to the meaning of individual messages but rather to the freedom of choice that characterizes the situation as a whole.

The Shannon-Weaver model, as it came to be known, sparked a multitude of theoretical applications, not only to problems in communication engineering but also to many processes involving the transmission of messages with semantic content.

Weaver also made important contributions to systems theory and CYBERNETICS in a seminal paper, published in 1948, on the subject of *organized complexity*. In this paper he observed that social and biological phenomena had previously been viewed largely in terms of physical models based on the second law of thermodynamics. Such models were grounded in the notion of "unorganized complexity," exemplified in the random and individually untraceable movements of molecules in a gas. Weaver argued that many problems confronting the physical and social sciences required a shift from these classical scientific conceptualizations to models based on the notion of "organized complexity," in which phenomena are viewed systematically, as nondecomposable wholes.

See also MODELS OF COMMUNICATION.

JANE JORGENSON

WEBER, MAX (1864–1920)

German sociologist, a leading social thinker of the twentieth century whose theories have wide-ranging implications for the study of communications. Max Weber's father was a member of the Prussian House of Deputies (1868–1897), and Weber grew up in a suburban Berlin household that regularly entertained eminent politicians and scholars. He studied at Heidelberg, Berlin, and Göttingen, writing his doctoral dissertation on the agrarian history of ancient Rome and the evolution of medieval trading societies. His career was punctuated by prolonged bouts of depression, nervousness, and mental collapse, leading to his resignation from his professorship at Heidelberg. In 1907 an inheritance allowed him to pursue scholarly work at his leisure. All of his important work appeared during the later period of his life, from 1903 to 1920.

Weber's best-known and most controversial work is *The Protestant Ethic and the Spirit of Capitalism* (1904–1905), wherein he concluded that there was something within Protestant religious belief that encouraged the growth of the “spirit of capitalism.” Weber examined the writings of such figures as John Calvin, MARTIN LUTHER, and Benjamin Franklin. In their writing he saw parallels between Protestant religious doctrine and capitalistic economic practices. In particular he noted two things. First, Protestantism emphasized that the individual stands alone before God; no one can function as an intermediary. Second, Protestantism—especially Calvinism—endorsed the belief that the future is predestined. One cannot know if one will go to heaven or hell after death, and one's individual actions have little to do with the matter. However, Protestantism also promoted the belief that work is a form of glorification of God. Through one's calling in this world, then, it is possible to glorify God and also to hope for signs of grace that will indicate that heaven rather than hell will be awaiting one after death.

These religious beliefs directed activity toward worldly efforts, hard work, and ascetic discipline. Capital accumulations were not used to promote hedonistic pleasures but were turned back into the enterprise, the capitalistic pyramid. Through the success of the enterprise early capitalists could hope for worldly signs of otherworldly salvation. The central thrust of Weber's argument is that economic systems are also moral systems. As such, any given economic system is influenced by the moral traditions that exist at the time of its development. This position made Weber a major critic of the materialistic doctrines of KARL MARX, who argued that moral systems are a product of the material economic process.

A second major theme running through the extensive historical and philosophical writings of Weber is the contrast between rational social systems and traditional systems. Rational systems are geared toward productivity and efficiency. They reject traditional procedures whenever tradition proves inferior in the quest for efficiency. The most rational form of social organization is the modern large-scale bureaucracy. Bureaucratic systems are characterized by hierarchy, rational evaluation of the means used to achieve goals, organization in terms of offices (rather than persons), the routinization of leadership, and the occupation of office through testing. Bureaucracies, in their pursuit of efficiency, generate less personal and less traditional interrelationships between people. They rely more on legal rules or written codes as a basis for evaluating the individual. A common characteristic of bureaucracies is that property is owned by the bureaucracy rather than by those individuals who occupy the offices of the bureaucracy.

Weber's writings are broadly relevant to any investigation of modern social practices, but his work on bureaucracy is especially relevant to students of communications. Communications take place through channels ranging from the elemental semiotic communications of insects and flowers to the elaborate institutionalized symbolic systems of modern corporate structures and nations. At the highest levels of communication we necessarily come face to face with bureaucratic structures.

Weber's work, then, raises questions for the student of communications: What happens when the means for human social communication are shifted from traditional to rational forms? What are the effects of the bureaucratization of communications? How do bureaucracies differ from other systems (e.g., the village) in communicating social knowledge? (What, for example, is the difference between the town-hall form of debate and news that is processed through a large media network?) Is it possible to penetrate bureaucratic systems to get at the truth of an issue? (The immediate cover-ups after mishaps at nuclear energy sites in the United States and the Soviet Union exemplify the interplay between bureaucratic control of information and the communities that rely on immediate information for effective action.)

Finally, Weber's work on the relationship between religious morality and economic ideology serves as a model for thinking about human communications in general. Communication takes place for human beings within moral contexts. There is certainly the suggestion in *The Protestant Ethic and the Spirit of Capitalism* that Protestant individualism has had a strong impact on communications as well as on economic morality.

See also COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT.

Bibliography. Reinhard Bendix, *Max Weber: An Intellectual Portrait*, new ed., with an intro. by Guenther Roth, Berkeley, Calif., 1977; Hans H. Gerth and C. Wright Mills, eds., *From Max Weber: Essays in Sociology*, New York, 1946, reprint 1961; Max Weber, *The Protestant Ethic and the Spirit of Capitalism* (Gesammelte Aufsätze zur Religionssoziologie, Vol. 1), trans. by Talcott Parsons, New York, 1930, reprint 1974; idem, *The Theory of Social and Economic Organizations* (Wirtschaft und Gesellschaft, Part 1), trans. by A. M. Henderson and Talcott Parsons, New York, 1947, reprint 1964.

EDITH W. KING AND R. P. CUZZORT

WEBSTER, NOAH (1758–1843)

U.S. lexicographer who compiled the first comprehensive dictionary of English as spoken in the United

States. Noah Webster lived during the formation of the U.S. republic, participating in the REVOLUTION that won independence for the former British colonies. In addition to political independence Webster believed that the United States needed recognition for its own LANGUAGE and intellectual life. It became his life's work to establish and legitimize American English.

Born in West Hartford, Connecticut, Webster attended Yale University. After graduating in 1778 he continued to study law, meanwhile supporting himself by teaching. Finding only British schoolbooks available, Webster began to prepare his own texts (see TEXTBOOK). He published a speller (1783, the famous "Blue-Backed Speller"), a grammar (1784), and a reader (1785), the three called collectively *A Grammatical Institute of the English Language*. The speller, an instant success, introduced most of the current variations between British and U.S. orthography. Selling millions of copies, the "Blue-Backed Speller" has remained continuously in print for the past two centuries.

Webster gained admission to the bar in 1781 and eventually went into practice, but his other activities ranged widely. He engaged in politics and held local offices; produced numerous writings, including a defense of the U.S. Constitution ("Sketches of American Policy," 1795); founded *The American Magazine* plus daily and weekly newspapers in New York; and campaigned for a federal COPYRIGHT law (enacted in 1790). His interest in learning continued throughout his life: he edited the *Journal* of John Winthrop (first governor of Massachusetts), published a revised version of the Bible, and helped found Amherst College.

But Webster's central interest remained the English language. His *Compendious Dictionary of the English Language* (1806) was only a preliminary effort, but it was already more inclusive than SAMUEL JOHNSON's *Dictionary* (1755) and introduced several new features. In 1807 Webster undertook his masterpiece, a comprehensive dictionary, hoping to finish it in three to five years. In 1812 he settled in Amherst, Massachusetts, where for ten years he worked around a large circular table, painstakingly consulting dictionaries and grammars in numerous languages. In 1824 he went to Europe to conduct additional research. At last, in 1828, after more than twenty years of labor, the seventy-year-old Webster published the two-volume *American Dictionary of the English Language*.

The first edition was a critical success. One of the dictionary's main features was its inclusion of thousands of technical terms among the seventy thousand or so entries, around half of which were new to any dictionary. The definitions themselves were models of lucidity, and Webster placed the etymologically primary MEANING first, an innovation followed by

later lexicographers. But most important—and best reflecting the democratic spirit of the United States—Webster established (1) that a dictionary records the spoken rather than the written language and (2) that it records the language as it exists, not as an educated elite might wish it to be.

Webster's dictionary and its successors, especially the Merriam-Webster unabridged editions, have come to stand as the primary record of the English language as it is spoken in the United States, and Webster's name is used to lend authority to dictionaries published by many firms. Indeed, his name has come to be synonymous with dictionary, and every schooled person understands what is meant by "Look it up in Webster."

See also LANGUAGE IDEOLOGY; LANGUAGE REFERENCE BOOK; LANGUAGE VARIETIES; SEMANTICS.

Bibliography. Richard M. Rollins, *The Long Journey of Noah Webster*, Philadelphia, 1980; Ervin C. Shoemaker, *Noah Webster: Pioneer of Learning*, New York, 1936; Harry R. Warfel, *Noah Webster: Schoolmaster to America*, New York, 1936, reprint 1966.

ROBERT BALAY

WELLES, ORSON (1915–1985)

U.S. director-actor-producer-writer for stage, screen, and broadcasting—a maverick genius who shook up the world of media. Early in childhood George Orson Welles was already considered a prodigy, adept at cartooning, prestidigitation, and performing. He climaxed his high school years in Woodstock, Illinois, by collaborating with the principal, Roger Hill, on the book *Everybody's Shakespeare* (1934), a selection of Shakespeare plays crammed with sketches and production ideas by Welles. Graduating at fifteen, he launched on a zigzag career. During a landscape-painting tour of Ireland by donkey cart, he presented himself at the Gate Theatre in Dublin and asked for an audition. His resonant voice and assured presence won him major roles. In the United States the following year he appeared on tour and on Broadway with Katharine Cornell in productions of Shaw and Shakespeare. When the depression devastated the THEATER he moved to RADIO, portraying various world leaders on radio's "March of Time" series (see NEWSREEL) and delighting horror and mystery fans as "The Shadow." More significantly, he teamed with John Houseman to produce for the Federal Theatre, an ambitious New Deal unemployment relief project. The government favored plays with large casts; Welles and Houseman obliged with a tumultuous all-black version of *Macbeth* (1936) set in Haiti, with voodoo priestesses replacing the witches. Its spectacular success catapulted Welles as



Figure 1. (Welles, Orson) Orson Welles, sketches from the margins of an edition of Shakespeare's plays, annotated by Welles and his high school principal. From Roger Hill and Orson Welles, *Everybody's Shakespeare: Three Plays: Edited for Reading and Arranged for Staging*, Woodstock, Ill.: The Todd Press, 1934, pp. 50, 32, and 58. Copyright 1934 by Roger Hill and Orson Welles.

a director and Houseman as a producer into the Broadway spotlight. But a year later their plans for *The Cradle Will Rock*, Marc Blitzstein's politically radical musical, alarmed authorities, who sought to halt it. At the last moment the production was officially canceled by orders from Washington, but Houseman and Welles led an audience of hundreds to another theater where, performing from auditorium seats, the cast went on with the show.

The cause célèbre ended the team's Federal Theatre

career but helped launch their own company, the Mercury Theatre. Hardly missing a stride, they staged *Caesar* (1937), a modern-dress version of Shakespeare's *Julius Caesar* in which Caesar and his followers wore quasi-Fascist uniforms. Another resounding success, it brought an offer from CBS—a weekly “Mercury Theatre on the Air” radio series. With no SPONSOR available, CBS looked on it as a bow to culture and was scarcely prepared for what followed. On Halloween 1938 Welles directed and narrated a free adaptation by Howard Koch of H. G. Wells's novel *The War of the Worlds*. News flashes that seemed to be program interruptions spoke of strange astronomical phenomena and then of landings in New Jersey, apparently by Martians, which were described by “eyewitnesses.” In New Jersey and environs the program caused thousands to flee their homes in widespread panic (see RUMOR). This headline event was thought by some to have ruined Welles's career. Instead it brought in Campbell's Soups as sponsor, transforming “Mercury Theatre on the Air” into “The Campbell Playhouse.” It also brought Welles a HOLLYWOOD offer to make MOTION PICTURES for RKO (Radio-Keith-Orpheum). At the age of twenty-three, Welles received one of the most liberal contracts ever offered a film director. With virtually a free hand, he led his Mercury troupe westward.

Welles's astonishing first feature for RKO, *Citizen Kane* (1941), is widely considered one of the finest films ever made. It is remarkable on many levels: its complex, fluidly constructed script by Welles and Herman J. Mankiewicz; the technical brilliance of the CINEMATOGRAPHY by Gregg Toland, utilizing deep-focus and wide-angle shooting; the stimulating, imaginative FILM EDITING; and the ACTING of a largely unknown cast, including Welles as Charles Kane, a newspaper tycoon. But, though *Citizen Kane* was a critical triumph and made Welles a world celebrity, it won him the deep enmity of WILLIAM RANDOLPH HEARST, on whose life the script was loosely based. The attacks Hearst was able to launch against the film through his newspapers and motion picture holdings hampered distribution and made *Citizen Kane* a financial loss for RKO. For Welles it had serious consequences. He was unable to maintain creative control over his subsequent RKO films. *The Magnificent Ambersons* (1942) and *Journey into Fear* (1943) were finished and altered by other hands after Welles had moved on to other projects. Mounting frustration marked his Hollywood sojourn.

During World War II, Welles, rejected for military service, staged occasional magic shows for troops. After the war he spent most of his life in Europe, working independently, scrambling for funds. A stream of projects followed, some successful and others not. His European Shakespeare films, *Othello* (1952) and



Figure 2. (Welles, Orson) Orson Welles in *Citizen Kane*, 1941. National Film Archive, London. © 1941 RKO Radio Pictures. Ren. 1968 RKO General, Inc.

Chimes at Midnight (1966; also titled *Falstaff*), had a limited success. He appeared as an actor in many films of other directors, notably *The Third Man* (1949), *Moby Dick* (1956), and *The Long Hot Summer* (1958). To raise funds he made television commercials. He produced for French and British television. He won some renown with his baroque thriller, *Touch of Evil* (1958), made for Hollywood, but he never again received the acclaim he had won with *Citizen Kane*.

Welles had made an impact on each medium he had essayed. To the Broadway theater he brought a zestful experimental spirit that had long been lacking. Radio drama before Welles had generally emulated all-dialogue theater, avoiding narration; Welles showed that radio drama could use NARRATIVE structures as free and varied as the printed page. He brought the same fluidity and dynamism to motion pictures.

Welles was perhaps trapped by his own virtuosity. To horror roles and wine commercials he could apply the same bravura resonance as to lines of Shakespeare. Increasingly style dominated substance. Yet he continued to be counted as one of the true auteurs of motion pictures. In 1975 he received the American Film Institute's Life Achievement Award.

See also COMMUNICATIONS RESEARCH: ORIGINS AND DEVELOPMENT.

Bibliography. Charles Higham, *Orson Welles: The Rise and Fall of an American Genius*, New York, 1985; Barbara Leaming, *Orson Welles: A Biography*, New York, 1985; Joseph McBride, *Orson Welles*, New York, 1972.

RICHARD PILCHER AND ERIK BARNOUW

WESTERN, THE

American popular GENRE with a long history of success in many media. The western traditionally narrates a fictional or quasi-historical episode of confrontation between civilization and savagery on the frontier. Civilization has usually been represented by pioneer settlers, while savagery is symbolized by Indians or outlaws. The traditional central figure in the genre is the western hero who is, at the beginning, torn between the ordered society of the pioneers and the freedom and spontaneity of the wilderness. The NARRATIVE often revolves around this conflict in the hero. In the final climactic combat or shoot-out he not only defends the ordered society but appears to resolve his own inner conflict.

The western has never been a static form but has constantly adjusted its repertoire of devices to shifting public attitudes toward social and other issues, such as VIOLENCE, ethnic minorities, the environment, and sex.

The origins of the western go back to conflicting European myths about America as moral utopia, as state of nature, and as new empire (see UTOPIAS). The first popular tales embodying these conflicting myths were the Indian captivity and settler-versus-Indian battle narratives of the seventeenth and eighteenth centuries. The genre apparently received major impetus from James Fenimore Cooper's "Leather-Stocking Tales," five novels published between 1823 and 1841. An important part of Cooper's contribution was the creation of the figure of Natty Bumppo, the "Leather-Stocking," a white man raised by the Indians and dedicated to life in the wilderness. Cooper based his character in part on legends of the historical frontiersman Daniel Boone.

Cooper's creation was immediately popular and widely imitated in novels like Robert Montgomery Bird's *Nick of the Woods* (1837). By midcentury in the United States the western hero had become a favorite mythical figure. Beginning with Edward S. Ellis's *Seth Jones*, he became one of the dominant figures in the widely popular dime novels and the first successful mass paperback publications. In addition to hundreds of dime novels about such actual or legendary western heroes as Buffalo Bill, Deadwood Dick, Wild Bill Hickok, Billy the Kid, Calamity Jane, and Jesse James, the western genre in the later nineteenth century also appeared in magazines, story

paper weeklies, stage plays, and the Wild West shows (Figure 1). See also LITERATURE, POPULAR.

The Wild West show was a grand outdoor SPECTACLE combining feats of horsemanship, roping, and shooting with the enactment of mythical western episodes such as an Indian attack on a stagecoach or a shoot-out between cowboys and outlaws. Probably first put together by William F. Cody (Buffalo Bill) in the mid-1880s, the Wild West show flourished until the beginning of the twentieth century, when rising costs and the competition of the newly created western movie put most of the traveling troupes out

of business. Many of the Wild West show's set pieces and a number of its actors and managers went on to play a part in the development of MOTION PICTURES.

Three events around the turn of the century influenced the twentieth-century development of the western. In 1893, historian Frederick Jackson Turner presented his famous "frontier thesis," which argued that cheap land on the frontier had shaped the American character. In effect, Turner's thesis gave the western myth historical respectability and an ideology that would heavily influence both the public's view of the westward movement and the creation of



Figure 1. (*Western, The*) Buffalo Bill and His Merry Men. From *Beadle's Dime Novel*, 1892. The Bettmann Archive, Inc.



western books and movies. Second, in 1902, the Eastern writer Owen Wister published his highly successful novel, *The Virginian*. Along with western novels by other popular writers like Emerson Hough, Harold Bell Wright, and Zane Grey, Wister's novel had a more sophisticated, "adult" appeal than the dime novels and Wild West shows. Finally, in 1903, Edwin S. Porter's film, *The Great Train Robbery*, created the western movie, which was to become the medium for the western genre in the twentieth century (Figure 2).

The earliest western films were largely one-reel and two-reel productions made cheaply and quickly in Eastern studios and lots. The film industry's gradual migration to California opened new possibilities for the movie western. California's spectacular desert and mountain landscape, with its bright and consistent sunshine, offered an epic backdrop against which the western theme of men on horseback in confrontation and pursuit could generate a new kind of movie excitement.

The period from 1915 to 1929 was the first great period of western filming. Westerns became full-length movies, and western STARS like W. S. Hart, Tom Mix, Buck Jones, Hoot Gibson, and Ken Maynard were among HOLLYWOOD's most popular figures (Figure 3). During this time the first high-budget, large-scale western epics were filmed. Such films as *The Covered Wagon* (1922), *The Iron Horse* (1923), *Tumbleweeds* (1925), and *The Flaming Frontier* (1926) reached new heights in spectacle, size of cast, and expenditure, as well as in film artistry.

The depression of the 1930s forced film studios to retrench. With a few exceptions, such as *The Virginian* (1929), *Law and Order* (1932), and *The Plainsman* (1937), the epic western was replaced by the inexpensively entertaining "B" western. The 1930s were a time of highly formulaic series westerns like

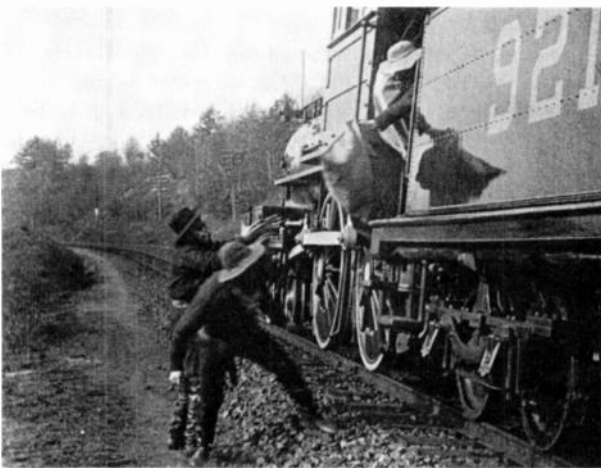


Figure 2. (*Western, The*) Edwin S. Porter, *The Great Train Robbery*, 1903. National Film Archive, London/MGM.



Figure 3. (*Western, The*) Tom Mix. National Film Archive, London.

those starring Buck Jones, William S. Boyd as Hop-along Cassidy, and the "Three Mesquiteers," a group in which John Wayne first rode to prominence. It was also, above all, the period of the singing cowboys, Gene Autry and Roy Rogers, and of the multipart serials cheered by young audiences at Saturday matinees (see SERIAL).

Late in the 1930s a combination of circumstances brought about a major revival of the western film. The approach of World War II not only generated increasing employment and more money for entertainment, but it gave a new ideological significance to the western myth of the lone hero who purges the town of the bad guys—for this was how propagandists were depicting the United States' intervention against the Axis powers. Beginning with John Ford's *Stagecoach* in 1939, the western film flourished as never before (Figure 4). Until the late 1940s, both A and B westerns were an important part of the Hollywood studio output. In the early 1950s the B westerns declined, but until the early 1960s the A western remained at the center of U.S. filmmaking.

The best of the westerns produced between 1939 and 1960 constitute a classic statement of the genre. An outstanding group of directors and performers, many of whom had been involved in moviemaking since the silent era, put together western after western of outstanding quality: *Jesse James* (1939), *Destry Rides Again* (1939), *The Return of Frank James*



Figure 4. (*Western, The*) John Ford, *Stagecoach*, 1939. National Film Archive, London/MGM/UA.

(1940), *The Dark Command* (1940), *They Died with Their Boots On* (1942), *The Ox-Bow Incident* (1943), *My Darling Clementine* (1946), *Duel in the Sun* (1947), *Red River* (1948), *Wagon Master* (1950), *High Noon* (1952), *Shane* (1953), *Hondo* (1954), *Rio Bravo* (1959), and many others. Many of the leading Hollywood directors worked on westerns during this period: John Ford, Howard Hawks, King Vidor, William Wellman, Raoul Walsh, Michael Curtiz, and Fritz Lang. And a number of the most popular male stars increased their popularity through western roles: John Wayne, Henry Fonda, James Stewart, Errol Flynn, Tyrone Power, Joel McCrea, Randolph Scott, Robert Mitchum, Alan Ladd, and Gary Cooper.

The new medium of television soon made westerns one of its major activities. The genre entered television in the late 1940s through reruns of B westerns. Their success prompted production of westerns for television, and the television day was soon filled with programs like "Hopalong Cassidy," "Roy Rogers," "The Lone Ranger," and "The Cisco Kid." By the mid-1950s, television was producing its own version of the A western in more sophisticated series like "Gunsmoke," "Cheyenne," "Wagon Train," "Maverick," "Have Gun—Will Travel," and "Bonanza." In the United States the television popularity of westerns reached its zenith in 1959 when eight of the ten most popular series were westerns. See TELEVISION HISTORY.

After 1960 the centrality of the western as a popular genre declined. By 1980 successful western films were rare, and television was stressing urban adventures in police, detective, and secret-agent thrillers. Ironically, while the western was losing its popularity in the United States, it was becoming something of

an international phenomenon. In France and the Federal Republic of Germany entertainment parks and nightclubs began to use western motifs. Many of the most successful westerns of the late 1960s and 1970s were international productions, the "spaghetti westerns" made by Italian directors like Sergio Leone, often filmed in Spain with international casts. The western even had an impact in Asia, where the Japanese "samurai" film and the Chinese MARTIAL ARTS FILM produced in Hong Kong were strongly influenced by the U.S. western film. In the United States itself, however, while a sizable audience still followed paperback western novels and writers, the mass popularity of the western seemed to have disappeared. Perhaps in an age of nuclear terror, environmental deterioration, and worldwide violence, the dream of the western hero purging the town of its evil was no longer a match for the nightmare of reality.

Bibliography. John G. Cawelti, *The Six-Gun Mystique*, rev. ed., Bowling Green, Ohio, 1984; George N. Fenin and William K. Everson, *The Western: From Silents to the Seventies*, New York, 1973; Richard Slotkin, *Regeneration through Violence*, Middletown, Conn., 1973; Henry Nash Smith, *Virgin Land*, Cambridge, Mass., 1950; Jon Tuska, *The Filming of the West*, Garden City, N.Y., 1976.

JOHN G. CAWELTI

WHORF, BENJAMIN LEE (1897–1941)

U.S. linguist. Born in Winthrop, Massachusetts, Benjamin Lee Whorf received a bachelor's degree in chemical engineering from the Massachusetts Institute of Technology in 1919 and became a lifetime

employee of the Hartford Fire Insurance Company, progressing from fire insurance investigator to special agent to assistant secretary of the company. His business provided perhaps the most powerful metaphor of the linguistic relativity theory (the so-called Sapir-Whorf hypothesis) with which his name is associated in communication-related disciplines: Unforeseen consequences may result, he pointed out, if a match is lit near a gasoline drum labeled "Empty" but still containing sufficient fuel to start a major fire; the reified label, in this case, is counter to fact in the "real" world (*see* LINGUISTICS; SAPIR, EDWARD).

Whorf never pursued a full-time academic career. Nonetheless, his private studies of American Indian languages, coupled with a childhood love of decoding exercises, led him into linguistics, particularly Central American hieroglyphics. In 1930 he traveled to Mexico under a Social Science Research Council fellowship, gathering data on an Aztec dialect and studying the Maya LANGUAGE and system of WRITING (*see also* AMERICAS, PRE-COLUMBIAN—WRITING SYSTEMS).

The turning point of Whorf's career, however, was the arrival at Yale University of Edward Sapir, North America's preeminent American Indian linguist. Whorf commuted to Yale to take Sapir's courses, became a core member of the research group that crystallized around him, and even taught Yale courses during Sapir's sabbatical and final illness in 1937–1938. Whorf himself died in 1941 at the age of forty-four.

Because of the popular controversy surrounding his ideas about the influence of grammatical form on human thought, Whorf has consistently been read—or misread—in simplistic terms (*see* GRAMMAR). His thought must be evaluated on three different levels in order to place his linguistic relativity hypothesis in its legitimate context.

First, Whorf's motives for the practice of linguistics were not professional or academic. Rather, he turned to language to support his theosophical principles, in a blend of religion and science that embarrassed later commentators. Moreover, many of his writings appeared in popular journals and were simply not intended for a scholarly audience. They have become available through the book *Language, Thought, and Reality: Selected Writings of Benjamin Lee Whorf*, which appeared in 1956 amid increasing interest in obtaining, from ethnographic evidence, scientific proof of the correlation between language, thought, and PERCEPTION of the external world.

Second, under the influence of Sapir, Whorf did a great deal of technical linguistic writing. He worked with a Hopi speaker in New York City in the early 1930s and visited the Hopi in the Southwest in 1938. He produced a grammar of Hopi and another of a dialect of Nahuatl, the language of the Aztec Empire.

He also contributed to Sapir's development of the morphophonemics and grammar of English. His peers accepted him as a linguist.

Third, Whorf became increasingly interested in the differences in perception that result from speaking different languages. He argued not that the categories of grammar cannot be transcended but that "habitual thought" follows the grooves of linguistic categories. Several papers written toward the end of his life maintained that the Hopi worldview contrasts sharply with that of SAE (Standard Average European), that is, English and closely related languages. The repetition and nonlinearity of Hopi time categories, stressing aspect rather than tense, were his favorite examples. He argued that these attitudes toward time were reflected, essentially in a one-to-one correspondence, in Hopi RITUAL.

It was this last set of ideas that captured the imagination of a generation of American Indian linguists and spread to related disciplines, particularly anthropology and philosophy. Scholars were forced to address the apparent paradox that atomic physics can be elegantly expressed in Hopi although Hopi CULTURE lacks the scientific tradition to have invented it. Another concern was the possibility (or impossibility) of translating incommensurable worldviews. Anthropologists wanted cross-cultural evidence that linguistic categories correlated with cultural patterns.

Evaluation of Whorf's permanent contribution has fluctuated with scientific fashion. The influence of his work reached its apex in the 1950s, inspiring several conferences and research projects (particularly the Southwest Project of Harvard University). Subsequently, however, it became obvious that a simple correlation of language and culture was not forthcoming, and the immediate response was to discard the intuitive truth of Whorf's observations rather than to seek more concrete demonstrations of particular correlations. Linguistics and anthropology turned toward ethnosemantics and away from broad philosophical generalizations, excluding Whorf from the mainstream. However, Whorf undeniably focused interest in several disciplines on the importance of language in categorizing reality, and he is therefore the most eminent predecessor of such work in modern communicative sciences.

Bibliography. Harry Hoijer, ed., *Language in Culture: Conference on the Interrelations of Language and Other Aspects of Culture*, Chicago, 1954; Peter C. Rollins, *Benjamin Lee Whorf: Lost Generation Theories of Mind, Language, and Religion*, Ann Arbor, Mich., 1980; Benjamin Lee Whorf, *Language, Thought, and Reality: Selected Writings of Benjamin Lee Whorf*, ed. by John B. Carroll, Cambridge, Mass., 1956.

REGNA DARNELL

WIENER, NORBERT (1894–1964)

U.S. mathematician. Norbert Wiener is perhaps best known as the father and developer of the field of **CYBERNETICS**, which he defined as the study of control and communication in both the animal and the machine.

A child prodigy, he received his B.A. from Tufts College at age fourteen, his M.A. from Harvard University at age seventeen, and his Ph.D. from Harvard at age eighteen. His dissertation in mathematical logic and philosophy was followed by postgraduate work at Cambridge University, where he studied under the English mathematician and philosopher Bertrand Russell.

Wiener briefly held positions as lecturer and instructor at Harvard and the University of Maine, staff writer for the *Encyclopedia Americana* and the *Boston Herald*, and, during World War I, civilian computer at the Aberdeen Proving Ground in Maryland. In 1919 he joined the faculty of the Massachusetts Institute of Technology (MIT), where he remained until his retirement in 1960.

Early in his career at MIT, Wiener was introduced to the work of the U.S. physicist J. W. Gibbs. Gibbs's work in statistical mechanics, using probability and statistics as the basis for constructing an alternative to the Newtonian deterministic worldview, became a decisive influence on Wiener's intellectual development and a feature of the "contingent universe" perspective from which his theory of information and communication later arose.

Communication theory, which had long been an important background element in Wiener's more technical mathematical papers, was especially reflected in his concern with engineering communication problems of feedback control and electrical circuitry. However, his interest in communication theory rose to a central position in the 1940s, particularly through his work in weaponry applications during World War II, which included significant work on fire-control apparatuses for anti-aircraft guns and noise filtration in radar systems as well as general work in tracking and gun-aiming devices. Through these projects Wiener began to recognize the importance of considering the operator as a "sender and receiver of messages" and thus as an integral part of a tracking or steering system. It was at this point that he made the key leap in seeing the analogy and then applying the concept of feedback from electrical engineering. He became aware of similar patterns, under the frame of communication, between the operations of systems from vastly different domains, such as computers and the human nervous system.

After the war Wiener continued these investigations, recognizing both the importance and ramifi-

cations of a "theory of messages," based on communication and feedback, of all forms. He was eager to move from a theory of communication and control in physical/mechanical settings to one in biological settings—and beyond. Wiener felt that a theory of transmission of messages, although fundamental to the development of scientific thought, fell into the cracks between scientific disciplines. In addition, there was no accepted term for the complexity of ideas in his theory of communication.

Wiener thus came to coin the term *cybernetics* (although he later came to recognize that others, including the French physicist André-Marie Ampère, had used the term previously) to embody this new science. He chose the term from the Greek *kybernetēs*, for "steersman." Wiener's book explicating his theory of the new science, *Cybernetics: Or, Control and Communication in the Animal and the Machine*, was published in 1948 and has been hailed as one of the most significant books of the twentieth century. In it he attempted to develop a field that "combines under one heading the study of what in a human context is sometimes loosely described as thinking and in engineering is known as control and communication." Wiener's cybernetics sets forth a theory to establish and cover the entire field of control and communication, both in machines and in living organisms—finding common elements in the functioning of automata, the human nervous system, and societies.

Wiener felt it important to classify control and communication together. He noted that communicating with another person involves imparting a message to the other, to which the other may respond with a related message. Controlling the actions of another involves a similar sequence of message and response, although the "controlling" message may be in the imperative mode, while the "return" message would indicate that the imperative has been understood and obeyed. Thus Wiener felt the theory of control (in engineering and elsewhere) to be "a chapter in the theory of messages."

Fundamental to Wiener's work was his concern with both human-human and human-machine interaction. He noted that in both processes a message or an order goes out, and a return message or a signal of compliance comes back. A complete cycle involving feedback is necessary in both instances. Wiener felt that whether the intermediary of a signal is a machine or a person may not greatly change one's relation to the signal. He observed that the similarities between human-human and human-machine interactions far outweigh their differences. Such a position in a theory of communication led him to be attacked, somewhat mistakenly, as an antivitalist. The complexity of Wiener's argument can be seen in

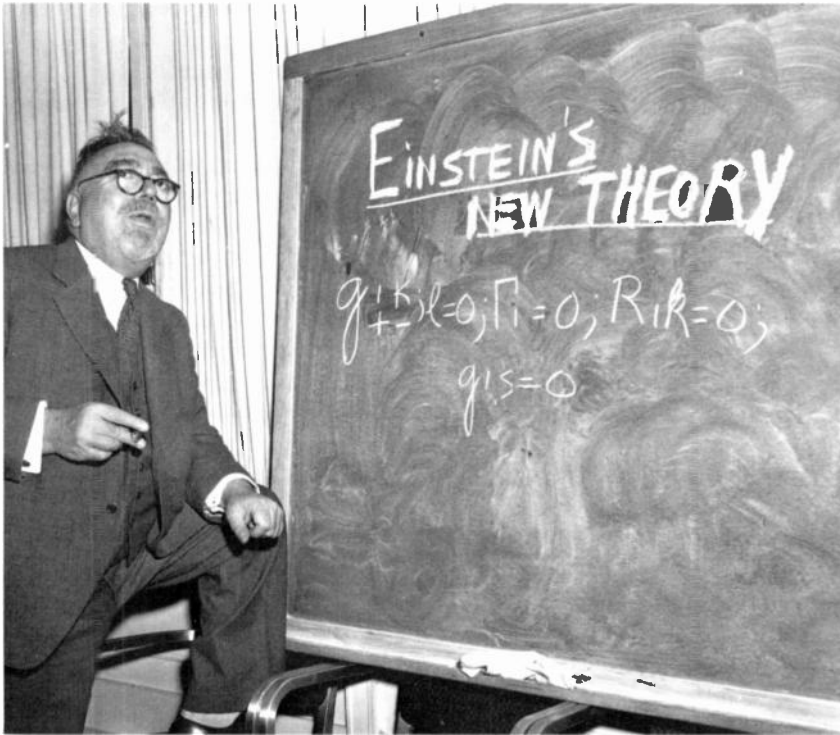


Figure 1. (Wiener, Norbert) Norbert Wiener, professor of mathematics at Massachusetts Institute of Technology, giving a lecture on Einstein's new theory, December 28, 1949. UPI/Bettmann Newsphotos.

his distinction between human and other ANIMAL COMMUNICATION; he stated that only in humans do we find that "this desire—or rather necessity—for communication is the guiding motive of their whole life."

These ideas were expressed in *Cybernetics* in a rather technical form. In response to what he felt was a demand to make them more accessible to the general public, Wiener wrote a less technical version that also extended his ideas more to social issues, in *The Human Use of Human Beings* (1950). The book's thesis is that "society can only be understood through a study of the communication facilities which belong to it." In it Wiener further developed his INFORMATION THEORY, which in his earlier work had been expressed mostly in mathematical-statistical terms, in parallel to the Shannon-Weaver "mathematical theory of communication" (see MODELS OF COMMUNICATION; SHANNON, CLAUDE; WEAVER, WARREN). Now Wiener described information as the medium of relationships in a communication system, no matter what physical form the communication system might take. Thus he came to claim the centrality of information, rather than energy or matter, as the fundament of any communication system.

Interestingly, many communication-systems technologies—especially ARTIFICIAL INTELLIGENCE, automata, and prosthetic devices for impaired human functions—trace their modern development to Wie-

ner. In fact, he has been referred to as the "father of automation." Yet he became increasingly concerned with the human issues implicit in the development of communication machinery. He feared that the "second industrial revolution" might do to the human brain what the first had done to human muscle—make it a slave of technology. Such concerns led Wiener to apply his theory of communication and control to include an ethic with regard to his work; for example, he refused to allow the military access to some of his early mathematical papers (which had gone out of print) in order to prevent their use in the development of weaponry such as missiles. Wiener also became concerned with how cybernetics—particularly the development of machines that "learn" or that may "reproduce themselves"—impinged on religion. These ideas were expressed in *God and Golem, Inc.* (1964, published posthumously), a book for which he won the (U.S.) National Book Award in the area of science, philosophy, and religion. Two months before his death, Wiener was awarded the National Medal of Science by President Lyndon B. Johnson for his contributions to the fields of mathematics, engineering, and logical science.

Bibliography. Norbert Wiener, *Cybernetics: Or, Control and Communication in the Animal and the Machine*, 2d ed., Cambridge, Mass., 1961; idem, *God and Golem, Inc.*,

Cambridge, Mass., 1964; idem, *The Human Use of Human Beings: Cybernetics and Society*, 2d ed., rev., Garden City, N.Y., 1954, reprint 1967.

FREDERICK STEIER

WITTGENSTEIN, LUDWIG (1889–1951)

Austrian-British philosopher. Ludwig Josef Johann Wittgenstein has had an enormous influence on modern philosophical thought and on various fields related to it, such as communication, LINGUISTICS, psychology, and anthropology. Born in Vienna, the youngest of eight children, Wittgenstein was the son of a wealthy entrepreneur who organized the first cartel of the Austrian steel industry. He received his primary education at home and his secondary education at Linz, where he showed a great interest in MATHEMATICS and the physical sciences. Originally trained as an engineer in Berlin and Manchester, he turned his interest to pure mathematics and logic at Cambridge, where he worked under the direction of British philosopher Bertrand Russell. At Trinity College he applied himself intensively to logical studies and the ideas that eventually culminated in his first major philosophical work, the *Tractatus Logico-Philosophicus*. After five terms at Cambridge, he secluded himself in a self-made hut in Norway for several years and continued to consider logical problems. When World War I broke out Wittgenstein entered the Austrian army as a volunteer. During these years he continued to work on his book, which he finished in 1918 while he was held prisoner in an Italian camp. The German text of his book was published in 1921, and the English translation was published the following year in London.

After the publication of his book Wittgenstein became a schoolteacher in Lower Austria and an architect in Vienna. During these years (1920–1928) he gave little thought to logical or philosophical problems; however, he came in contact with the members of the Vienna Circle, a discussion group of scientists and philosophers who were profoundly influenced by the ideas in the *Tractatus*. In 1929 he returned to Cambridge to obtain his doctorate and to devote himself again to philosophy. He began lecturing in 1930 and in 1939 succeeded G. E. Moore in the chair of philosophy. During this period he began writing his second major philosophical work, *Philosophical Investigations* (1953). During World War II he held several jobs at a London hospital and the Royal Victoria Infirmary. In 1944 he resumed his lectures at Cambridge but was increasingly uneasy about his academic life. In 1947 he finally resigned his chair of philosophy. The following years he spent traveling and working when his health allowed it. In 1949 he was discovered to have cancer,

and in 1951 he moved to the home of his doctor, where he died that same year.

Wittgenstein's philosophical thought is unified by a strong concern with the relationship between LANGUAGE, mind, and the real. But his thought divides into two different, and sometimes opposed, periods.

In the first period, the Wittgenstein of the *Tractatus*, he was trying to answer the question, What makes it possible for a set of words, namely, a sentence, to represent a fact in the world? In his own words his main task was to explain the nature of sentences. The result of this effort is known as "the picture theory of sentences." According to Wittgenstein, a direct logical correspondence exists among the configurations of objects in the world, words in a sentence, and thoughts in the mind. The nature of ideas in the mind and the relationship of words in a sentence are identical in formal structure with the structure of reality. The mental representation of objects, which creates both thought and language, works literally like a picture of the real. Wittgenstein's general answer to the problem was that when we assemble a sentence we are building a model or picture of reality. In his first period Wittgenstein also assumes that there is a universal form of language (though it may take different manifestations), which is basically this ability of language to picture the logical form of reality. This is also what confers MEANING to a sentence: the possibility that the words in the sentence are related to the objects in the real world. See also LÉVI-STRAUSS, CLAUDE; OSGOOD, CHARLES.

In the second period, the Wittgenstein of the *Philosophical Investigations*, he was concerned with the revision and sometimes rejection of the ideas in the *Tractatus*. In this book he stresses the conventional nature of language, opposing and rejecting the idea of a universal form of language that he had originally defended. He coined the term *language game* to refer to the conventional nature of language. According to him, every language is like a game with a particular set of rules and a limited number of elements. In the game the players learn how to use these elements by applying the given set of rules; through this process the players come to understand one another. There is nothing common to the various forms of language that he calls language games in his new view; there are just "family resemblances" among them and not a common essential nature. Hence the most basic presupposition of the *Tractatus* was mistaken. This presupposition was closely related to the picture theory of language, the notion that the correspondence with reality gives a proposition its meaning. In the *Investigations* Wittgenstein again rejects his previous conceptions and maintains that the meaning of a proposition or sentence is given by its "use." To understand the meaning of a sen-

tence is to understand the special circumstances in which the sentence is actually used. "Circumstances" are essential to understand what language games are; without circumstances propositions are meaningless. *See also* JAMES, WILLIAM.

Wittgenstein's thought had a direct influence on at least two philosophical movements in the twentieth century. The Vienna Circle, influenced by the *Tractatus*, founded the movement known as logical positivism (later logical empiricism), which held that all meaningful statements can be verified by observation and experiment. Through his personal contacts, lectures, and writings Wittgenstein also influenced—particularly in his later period—the movement known as analytic and linguistic philosophy, originally called the Cambridge school and associated with such early figures as Russell, G. E. Moore, and Alfred North Whitehead. This school generally held that many philosophical problems can be solved through careful analysis of the language in which they are stated and through development of the ideal language, SYMBOLIC LOGIC. Other language-centered movements in the twentieth century, such as STRUCTURALISM, had a more distant relationship to Wittgenstein's thought. To a considerable extent Wittgenstein set the agenda and defined the terms of twentieth-century philosophical debate.

See also LOCKE, JOHN; PIAGET, JEAN; RICHARDS, I. A.; SAUSSURE, FERDINAND DE; VYGOTSKY, LEV.

Bibliography. Norman Malcolm, *Ludwig Wittgenstein: A Memoir*, London, 1958; Bertrand Russell, "Ludwig Wittgenstein," *Mind* 60 (1951): 297–298; Gilbert Ryle, "Ludwig Wittgenstein," *Analysis* 12 (1951): 1–9; Ludwig Wittgenstein, *The Blue and Brown Books*, New York and Oxford, 1958; idem, *Philosophical Investigations* (*Philosophische Untersuchungen*), trans. by G. E. M. Anscombe, New York, 1953, reprint Oxford, 1968; idem, *Tractatus Logico-Philosophicus* (1921), trans. by D. F. Pears and B. F. McGuinness, with an intro. by Bertrand Russell, London and New York, 1961, reprint 1971.

JAVIER A. ELGUEA S.

WOMEN *See* FEMINIST THEORIES OF COMMUNICATION; GENDER; SEXISM.

WRITING

The expression of human LANGUAGE by means of visible signs. Although there are many semiotic systems that can be used to communicate simple notions and even rather complex messages, true writing differs from these in that it provides graphic notation of all the lexical, grammatical, and syntactic features of language (*see* GRAMMAR). Whatever can be represented by language can be put into writing. Writing is both more versatile and more specific than other semiotic systems, even if other systems function more efficiently and more effectively in the contexts for which they were designed. *See* SEMIOTICS; SIGN.

The international traffic SIGN SYSTEM, for example, communicates quite specific messages. The no-left-turn sign would be read just that way by nearly every speaker of the English language and has far greater efficacy than the signs spelling out "No Left Turn," which it has replaced. But the messages the traffic sign system can communicate are restricted in length and number and limited to one very narrow context. Certain Native American systems using both pictures and conventional markings can communicate longer messages with a wider range of subject matter. But whereas those conversant with such a system would interpret the ideas being communicated identically, individuals would "read" the message in many different ways. The system records ideas and notions but does not fix their linguistic expression. A written text will be read identically by all who know both the language and the writing system in which the text is recorded. Writing systems can represent language at the lexical level with word signs (logographic writing, such as Chinese) or at a phonetic level with syllabic or alphabetic signs. In practice most systems are mixed, so that there are phonetic elements even in a system as aggressively word-oriented as Chinese and word signs in a "purely" alphabetic system like the one used to write English (e.g., \$, lb., &, @).

Origins. Figure 1 illustrates the widely accepted diffusionist view of the origin and spread of writing: invented only once by the Sumerians, the idea of writing spread from southern Mesopotamia westward to Egypt and, at a much later date and by questionable intermediaries, eastward to China. This view is no longer tenable. It is true that both Sumerian and Egyptian writing first appear a bit before 3000 B.C.E., in a period when there is some contact between the Nile Valley and Mesopotamia. But there is virtually no relationship whatsoever, formal or conceptual, between the two systems, and it can well be assumed that the chronological coincidence of their origins is just that, coincidence. At most the evidence might support the notion of some kind of stimulus DIFFUSION from Mesopotamia to Egypt. Certainly no positive evidence can be adduced for the diffusion of writing from the Near East to China, where the earliest Shang inscriptions are fifteen hundred years later than the oldest cuneiform and hieroglyphs. At a time when Chinese prehistory was poorly known, scholars, unwilling to imagine Shang and Chou China springing into being out of nothing, postulated a good deal of stimulus from the ancient Near East. Recent scholarly discussions of the subject

minimize or reject entirely the possibility of substantive Near Eastern influence, stressing instead the continuities of a much-better-known early Chinese culture sequence from the Neolithic through the Shang period.

Thus it is possible now to think in terms of the independent origins of the hieroglyphic, cuneiform, and Chinese writing systems, and to these must be added a fourth, the Mesoamerican, best exemplified by Mayan. Mesoamerican systems do not even appear on the chart in Figure 1, because Mayan was not previously thought to be a true writing system, that is, a system capable of expressing both semantic and grammatical aspects of language. The phenomenal progress of Mayan studies since 1960, and especially since the mid-1970s, has established that Mayan is indeed a true writing system, and this fact, in turn, is fatal to the diffusionist argument. Writing, like metallurgy or agriculture, was invented at least twice, in the Old World and in the New, and if it could have been independently invented twice, then there is no reason to insist that it was not invented anew by the Egyptians and Chinese rather than borrowed from the Sumerians.

Cuneiform. The earliest true writing system originated in southern Mesopotamia, ancient Sumer, and there the origins of writing can now be traced very clearly. Whether or not one accepts completely the theories of Denise Schmandt-Besserat—which trace the origin of cuneiform to small CLAY TOKENS found at sites all over the Near East, spanning a period from the ninth to the second millennium B.C.E., when the chronological and geographical focus is narrowed to the time and place where CUNEIFORM writing first emerged—she has been able to reconstruct a remarkable and convincing sequence that leads from a crude system of numerical notation to the first written documents.

The sequence begins with hollow balls containing clay tokens of various shapes, which have been impressed on the balls before the balls were sealed, and passes to a stage when the tokens are dispensed with and the ball flattened to a cushion-shaped tablet onto which tokenlike shapes (probably numeric in meaning) are impressed, then rolled over with a seal (see Figure 2). These impressed tablets are found at the Sumerian site of Uruk, which experienced a period of sudden urban expansion, culminating there with the invention of the cuneiform writing system. But the other sites did not follow Uruk in that direction; writing was invented at Uruk and at first did not travel beyond the confines of ancient Sumer. Only in subsequent centuries did it extend to Iran, northern Mesopotamia, and Syria, borrowed directly from the Sumerian system, or, in the case of a short-lived system in southwestern Iran, created under stimulus from Sumer.



Figure 2. (*Writing*) Sealed impressed tablet, Susa, ca. 3200 B.C.E. From *Cahiers de la délégation archéologique française en Iran* 8 (1978): 47. Mission Archéologique de Suse.

Although the development from the tablet in Figure 2 to the archaic cuneiform tablet in Figure 3 may be clear in retrospect, there is nevertheless a world of difference between the two. They have the clay medium and numeric notation in common, but Figure 3 has, in addition, an array of complex signs that is infinitely more capable of signifying people and commodities than any system of tokens or tokenlike impressions. Archaic cuneiform tablets also manifest a highly sophisticated spatial organization, a kind of metasyntax that only partially overlaps with the syntax of the Sumerian language.

Two traditions have coalesced at Uruk. The first is the rude system of numerical notation represented by the impressed tablets. The second is a tradition of pictorial and symbolic representation whose development can be traced in the record of prehistoric Near Eastern art, especially glyptic. The wedding of these two traditions made it possible to supplement the information storage capacity of the impressed tablets with the semantic potential of humanity's most powerful semiotic system, language.

The primary stimulus for the development of a writing system at Uruk was the growth and increasing complexity of the bureaucratic state. The tablet in Figure 3 and tablets like it are accounts representing the transactions of a large administrative organization, as were the clay balls and impressed tablets they replaced. The advent of writing in Mesopotamia represents the appropriation by language of a hitherto nonlinguistic function, the recording of transactions. Far from mimicking SPEECH acts, writing created an entire province of language use that was unthinkable before its invention; accounts are never spoken, and if they are dictated or read aloud their manifestation as speech has been made possible only by their prior existence or potentiality as writing. From the first four hundred years of writing in Mes-



Figure 3. (*Writing*) Archaic tablet from Uruk, ca. 2900 B.C.E. From A. Falkenstein, *Archaische Texte aus Uruk*, Berlin and Leipzig, Deutsche Forschungsgemeinschaft in Uruk-Warka, Vol. 2 (1936), plate 60, no. 585.

opotamia primarily two kinds of written texts survive: accounts like the one in Figure 3 and lexical texts—long lists of words organized by subject matter, SOUND, or sign form that were used to teach the writing system and are unimaginable without it. Cuneiform, which in the long run proved to be the most flexible and adaptable of the four “original” writing systems, was not used to write continuous texts—historical inscriptions, literary compositions, administrative and legal records with full grammatical expression—until about 2600 B.C.E.

Egyptian hieroglyphs. The earliest evidence from Egypt is more complex. Nothing comparable to the commemorative palette in Figure 4 is known from archaic Sumer. Here the pictorial representation of a historical event is supplemented by captions identifying the protagonists. King Narmer (ca. 3000 B.C.E.), whose name is spelled out in the frame at the top center with the glyph for the *nar* (“catfish”) and the glyph *mer* (“chisel”), is wearing the crown of upper Egypt, and he is symbolized by the falcon, who holds in tow a creature representing lower Egypt, symbolized by the papyrus patch. On the reverse Narmer is pictured wearing the combined crowns of upper and lower Egypt, a symbol of the united land. Various signs presumably identify the ruler’s defeated foes, but the fact of their defeat, like the unification of the land, is conveyed pictorially and not through language. In this tentative insertion of writing into pic-

torial narrative, writing is not replacing or representing speech. Rather, it is appropriating for language a commemorative function once reserved solely for representational ART. See EGYPTIAN HIEROGLYPHS.

Already under Narmer’s successor, Aha, we have the first of a series of wooden and ivory labels recording the contents of perfume and ointment jars delivered to royal tombs, adding the name of the year in which the offering was brought. These year names commemorated an important event, and unlike the palette, which depended on narrative art to relate the event, the labels have actual sentences with verbs. These are not yet lengthy, continuous texts, but the appropriate mechanisms are all in place. Another important early use of writing in Egypt is as an identity mark, just a personal name and perhaps a title, found on funerary stelae, vessels, and sealings. As such it replaces the emblematic ownership marks known universally in both literate and preliterate cultures.

No actual administrative accounts comparable to archaic Sumerian texts survive from archaic Egypt, but this is to be expected. Few records survive at all from Egypt that are not connected to funerary cults. This is because burials were in the desert, where dryness preserves the perishable materials used for recordkeeping. But the very fact that lists of commodities and dates of delivery were recorded in funerary contexts implies a concern in archaic Egypt with recordkeeping that certainly extended into other areas of administration. In Mesopotamia the primary medium for cursive writing, clay, is quite durable. In nearly every other literate culture, both writing surfaces—papyrus, leaves, bark, textiles—and the ink or paint used for writing are perishable and survive only in unusual contexts (see WRITING MATERIALS). This seriously distorts our perception of those early cultures, since the texts that survive are nearly always commemorative or RITUAL, having been laboriously inscribed on stone, metal, bone, or some similar durable surface.

Chinese writing. The earliest written records in China date from the Shang period, whose capital at Anyang has provided excavators with a wealth of artifacts that have revolutionized the study of early Chinese history (see EAST ASIA, ANCIENT). Shang records are of two types. A small minority of the well-known Shang bronze vessels contain inscriptions consisting of an emblem, probably of a clan, a kinship term, and the name of a day. The clan emblems are just that, and are not ancestral to any later sign forms in the Chinese writing system, just as city emblems on certain archaic Egyptian palettes have no correspondence in later hieroglyphs. A very small number of Shang bronzes have longer statements, none of more than fifty characters, concerning the circumstances that led to the vessel’s casting.



Figure 4. (*Writing*) Palette of Narmer; (a) obverse, (b) reverse. Hierakonpolis, Egypt, Early Dynastic period, ca. 3000 B.C.E. Egyptian Museum, Cairo. Giraudon/Art Resource, New York.

But these bronze inscriptions are insignificant compared to the one hundred thousand or so inscriptions and fragments of inscriptions on specially prepared ox shoulder blades and turtle shells that record oracles taken for the king and other notables. The bones and shells were specially prepared so that when heated, characteristic cracks would appear, and the angles of these cracks would indicate whether the omen was positive or negative. Afterward the archivist would record the divination act on the bone or shell, sometimes adding a verification of whether or not the predicted event took place. In addition to information pertaining to the political history of the Shang, the subject matter of these oracles includes sacrificial rituals, hunting expeditions, weather, harvest, health, birth, dreams, and building activities. The inscriptions, though purporting to quote the words spoken during the divination inquiry, are not intended to replace or accompany those words. Rather, they are written down after the fact and are preserved apparently as records of the king's reign. A very small number of inscribed bones and shells are not oracular

but contain calendrical records or accounts of tribute payments. These latter suggest that there may well have been an extensive administrative accounting system such as we know from Mesopotamia, but texts representing such a system have not survived. This is because, according to ancient tradition, they would have been written on wood or silk and hence have perished. Bronze, of course, could not have been a medium for such records, nor could bone or shell, whose preparation and inscription are very time consuming. Evidence that strongly points to the presence in the Shang period of records on perishable materials is provided by the observation that some of the oracle texts were first written on the bone or shell with ink and brush before they were incised. The brush, of course, is the traditional writing implement of the Chinese scribe, and its use on the oracle bones points to its probable use on other media, all of which would have been perishable.

The Shang texts do not antedate 1500 B.C.E. by very much and hence are fifteen hundred years later than the earliest writing in the Fertile Crescent. How-

ever, several scholars have proposed that pot marks going back to nearly 5000 B.C.E. are the direct ancestors of Chinese characters, thus making the Chinese writing system the oldest known by far. But most scholars seem to reject this view, and with good reason. At most, forty or fifty different marks have been identified, and the great majority of pots have inscriptions consisting of only a single mark; hardly any have as many as three. No writing system of the Chinese type can function with so few characters, and an inscription one character in length is inadequate to write even a personal name. The pot marks are best understood as clan emblems, much like those on Shang bronzes.

Mayan texts. The earliest datable Mayan texts go back to the first century B.C.E., though no more than the dates themselves can be understood on the very early inscriptions (see AMERICAS, PRE-COLUMBIAN—WRITING SYSTEMS). The monument in Figure 5, dated to 755 C.E., portrays the capture of Jewel-Skull and another enemy by Bird-Jaguar of Yaxchilan and his companion. The second glyph in the upper right is the name of Bird-Jaguar, followed by the Yaxchilan place emblem. In the upper left the first two rows of glyphs are the date, the third is the verb “to capture,” followed by the name of Jewel-Skull, which is repeated on his thigh in the illustration. Most of the classical Mayan stelae are records of historical occurrences of this type; the inscriptions are dates and captions, supplements to the narrative art.

Painted Mayan inscriptions of a ritual or historical nature are found on pots and walls, but the bulk of Mayan literature is lost forever, because it was re-

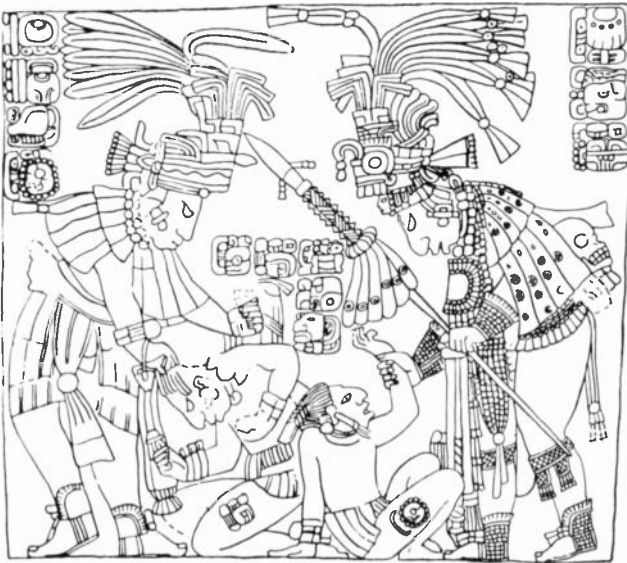


Figure 5. (*Writing*) Bird-Jaguar captures Jewel-Skull, from a carved stone lintel at Yaxchilan, 755 C.E. From Michael D. Coe, *The Maya*, London: Thames and Hudson, 1984, p. 167.

corded on bark codices. Only four of these perishable texts have survived; they are postclassical and deal with ritual or astronomical-astrological matters (see CALENDAR). Such detailed recording and calculating of astronomical occurrences are completely outside the realm of spoken language use and are made possible only by writing.

Phoneticism. Three important aspects of all writing systems have often been misunderstood in discussions of writing's origins. The first is phoneticism; we often hear that the earliest writing used word-signs (logograms) only and that phonetic representation developed only gradually. In fact, phonetic writing was present to some degree in all writing systems from the beginning. You cannot easily draw a preposition or a pronoun, but even if you could, a system in which every word was represented by a different sign, and gave no clue to that sign's reading, would be quite unwieldy. And so the development of the writing system led almost immediately to—or was made possible by—the abstraction of sound from MEANING. This is accomplished by applying the well-known rebus principle: a sign with meaning *x* is used to write a homophonous (like-sounding) word with meaning *y*, or just to signify a phonetic sequence, that is, part of a word or a grammatical affix (e.g., writing “I see you” by drawing an eye, the sea, and a ewe). Thus the name of King Narmer is written with the signs for “catfish” (*nar*) and “chisel” (*mer*) (see Figure 4). Or, in Chinese, the sign for water as a semantic indicator is combined with the sign *lin*' (“forest”) to write the word *lin*' (“drop”) (see Figure 6). Over 90 percent of all Chinese characters are formed by this combination of semantic indicator and rebus, and words are often written by rebus alone. Both of these methods are already present in the Shang oracle inscriptions.

The ongoing decipherment of Mayan really took off only with the proper understanding of the use of phonetic writings in Mayan inscriptions, an understanding both delayed and resisted because of the misleading, but ultimately crucial, Mayan “alphabet” recorded by a sixteenth-century missionary. It is now recognized that Mayan words can be written (1) solely logographically, (2) logographically with one or more phonetic complements (such complements play important roles in both cuneiform and Egyptian as well as in the formation of Chinese characters), and (3) purely phonetically.

Curiously, cuneiform, which by 2500 B.C.E. was capable of purely phonetic writing, has a very much smaller amount of detectable phoneticism in its earliest stages than either Egyptian or Chinese, which never get as free from logograms and semantic indicators as certain kinds of cuneiform do. But the occasional early use of phonetic complements in the archaic texts from Uruk tell us that the principle was well understood from the beginning. After 2500 B.C.E.

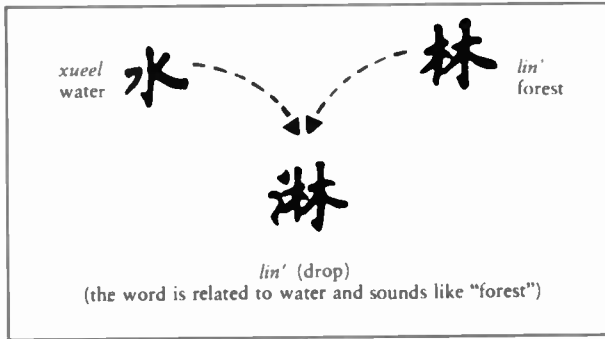


Figure 6. (Writing) Phonetic and semantic components in Chinese characters. Redrawn after Morris Swadesh, *The Origin and Diversification of Language*, Chicago: Aldine, Atherton, 1971, p. 69.

phonetically used cuneiform syllabograms were used to write Semitic languages in Mesopotamia proper and at Ebla, and ultimately they were employed for Indo-European Hittite as well as many other, lesser-known, languages of the ancient Near East.

In Egypt, where signs had primarily consonantal values—and to this day the vocalization of Egyptian is uncertain—a sign could be used phonetically to stand for one consonant or a series of two or three consonants. Already in the Old Kingdom the Egyptians had developed an ALPHABET, that is, a series of signs standing for each consonantal phoneme in the language, but this alphabet was never employed consistently. Even when an inscription was written with a high percentage of these alphabetic signs, semantic indicators and determinatives were not abandoned. Despite the Egyptians' unwillingness to use the alphabetic concept they themselves developed to simplify their writing system, it is this concept that was to be adopted by West Semites to create their alphabet, and eventually the Latin alphabet. This reluctance in ancient Egypt to simplify the writing system by abandoning logograms and determinatives in favor of purely phonetic representation was paralleled

in Mesopotamia, where logograms continued to be used in primarily phonetic texts and where, in some text genres, the percentage of logographic writings increases dramatically in later periods. Similarly, although the Japanese have long had *kana* systems enabling them to write purely phonetically, they have steadfastly refused to abandon the logographic use of Chinese characters (*kanji*); with its combination of various kinds of *kana* and *kanji*, Japanese is perhaps the most complex and difficult writing system in use. In all of these cases any progressivist tendency toward simplification is resisted not only by cultural pressures favoring the retention of ancient forms but also by certain semiotic advantages inherent in a logographic system.

Pictorialness. The question of pictorialness is closely related to that of phoneticism. We learn that the earliest writing was pictographic, and only gradually did the pictograms become more schematic and finally lose their graphic relationship to the words they originally represented. In reality some of the earliest writing systems used abstract sign forms from the beginning. Originally pictorial cuneiform signs developed rapidly from pictogram to abstract bundles of wedges; by 2500 B.C.E. there was absolutely no pictorial content whatsoever in any cuneiform sign. But even the earliest forms of some signs have no pictorial content. The archaic Sumerian signs for livestock are shown in Figure 7. Remembering that the original orientation of the signs is ninety degrees to the right, the cattle signs do indeed look like schematic animal heads. But the sheep and goats look nothing at all like animals; rather, they consist of various combinations of circle, cross, and rectangle, with cross-hatching in the interior or exterior to mark the adult females and female kid, and lozenges to mark the males. Only the female lamb, like the female calf, is marked with the usual pictogram for female, which is the image of a pudendum. These signs are not representations of animals but, rather, abstract combinations of geometric elements.

	SHEEP	GOATS	CATTLE
Adult female	U ₈	UD ₅	ÁB
Adult male	UDUNITA	MÁŠ	
Young female	KIR ₁₁	EŠGAR	AMAR-SAL
Young male	SILANITA	MÁŠ	AMAR-KUR

Figure 7. (Writing) Archaic Sumerian livestock signs. Redrawn after M. W. Green, "Animal Husbandry at Uruk in the Archaic Period," *Journal of Near Eastern Studies* 39 (1980): 5.

Egyptian hieroglyphs are excruciatingly pictorial, but writing letters or accounts in beautiful pictures is very inefficient, and the Egyptians always had cursive hands for these mundane tasks. Significantly these cursive hands appear already on some of the earliest inscribed artifacts. But despite the existence of the more efficient cursive, pictorial hieroglyphic script remained in use throughout the history of ancient Egypt, so that, unlike the development of cuneiform in Mesopotamia, the link between the cursive forms and the underlying pictogram was never lost.

The pictorialness of Egyptian writing allowed an extraordinary interplay between texts and the illustrations they accompany. In Figure 8 it is difficult to know where the writing stops and the illustration begins. The objects above the offering table are all hieroglyphs for the foodstuffs being offered, and the arm interjected between them and the seated figure is the hieroglyph for "to offer." Yet there is neither grammar nor syntax in this juxtaposition of signs; it was not intended to be read. How different this resemblance and intermingling of script and art is from the appearance of inscribed Mesopotamian monuments, on which the cuneiform text appears as an indifferent band, cutting across but never entering into the bas-relief sculpture.

In China the Shang oracle characters are pictorial

in a very schematic way, and Chinese characters quickly reach a state of complete abstraction, much like cuneiform signs. And, like cuneiform, Chinese characters, no matter how elegant their calligraphy, never entered into representational art in the way that Egyptian hieroglyphs did. Despite the similar brush technique used for both the calligraphy and the figure in Figure 9 (Japanese), there is never any blurring of the distinction between text and figure.

The Mayan situation is more like the Egyptian. Alongside more or less pictographic standard forms of Mayan signs there are highly abstract cursive forms, used mainly in codices, as well as super-pictographic forms. These superpictographs, which begin to be used later rather than earlier than the normal sign forms, extend also to the writing of numerals, which in normal texts are composed simply of dots and bars. Even relatively cursive Mayan glyphs are closely related to the conventions of Mayan art, as can be seen from a folio of the Dresden Codex (see Figure 10), in which glyphs enter into the picture as offerings, much as they do in the Egyptian example in Figure 8.

All the early writing systems examined here used phonetic representation from their inception, and all either developed abstract cursive hands that were used contemporaneously with a pictographic script, like the Egyptian and Mayan, or quickly developed

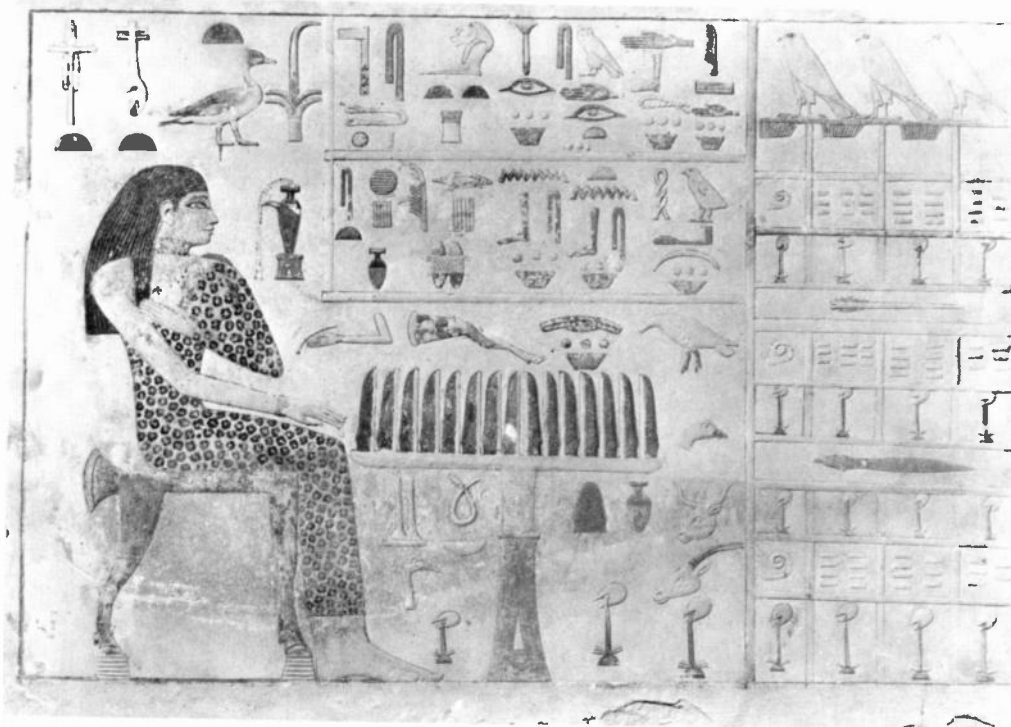


Figure 8. (*Writing*) Painted stela of Nefertiabet. Egypt, Old Kingdom, fourth dynasty. Louvre, Paris. Giraudon/Art Resource, New York.

into systems of cursive characters that lost any apparent resemblance to their original pictographic shapes, like cuneiform and Chinese. Phoneticism means that a signifier, let us say the catfish hieroglyph, is wrenched from what it originally signified and is used instead to signify a sequence of phonemes. This intellectual feat presupposes the ability to break words down into phonetic strings, to abstract the phonetic from the semantic. The development of cursive hands can be described as the suppression of the iconicity of the written sign in favor of a purely symbolic representation. These processes of abstraction are concomitant with and essential to the creation of any writing system.

Full-blownness. One reads that the Sumerian or Egyptian or Chinese systems could not have originated in Sumer, Egypt, or China because they appear, in their earliest manifestations, as full-blown systems. In the first place, this is an exaggeration. In their initial centuries of use hieroglyphic and cuneiform undergo considerable refinement in their ability to represent language fully. But more to the point, a half-blown system is not very useful. For a writing system to have been adopted, its utility had to justify the establishment of an educational system and the submission to years of training for everyone who would use it. The fact, for instance, that all the systems we have looked at are phonetic from their inception means that systems that did not include the possibility of rebus phonetic writings were not considered useful enough to learn and thus did not spread beyond their creator or a circle of users so small that no traces have been left for us. There is nothing partway between the impressed tablets, with their small repertoire of numerical signs, and the archaic repertory of twelve hundred cuneiform signs. Full-blownness, far from pointing to external origins or stimulus, is rather the *sine qua non* for survival.

Writing, language, and speech. All early writing systems are complex and difficult to master. No society would allocate the resources necessary to adopt and propagate such systems unless the systems were meeting certain needs of the society, and meeting them well. In none of the instances examined, to the extent that evidence has survived, can it be shown that these needs included the representation of spoken language. Whether in accounting, the keeping of astronomical records, providing captions on commemorative monuments, or marking ownership, writing made it possible for language, the most versatile semiotic tool, to be applied to areas that were hitherto inaccessible to it. Certain categories of early documents, such as accounts and lexical lists, have no analogues in the realm of spoken language. And we have seen that the antecedents to recordkeeping in Mesopotamia and commemorative inscriptions in Egypt are to be sought not in oral discourse but in

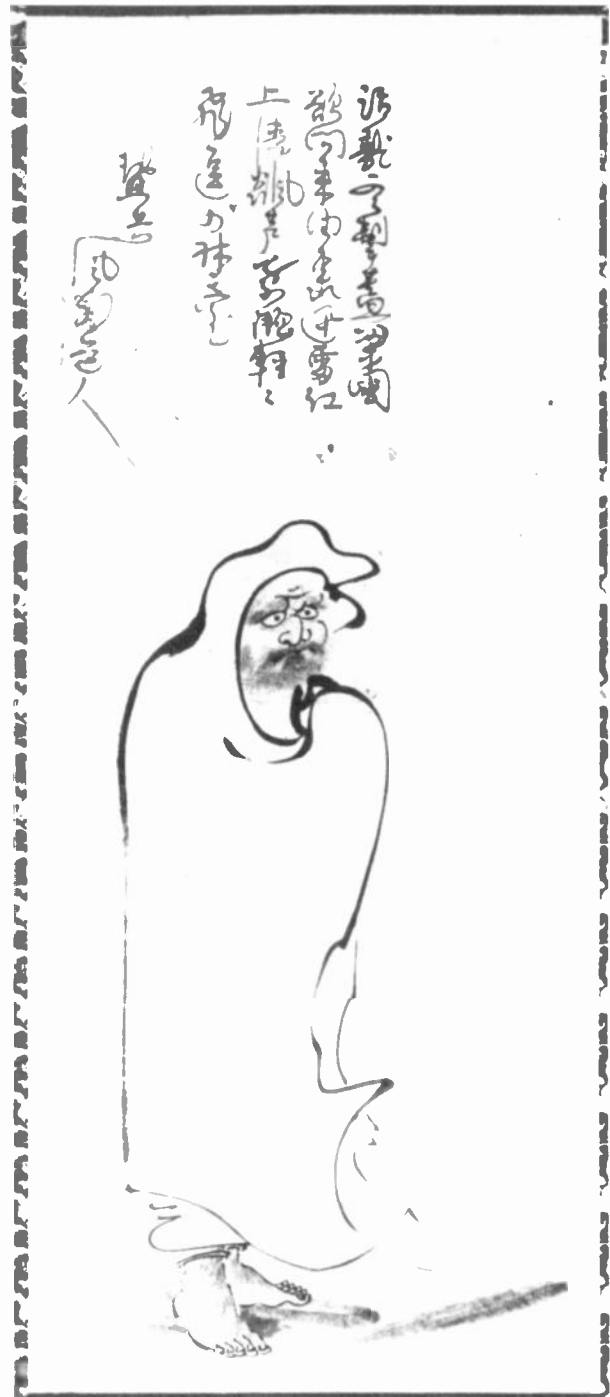


Figure 9. (*Writing*) Painting of Bodhidharma with poem by Fugai (1568–1650). Edo period. From J. Stevens, *Sacred Calligraphy of the East*, Boulder, Colo., and London: Shambhala Publications, 1981, p. 137.

clay tokens and narrative art, respectively. The two primary functions of writing, as Jack Goody has so aptly put it, are storage and decontextualization, and this is how writing asserts its superiority over speech as a medium of communication.



Figure 10. (*Writing*) New Year ceremonies, from the Dresden Codex, early second millennium C.E. From J. Eric S. Thompson, *A Commentary on the Dresden Codex: A Maya Hieroglyph Book*, *Memoirs of the American Philosophical Society* 93 (1972), Fig. 28.

Writing was invented because of a perceived lack in the possibilities of applying language in its spoken form to spheres of human endeavor to which the inventors of writing wished to apply language. Similarly it is not an inaccurate generalization to say that we use writing primarily when speaking is not

sufficient. And even in those situations in which we do write when we could have spoken, or vice versa, our choice of oral or written medium can drastically affect the semiotic of the communicative act. This view of writing and speech as mutually complementary expressions of language has been most prominently represented by the Prague school linguist Josef Vachek as a reaction against the position of FERDINAND DE SAUSSURE that writing “exists for the sole purpose of representing” spoken language. Vachek’s reaction was every bit as necessary as Saussure’s extremism perhaps was in its time, and both models have their value, but Vachek’s is more useful for studying and understanding the origins and early uses of writing.

Writing and literature. The earliest forms of both Egyptian and Mesopotamian writing were not used to record literary texts and probably were inadequate to do so. Over several centuries an expanded and systematic exploitation of the phonetic principle enabled writing to approach speech in its ability to fully represent morphological features of language, but writing’s contact with speech is, with some important exceptions like letters and incantations, only tangential, as written literature veers away from spoken language and develops its own character as a written and to some extent academic enterprise.

In Mesopotamia the majority of the earliest literary texts are written cryptographically and, except for the occasional word or phrase, have not yet been deciphered. Large numbers of legible literary texts first appear at the end of the third and beginning of the second millennia, when Sumerian, the language nearly all are written in, was well on its way toward extinction. Many of these texts are royal praise-hymns that we know were written in the scribal academies heavily patronized by the ruler for just that purpose, and others commemorate specific historical events. There is good reason to believe that the Sumerian epics of legendary rulers like Enmerkar and Gilgamesh are also scribal products, at least in the version that we have them. The recent discovery of bilingual punning in early Akkadian epic poetry, generally thought to be somehow close to its oral origins, now situates this poetry firmly in the scribal academy. Our vision of the bard reciting the deeds of Gilgamesh or the tale of the Flood to the multitudes in the marketplace or at a festival becomes ever more fuzzy as our understanding of early Akkadian literature becomes more profound. Despite the frequent use of formulas, parallelism, and repetition in both Sumerian and Akkadian literary texts, there is no evidence that these texts were orally composed or part of an oral tradition. Any technique that facilitates composition for an oral poet facilitates composition for the scribal poet as well. See ORAL CULTURE; ORAL POETRY.

In Egypt the earliest literary texts were offering prayers and autobiographies, which grew out of lists of offices and titles inscribed in tombs. A scholar of archaic Chinese wrote recently that archaic Chinese was essentially a written language; it was not until the Han period, more than one thousand years after the Shang oracle bones, that Chinese characters were used to record the spoken language. The early literature that all of these most ancient civilizations have preserved belongs squarely in the camp of written language. In ancient Mesopotamia it is impossible to gauge what relationship, if any, the literary compositions passed on to us by Mesopotamian scribes have with the oral literature of the popular culture, which must have existed but has left no clear trace.

It is, then, both useful and apt to understand writing and speech as coordinate expressions of language rather than to view writing as a secondary representation of speech—speech that alone would be the true embodiment of language. Can one venture further and assert the priority of writing over speech? If one considers the relationship between graphic communication in general and speech, it is worth pondering that, according to some scholars, human speech depends on a very specific type of vocal tract, which can be shown to have existed in fossils only from the very same upper Paleolithic that produced the masterpieces of narrative painting found in the caves of southwestern Europe. Perhaps, then, the great eighteenth-century philosopher and historian Giambattista Vico was correct in asserting that “letters and languages were born twins and proceeded apace through all their three stages,” that in their first stage communication was accomplished by “a mute language of signs and physical objects having natural relations to the ideas they wished to express,” and that human language as we know it followed later.

See also INDUS SCRIPT; LITERACY.

Bibliography. Albertine Gaur, *A History of Writing*, London, 1984; I. J. Gelb, *A Study of Writing*, rev. ed., Chicago, 1963; Jack Goody, *The Domestication of the Savage Mind*, Cambridge, 1977; M. W. Green, “The Construction and Implementation of the Cuneiform Writing System,” *Visible Language* 15 (1981): 345–372; Philip Lieberman, *The Biology and Evolution of Language*, Cambridge, Mass., 1984; Joan Oates, ed., *Early Writing Systems*, *World Archaeology* (special issue), Vol. 17, no. 3, 1986; Geoffrey Sampson, *Writing Systems: A Linguistic Introduction*, Stanford, Calif., and London, 1985; Ferdinand de Saussure, *Course in General Linguistics*, ed. by Charles Bally and Albert Sechehayé, London, 1959, reprint 1983; Josef Vachek, *Written Language*, The Hague, 1973; idem, “Zum Problem der geschriebenen Sprache,” *Travaux du cercle linguistique de Prague* 8 (1939): 94–104; Leon Vandermeersch, “Écriture et langue écrite en Chine,” in *Écritures*, compl. by Annie-Marie Christin, Paris, 1982; Giambattista

Vico, *The New Science of Giambattista Vico* (*Principi di una scienza nuova*), trans. of 3d ed. by Thomas G. Bergin and Max H. Fisch, Ithaca, N.Y., 1948, reprint 1970.

JERROLD S. COOPER

WRITING MATERIALS

Surfaces, instruments, inks, and other equipment, which developed at various stages in the history of WRITING. Starting with cave drawings, the history of writing materials is characterized by creativity, ingenuity, and adaptation to available resources. Table 1 illustrates the dates and locations at which various writing materials originated.

Before writing. Drawings, engravings, and other markings that predate the earliest writing systems employed various materials. The earliest examples are prehistoric cave drawings and engravings on bones. The cave paintings used natural cracks and markings as part of the outlines of their subjects and employed pigments made from animal and vegetable substances. The colors were either applied with fingertips, sticks, or animal fur tufts or were blown onto the cave surfaces through hollow bones (see Figure 1). The bone engravings were apparently carved with a stylus made of quartzite.

Another example of markings that predate writing is represented by CLAY TOKENS—dating back to 8000 B.C.E.—that have been found in quantity in what was Mesopotamia. The tokens were fashioned with fingertips from clay into a multitude of shapes. They were marked with a stylus or a stick and were oven-



Figure 1. (*Writing Materials*) A hind, painting from the caves at Altamira, Spain. Magdalenian, ca. 15,000–10,000 B.C.E. SEF/Art Resource, New York.

Table 1. Origins of Writing Materials

<i>Writing surfaces</i>	<i>Year</i>	<i>Writing system</i>	<i>Places</i>	<i>Writing instruments</i>	<i>Inks, equipment.</i>
Cave walls, bones	25,000 B.C.E.	Prewriting	S.W. Europe N. Africa	Feather, fur tuft, stylus	Paints
Clay tokens	8000	Prewriting	Mesopotamia	Stylus	—
Clay tablets, brick seals, stones	3000	Cuneiform	Mesopotamia	Stylus, chisel	—
Papyrus, stone	3000	Egyptian hieroglyphs	Egypt	Brush, chisel	Inks, scribal equipment
Leather	2500	Egyptian	Egypt	Brush, pen	Inks
Plaster	2500	Proto-Indic	India	Stamp seal	—
Animal bones, turtle shells	1400	Chinese	China	Chisel, stylus	—
Wooden tablets, leaves, textiles, bamboo, bark	500	Indic, Chinese	India, China	Brush, stylus	Inks
Parchment, leaves, bark, papyrus	300	Greek, Latin, Arabic	Mediterranean	Brush, pen, stylus	Inks
Paper	150	Chinese, Mediterranean	China, Mediterranean	Brush (rush and animal hair), pen (reed and quill)	
Bark paper, stone	300 C.E.	Maya hieroglyphs	Mesoamerica	Animal hair tuft, chisel	Inks
Other writing surfaces: Gold, silver, bronze, lead, copper; linen, cotton, canvas, silk; jade, wax and stucco coating, ivory; egg shells; ostraca, limestone flakes; wood chips; vessels, pottery, weapons.					

fired for permanence. For shipment, tokens could be inserted in hollow clay balls that served as envelopes and were likewise marked with a stylus to indicate content.

Clay tablets. The abundance of clay and the deficiency of wood and stone in the Mesopotamian basin made it natural that clay tablets would be used for the early Sumerian pictograms and CUNEIFORM writings (see Figure 2). In addition, clay was used in bricks for building construction, and these clay bricks were also used as an early writing surface.

The writing tablets were made from local clay, which varied in color and consistency. A small amount of clay was kneaded in the hands to a suitable consistency and formed into a biscuit- or pillow-shaped tablet that was flat on one side. The tablets varied in size, shape, and color from site to site, so that the area of origin can sometimes be identified. The tablets, after inscription, were air- or sun-dried or baked for permanence.

The writing was inscribed on the wet clay surface with a stylus, fashioned from reeds, wood, bone, or, in some cases, metal (usually iron). In general, however, the stylus was made from the woody base of a reed, which had been shaped to a triangular tip to

impart the wedge-shaped marks typical of cuneiform and related markings. The shape of the stylus and its application made the components of the symbols.

Stone monuments. Stone has been used through the ages for a permanent writing surface. In stone-scarce Mesopotamia writing on stone was generally limited to royal texts and cylinder seals. In Egypt countless inscriptions are found on stone walls of temples and tombs and other structures. A range of stone materials has been used: limestone, sandstone, basalt, granite, alabaster, and quartzite. The incising was performed with chisel and mallet. Similarly, in Central America stone (in this case limestone) provided the surface for writing the Maya hieroglyphs on temple walls and other structures in the early Classic Age (300–600 C.E.) (see Figure 3).

Egyptian writing materials. The major surface for writing EGYPTIAN HIEROGLYPHS was papyrus, although many other writing surfaces were sometimes used: ivory, bone, clay tablets (for correspondence in cuneiform with Mesopotamia), leather, parchment and vellum, metal (bronze and lead), pottery, reeds, and wax and plaster on wooden tablets. Writing, especially by students, was also done on fragments of limestone and on potsherds, called *ostraca*.

The original method of making papyrus, which was devised about 3000 B.C.E., is not known. A reasonably similar product has been developed in recent years in Egypt and Sicily. The modern Egyptian method involves harvesting the papyrus plant and slicing the stem into strips, cutting off the cortex but leaving the pith. The soaked pith strips are assembled into cross-laminated layers with overlapped edges, placed between blotters or cloth, and pressed until dry. Papyrus writing material became an important article of trade and commerce in Phoenician and Roman times and continued in use until the end of the first millennium C.E.

The main writing instrument used in Egypt for nearly three millennia was a rush brush. Lengths of ten to fifteen centimeters were cut at one end to a flat, chisel shape and chewed or beaten into a brush. The flat side was used to make coarse lines, and the fine edge was used for fine lines. Starting with the third century B.C.E. the brush was superseded by the split reed pen. In making the pen the end of the hollow reed was cut at an angle and a slit made opposite the cut section. A nib was then shaped on either side of the slit. The reed pen is still used by Islamic calligraphers.

The Egyptian scribe used only two colored inks, black and red. The black ink dates back to the First Dynasty. The pigments were soot from the bottoms of cooking vessels and red ocher (iron oxide), which were finely ground in the depression of a small, rectangular stone, using a cone-shaped stone pestle or a stone spatula. The pigment was mixed with water and a gum binder and dried in a cake form similar to modern watercolors. Painters used the additional colors of white, brown, blue, yellow, and green.

The scribe carried his brush and ink in a rectangular palette of ivory, wood, or alabaster. The brushes and pens were also carried in a special carrying case. The scribal equipment included a knife for reconditioning the writing instruments and a burnisher of ivory or metal to polish the papyrus.

Leather and parchment. Leather, a tanned animal skin, and incompletely tanned skins called parchments were used as writing surfaces in Egypt and elsewhere in the Middle East as early as 2500 B.C.E. Leather was the mandated writing surface for the Talmud and was the most used material in the Dead Sea Scrolls (see Figure 4). The first use of true parchment, an untanned animal skin, is traditionally credited to the reign of King Eumenes II of Pergamum (the origin of the word *parchment*) about 150 B.C.E. However, parchment had begun to replace leather as early as the third century B.C.E. The invention of parchment may have been associated with the shortage and cost of papyrus during the competition between the libraries at Pergamum and Alexandria (under



Figure 2. (*Writing Materials*) Cuneiform writing on a clay tablet from Nippur, Isin period. The University Museum, Philadelphia.

Ptolemy I). Parchment, remaining an important writing surface until the invention of the PRINTING press in the mid-1400s, was made from the skins of sheep, goats, and pigs. Vellum is a fine-grained parchment made from the skins of calves and kids.

Quill pen. The development of parchment, which was much smoother than papyrus, may have led to the evolution of the reed pen into the quill pen. The quill pen was introduced as a writing instrument in the sixth century B.C.E. It was used extensively for over a thousand years until the nineteenth century, when it was replaced by the steel pen, invented in 1800. The best quill pens were made from the first flight feathers of the goose, although feathers of other large birds were also used. The left wing feathers were generally chosen because the curvature best suited a right-handed scribe. The point was fashioned

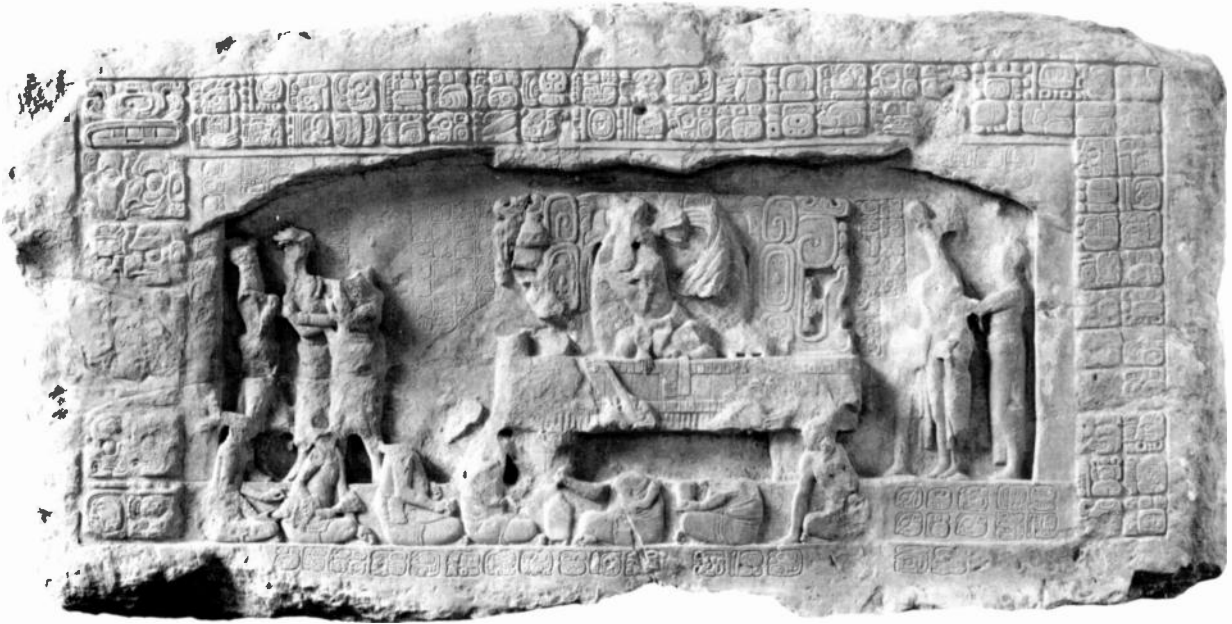


Figure 3. (*Writing Materials*) Lintel 3 from Piedras Negras, Guatemala. Limestone. The University Museum, Philadelphia.

into a split pen point with nibs similar to those of the reed pen. The quill pen provided a finer line and required sharpening less often than the reed pen. The writing substance used with the quill pen was carbon-based ink.

Innovations in writing implements continued to appear. The use of graphite to make marks on paper was adopted widely only after the late eighteenth century, when graphite for writing was first encased in a wooden holder, the ancestor of the modern pencil. Pens were also continually improved. Several inventors in the late nineteenth and the twentieth centuries explored the possibilities of a rotating metal ball as the point of a pen, but the ballpoint pen was not marketed until immediately after World War II, and the new pen became firmly established as a popular writing implement.

Paper and other Eastern writing surfaces. The invention of paper has been traditionally attributed to Ts'ai Lun, an official in a Chinese court, in 105 C.E., although samples of protopaper dating to the second century B.C.E. have been discovered in recent excavations in central Asia. The earliest paper was made by macerating old rags of hemp and ramie, suspending the separated fibers in a vat of water, and forming a mat on a mesh screen and drying the paper mat. The separated fibers from the inner bark of the mulberry tree were soon introduced. They are used to this day in Japan, in paper known as *kozo* paper (see Figure 5).

Paper was first commercially produced in southeastern China in the early second century C.E. At this



Figure 4. (*Writing Materials*) One of the Dead Sea Scrolls. The partially rolled "Thanksgiving Scroll" contains forty psalmlike hymns all starting with the words, "I thank thee, O Lord." Courtesy of the Consulate General of Israel in New York.



Figure 5. (*Writing Materials*) A Japanese girl grinding mulberry leaves in preparation for making paper from the pulp—one of the oldest papermaking techniques. The Bettmann Archive, Inc.

time the Chinese writing surfaces included silk, bamboo strips, and wooden tablets, probably written on with a camel's-hair brush (invented ca. 250 B.C.E.) and a carbon-based ink. Excavations at watchtowers of the western end of the Great Wall of China have uncovered manuscripts from the eighth century written on paper, bamboo strips, wooden tablets and shavings, and palm leaves.

The technology of papermaking was limited to East Asia in the first half of the eighth century, after which it was introduced to Samarkand in central Asia. Paper manufacture spread south and west during the ensuing centuries, taking its place as the world's major writing surface (see Figure 6). The journey of paper-making techniques from China to the rest of the world is shown in Figure 7.

The papermaking process changed at Samarkand, where the use of cotton and flax fibers was introduced. The writing instrument also changed, with the Chinese animal-hair brush giving way to the split reed pen and quill pen. Cotton and flax remained the major papermaking fibers until the development

of wood fibers in the middle of the nineteenth century. Paper gained momentum as a replacement for parchment during the expansion of papermaking in the Middle East in the last centuries of the first millennium C.E., and again after the invention of printing about 1440.

Bark, bark paper, and tapa cloth. Bark and bark products were used as writing surfaces by a wide variety of cultures. According to Indic manuscripts, the white bark of the Indian birch tree, growing in the Himalayas, was used as early as the fourth century B.C.E. The bark was first treated with oil and then polished. It was widely used by Buddhists and Hindus. The North American variety of white birch supplied the surface for drawings by some of the American Indians.

Bark paper, or *amate*, was produced in pre-Columbian America by the Mayas and the Aztecs. The bark was stripped from the fig tree, the inner and outer bark separated, and the former boiled in alkali, separated into strands, formed into a grid on



Figure 6. (*Writing Materials*) Papermaking in China. After Sung Ying Hsing. Paper sheets are dried on a wall heated by a stove (right-hand side). The Bettmann Archive, Inc.

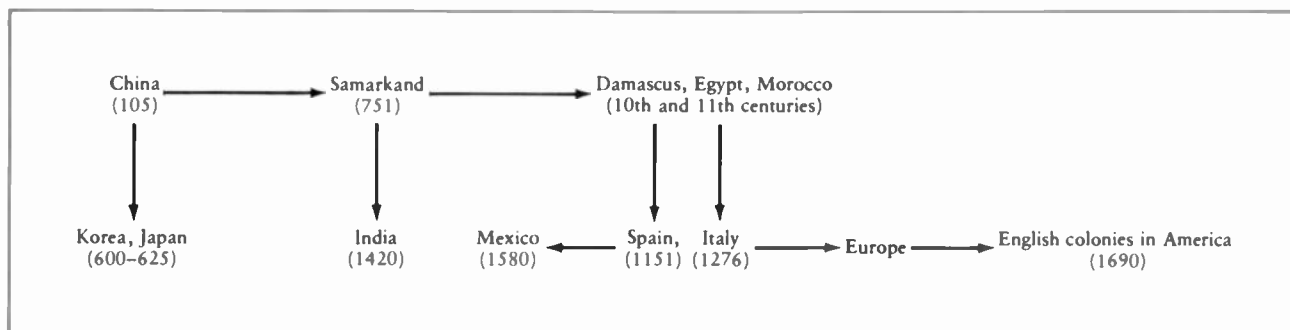


Figure 7. (*Writing Materials*) Spread of papermaking.

a board, beaten into a mat, dried, and covered. Writing implements were tufts of animal hair and an ink or paint made from carbon black and mineral pigments. Stone bark beaters, which have been excavated in various Central American sites, suggest that this paper was made as early as the second century B.C.E. The oldest preserved examples of bark paper date from the fourteenth century. Bark paper is still made from fig tree bark by the Otomi Indians.

Tapa cloth, a product of mulberry tree bark, was first made in the South Pacific islands during the second millennium B.C.E. However, it was originally used as clothing and only later as a writing surface.

Other writing surfaces. Cloth has sometimes been employed as a writing surface. Linen was used in Egypt in the third century B.C.E., as well as by the Etruscans and later the Romans. In India in the fourth century B.C.E., the Hindus used cotton for letters and documents. The cloth was first covered with plaster, then blackened with charcoal, and the marks were made with a white or yellow pigment.

Leaves have also provided a surface for writing. In India and neighboring countries the palm leaf and large leaves from other plants were scratched with a metal stylus. The indentations were then filled with a black pigment in oil. There is evidence that leaves were also employed by the early Egyptians (who used palm leaves), the Greeks about 800 B.C.E., and the Romans (who used olive tree leaves) in the first century B.C.E.

Metals were inscribed with an iron stylus in Sumerian cuneiform from about 1500 B.C.E. Later cuneiform writing systems in Mesopotamia continued this practice. The metals employed were gold, silver, bronze, and copper, which had been fashioned into

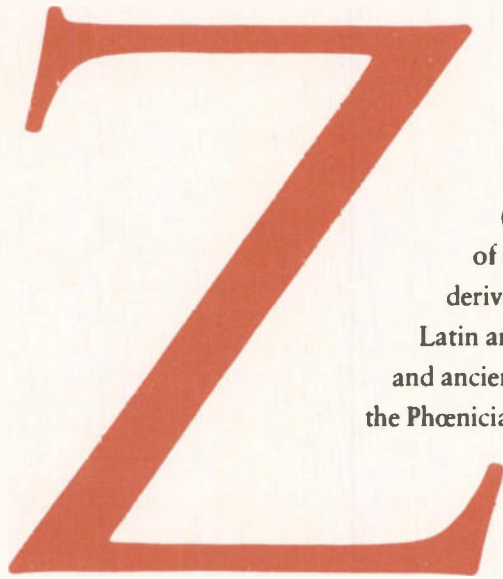
tablets, figurines, and vessels. The Dead Sea Scrolls include a copper manuscript. Excavations have shown that elsewhere in the ancient world copper arrow and lance heads and buckles were incised. In addition, lead was sometimes used by the Greeks and Romans to fill inscriptions made on wood.

Bone, shell, and skin have also provided surfaces for writing. The earliest examples of Chinese writing, from about 1500 B.C.E., were oracle texts written on bones and on tortoise shells. Other examples include human and bird skins, and—in the case of seventh-century Arabic writings—ostrich shells. Writing paper has been made since 1830 in wood-deficient countries from nonwood plant fibers, including cereal and rice straws, sugar cane bagasse, bamboo reeds, grasses, Manila hemp, and others.

See also AMERICAS, PRE-COLUMBIAN—WRITING SYSTEMS.

Bibliography. George A. Buttrick and Keith R. Crim, eds., *The Interpreter's Dictionary of the Bible*, 5 vols., Nashville, Tenn., 1976; I. J. Gelb, *A Study of Writing*, rev. ed., Chicago, 1963; Dard Hunter, *Papermaking, The History and Technique of an Ancient Craft*, New York, 1943, reprint New York, 1978; Donald Jackson, *The Story of Writing*, New York, 1981; A. Lucas, *Ancient Egyptian Materials and Industries*, 4th ed., rev. and enl. by J. R. Harris, London, 1962; Alexander Marshack, *The Roots of Civilization*, New York, 1972; Ronald Reed, *The Nature and Making of Parchment*, Leeds, Eng., 1975; Keith N. Schoville and Martha L. Carter, eds., *Sign, Symbol, Script: An Exhibition on the Origins of Writing and the Alphabet*, Madison, Wis., 1984; Charles Singer, ed., *A History of Technology*, Vol. 1, Oxford, 1954.

J. N. MCGOVERN

A large, stylized red letter 'Z' is positioned on the left side of the page. The letter is rendered in a classic, slightly decorative font with a consistent thickness and sharp, pointed terminals at the top and bottom.

(zed), the twenty-sixth and last letter of the English and other modern alphabets, derives its form, through the medium of the Latin and Greek alphabets, from the Phœnician and ancient Hebrew $\aleph \aleph \aleph$ (Hebrew ז *zayin*); in the Phœnician, Greek, and earlier Roman alphabets it was the seventh letter, in the later Roman alphabet the twenty-third.

ZENGER, JOHN PETER (1697–1746)

Colonial New York printer who was the defendant in a trial popularly regarded as a landmark in the struggle for freedom of the press. Born in Germany, John Peter Zenger emigrated with his family to New York in 1710. His father died on shipboard, and his mother apprenticed the fourteen-year-old Zenger the following year to William Bradford, New York's first printer. After fulfilling his indentures Zenger followed his trade in Maryland. Returning to New York after the death of his first wife, Zenger was married a second time, to Anna Maulin, and in 1725 went into partnership with Bradford. Then in 1726 Zenger started his own PRINTING business. He subsisted principally on overflow from Bradford's press, but before long events overtook him.

In 1732 William Cosby was named governor of the colony and established an autocratic administration, alienating the assembly, the merchant class, and many of the city's attorneys. He took the interim governor who had preceded him, Rip Van Dam, to court to reclaim the wages Van Dam had been paid. When the court found for Van Dam, Cosby deposed its chief justice, Lewis Morris. Morris and two of his associates, James Alexander and William Smith, decided to publish a newspaper whose aim would be to attack the governor.

At that time Bradford published New York's only paper, the *Gazette*, the official organ of the government, controlled by Cosby and edited by one of his subordinates. Morris approached Zenger, who was pleased enough to have the business, and an opposition paper, the *New-York Weekly Journal*, began publication in November 1733. From the first the *Journal* took an independent, truculent tone, publishing accounts of Cosby's machinations, articles on LIBEL and freedom of the press, and attacks (sometimes disguised as advertisements) on Cosby's cronies. The anonymous editor and author of most of the *Journal* articles was Alexander, the intellectual leader of the colony. Although it was plain that the newspaper could not have been written by Zenger, whose English was poor, Cosby seized Zenger as the responsible publisher and had him thrown in jail.

Since the editor was still at large, the *Journal* continued to appear and to attack the governor. The printing was carried out by Zenger's wife, who took instructions from him through the door of his cell. When Zenger was arraigned for libel in April 1735 his attorneys challenged the jurisdiction of the court (whose justices had been appointed by Cosby) and were promptly disbarred. Zenger came to trial in August with other counsel, but when his case was called, Andrew Hamilton, at eighty the most famous attorney in the colonies, stood to announce that he would represent Zenger. His appearance had been arranged by Alexander.

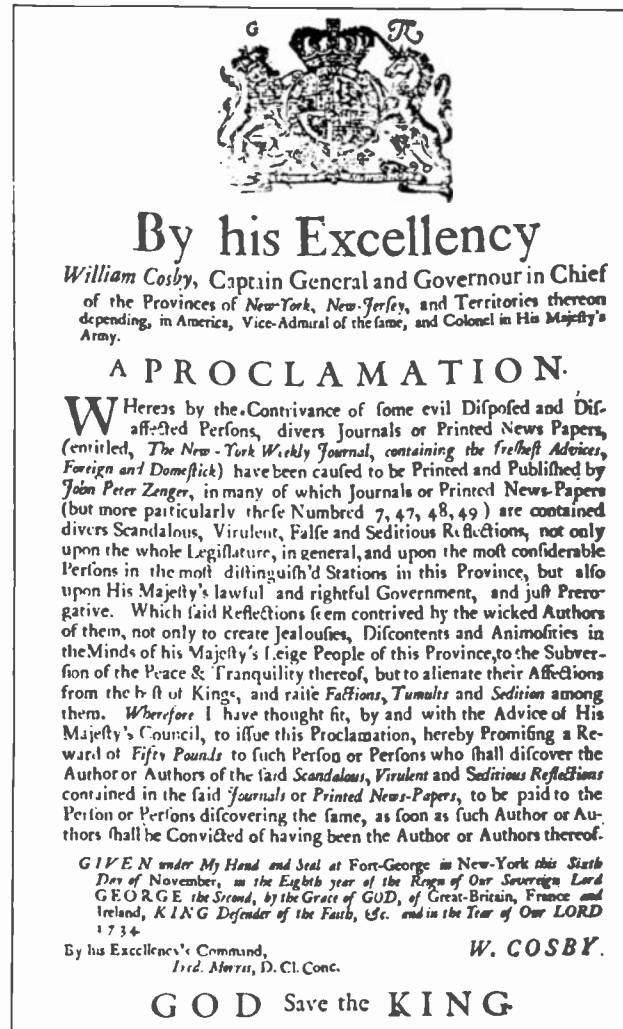


Figure 1. (Zenger, John Peter) Governor William Cosby's proclamation offering a reward for the conviction of the authors of scandalous articles appearing in John Peter Zenger's papers, 1734. Historical Pictures Service, Chicago.

Astonishing the court by granting that Zenger had indeed printed the offending passages, Hamilton based his case on the then novel notion that an attack on the government could not be libelous if it could be shown to be true. This defense was disallowed by the court, but Hamilton appealed directly to the jury, pleading with them to decide not only whether Zenger had printed the allegedly libelous numbers of the *Journal* but also whether they in fact constituted libel—in other words, to judge rather than merely to apply the existing law. His eloquence persuaded the jury, who returned a verdict of not guilty, and Zenger was set free to the acclaim of the spectators.

Despite its notoriety this case had little immediate effect either on the law concerning libel or on freedom of the press. The laws of libel that had been

received from England continued until the end of the century, and those who criticized constituted officials could be convicted of libel without regard for whether the charges were true. But there can be no denying that a formidable symbolic value surrounds Zenger. He stands for freedom of the press to report events responsibly, whether or not the reportage criticizes the government; for the principle that truth is not libel; and for the right of the citizen to seek redress against a tyrannical government.

See also CENSORSHIP; GOVERNMENT-MEDIA RELATIONS; LAW AND COMMUNICATION; NEWSPAPER: HISTORY; POLITICAL COMMUNICATION.

Bibliography. James Alexander, *A Brief Narrative of the Case and Trial of John Peter Zenger, Printer of the "New York Weekly Journal,"* ed. by Stanley Nider Katz, Cambridge, Mass., 1963; Leonard W. Levy, ed., *Freedom of the Press from Zenger to Jefferson: Early American Libertarian Theories*, Indianapolis, Ind., 1966.

ROBERT BALAY

ZUKOR, ADOLPH (1873–1976)

Motion picture pioneer whose career, more than any other, symbolized the evolution of U.S. film enterprise from penny arcade beginnings to world dominion exercised from a new metropolis, HOLLYWOOD. Adolph Zukor was born in Hungary and entered the United States at sixteen amid the surge of immigrants at the turn of the century. Along with Carl Laemmle, William Fox, and Marcus Loew, among others, he wrested control of the fledgling film industry from the Motion Picture Patents Company and, within a few decades, transformed it into an oligopoly with virtual hegemony over the world's screens. See MOTION PICTURES.

Zukor entered the fur trade in New York. After acquiring a penny arcade in 1903, he plunged into motion picture exhibition during the nickelodeon craze, ultimately joining Marcus Loew Enterprises in 1910. In 1912 Zukor experimented with feature films by distributing *Queen Elizabeth*, a French import starring Sarah Bernhardt. The success of this venture led him to form a production company called Famous Players in Famous Plays in association with Broadway impresario Daniel Frohman. The goal was to produce filmed versions of theatrical hits.

To secure wider distribution for his pictures, in 1914 Zukor became aligned with Paramount Pictures, the industry's first national distributor of feature films. In 1916 he ousted Paramount chief W. W. Hodkinson, whose conservative business philosophy was not to Zukor's taste. Zukor thereupon merged Famous Players with Jesse L. Lasky's pro-

duction company and other Paramount suppliers to form the Famous Players-Lasky Corporation. Paramount became the distribution arm of the new company. Zukor signed up top STARS, such as Mary Pickford, Douglas Fairbanks, Gloria Swanson, Fatty Arbuckle, and William S. Hart, and used their box-office power to raise film rentals and implement the practice of block booking. These tactics enabled Zukor to expand his production program and by 1918 to create the largest motion picture corporation in the world.

Exhibitor resistance to these tactics persuaded Zukor to branch out into the theater business. With backing from a Wall Street banking firm, he ignited the "battle for theaters" in 1919 by buying out important houses in New England, the South, and the Midwest. By 1926 Famous Players-Lasky controlled more than a thousand theaters, which Zukor consolidated under the name Publix Theaters Corporation. The alleged strong-arm tactics and freeze-out threats employed by Zukor's associates to acquire the chain led to an investigation by the Federal Trade Commission in 1927. Although nothing came of it, the seed of antitrust action that later resulted



Figure 1. (Zukor, Adolph) Adolph Zukor with Mary Pickford. The Museum of Modern Art/Film Stills Archive.

in the historic *United States v. Paramount Pictures, Inc., et al.* had been planted (see MONOPOLY).

The depression forced Paramount Pictures (as Famous Players-Lasky now called itself) into bankruptcy in 1933, and Zukor saw his company slip from his control. After the company was reorganized by the banks in 1935, he was promoted to board chairman. Although Zukor headed Paramount's studio operations for a while, the position became largely honorific. From 1964 until his death at the age of 103, he held the title of board chairman emeritus.

Bibliography. Will Irwin, *The House That Shadows Built*, New York, 1928, reprint 1970; Adolph Zukor and Dale Kramer, *The Public Is Never Wrong*, New York, 1953.

TINO BALIO

ZWORYKIN, VLADIMIR K. (1889–1982)

U.S. electrical engineer whose international career spanned the first half-century of television and contributed to its technical evolution at almost every stage (see TELEVISION HISTORY). Vladimir Kosma Zworykin's most significant work was done at the Radio Corporation of America (RCA), where, under the leadership of president DAVID SARNOFF, he played a major role in the advent of electronic television, the development of color television, and the application of television technology to numerous military projects.

Like Sarnoff, Zworykin was born in Russia. In 1912 he completed studies at the St. Petersburg Institute of Technology under Boris Rosing, who was already pursuing experiments toward an electronic (as opposed to mechanical) television system. After two years in France studying X rays under the physicist Paul Langevin, Zworykin returned to Russia at the outbreak of World War I to work on RADIO for the Russian Signal Corps. In 1919, after a period of travel, he settled in the United States, finding work the following year with the Westinghouse Electric Corporation. He hoped to experiment with television, but it was years before he was encouraged to do so.

In 1924 his demonstration for colleagues of what he called an iconoscope, a first attempt at a television camera, had a disastrous staff reception. But by November 1929 he had improved it and had developed the kinescope, a receiver for images sent by the iconoscope. At this point Sarnoff arranged for Zworykin to be transferred to RCA to head its electronic research staff in Camden, New Jersey. For Sarnoff, newly installed as president of RCA—which owned two radio networks and dominated both the broadcasting and set-manufacturing industries—television



Figure 1. (Zworykin, Vladimir K.) Vladimir K. Zworykin with the iconoscope tube. UPI/Bettmann Newsphotos.

was the next step. RCA appeared to control almost all relevant patents, and in 1930 television was first mentioned in its annual report.

That was also the year that PHILO FARNSWORTH was granted a patent for an all-electronic television system. Sarnoff and Zworykin went to observe his achievement, including the image-dissector tube that corresponded to Zworykin's iconoscope, and announced that they would not need anything Farnsworth had done, but they apparently concluded otherwise. Years of patent challenges, hearings, and negotiations were finally resolved by a cross-licensing agreement. The television system that debuted at the 1939 New York World's Fair was an amalgam of Zworykin and Farnsworth contributions.

World War II halted telecasting and the manufacture of sets, and the new wonder disappeared for a number of years from public view. Yet the war years were among the most important of Zworykin's career, as military contracts poured billions of dollars into electronic development, revolutionizing television technology. When the medium reappeared after the war, the difference was at once visible in the sharper images that came from Zworykin's new image orthicon pickup tube.

In 1946 public interest was already focusing on color television issues, as the Columbia Broadcasting System (CBS) sought the approval of the Federal Communications Commission (FCC) for a vivid color system it had developed. But this used a revolving "color wheel" and was incompatible with existing sets, bringing scornful denunciation from Sarnoff. RCA, he said, would never allow such a "counterfeit scheme" to be foisted on the public. To block approval he told the FCC that within six months RCA engineers would demonstrate an electronic color system compatible with existing black-and-white sets. Asked how he knew they could have it ready, Sarnoff said, "I told them to." It was Sarnoff's style of leadership—and Zworykin's staff made good the boast.

The quantum leap in electronics that had made the home television boom possible had also revolutionized military technology. RCA's involvement in this had begun as early as 1934, when Zworykin prepared a monograph on a "flying torpedo with an electric eye," capable of being guided to its target from land or sea. Sarnoff and Zworykin began meet-

ing with naval personnel, presenting RCA as the organization best able to solve problems of communication, reconnaissance, detection, and missile guidance. Early in the war Zworykin developed for the U.S. Army an infrared device that was attached to rifles to enable snipers to find targets in the dark. RCA equipment began to guide pilotless planes, to survey enemy terrain, and, after the war, to monitor atomic tests. In the postwar decade such innovations continued in profusion, as military revenue became the chief source of RCA income and television electronics became the "eyes and ears of the battlefield."

Bibliography. Kenneth Bilby, *The General: David Sarnoff and the Rise of the Communications Industry*, New York, 1986; Robert Sobel, *RCA*, New York, 1986; Vladimir K. Zworykin, "The Early Days: Some Recollections," *Television Quarterly* 1 (1962): 69-73; Vladimir K. Zworykin and Earl D. Wilson, *Photocells and Their Application*, 2d ed., New York, 1930, reprint 1937; Vladimir K. Zworykin, E. G. Ramberg, and L. E. Flory, *Television in Science and Industry*, New York, 1958.

JEANNE THOMAS ALLEN

Directory of Contributors

YEHIA ABOUBAKR

President, International Information and
Communications Consultants, Cairo,
Egypt, and West Windsor, N.J.
ISLAMIC WORLD, TWENTIETH CENTURY

ROGER D. ABRAHAMS

Professor of Folklore and Folklife,
University of Pennsylvania
INSULT

JAMES S. ACKERMAN

Arthur Kingsley Porter Professor of Fine
Arts, Harvard University
RENAISSANCE

HAZARD ADAMS

Professor of English and Comparative
Literature, University of Washington
LITERARY CRITICISM

JEANNE THOMAS ALLEN

Associate Professor of Communications,
Temple University
SARNOFF, DAVID; ZWORYKIN,
VLADIMIR K.

DUDLEY ANDREW

Professor of Comparative Literature and
Director, Institute for Cinema and
Culture, University of Iowa
FILM THEORY

PAUL A. V. ANSAH

Associate Professor and Director,
School of Communication Studies,
University of Ghana
AFRICA, TWENTIETH CENTURY

VALENTINE APPEL

Senior Vice-President, Backer Spielvogel
Bates Inc., New York
MOTIVATION RESEARCH

MAHADEV L. APTE

Professor of Anthropology, Duke
University
HUMOR

MICHAEL ARGYLE

Reader in Social Psychology and Fellow
of Wolfson College, University of
Oxford
SOCIAL SKILLS

RUDOLF ARNHEIM

Professor Emeritus of the Psychology of
Art, Harvard University
SCULPTURE

CARROLL C. ARNOLD

Professor Emeritus of Speech
Communication, Pennsylvania State
University
RHETORIC

PETER D. ARNOTT

Professor of Drama, Tufts University
PUPPETRY

PERRY J. ASHLEY

Professor of Journalism, University of
South Carolina
BENNETT, JAMES GORDON; GREELEY,
HORACE

DEREK ATTRIDGE

Professor of English, Rutgers University,
New Brunswick
POETRY

RALPH A. AUSTEN

Professor of African History, University
of Chicago
AFRICA, PRECOLONIAL

BARBARA A. BABCOCK

Professor of English, University of
Arizona
ARTIFACT

EUGEN BAER

Professor of Philosophy, Hobart and
William Smith Colleges
COMMUNICATION, PHILOSOPHIES OF

BEN H. BAGDIKIAN

Dean, Graduate School of Journalism,
University of California, Berkeley
MONOPOLY

RICHARD P. BAGOZZI

Dwight F. Benton Professor of
Marketing and Professor of
Behavioral Science in Management,
University of Michigan, Ann Arbor
ATTITUDES

BISHARA A. BAHBAH

Adjunct Professor of Political Science,
Brigham Young University; former
Editor in Chief, *Al-Fajr*, Jerusalem
NEWSPAPER: TRENDS—TRENDS IN THE
MIDDLE EAST

ROBERT BALAY

Reference Editor, *Choice Magazine*,
New York
BABBAGE, CHARLES; KELLER, HELEN;
LAND, EDWIN; MORSE, SAMUEL F. B.;
OCHS, ADOLPH S.; WEBSTER, NOAH;
ZENGER, JOHN PETER

TINO BALIO

Professor of Communication Arts,
University of Wisconsin—Madison
HOLLYWOOD; ZUKOR, ADOLPH

ALBERT BANDURA

David Starr Jordan Professor of Social
Science in Psychology, Stanford
University
SOCIAL COGNITIVE THEORY

ALAN W. BARNETT

Professor of Humanities, San Jose State
University
MURAL

JOHN BARNICOAT

Pro-Rector, London Institute, and
Head, Chelsea School of Art, London
POSTER

ERIK BARNOUW

Professor Emeritus of Dramatic Arts,
Columbia University
DOCUMENTARY; ENTERTAINMENT;
LASKER, ALBERT; LUMIÈRE, LOUIS AND
AUGUSTE; MUSICAL, FILM—BOMBAY
GENRE; SOAP OPERA; SPONSOR;
SYNDICATION; TELEVISION HISTORY—
EARLY PERIOD; WELLES, ORSON

DENNIS BARON

Professor of English and Linguistics,
University of Illinois at Urbana-
Champaign
LANGUAGE REFERENCE BOOK

RICHARD BAUMAN

Professor of Folklore and Anthropology
and Chair, Folklore Institute, Indiana
University
FOLKLORE; PERFORMANCE

JOHN BAYLEY

Thomas Warton Professor of English
Literature, Saint Catherine's College,
University of Oxford
FICTION, PORTRAYAL OF CHARACTER IN

ALAN M. BECK

Director, Center for the Interaction of
Animals and Society, School of
Veterinary Medicine, University of
Pennsylvania
HUMAN-ANIMAL COMMUNICATION

HOWARD S. BECKER

MacArthur Professor of Arts and
Sciences, Northwestern University
ARTIST AND SOCIETY

KARIN E. BECKER

Associate Professor of Journalism and
Mass Communication, University of
Iowa
PHOTOJOURNALISM

COLIN G. BEER

Professor of Psychology, Institute of
Animal Behavior, Rutgers University,
Newark
DARWIN, CHARLES; ETHOLOGY

GERARD HENRI BÉHAGUE

Professor of Ethnomusicology and
Chair, Department of Music,
University of Texas at Austin
MUSIC PERFORMANCE

LUIS RAMIRO BELTRÁN S.

Bolivian communication specialist and
scholar, Quito
DEVELOPMENT COMMUNICATION—
ALTERNATIVE SYSTEMS

DAN BEN-AMOS

Professor of Folklore and Folklife,
University of Pennsylvania
FOLKTALE

ARTHUR ASA BERGER

Professor of Broadcast Communication
Arts, San Francisco State University
COMMERCIALS

NORMAND BERLIN

Professor of English, University of
Massachusetts at Amherst
TRAGEDY

JERRY J. BERMAN

Chief Legislative Counsel,
American Civil Liberties Union,
Washington, D.C.
PRIVACY

JACQUES BERTIN

Director, Laboratoire de Graphique,
École des Hautes Études en Sciences
Sociales
GRAPHICS

RAYMOND F. BETTS

Professor of History, University of
Kentucky
COLONIZATION

JOHN BLACKING

Professor of Social Anthropology,
Queen's University of Belfast
ETHNOMUSICOLOGY

STEPHEN BLUM

Professor of Ethnomusicology, Graduate
Center, City University of New York
MUSIC HISTORY

JAY G. BLUMLER

Director, Centre for Television
Research, University of Leeds;
Associate Director, Center for
Research in Public Communication,
University of Maryland at College
Park
PRESSURE GROUP

S. T. KWAME BOAFO

Lecturer, School of Communication
Studies, University of Ghana
KENYATTA, JOMO; NKRUMAH, KWAME

ARTHUR P. BOCHNER

Professor of Communication, University
of South Florida
INTERPERSONAL COMMUNICATION

LEO BOGART

Executive Vice-President and General
Manager, Newspaper Advertising
Bureau, New York
ADVERTISING—OVERVIEW

PETER BONDANELLA

Professor of Italian Studies, Indiana
University
NEOREALISM

GERALD BORDMAN

Writer, Nottingham, Pa.
MUSIC THEATER—WESTERN TRADITIONS

DAVID BORDWELL

Professor of Communication Arts,
University of Wisconsin—Madison
CINEMATOGRAPHY

TOM BOTTOMORE

Professor Emeritus of Sociology,
University of Sussex
ADORNO, THEODOR; GRAMSCI,
ANTONIO; MARX, KARL; MARXIST
THEORIES OF COMMUNICATION—
ORIGINS AND DEVELOPMENT

FAUBION BOWERS

Writer, New York
MUSIC THEATER—ASIAN TRADITIONS

DEIRDRE BOYLE

Senior Faculty Member in Media Studies, New School for Social Research, New York; Adjunct Lecturer, Fordham University, College at Lincoln Center
VIDEO

JOHN G. BRAINERD

University Professor Emeritus and former Director, Moore School of Electrical Engineering, University of Pennsylvania
FARADAY, MICHAEL; FARNSWORTH, PHILO; MAXWELL, JAMES

LEO BRAUDY

Leo S. Bing Professor of English, University of Southern California
SERIAL

ERNEST BRAUN

Professor Emeritus, Aston University
MICROELECTRONICS

MARTA BRAUN

Professor of Film and Photography, Ryerson Polytechnical Institute
MOTION PHOTOGRAPHY

JACK W. BREHM

Professor of Psychology, University of Kansas
COGNITIVE CONSISTENCY THEORIES

ERNST BREISACH

Professor of History, Western Michigan University
HISTORIOGRAPHY

DONALD BRENNEIS

Professor of Anthropology, Pitzer College
GOSSIP

ASA BRIGGS

Provost, Worcester College, University of Oxford
CULTURE; PUBLISHING—HISTORY OF PUBLISHING

GLEN DAVID BRIN

Associate, California Space Institute and Scripps Institution of Oceanography, University of California, San Diego
CETI

VIRGINIA L. BROOKS

Associate Professor of Film, Brooklyn College, City University of New York
PERCEPTION—STILL AND MOVING PICTURES

MARILYN A. BROWN

Group Leader, Evaluation and Technology Transfer, Oak Ridge National Laboratory, Oak Ridge, Tenn.
DIFFUSION

DONALD R. BROWNE

Professor of Speech Communication, University of Minnesota, Twin Cities
RADIO, INTERNATIONAL

EDWARD M. BRUNER

Professor of Anthropology, University of Illinois at Urbana-Champaign
TOURISM

DAYNA E. BUCK

Assistant to the Director, Library Programs, Office of Educational Research and Improvement, U.S. Department of Education, Washington, D.C.
LIBRARY—TRENDS

PETER BURKE

Reader in Cultural History and Fellow of Emmanuel College, University of Cambridge
PORTRAITURE

JOSEPH CADY

Member of the Faculty, New School for Social Research, New York
GALLAUDET, THOMAS; JAMES, WILLIAM; LUTHER, MARTIN; RICHARDS, I. A.

JAMES W. CAREY

Dean, College of Communications, University of Illinois at Urbana-Champaign
INNIS, HAROLD

JOHN CAREY

Director, Greystone Communications, Dobbs Ferry, N.Y.
INTERACTIVE MEDIA

MARVIN A. CARLSON

Sidney E. Cohen Professor of Theatre Studies and Distinguished Professor of Theatre and Comparative Literature, Graduate Center, City University of New York
THEATER

ROBERT OSKAR CARLSON

Associate Professor of Management and Business Policy, Adelphi University
PUBLIC RELATIONS

NOËL CARROLL

Associate Professor of Philosophy, Cornell University
FILM EDITING

JOHN G. CAWELTI

Professor of English, University of Kentucky
WESTERN, THE

COURTNEY BORDEN CAZDEN

Professor of Education, Harvard University
CLASSROOM

JANET SALTZMAN CHAFETZ

Professor of Sociology, University of Houston
SEXISM—OVERVIEW; SEXISM—SEXISM IN INTERPERSONAL COMMUNICATION

C. DAVID CHAFFEE

Executive Editor, *Superconductor Week*, Atlantic Information Services, Inc., Washington, D.C.
FIBER OPTICS

STEVEN H. CHAFFEE

Janet M. Peck Professor of International Communication and Chair, Department of Communication, Stanford University
ELECTION

RICHARD M. CHALFEN

Associate Professor of Anthropology, Temple University
PHOTOGRAPHY, AMATEUR

- JEANNE S. CHALL**
Professor of Education and Director,
Reading Laboratory, Harvard
University
READING
- DAVID CHANEY**
Senior Lecturer in Sociology, University
of Durham
MASS OBSERVATION
- MAURICE CHARNEY**
Distinguished Professor of English,
Rutgers University, New Brunswick
COMEDY
- JACK CHEN (CHEN I-WAN)**
President, The Pear Garden in the West,
San Francisco; former Consultant
Editor, *Peking Review*, Beijing
CONFUCIUS; SHIHUANG DI
- MILTON CHEN**
Director of Instructional Television,
KQED-San Francisco
COMPUTER: IMPACT—IMPACT ON
EDUCATION
- CLIFFORD G. CHRISTIANS**
Research Professor of Communications,
University of Illinois at Urbana-
Champaign
ETHICS, MEDIA
- GODWIN C. CHU**
Assistant Director, Institute of Culture
and Communication, East-West
Center, Honolulu
SCHRAMM, WILBUR
- T. MATTHEW CIOLEK**
Programmer, Computing Services Unit,
Research School of Social Sciences,
Australian National University
PROXEMICS; SPATIAL ORGANIZATION
- JAY J. COAKLEY**
Professor of Sociology, University of
Colorado at Colorado Springs
SPORTS—SPORTS AND THE MEDIA
- JEREMY COHEN**
Assistant Professor of Communication,
Stanford University
LIBEL
- TED COHEN**
Professor of Philosophy, University of
Chicago
REPRESENTATION, PICTORIAL AND
PHOTOGRAPHIC
- GEORGE COMSTOCK**
S. I. Newhouse Professor of Public
Communication, Syracuse University
VIOLENCE
- JOHN CONDON**
Professor of Communication, University
of New Mexico
SEMANTICS, GENERAL
- DAVID A. COOK**
Professor of Theater and Film Studies,
Emory University
MOTION PICTURES—SOUND FILM
- JERROLD S. COOPER**
Professor of Near Eastern Studies, Johns
Hopkins University
CUNEIFORM; NINEVEH; WRITING
- IRVING CRESPI**
Consultant, Irving Crespi and
Associates, Princeton, N.J.
POLL
- JAMES STEVENS CURL**
Architectural historian, School of
Architecture, Leicester Polytechnic
ART, FUNERARY
- ALEXANDER CUTHBERT**
Assistant Professor of Education,
Virginia Polytechnic Institute
EDUCATION
- R. P. CUZZORT**
Professor of Sociology, University of
Colorado at Boulder
DURKHEIM, ÉMILE; SCHUTZ, ALFRED;
TARDE, JEAN-GABRIEL DE; WEBER, MAX
- DANIEL J. CZITROM**
Associate Professor of History, Mount
Holyoke College
DEWEY, JOHN
- JOHN H. D'ARMS**
G. F. Else Professor of Classical Studies,
Professor of History, and Dean,
H. H. Rackham School of Graduate
Studies, University of Michigan, Ann
Arbor
ROMAN EMPIRE
- REGNA DARNELL**
Professor of Anthropology, University
of Alberta
SAPIR, EDWARD; WHORF, BENJAMIN LEE
- CHIDANANDA DAS GUPTA**
Arts Editor, *The Telegraph*, Calcutta
AŚOKA; GANDHI, MOHANDAS; PHALKE,
DHUNDIRAJ GOVIND
- DENNIS K. DAVIS**
Professor of Speech Communication,
Southern Illinois University at
Carbondale
OPINION LEADER
- LENNARD J. DAVIS**
Associate Professor of English, Brandeis
University
FICTION
- W. PHILLIPS DAVISON**
Professor Emeritus of Journalism and
Sociology, Columbia University
CANTRIL, HADLEY; LIPPMANN, WALTER;
PUBLIC OPINION
- ROBERT DE BEAUGRANDE**
Professor of Linguistics and English,
Institute for the Psychological Study
of the Arts, University of Florida
TRANSLATION, LITERARY
- JACK DENNIS**
Hawkins Professor of Political Science,
University of Wisconsin—Madison
POLITICAL SOCIALIZATION
- DIANA DEUTSCH**
Research Psychologist, University of
California, San Diego
PERCEPTION—MUSIC
- WILSON P. DIZARD**
Senior Fellow, Center for Strategic
and International Studies,
Washington, D.C.
TELEVISION HISTORY—GLOBAL
DEVELOPMENT

LUBOMIR DOLEŽEL

Professor of Slavic and Comparative
Literature, University of Toronto
POETICS

ZOLTAN DOMOTOR

Professor of Philosophy, University of
Pennsylvania
SYMBOLIC LOGIC

LEONARD W. DOOB

Sterling Professor Emeritus of
Psychology, Yale University
PROPAGANDA

MARGARET ANNE DOODY

Professor of English, Princeton
University
REALISM

R. G. DOTY

Curator, National Numismatic
Collection, National Museum of
American History, Smithsonian
Institution, Washington, D.C.
COINS

RICHARD B. DU BOFF

Professor of Economics, Bryn Mawr
College
TELEGRAPHY

STARKEY DUNCAN, JR.

Professor of Behavioral Sciences,
University of Chicago
INTERACTION, FACE-TO-FACE

DONALD A. DUNN

Professor of Engineering-Economic
Systems, Stanford University
COMPUTER: HISTORY

ALESSANDRO DURANTI

Assistant Professor of Anthropology,
University of California, Los Angeles
ORATORY

RAYMOND DURGNAT

Tutor in Cultural History, Royal
College of Art, London
SPY FICTION—HISTORY

WILLIAM H. DUTTON

Associate Professor of Communications
and Public Administration, University
of Southern California
COMPUTER: IMPACT—IMPACT ON
GOVERNMENT; POLITICAL
COMMUNICATION—IMPACT OF NEW
MEDIA

RICHARD DYER

Senior Lecturer in Film Studies,
University of Warwick
STARS—THE STAR PHENOMENON

TERRY EAGLETON

Fellow and Tutor in English, Wadham
College, University of Oxford
BARTHES, ROLAND; BENJAMIN, WALTER;
FOUCAULT, MICHEL; READING THEORY;
STRUCTURALISM

VICTORIA EBIN

Équipe de Recherche en Anthropologie
Urbaine et Industrielle, École des
Hautes Études en Sciences Sociales
BODY DECORATION

HEYWARD EHRLICH

Associate Professor of English, Rutgers
University, Newark
ROPER, ELMO

ELIZABETH L. EISENSTEIN

Alice Freeman Palmer Professor of
History, University of Michigan, Ann
Arbor
PRINTING—CULTURAL IMPACT OF
PRINTING

PAUL EKMAN

Professor of Psychology, University of
California, San Francisco
FACIAL EXPRESSION

JAVIER A. ELGUEA S.

Associate Professor of Sociology,
Colegio de México
WITTGENSTEIN, LUDWIG

PHOEBE C. ELLSWORTH

Professor of Psychology and Professor
of Law, University of Michigan, Ann
Arbor
EYES

WERNER ENNINGER

Professor of English (Linguistics),
Universität Essen
CLOTHING

MARTIN L. ERNST

Vice-President, Arthur D. Little, Inc.,
Cambridge, Mass.
COMPUTER: IMPACT—IMPACT ON
COMMERCE

DEBORAH L. ESTRIN

Assistant Professor of Computer
Science, University of Southern
California
STANDARDS

FRANK B. EVANS

Deputy Assistant Archivist for Records
Administration, National Archives
and Records Administration,
Washington, D.C.
ARCHIVES

STUART B. EWEN

Professor of Media Studies and Chair,
Communications Department, Hunter
College; Professor of Sociology,
Graduate Center, City University of
New York
ADVERTISING—HISTORY OF
ADVERTISING

BRENDA FARNELL

Research Assistant, American Indian
Studies Research Institute, Indiana
University
BODY MOVEMENT NOTATION

STEVEN FELD

Associate Professor of Anthropology
and Music and Director, Center for
Intercultural Studies in Folklore and
Ethnomusicology, University of Texas
at Austin
MUSIC THEORIES—TUNING SYSTEMS;
SOUND

JOHN L. FELL

Professor Emeritus of Film, San
Francisco State University
MOTION PICTURES—PREHISTORY

GARY D. FENSTERMACHER

Dean, College of Education, University
of Arizona
EDUCATION

JANE FEUER

Associate Professor of English,
University of Pittsburgh
MUSICAL, FILM—HOLLYWOOD GENRE

RAYMOND FIELDING

Professor of Communication, University
of Houston
NEWSREEL; SPECIAL EFFECTS

GARY ALAN FINE

Professor of Sociology, University of
Minnesota, Twin Cities
FORGERY, ART

MOSES I. FINLEY

Professor Emeritus of Ancient History
and Honorary Fellow of Darwin
College, University of Cambridge
HELLENIC WORLD

RUTH FINNEGAN

Reader in Comparative Social
Institutions, Open University, Milton
Keynes, England
ORAL POETRY

CHARLES M. FIRESTONE

Adjunct Professor of Law, University of
California, Los Angeles; attorney,
Mitchell, Silberberg & Knupp, Los
Angeles
MILTON, JOHN

B. AUBREY FISHER

Professor of Communication, University
of Utah
GROUP COMMUNICATION

PHILIP FISHER

Professor of English and American
Literature, Brandeis University
MUSEUM

JOHN FISKE

Professor of Communication Arts,
University of Wisconsin—Madison
CODE

JOHN M. FLETCHER

Reader in the History of European
Universities, Aston University
UNIVERSITY

CORNELIA BUTLER FLORA

Professor of Sociology, Kansas State
University
FOTONOVELA

WILLIAM F. FORE

Assistant General Secretary for
Communication, National Council of
Churches in the U.S.A., New York
RELIGIOUS BROADCASTING

ADRIAN FORTY

Lecturer, Bartlett School of Architecture
and Planning, University College
London
DESIGN

ROBERT A. FOTHERGILL

Associate Professor of English, Atkinson
College, York University
DIARY

JOHN G. FOUGHT

Associate Professor of Linguistics and
Director, Language Analysis Project,
University of Pennsylvania
LANGUAGE

MARIOS FOURAKIS

Research Scientist, Central Institute for
the Deaf, Saint Louis, Mo.
PERCEPTION—SPEECH

ALASTAIR FOWLER

Regius Professor Emeritus of Rhetoric
and English Language, University of
Edinburgh; Visiting Professor,
University of Virginia
GENRE

ROBERT A. FRADKIN

Assistant Professor of Hebrew, Brown
University
JAKOBSON, ROMAN

ALAN J. FRIDLUND

Assistant Professor of Psychology,
University of California, Santa
Barbara
FACIAL EXPRESSION

MICHAEL G. FRY

Director, School of International
Relations, University of Southern
California
DIPLOMACY

HANS G. FURTH

Professor of Psychology, Catholic
University of America
PIAGET, JEAN

ITZHAK GALNOOR

Professor of Political Science, Hebrew
University of Jerusalem
SECRECY

HOWARD E. GARDNER

Professor of Education and Co-Director,
Project Zero, Harvard University;
Research Psychologist, Veterans
Administration Medical Center,
Boston
CHILDREN—DEVELOPMENT OF
SYMBOLIZATION

NICHOLAS GARNHAM

Professor of Media Studies and
Director, Centre for Communication
and Information Studies, Polytechnic
of Central London
TELECOMMUNICATIONS POLICY

HENRY GEDDES

Associate Researcher, Centro de
Estudios sobre Cultura
Transnacional, Lima
LATIN AMERICA, TWENTIETH CENTURY

GEORGE GERBNER

Professor of Communications and
Dean, The Annenberg School of
Communications, University of
Pennsylvania
COMMUNICATIONS, STUDY OF

TOMASZ GOBAN-KLAS

Associate Professor of Communications,
Uniwersytet Jagielloński
MINORITY MEDIA

JEFFREY H. GOLDSTEIN

Professor of Psychology, Temple
University
SPORTS—PSYCHOLOGY OF SPORTS

BARBARA GOMBACH

Former Preceptor, Department of
Religion, Columbia University
SOUTH ASIA, ANCIENT

JUDITH GOODE

Professor of Anthropology, Temple
University
FOOD

MARK GOODSON
President, Goodson-Todman
Productions, New York
QUIZ SHOW

JACK GOODY
Fellow of Saint John's College,
University of Cambridge
ORAL CULTURE

ROBERT GORALSKI
Writer, McLean, Va.
ESPIONAGE

MARTIN GORIN
Associate Member, Laboratoire de
Psychologie Sociale, École des Hautes
Études en Sciences Sociales
CROWD BEHAVIOR

JAMES L. GOULD
Professor of Biology, Princeton
University
INSECTS, SOCIAL

HENRY F. GRAFF
Professor of History, Columbia
University
NAKAHAMA MANJIRO

JOSEPH F. GRAHAM
Assistant Professor of French, Tulane
University
TRANSLATION, THEORIES OF

CHANDLER B. GRANNIS
Contributing Editor, *Publishers Weekly*,
New York
BAEDEKER, KARL; GUTENBERG,
JOHANNES; LUCE, HENRY;
MERGENTHALER, OTTMAR

THOMAS A. GREEN
Associate Professor of Anthropology
and English, Texas A&M University
RIDDLE

DONALD GREENE
Professor Emeritus of English,
University of Southern California
BIOGRAPHY

PEKKA GRONOW
Director, Suomen Äänitearkisto (Finnish
Institute of Recorded Sound),
Helsinki
SOUND RECORDING—HISTORY; SOUND
RECORDING—INDUSTRY

LARRY GROSS
Professor of Communications, The
Annenberg School of
Communications, University of
Pennsylvania
ART; LÉVI-STRAUSS, CLAUDE; MODE

THOMAS GUBACK
Research Professor of Communication,
University of Illinois at Urbana-
Champaign
TELEVISION HISTORY—WORLD MARKET
STRUGGLES

MICHAEL A. GUILLEN
Instructor in Mathematics and Physics
in the Core Curriculum Program,
Harvard University
MATHEMATICS

WILLIAM A. HACHTEN
Professor of Journalism and Mass
Communication, University of
Wisconsin—Madison
NEWSPAPER: TRENDS—TRENDS IN
AFRICA

PATRICIA HAGOOD
President and Publisher, Oxbridge
Communications, Inc., New York
NEWSLETTER

JACK P. HAILMAN
Professor of Zoology, University of
Wisconsin—Madison
ANIMAL SIGNALS—VISIBLE SIGNALS

STUART HALL
Professor of Sociology, Open University,
Milton Keynes, England
IDEOLOGY

JAMES D. HALLORAN
Professor and Director, Centre for Mass
Communication Research, University
of Leicester
DEMONSTRATION

PAUL HAMILTON
Lecturer in English and Fellow of
Exeter College, University of Oxford
SYMBOLISM

JOHN G. HANHARDT
Curator of Film and Video, Whitney
Museum of American Art, New York
BUÑUEL, LUIS

PHIL HARRIS
Communication Consultant,
International Association for Mass
Communication Research, Rome
NEWS AGENCIES

GALIT HASAN-ROKEM
Senior Lecturer in Hebrew Literature,
Hebrew University of Jerusalem
PROVERB

TERENCE HAWKES
Professor of English, University of
Wales, College of Cardiff
AUTHORSHIP

ROBERT P. HAWKINS
Professor of Journalism and Mass
Communication, University of
Wisconsin—Madison
SELECTIVE RECEPTION

SHIRLEY BRICE HEATH
Professor of English and Linguistics,
Stanford University
LANGUAGE IDEOLOGY

PERTTI HEMÁNUS
Professor of Journalism and Mass
Communication, Tampereen Yliopisto
NEWSPAPER: TRENDS—TRENDS IN
EUROPE

STUART HENRY
Associate Professor of Sociology,
Eastern Michigan University
DECEPTION

EDWARD S. HERMAN
Professor of Finance, Wharton School,
University of Pennsylvania
DISINFORMATION

PEDRO F. HERNÁNDEZ-RAMOS
Lecturer, The Annenberg School of
Communications, University of
Pennsylvania
DEVELOPMENT COMMUNICATION—
HISTORY AND THEORIES

MARCIA HERNDON
Executive Director, Music Research
Institute, Hercules, Calif.
SONG

ROBERT D. HESS
Lee L. Jacks Professor Emeritus of
Child Education, Stanford University
FAMILY

GORDON W. HEWES
Professor of Anthropology, University
of Colorado at Boulder
BODY MOVEMENT

DELBERT R. HILLERS
Professor of Semitic Languages, Johns
Hopkins University
BYBLOS

HILDE T. HIMMELWEIT
Professor Emeritus of Social Psychology,
London School of Economics and
Political Science, University of
London
POLITICAL COMMUNICATION—
BROADCAST DEBATES

JERRY R. HOBBS
Senior Computer Scientist, SRI
International, Menlo Park, Calif.
ARTIFICIAL INTELLIGENCE

JULIAN HOCHBERG
Professor of Psychology, Columbia
University
PERCEPTION—STILL AND MOVING
PICTURES

DONALD HOKE
Executive Director, Outagamie County
Historical Society, Inc., Appleton,
Wisc.
CLOCK

THOMAS B. HOLMES
Director, Music Systems Research,
Cherry Hill, N.J.
ELECTRONIC MUSIC; MUSIC MACHINES

MICHAEL HOLQUIST
Professor of Comparative and Russian
Literature, Yale University
BAKHTIN, MIKHAIL

MANTLE HOOD
Senior Distinguished Professor of
Ethnomusicology, University of
Maryland, Baltimore County
MUSIC COMPOSITION AND
IMPROVISATION

MAURICE HORN
Writer and editor, New York
COMICS

ROBERT C. HORNIK
Professor of Communications, The
Annenberg School of
Communications, University of
Pennsylvania
DEVELOPMENT COMMUNICATION—
PROJECTS

JANE HULTING
Artistic Director and Conductor, Anna
Crusis Choir, Philadelphia
MUZAK

LINDA HUTCHEON
Professor of English and Comparative
Literature, University of Toronto
INTERTEXTUALITY

HERBERT H. HYMAN
Crowell University Professor Emeritus
of the Social Sciences, Wesleyan
University
OPINION MEASUREMENT

JONATHAN B. IMBER
Associate Professor of Sociology,
Wellesley College
PSYCHOANALYSIS; SULLIVAN, HARRY
STACK

STEVEN IZENOUR
Senior Associate, Venturi Rauch &
Scott Brown, Philadelphia; Lecturer,
School of Architecture, University of
Pennsylvania
SIGNAGE

PETER P. JACOBI
Professor of Journalism, Indiana
University
NEWSMAGAZINE

DIANE JACOBS
Writer, New York
HITCHCOCK, ALFRED

SUE CURRY JANSEN
Assistant Professor of Communications
Studies, Cedar Crest College and
Muhlenberg College
CENSORSHIP—NONGOVERNMENT
CENSORSHIP

IAN JARVIE
Professor of Philosophy, York
University
MARTIAL ARTS FILM

ROBERT E. JOHNSTON
Professor of Psychology, Cornell
University
ANIMAL SIGNALS—CHEMICAL SIGNALS

D. B. JONES
Professor of Communication, Drexel
University
GRIERSON, JOHN

JANE JORGENSON
Assistant Professor of Communications,
Norfolk State University
CHERRY, COLIN; VON NEUMANN, JOHN;
WEAVER, WARREN

ESTELLE JUSSIM
Professor for Visual Communication,
Graduate School of Library and
Information Science, Simmons
College
GRAPHIC REPRODUCTION

JOHN S. JUSTESON
Lecturer, Department of Anthropology,
Stanford University
AMERICAS, PRE-COLUMBIAN—WRITING
SYSTEMS

ADRIENNE L. KAEPLER
Curator of Oceanic Ethnology, National
Museum of Natural History,
Smithsonian Institution,
Washington, D.C.
DANCE

FRANK A. KAFKER
Professor of History, University of
Cincinnati
ENCYCLOPEDIA

CHARLES H. KAHN
 Professor of Philosophy, University of
 Pennsylvania
 ARISTOTLE; PLATO

DAVID KAHN
 Great Neck, N.Y.
 CRYPTOLOGY

AARON H. KATCHER
 Associate Professor of Psychiatry,
 University of Pennsylvania
 HUMAN-ANIMAL COMMUNICATION

ELIHU KATZ
 Professor of Sociology and
 Communications, Hebrew University
 of Jerusalem; Distinguished Visiting
 Professor, The Annenberg School of
 Communications, University of
 Southern California
 MASS MEDIA EFFECTS

ADAM KENDON
 Anthropologist
 GESTURE; KINESICS; NONVERBAL
 COMMUNICATION; SIGN LANGUAGE—
 OVERVIEW; SIGN LANGUAGE—
 ALTERNATE SIGN LANGUAGES

MAX R. KENWORTHY
 Philatelic Research Assistant, American
 Philatelic Research Library, State
 College, Pa.
 POSTAL SERVICE; STAMPS

EDITH W. KING
 Professor of Education, University of
 Denver
 DURKHEIM, ÉMILE; SCHUTZ, ALFRED;
 TARDE, JEAN-GABRIEL DE; WEBER, MAX

CATHERINE E. KIRKLAND
 Philadelphia, Pa.
 ENTERTAINMENT

**BARBARA KIRSHENBLATT-
 GIMBLETT**
 Professor of Performance Studies, Tisch
 School of the Arts, New York
 University
 TOURISM

EVA FEDER KITTAY
 Associate Professor of Philosophy, State
 University of New York at Stony
 Brook
 METAPHOR

JEFFREY KITTAY
 Visiting Scholar in French, New York
 University
 PROSE

MICHAEL J. KLEIN
 Project Manager, SETI Project, Jet
 Propulsion Laboratory, California
 Institute of Technology
 CETI

HANNAH KLIGER
 Assistant Professor of Judaic and Near
 Eastern Studies and Assistant
 Professor of Communication,
 University of Massachusetts at
 Amherst
 JUDAISM

PETER H. KLOPFER
 Professor of Zoology, Duke University
 BATESON, GREGORY; MEAD, MARGARET

MARK L. KNAPP
 Professor of Speech Communication,
 University of Texas at Austin
 SPEECH

PAUL J. KORSHIN
 Professor of English, University of
 Pennsylvania
 JOHNSON, SAMUEL

CHERIS KRAMARAE
 Professor of Speech Communication,
 University of Illinois at Urbana-
 Champaign
 FEMINIST THEORIES OF
 COMMUNICATION

KLAUS KRIPPENDORFF
 Professor of Communications, The
 Annenberg School of
 Communications, University of
 Pennsylvania
 CONTENT ANALYSIS; CYBERNETICS;
 INFORMATION THEORY; SHANNON,
 CLAUDE

S. KRISHNASWAMY
 Film and television producer-director,
 Madras
 MUSICAL, FILM—BOMBAY GENRE;
 MYTHOLOGICAL FILM, ASIAN

DONALD E. KROODSMA
 Professor of Zoology, University of
 Massachusetts at Amherst
 ANIMAL SONG

JOHN B. KUIPER
 Chair, Division of Radio/Television/
 Film, University of North Texas
 ARCHIVES, FILM

WILLIAM A. LADUSAW
 Assistant Professor of Linguistics,
 Cowell College, University of
 California, Santa Cruz
 SEMANTICS

PNINA LAHAV
 Professor of Law, Boston University
 CENSORSHIP—GOVERNMENT
 CENSORSHIP

ZVI LAMM
 Professor of Education, Hebrew
 University of Jerusalem
 SCHOOL

DAN LANDIS
 Professor of Psychology, University of
 Mississippi
 INTERCULTURAL COMMUNICATION

GLADYS ENGEL LANG
 Professor of Communications and
 Political Science, University of
 Washington
 PLEBISCITE; POLITICAL SYMBOLS

KURT LANG
 Professor of Communications,
 University of Washington
 COMMUNICATIONS RESEARCH; ORIGINS
 AND DEVELOPMENT; POLITICAL
 SYMBOLS

RALPH W. LARKIN
 Research consultant, Academic
 Research Consulting Service, New
 York
 REVOLUTION

MAGALI SARFATTI LARSON
 Professor of Sociology, Temple
 University
 PROFESSION

- D. L. LEMAHIEU**
Professor of History, Lake Forest College
PALEY, WILLIAM
- JOHN A. LENT**
Professor of Communications, Temple University
NEWSPAPER: TRENDS—TRENDS IN ASIA
- JANET LEVER**
Pew Memorial Trust Fellow, RAND/UCLA Center for Health Policy Study, Santa Monica, Calif.
SPORTS—SPORTS AND SOCIETY
- STEPHEN C. LEVINSON**
Lecturer in Linguistics, King's College, University of Cambridge
CONVERSATION
- GEORGE H. LEWIS**
Professor of Sociology, University of the Pacific
TASTE CULTURES
- JAY LEYDA**
Pinewood Professor of Cinema Studies, Tisch School of the Arts, New York University
EISENSTEIN, SERGEI
- LAWRENCE LICHTY**
Professor of Radio, Television, and Film, Northwestern University
RADIO
- JOHN LIGGETT**
Senior Lecturer in Psychology, University of Wales, College of Cardiff
FACE
- KENNETH J. LIPARTITO**
Assistant Professor of History, University of Houston
TELEPHONE
- ELIZABETH F. LOFTUS**
Professor of Psychology, University of Washington
TESTIMONY
- ALAN LOMAX**
Director, Cantometrics and Choreometrics Project, Department of Anthropology, and Director, Center for the Social Sciences, Columbia University
CANTOMETRICS; CHOREOMETRICS
- TREVOR LUMMIS**
Historian and writer, London
ORAL HISTORY
- SEAN MACBRIDE**
President Emeritus, International Peace Bureau, Geneva; former Chair, UNESCO International Commission for the Study of Communication Problems
NEW INTERNATIONAL INFORMATION ORDER
- MAXWELL E. MCCOMBS**
Jesse H. Jones Centennial Professor in Communication, University of Texas at Austin
AGENDA-SETTING
- THELMA MCCORMACK**
Professor of Sociology, York University
PORNOGRAPHY
- JAMES C. MCCROSKEY**
Professor of Communication Studies, West Virginia University
SPEECH ANXIETY
- TERESA M. MCDEVITT**
Assistant Professor of Educational Psychology, University of Northern Colorado
FAMILY
- JOHN HOLMES MCDOWELL**
Associate Professor of Folklore, Indiana University
SPEECH PLAY
- J. N. MCGOVERN**
Professor Emeritus of Forestry, University of Wisconsin—Madison
WRITING MATERIALS
- WILLIAM J. MCGUIRE**
Professor of Psychology, Yale University
PERSUASION
- DENIS MCQUAIL**
Professor of Mass Communications, Universiteit van Amsterdam
MASS COMMUNICATIONS RESEARCH; MODELS OF COMMUNICATION
- FRANK E. MANNING**
Professor of Anthropology, University of Western Ontario
SPECTACLE
- JOSEPH MARGOLIS**
Professor of Philosophy, Temple University
AESTHETICS
- CAROLYN MARVIN**
Associate Professor of Communications, The Annenberg School of Communications, University of Pennsylvania
CITIZENS BAND RADIO; LITERACY
- ANNE J. MATHEWS**
Director, Library Programs, Office of Educational Research and Improvement, U.S. Department of Education, Washington, D.C.
LIBRARY—TRENDS
- MYRON MATLAW**
Professor Emeritus of English, Queens College, City University of New York
DRAMA—HISTORY
- ARMAND MATTELART**
Professor of Information and Communication Sciences, Université de Rennes II (Université de Haute Bretagne)
MARXIST THEORIES OF COMMUNICATION—THIRD WORLD APPROACHES
- PHILIP B. MEGGS**
Professor of Communication Arts and Design, Virginia Commonwealth University
TYPOGRAPHY
- WILLIAM H. MELODY**
Director, Communication and Information Technologies Programme, Economic and Social Research Council of Great Britain, London
TELECOMMUNICATIONS NETWORKS

SHELDON MEYER

Senior Vice-President, Editorial, Oxford
University Press, New York
RENOIR, JEAN

LOUIS T. MILIC

Professor of English, Cleveland State
University
STYLE, LITERARY

ABRAHAM H. MILLER

Professor of Political Science, University
of Cincinnati
TERRORISM

JAMES MILLER

Associate Professor of Communications,
Hampshire College, Amherst, Mass.
CABLE TELEVISION

JAMES D. MILLER

Director of Research, Central Institute
for the Deaf, Saint Louis, Mo.
PERCEPTION—SPEECH

ANDREW W. MIRACLE

Professor of Anthropology, Texas
Christian University
PLAY

MICHAEL MORGAN

Associate Professor of Communication,
University of Massachusetts at
Amherst
CULTIVATION ANALYSIS

TESSA MORRIS-SUZUKI

Senior Lecturer in Economic History,
University of New England,
Armidale, N.S.W., Australia
COMPUTER: IMPACT—IMPACT ON THE
WORK FORCE

VINCENT MOSCO

Professor of Sociology, Queen's
University at Kingston
COMPUTER: IMPACT—IMPACT ON
MILITARY AFFAIRS; VIDEOTEX

SERGE MOSCOVICI

Professor of Social Psychology, École
des Hautes Études en Sciences
Sociales
CROWD BEHAVIOR

MICHAEL T. MOTLEY

Professor of Rhetoric and
Communication, University of
California, Davis
SLIPS OF THE TONGUE

HAMID MOWLANA

Professor and Director, International
Communication Program, School of
International Service, American
University, Washington, D.C.
INTERNATIONAL ORGANIZATIONS

WILLIAM ARTHUR MUNFORD

Librarian Emeritus, National Library
for the Blind, Stockport, England
LIBRARY—HISTORY

WILLIAM T. MURPHY

Chief, Motion Picture, Sound, and
Video Branch, National Archives
and Records Administration,
Washington, D.C.
FLAHERTY, ROBERT

KAY MUSSELL

Professor of Literature and American
Studies, American University,
Washington, D.C.
ROMANCE, THE

JOSEPH NAVEH

Professor of West Semitic Epigraphy
and Palaeography, Hebrew University
of Jerusalem
ALPHABET

RICHARD ALAN NELSON

Associate Professor of Communication,
University of Houston
PATHÉ, CHARLES

OTTFRIED NEUBECKER

President, Wappen-HEROLD, Deutsche
Heraldische Gesellschaft, Stuttgart
HERALDRY

DAN D. NIMMO

Professor of Communication, University
of Oklahoma
LOBBYING

CHRISTIAN NORBERG-SCHULZ

Professor of Architecture,
Arkitektthøgskolen Oslo
ARCHITECTURE

ABRAHAM NOSNIK

Lecturer, Instituto Tecnológico
Autónomo de México, Mexico City
COOLEY, CHARLES HORTON; MEAD,
GEORGE HERBERT; MORRIS, CHARLES;
PEIRCE, CHARLES S.

ELINOR OCHS

Professor of Linguistics, University of
Southern California
LANGUAGE ACQUISITION

JOHN J. OHALA

Professor of Linguistics, University of
California, Berkeley
PHONOLOGY

WILLIAM M. O'NEIL

Professor Emeritus of Psychology,
University of Sydney
CALENDAR

HARRIET OSTER

Associate Professor of Psychology,
Derner Institute, Adelphi University
FACIAL EXPRESSION

DAN O'SULLIVAN

Head, History Department, Prior
Pursglove College, Guisborough,
England
EXPLORATION

DAVID L. PALETZ

Professor of Political Science, Duke
University
POLITICIZATION

EDWARD L. PALMER

Senior Research Fellow, Children's
Television Workshop, New York
EDUCATIONAL TELEVISION

JERRY PALMER

Senior Lecturer, Faculty of Art, City of
London Polytechnic
MYSTERY AND DETECTIVE FICTION; SPY
FICTION—THEMES

DAVID A. PARISER

Associate Professor of Art Education,
Concordia University
CHILD ART

BARBARA PARKER

Adjunct Lecturer and Assistant
Research Scientist in Anthropology,
University of Michigan, Ann Arbor
GENDER

ASKO PARPOLA

Professor of South Asian Studies,
Helsingin Yliopisto
INDUS SCRIPT

RAPHAEL PATAI

Professor Emeritus of Anthropology,
Fairleigh Dickinson University
DIASPORA

MILES L. PATTERSON

Professor of Psychology, University of
Missouri—Saint Louis
INTERPERSONAL DISTANCE

JOHN ALLEN PAULOS

Professor of Mathematics, Temple
University
NUMBER

MORSE PECKHAM

Professor Emeritus of English and
Comparative Literature, University of
South Carolina
ROMANTICISM

JERZY PELC

Professor of Logical Semiotics,
Uniwersytet Warszawski
SIGN; SIGN SYSTEM

W. KEITH PERCIVAL

Professor of Linguistics, University of
Kansas
SAUSSURE, FERDINAND DE

WILLIAM H. PERKINS

Professor of Communication Arts and
Sciences, Otolaryngology, and Speech
Science and Technology, University of
Southern California
SPEECH AND LANGUAGE DISORDERS

STEPHEN PERLOFF

Editor, *Photo Review*, Langhorne, Pa.
NIEPCE, JOSEPH-NICÉPHORE

THEODORE B. PETERSON

Professor Emeritus of Journalism and
Research Professor Emeritus of
Communications, University of
Illinois at Urbana-Champaign
MAGAZINE

RICHARD PILCHER

Instructor in Theater, Baltimore School
for the Arts
BARNUM, PHINEAS T.; BERGMAN,
INGMAR; CHAPLIN, CHARLES; DISNEY,
WALT; WELLES, ORSON

EDWARD W. PLOMAN

Program Director, United Nations
University, Paris
SATELLITE

DAVID F. POLTRACK

Vice-President of Marketing, CBS
Television Network, New York
RATING SYSTEMS: RADIO AND
TELEVISION

JEREMY D. POPKIN

Professor of History, University of
Kentucky
PAMPHLET

MARK POSTER

Professor of History, University of
California, Irvine
UTOPIAS

SIEGBERT S. PRAWER

Taylor Professor Emeritus of the
German Language and Literature,
Queen's College, University of
Oxford
HORROR FILM

DAVID PREMACK

Professor of Psychology, University of
Pennsylvania
COGNITION, ANIMAL

GERALD PRINCE

Professor of Romance Languages,
University of Pennsylvania
NARRATIVE

LINDA L. PUTNAM

Professor of Communication, Purdue
University
BARGAINING

ERIC RABKIN

Professor of English Language and
Literature, University of Michigan,
Ann Arbor
SCIENCE FICTION

ROY A. RAPPAPORT

Leslie A. White Collegiate Professor of
Anthropology, University of
Michigan, Ann Arbor
RITUAL

JAMES A. RAWLEY

Professor of History, University of
Nebraska, Lincoln
SLAVE TRADE, AFRICAN

MICHAEL L. RAY

Professor of Marketing and
Communication, Stanford University
CONSUMER RESEARCH

W. CHARLES REDDING

Professor Emeritus of Communication,
Purdue University
ORGANIZATIONAL COMMUNICATION

FERNANDO REYES MATTA

Director of Communication Research,
Instituto Latinoamericano de Estudios
Transnacionales, Santiago
NEWSPAPER: TRENDS—TRENDS IN LATIN
AMERICA

TIMOTHY RICE

Associate Professor of Music, University
of Toronto
MUSIC THEORIES—OVERVIEW

DONALD RICHIE

Film historian, Tokyo
BENSHI; KUROSAWA, AKIRA; OZU,
YASUJIRŌ

BERTHOLD RIESE

Professor of American Anthropology,
Freie Universität Berlin
AMERICAS, PRE-COLUMBIAN—
COMMUNICATIONS

BARBARA RINGER

Former Register of Copyrights and
Assistant Librarian of Congress for
Copyright Services, Washington, D.C.
COPYRIGHT—THE EVOLUTION OF
AUTHORSHIP RIGHTS; COPYRIGHT—
INTERNATIONAL ARENA; COPYRIGHT—
CHALLENGE OF THE COMMUNICATIONS
REVOLUTION

COLLEEN ROACH

Assistant Professor of Communications,
Fordham University
NEW INTERNATIONAL INFORMATION
ORDER

JOSEPH R. ROACH

Associate Professor of Drama and
English, Washington University
ACTING

DONALD F. ROBERTS

Professor of Communication and
Director, Institute for Communication
Research, Stanford University
CHILDREN—MEDIA EFFECTS

ARTHUR H. ROBINSON

Lawrence Martin Professor Emeritus of
Cartography, University of
Wisconsin—Madison
CARTOGRAPHY; MAP PROJECTION

JOHN P. ROBINSON

Professor of Sociology, University of
Maryland at College Park
LEISURE; OPINION LEADER

MICHAEL J. ROBINSON

Associate Professor of Government,
Georgetown University
GOVERNMENT—MEDIA RELATIONS

EVERETT M. ROGERS

Walter H. Annenberg Professor of
Communications, The Annenberg
School of Communications,
University of Southern California
NETWORK ANALYSIS

PAT ROGERS

De Bartolo Professor in the Liberal
Arts, University of South Florida
LETTER

SUZANNE ROMAINE

Merton Professor of the English
Language, Merton College, University
of Oxford
LANGUAGE VARIETIES

RAFAEL RONCAGLILO

Director, Centro de Estudios sobre
Cultura Transnacional, Lima; Vice-
President, International Association
for Mass Communication Research,
Lima
LATIN AMERICA, TWENTIETH CENTURY

CATHY ROOT

Researcher, American Film Institute,
Los Angeles
STARS—STAR SYSTEM

KARL ERIK ROSENGREN

Professor of Sociology, Lunds
Universitet
CULTURAL INDICATORS

ALAN ROSENTHAL

Filmmaker; Communications Institute,
Hebrew University of Jerusalem
CINÉMA VÉRITÉ

FRANZ ROSENTHAL

Sterling Professor Emeritus of Near
Eastern Languages, Yale University
ISLAM, CLASSICAL AND MEDIEVAL ERAS

MARK W. ROSKILL

Professor of the History of Modern Art,
University of Massachusetts at
Amherst
ICONOGRAPHY

BILLY I. ROSS

Professor of Mass Communications,
Texas Tech University
CLASSIFIED ADVERTISING

ANYA PETERSON ROYCE

Professor of Anthropology and Music,
Indiana University
MIME

BERNARD RUBIN

Professor of Governmental Affairs and
Communication, Boston University
MINORITIES IN THE MEDIA

JAY RUBY

Associate Professor of Anthropology,
Temple University
ETHNOGRAPHIC FILM

WILLIAM H. RUECKERT

Professor of English, State University of
New York College at Geneseo
BURKE, KENNETH

GAVRIEL SALOMON

Professor of Education and
Communication, Tel-Aviv University
and the University of Arizona
CHILDREN—USE OF MEDIA

BERTRAND SAUZIER

Filmmaker, Calcutta
VERTOV, DZIGA

MARIANNE SAWICKI

Alexander Campbell Hopkins Chair of
Religious Education, Lexington
Theological Seminary, Lexington, Ky.
HOMILETICS

RICHARD SCHECHNER

Professor of Performance Studies, Tisch
School of the Arts, New York
University
DRAMA—PERFORMANCE

DAN SCHILLER

Associate Professor of Library and
Information Science, University of
California, Los Angeles
COMPUTER: IMPACT—OVERVIEW;
NEWSPAPER: TRENDS—TRENDS IN
NORTH AMERICA

HERBERT I. SCHILLER

Professor of Communication, University
of California, San Diego
COMPUTER: IMPACT—IMPACT ON THE
WORLD ECONOMY

DENISE SCHMANDT-BESSERAT

Professor of Middle Eastern Studies,
University of Texas at Austin
CLAY TOKENS

WILBUR SCHRAMM

Director Emeritus, Institute for
Communications Research, Stanford
University; Distinguished Center
Researcher Emeritus, East-West
Center, Honolulu
AUDIOVISUAL EDUCATION;
COMMUNICATIONS, STUDY OF;
DEVELOPMENT COMMUNICATION—
HISTORY AND THEORIES; GALLUP,
GEORGE; HOVLAND, CARL; LASSWELL,
HAROLD D.; LEWIN, KURT; PALIMPSEST;
PARK, ROBERT; SILK ROAD; SLEEPER
EFFECT

ROBERT J. SCHREIBER

Research consultant, Stamford, Conn.
PRINT-AUDIENCE MEASUREMENT

MICHAEL SCHUDSON

Professor of Sociology and
Communication, University of
California, San Diego
POLITICAL COMMUNICATION—HISTORY

JOCHEN SCHULTE-SASSE
Professor of Comparative Literature,
University of Minnesota, Twin Cities
AVANT-GARDE

BARBARA W. SEARLE
Education specialist, World Bank,
Washington, D.C.
EVALUATION RESEARCH

JOHN W. SEYBOLD
Publisher, Seybold Publications, Inc.,
Media, Pa.
ELECTRONIC PUBLISHING

ROBERT LEWIS SHAYON
Professor Emeritus of Communications,
The Annenberg School of
Communications, University of
Pennsylvania
TELEVISION NEWS

JOHN SHEPHERD
Professor of Music and Sociology,
Carleton University
MUSIC, POPULAR

JOEL SHERZER
Professor of Anthropology and
Linguistics, University of Texas at
Austin
SPEAKING, ETHNOGRAPHY OF

MARSHA SIEFERT
Editor, *Journal of Communication*,
University of Pennsylvania
OPERA

MALCOLM O. SILLARS
Professor of Communication, University
of Utah
PUBLIC SPEAKING

DAVID L. SILLS
Executive Associate, Social Science
Research Council, New York; Editor,
*International Encyclopedia of the
Social Sciences*
LAZARSFELD, PAUL F.

SCOTT SIMMON
Curator, Mary Pickford Theater,
Library of Congress, Washington,
D.C.
GRIFFITH, D. W.

ELEANOR SINGER
Senior Research Scholar, Center for the
Social Sciences, Columbia University
BANDWAGON EFFECTS; RUMOR

MARVIN A. SIRBU
Associate Professor of Engineering and
Public Policy and Industrial
Administration, Carnegie-Mellon
University
STANDARDS

NATHAN SIVIN
Professor of Chinese Culture and of the
History of Science, University of
Pennsylvania
EAST ASIA, ANCIENT

STEPHEN M. SLAWEK
Assistant Professor of Music, University
of Texas at Austin
MUSICAL INSTRUMENTS

R. C. SMAIL
Fellow of Sidney Sussex College,
University of Cambridge
CRUSADES, THE

NINIAN SMART
Professor of Religious Studies,
University of Lancaster and
University of California, Santa
Barbara
RELIGION

ANTHONY SMITH
President, Magdalen College,
University of Oxford
GOVERNMENT REGULATION

W. JOHN SMITH
Professor of Biology and Psychology,
University of Pennsylvania
ANIMAL COMMUNICATION; ANIMAL
SIGNALS—OVERVIEW

DALLAS W. SMYTHE
Professor Emeritus of Communications,
Simon Fraser University
SPECTRUM

CATHERINE E. SNOW
Professor of Human Development and
Psychology, Harvard University
CHILDREN—DEVELOPMENT OF
COMMUNICATION

JOEL SNYDER
Professor of Humanities, University of
Chicago
PHOTOGRAPHY

LOUIS L. SNYDER
Professor Emeritus of History, City
University of New York
GOEBBELS, JOSEPH

CHARLES SOLOMON
Animation historian, Santa Monica,
Calif.
ANIMATION

PETER L. SPAIN
Operations Officer, Academy for
Educational Development,
Washington, D.C.
EVALUATION RESEARCH

HARTLEY S. SPATT
Associate Professor of English,
Maritime College, State University of
New York
ARMSTRONG, EDWIN H.; BELL,
ALEXANDER GRAHAM; DAGUERRE,
LOUIS; DE FOREST, LEE; EASTMAN,
GEORGE; EDISON, THOMAS ALVA;
FESSENDEN, REGINALD; LOCKE, JOHN;
MARCONI, GUGLIELMO; REITH, JOHN;
SIMMEL, GEORG

JAMES R. SQUIRE
Former Senior Vice-President, Silver
Burdett & Ginn, Lexington, Mass.
TEXTBOOK

STEVEN A. STAHL
Associate Professor of Elementary
Education and Reading, Western
Illinois University
READING

FREDERICK STEIER
Associate Professor of Engineering
Management and Associate Director,
Center for Cybernetics Studies in
Complex Systems, Old Dominion
University
WIENER, NORBERT

SUSAN J. STEINBERG
American and Commonwealth Studies
Bibliographer, Sterling Memorial
Library, Yale University
DIDEROT, DENIS

PETER STEINER

Associate Professor of Slavic Languages
and Chair, Comparative Literature
and Literary Theory Program,
University of Pennsylvania
SEMIOTICS

BRIAN STOCK

Senior Fellow, Pontifical Institute of
Mediaeval Studies, Toronto
MIDDLE AGES

BEVERLY J. STOELTJE

Associate Professor of Folklore, Indiana
University
FESTIVAL

WILLIAM C. STOKOE

Editor, *Sign Language Studies*, Silver
Spring, Md.
SIGN LANGUAGE—PRIMARY SIGN
LANGUAGES

GEORGE C. STONEY

Professor of Film and Television, Tisch
School of the Arts, New York
University
CITIZEN ACCESS

LAWRENCE H. STREICHER

Director, Lawrence Streicher Associates,
Chicago
CARICATURE

JOHN STURROCK

Editor, *Times Literary Supplement*,
London
AUTOBIOGRAPHY

DAVID SUMMERS

William R. Kenan, Jr., Professor of the
History of Art, University of Virginia
VISUAL IMAGE

FREDERICK SUPPE

Professor of Philosophy, University of
Maryland at College Park
CLASSIFICATION

JOHN SUTHERLAND

Professor of Literature, California
Institute of Technology
LITERATURE, POPULAR

PIERRE SWIGGERS

Research Fellow, Fonds National de la
Recherche Scientifique, Brussels
LINGUISTICS

YASUMASA TANAKA

Professor of Social Psychology and
Communications, Gakushuin
University; Director, Gakushuin
University Computer Center
OSGOOD, CHARLES; SEMANTIC
DIFFERENTIAL

JOHN TEBBEL

Professor Emeritus of Journalism, New
York University
BEAVERBROOK, 1ST BARON; DAY,
BENJAMIN H.; HEARST, WILLIAM
RANDOLPH; NEWSPAPER: HISTORY;
NORTHCLIFFE, ALFRED; PULITZER,
JOSEPH; SCRIPPS, E. W.

DENNIS TEDLOCK

McNulty Professor of English, State
University of New York at Buffalo
ETHNOPOETICS

STEPHEN THAYER

Professor of Psychology, City College
and Graduate Center, City University
of New York
TOUCH

KRISTIN THOMPSON

Honorary Fellow, Department of
Communication Arts, University of
Wisconsin—Madison
MOTION PICTURES—SILENT ERA

JEFF TODD TITON

Professor of Music, Brown University
MUSIC, FOLK AND TRADITIONAL

YOSHIHIKO TOKUMARU

Professor of Musicology and
Comparative Arts Studies,
Ochanomizu University
MUSIC THEORIES—NOTATIONS AND
LITERACY

JANE TOMPKINS

Professor of English, Duke University
LITERARY CANON

ELIZABETH TONKIN

Senior Lecturer in Social Anthropology,
Centre of West African Studies,
University of Birmingham
MASK

DAVID TRACY

Distinguished Service Professor and
Greely Chair in Catholic Studies,
Divinity School, University of
Chicago
INTERPRETATION

DANIEL H. TRAISTER

Assistant Director of Libraries for
Special Collections, Van Pelt Library,
University of Pennsylvania
BOOK

TRAN VAN DINH

Professor of International Politics and
Communications, Temple University
ASIA, TWENTIETH CENTURY

ANDREW F. TUDOR

Senior Lecturer in Sociology, University
of York
EXPRESSIONISM

DAVID G. TUERCK

Professor and Chair, Department of
Economics, Suffolk University, Boston
ADVERTISING—ADVERTISING
ECONOMICS

JOSEPH G. TUROW

Associate Professor of Communications,
The Annenberg School of
Communications, University of
Pennsylvania
PUBLISHING—PUBLISHING INDUSTRY

MICHAEL TWYMAN

Professor of Typography & Graphic
Communication, University of
Reading
PRINTING—HISTORY OF PRINTING

ZENO VENDLER

Professor of Philosophy, University of
California, San Diego
MEANING

PASCAL VERNUS

Professor of Philology, École Pratique
des Hautes Études
EGYPTIAN HIEROGLYPHS

- BRIAN VICKERS**
Professor of English and Renaissance Literature, Eidgenössische Technische Hochschule Zürich
CLASSICISM
- AMOS VOGEL**
Professor of Communications, The Annenberg School of Communications, University of Pennsylvania
AVANT-GARDE FILM
- THOMAS WASOW**
Professor of Linguistics and Philosophy, Stanford University
GRAMMAR
- HIROSHI WATANABE**
Professor of Law, University of Tokyo
TOKUGAWA ERA: SECLUSION POLICY
- ALAN WATSON**
University Professor of Law, University of Pennsylvania
LAW AND COMMUNICATION
- THOMAS WAUGH**
Associate Professor of Film Studies, Concordia University
IVENS, JORIS
- WILLIAM M. WEILBACHER**
President, Bismark Corporation, New York
ADVERTISING—ADVERTISING AGENCY
- GARY L. WELLS**
Professor of Psychology, University of Alberta
TESTIMONY
- JAMES M. WELLS**
Custodian Emeritus, John M. Wing Foundation on the History of Printing, Newberry Library, Chicago
CAXTON, WILLIAM
- R. J. ZWI WERBLOWSKY**
Martin Buber Professor of Comparative Religion, Hebrew University of Jerusalem
SCRIPTURE
- JAMES V. WERTSCH**
Professor of Communication, University of California, San Diego
COGNITION; LURIA, ALEKSANDR; VYGOTSKY, LEV
- DAVID MANNING WHITE**
Professor Emeritus of Mass Communication, Virginia Commonwealth University
LOWENTHAL, LEO
- PAUL WHITE**
Senior Lecturer in Geography and Sub-Dean, Faculty of Social Sciences, University of Sheffield
MIGRATION
- PETER B. WHITE**
Senior Lecturer and Chair, Centre for the Study of Educational Communication and Media, La Trobe University, Bundoora, Vic., Australia
AUSTRALASIA, TWENTIETH CENTURY
- HARRY WIENER**
Director of Professional Information, Pfizer Pharmaceuticals, New York
SMELL
- RONNIE B. WILBUR**
Professor of Linguistics, Department of Audiology and Speech Sciences, Purdue University
SIGN LANGUAGE—MANUAL LANGUAGE CODES
- R. HAVEN WILEY**
Professor of Biology, University of North Carolina at Chapel Hill
ANIMAL SIGNALS—AUDIBLE SIGNALS
- ALAN WILLIAMS**
Associate Professor of French and Cinema Studies, Rutgers University, New Brunswick
NEW WAVE FILM
- MARTHA E. WILLIAMS**
Professor of Information Science, University of Illinois at Urbana-Champaign
DATA BASE
- RAYMOND H. WILLIAMS**
Professor Emeritus of Drama and Fellow of Jesus College, University of Cambridge
FACT AND FICTION
- MICHAEL WILLMORTH**
Lecturer, The Annenberg School of Communications, University of Pennsylvania
SOUND EFFECTS
- SVEN WINDAHL**
Associate Professor of Information Techniques, Lunds Universitet och Högskolan i Växjö
MODELS OF COMMUNICATION
- YVES WINKIN**
Associate Professor of Communication, Université de l'État à Liège
GOFFMAN, ERVING
- BRIAN WINSTON**
Dean, School of Communications, Pennsylvania State University
MCLUHAN, MARSHALL
- MERLIN C. WITTRICK**
Professor of Education and Head, Division of Educational Psychology, University of California, Los Angeles
TEACHING
- ROBERT WOODS**
Senior Lecturer in Geography, University of Sheffield
MIGRATION
- ALAN N. WOOLFOLK**
Assistant Professor of Sociology and Anthropology, University of Southern Mississippi
FREUD, SIGMUND; JUNG, CARL
- CHARLES R. WRIGHT**
Professor of Communications and Sociology, The Annenberg School of Communications, University of Pennsylvania
FUNCTIONAL ANALYSIS; HYMAN, HERBERT H.; MERTON, ROBERT K.

LESTER WUNDERMAN
Chairman, Wunderman Worldwide,
New York
DIRECT RESPONSE MARKETING

DAVID ZAREFSKY
Professor of Communication Studies
and Dean, School of Speech,
Northwestern University
FORENSICS

YASSEN NIKOLAEVICH
ZASSOURSKY
Professor of American Literature and
Dean, Faculty of Journalism, Moscow
M. V. Lomonosov State University
NEWSPAPER: TRENDS—TRENDS IN THE
SOVIET PRESS

Topical Guide

Titles of the 569 articles in the *International Encyclopedia of Communications* are here grouped under the following headings, each of which represents a major field of interest in the evolving communications discipline:

Advertising and Public Relations	Media
Ancient World	Middle Ages
Animal Communication	Motion Pictures
Area Studies	Music
Arts	Nonverbal Communication
Communications Research	Photography
Computer Era	Political Communication
Education	Print Media
Folklore	Radio
Government Regulation	Religion
Institutions	Speech
International Communication	Television
Journalism	Theater
Language and Linguistics	Theories of Communication
Literature	Theorists

Articles relevant to more than one field may be listed under several headings. Titles of articles that offer a comprehensive view of a field or an important segment of it are shown in italics.

ADVERTISING AND PUBLIC RELATIONS

Advertising
Bandwagon Effects
Barnum, Phineas T.
Classified Advertising
Commercials
Consumer Research
Day, Benjamin H.
Direct Response Marketing
Lasker, Albert
McLuhan, Marshall
Models of Communication
Motivation Research
Newspaper: History
Newspaper: Trends
Persuasion
Pressure Group

Public Opinion
Public Relations
Radio
Sponsor
Television History
Other relevant articles under COMMUNICATIONS RESEARCH; POLITICAL COMMUNICATION

ANCIENT WORLD

Africa, Precolonial
Alphabet
Americas, Pre-Columbian
Aristotle
Aśoka
Byblos

Calendar
Cicero
Clay Tokens
Confucius
Cuneiform
East Asia, Ancient
Egyptian Hieroglyphs
Hellenic World
Indus Script
Judaism
Nineveh
Number
Palimpsest
Plato
Roman Empire
Shihuang Di
South Asia, Ancient
Writing

ANIMAL COMMUNICATION

Animal Communication
Animal Signals
 Animal Song
 Cognition, Animal
 Darwin, Charles
Ethology
 Human-Animal Communication
 Insects, Social
 Other relevant articles under COMMUNICATIONS RESEARCH; NON-VERBAL COMMUNICATION

AREA STUDIES

Africa, Precolonial
 Africa, Twentieth Century
 Americas, Pre-Columbian
 Asia, Twentieth Century
 Australasia, Twentieth Century
 East Asia, Ancient
 Hellenic World
 Islam, Classical and Medieval Eras
 Islamic World, Twentieth Century
 Latin America, Twentieth Century
 Marxist Theories of Communication
 2. Third World Approaches
 Middle Ages
 Music Theater
 1. Western Traditions
 2. Asian Traditions
 Mythological Film, Asian
 Newspaper: Trends
 1. Trends in Africa
 2. Trends in Asia
 3. Trends in Europe
 4. Trends in Latin America
 5. Trends in the Middle East
 6. Trends in North America
 7. Trends in the Soviet Press
 Roman Empire
 South Asia, Ancient
 Television History
 2. Global Development

ARTS

Aesthetics
 Architecture
Art
 Art, Funerary
 Artifact
 Artist and Society
 Avant-Garde
 Body Decoration
 Caricature
 Child Art

Classicism
 Code
 Comics
 Dance
 Design
 Expressionism
 Forgery, Art
 Genre
 Graphic Reproduction
 Graphics
 Heraldry
 Iconography
 Mask
 Mode
 Mural
 Museum
 Narrative
 Opera
 Oral Poetry
 Perception
 Photography
 Poetry
 Portraiture
 Poster
 Realism
 Religion
 Renaissance
 Representation, Pictorial and Photographic
 Ritual
 Romanticism
 Sculpture
 Signage
 Spectacle
 Symbolism
 Taste Cultures
 Typography
 Video
 Visual Image
 Other relevant articles under LITERATURE; MEDIA; MOTION PICTURES; MUSIC; PHOTOGRAPHY; TELEVISION; THEATER

COMMUNICATIONS RESEARCH

Agenda-Setting
 Attitudes
 Bandwagon Effects
 Cantometrics
 Choreometrics
 Classification
 Cognition
Communications Research: Origins and Development
 Consumer Research
 Content Analysis
 Conversation

Crowd Behavior
 Cultivation Analysis
 Cultural Indicators
 Diffusion
 Evaluation Research
 Functional Analysis
 Gender
 Group Communication
 Human-Animal Communication
 Interaction, Face-to-Face
 Interactive Media
 Intercultural Communication
 Interpersonal Communication
 Leisure
 Literacy
Mass Communications Research
Mass Media Effects
 Mass Observation
Models of Communication
 Motivation Research
 Network Analysis
 Opinion Leader
 Opinion Measurement
 Oral History
 Organizational Communication
 Perception
 Performance
 Persuasion
 Play
 Poll
 Pornography
 Profession
 Propaganda
 Public Opinion
 Revolution
 Rumor
 Selective Reception
 Sexism
 Sleeper Effect
 Sound
 Testimony
 Tourism
 Violence
 Other relevant articles under ANIMAL COMMUNICATION; LANGUAGE AND LINGUISTICS; NON-VERBAL COMMUNICATION; POLITICAL COMMUNICATION; THEORIES OF COMMUNICATION; THEORISTS

COMPUTER ERA

Artificial Intelligence
 CETI
Computer: History
Computer: Impact
 Copyright

3. Challenge of the Communications Revolution

Cryptology
 Cybernetics
 Data Base
 Direct Response Marketing
 Electronic Music
 Electronic Publishing
 Espionage
 Fiber Optics
 Graphics
 Interactive Media
 Library
 2. Trends
 Mathematics
 Microelectronics
 Newspaper: Trends
 Political Communication
 2. Impact of New Media
 Satellite
 Science Fiction
 Special Effects
 Telecommunications Networks
 Telecommunications Policy
 Video
 Videotex
 Other relevant articles under THEORISTS

EDUCATION

Aristotle
 Audiovisual Education
 Book
 Children
 Classroom
 Cognition
 Computer: Impact
 4. Impact on Education
 Confucius
 Dewey, John
 Durkheim, Émile
Education
 Educational Television
 Encyclopedia
 Ethnographic Film
 Family
 Gallaudet, Thomas
 Keller, Helen
 Language Acquisition
 Language Reference Book
 Library
 Literacy
 Mass Media Effects
 Mead, Margaret
 Museum
 Piaget, Jean
 Plato
 Play

Reading
 Reading Theory
School
 Social Skills
Teaching
 Textbook
 University
 Video
 Webster, Noah
 Other relevant articles under LANGUAGE AND LINGUISTICS; SPEECH

FOLKLORE

Art
 Art, Funerary
 Artifact
 Calendar
 Ethnopoetics
 Festival
Folklore
 Folktale
 Food
 Gender
 Gesture
 Gossip
 Heraldry
 Humor
 Iconography
 Insult
 Mask
 Metaphor
 Mime
 Music, Folk and Traditional
 Narrative
Oral Culture
 Oral History
 Oral Poetry
 Performance
 Play
 Proverb
 Riddle
 Ritual
 Spectacle
 Western, The
 Other relevant articles under LANGUAGE AND LINGUISTICS; RELIGION

GOVERNMENT REGULATION

Advertising
 Calendar
Censorship
 Citizen Access
 Computer: History
Copyright
 Education
 Election
 Goebbels, Joseph

Government-Media Relations
Government Regulation
 Law and Communication
 Libel
 Lobbying
Monopoly
 Political Communication
 Pornography
 Privacy
 Propaganda
 Radio
 Radio, International
 Secrecy
 Spectrum
 Standards
 Telecommunications Policy
 Telegraphy
 Telephone
 Television History
 Textbook
 Other relevant articles under INTERNATIONAL COMMUNICATION; PRINT MEDIA

INSTITUTIONS

Advertising
 3. Advertising Agency
 Archives
 Archives, Film
 Cable Television
 Data Base
 Family
Hollywood
International Organizations
Library
 Magazine
Museum
 Muzak
 News Agencies
 Newsmagazine
Newspaper: History
 Newsreel
Postal Service
 Pressure Group
 Publishing
 Rating Systems: Radio and Television
Religion
School
 Sponsor
 Telecommunications Networks
 Theater
 University

INTERNATIONAL COMMUNICATION

Baedeker, Karl
 Cartography

Coins
 Colonization
 Computer: Impact
 Crusades, The
 Cryptology
 Deception
 Development Communication
 Diaspora
 Diplomacy
 Disinformation
 Espionage
 Exploration
 Gandhi, Mohandas
 International Organizations
 Map Projection
 Marconi, Guglielmo
 Migration
 Nakahama Manjiro
 New International Information Order
 News Agencies
 Polo, Marco
 Radio, International
 Reith, John
 Religion
 Silk Road
 Slave Trade, African
 South Asia, Ancient
 Spectrum
 Telegraphy
 Television History
 2. Global Development
 3. World Market Struggles
 Television News
 Tokugawa Era: Seclusion Policy
 Tourism
 Translation, Literary
 Writing
 Writing Materials
 Other relevant articles under AN-
 CIENT WORLD; AREA STUDIES;
 JOURNALISM; LANGUAGE AND
 LINGUISTICS

JOURNALISM

Beaverbrook, 1st Baron
 Bennett, James Gordon
 Comics
 Day, Benjamin H.
 Electronic Publishing
 Gallup, George
 Goebbels, Joseph
 Government-Media Relations
 Greeley, Horace
 Hearst, William Randolph
 Kenyatta, Jomo
 Lippmann, Walter
 Luce, Henry
Magazine
 Mergenthaler, Ottmar

Minorities in the Media
 Minority Media
 Monopoly
 News Agencies
 Newsletter
 Newsmagazine
Newspaper: History
 Newspaper: Trends
 Newsreel
 Nkrumah, Kwame
 Northcliffe, Alfred
 Ochs, Adolph S.
 Pathé, Charles
 Photojournalism
 Poll
 Print-Audience Measurement
 Printing
 Publishing
 Pulitzer, Joseph
 Radio
 Reith, John
 Roper, Elmo
 Scripps, E. W.
 Sports
 2. Sports and the Media
 Syndication
Television News
 Zenger, John Peter
 Other relevant articles under AD-
 VERTISING AND PUBLIC RELA-
 TIONS; GOVERNMENT
 REGULATION; INTERNATIONAL
 COMMUNICATION; POLITICAL
 COMMUNICATION

LANGUAGE AND LINGUISTICS

Alphabet
 Barthes, Roland
 Bateson, Gregory
 Burke, Kenneth
 Children
 1. Development of Communica-
 tion
 2. Development of Symbolization
 Classification
 Code
 Cognition
 Conversation
 Ethnopoetics
 Feminist Theories of Communica-
 tion
 Foucault, Michel
 Grammar
 Interpretation
 Jakobson, Roman
 Johnson, Samuel
Language
 Language Acquisition
 Language Ideology

Language Reference Book
 Language Varieties
 Lévi-Strauss, Claude
Linguistics
 Luria, Aleksandr
 Meaning
 Metaphor
 Mode
 Morris, Charles
 Oral Culture
 Phonology
 Piaget, Jean
 Prose
 Richards, I. A.
 Sapir, Edward
 Saussure, Ferdinand de
 Semantic Differential
 Semantics
 Semantics, General
 Semiotics
 Sexism
 Sign
 Sign System
 Sign Language
 Speaking, Ethnography of
 Structuralism
 Symbolism
 Vygotsky, Lev
 Webster, Noah
 Whorf, Benjamin Lee
 Wittgenstein, Ludwig
 Other relevant articles under LITER-
 ATURE; SPEECH

LITERATURE

Authorship
 Autobiography
 Barthes, Roland
 Biography
Book
 Caxton, William
 Classicism
 Copyright
 Culture
 Diary
 Diderot, Denis
 Encyclopedia
 Ethnopoetics
 Fact and Fiction
 Fiction
 Fiction, Portrayal of Character in
 Folktale
 Fotonovela
 Genre
 Gutenberg, Johannes
 Interpretation
 Intertextuality
 Johnson, Samuel

Letter
 Library
 Literacy
 Literary Canon
 Literary Criticism
 Literature, Popular
 Lowenthal, Leo
 Mystery and Detective Fiction
 Narrative
 Poetics
 Poetry
Printing
 Prose
Publishing
 Reading
 Reading Theory
 Realism
 Romance, The
 Romanticism
 Science Fiction
 Scripture
 Serial
 Spy Fiction
 Style, Literary
 Taste Cultures
 Translation, Literary
 Translation, Theories of
 Utopias
 Other relevant articles under ARTS;
 GOVERNMENT REGULATION;
 JOURNALISM; LANGUAGE AND
 LINGUISTICS

MEDIA

Book
 Cable Television
 Cartography
 Coins
 Comics
Computer: History
 Computer: Impact
 Fotonovela
Magazine
Motion Pictures
 Mural
 Music Machines
Newspaper: History
 Pamphlet
Photography
 Photojournalism
 Portraiture
 Poster
Printing
 Radio
Sculpture
 Signage
 Sports
 2. Sports and the Media
 Stamps

Telegraphy
 Telephone
Television History
 Television News
 Typography
Video
 Videotex
Writing
 Writing Materials
 Other relevant articles under ARTS;
 JOURNALISM; LITERATURE; MO-
 TION PICTURES; PRINT MEDIA;
 THEATER

MIDDLE AGES

Africa, Precolonial
 Americas, Pre-Columbian
 Book
 Clock
 Crusades, The
 Diaspora
 Exploration
 Festival
 Gutenberg, Johannes
 Heraldry
 Homiletics
 Islam, Classical and Medieval Eras
Middle Ages
 Migration
 Oral Culture
 Polo, Marco
 Printing
 1. History of Printing
 Religion
 Renaissance
 Rhetoric
 Scripture
 Silk Road
 Spectacle
 University
 Writing Materials
 Other relevant articles under FOLK-
 LORE

MOTION PICTURES

Animation
 Archives, Film
 Artist and Society
 Avant-Garde Film
 Benshi
 Bergman, Ingmar
 Buñuel, Luis
 Chaplin, Charles
 Choreometrics
 Cinéma Vérité
 Cinematography
 Disney, Walt
Documentary

Eastman, George
 Edison, Thomas Alva
 Eisenstein, Sergei
 Ethnographic Film
 Film Editing
 Film Theory
 Flaherty, Robert
 Grierson, John
 Griffith, D. W.
 Hitchcock, Alfred
Hollywood
 Horror Film
 Ivens, Joris
 Kurosawa, Akira
 Lumière, Louis and Auguste
 Martial Arts Film
Motion Pictures
 Musical, Film
 Mythological Film, Asian
 Neorealism
 New Wave Film
 Newsreel
 Ozu, Yasujiro
 Pathé, Charles
 Phalke, Dhundiraj Govind
 Pornography
 Renoir, Jean
 Science Fiction
 Special Effects
 Stars
 Vertov, Dziga
Video
 Welles, Orson
 Western, The
 Zukor, Adolph
 Other relevant articles under GOV-
 ERNMENT REGULATION; TELE-
 VISION

MUSIC

Cantometrics
 Dance
 Electronic Music
 Ethnomusicology
 Music, Folk and Traditional
 Music, Popular
 Music Composition and Improvisa-
 tion
Music History
 Music Machines
 Music Performance
 Music Theater
Music Theories
 Musical, Film
Musical Instruments
 Muzak
 Opera
 Perception
 1. Music

Radio
Song
Sound
Sound Recording

NONVERBAL COMMUNICATION

Acting
Bateson, Gregory
Boas, Franz
Body Decoration
Body Movement
Body Movement Notation
Children
 1. Development of Communication
 2. Development of Symbolization
Choreometrics
Clothing
Code
Dance
Darwin, Charles
Deception
Eyes
Face
Facial Expression
Food
Freud, Sigmund
Gallaudet, Thomas
Gandhi, Mohandas
Gesture
Goffman, Erving
Heraldry
Interaction, Face-to-Face
Interpersonal Distance
Keller, Helen
Kinesics
Mask
Mead, Margaret
Nonverbal Communication
Proxemics
Sign Language
Smell
Spatial Organization
Touch
Other relevant articles under ANIMAL COMMUNICATION; ARTS; COMMUNICATIONS RESEARCH; MUSIC

PHOTOGRAPHY

Art
Audiovisual Education
Bateson, Gregory
Choreometrics
Cinéma Vérité
Cinematography

Daguerre, Louis
Documentary
Eastman, George
Ethnographic Film
Fotonovela
Graphic Reproduction
Land, Edwin
Luce, Henry
Lumière, Louis and Auguste
Mead, Margaret
Morse, Samuel F. B.
Motion Photography
Motion Pictures
Niepce, Joseph-Nicéphore
Photography
Photography, Amateur
Photojournalism
Pornography
Portraiture
Representation, Pictorial and Photographic
Television News
Video
Visual Image

POLITICAL COMMUNICATION

Agenda-Setting
Bandwagon Effects
Bargaining
Citizen Access
Demonstration
Diplomacy
Disinformation
Election
Forensics
Goebbels, Joseph
Government-Media Relations
Government Regulation
Ideology
Lobbying
Pamphlet
Plebiscite
Political Communication
Political Socialization
Political Symbols
Politicization
Poll
Poster
Pressure Group
Propaganda
Revolution
Spectacle
Terrorism
Other relevant articles under ADVERTISING AND PUBLIC RELATIONS; INTERNATIONAL COMMUNICATION; SPEECH

PRINT MEDIA

Beaverbrook, 1st Baron
Bennett, James Gordon
Book
Caricature
Cartography
Caxton, William
Classified Advertising
Comics
Copyright
Day, Benjamin H.
Electronic Publishing
Encyclopedia
Fotonovela
Graphic Reproduction
Graphics
Greeley, Horace
Gutenberg, Johannes
Hearst, William Randolph
Lippmann, Walter
Luce, Henry
Magazine
Mergenthaler, Ottmar
Minorities in the Media
Minority Media
News Agencies
Newsletter
Newsmagazine
Newspaper: History
Newspaper: Trends
Northcliffe, Alfred
Ochs, Adolph S.
Pamphlet
Park, Robert
Photojournalism
Print-Audience Measurement
Printing
Publishing
Pulitzer, Joseph
Scripps, E. W.
Textbook
Typography

RADIO

Advertising
Armstrong, Edwin H.
Cantril, Hadley
CETI
Citizen Access
Citizens Band Radio
Commercials
De Forest, Lee
Development Communication
 3. Projects
Faraday, Michael
Fessenden, Reginald
Grierson, John

Innis, Harold
 Lasker, Albert
 Lazarsfeld, Paul F.
 Marconi, Guglielmo
 Maxwell, James
 Minority Media
 Paley, William
 Public Speaking
Radio
Radio, International
 Reith, John
 Religious Broadcasting
 Sarnoff, David
 Soap Opera
 Sound Effects
 Sound Recording
 2. Industry
 Welles, Orson
 Other relevant articles under COMMUNICATIONS RESEARCH; GOVERNMENT REGULATION; POLITICAL COMMUNICATION

RELIGION

Aśoka
 Calendar
 Censorship
 Colonization
 Confucius
 Crusades, The
 Culture
 Diaspora
 Festival
 Homiletics
 Islam, Classical and Medieval Eras
 Islamic World, Twentieth Century
 Judaism
 Luther, Martin
 Middle Ages
 Music History
 Mythological Film, Asian
 Phalke, Dhundiraj Govind
 Printing
 2. Cultural Impact of Printing
Religion
 Religious Broadcasting
 Renaissance
 Ritual
Scripture
 Sculpture
 Spectacle
 Other relevant articles under ARTS; FOLKLORE

SPEECH

Bell, Alexander Graham
 Conversation

Forensics
 Grammar
 Group Communication
 Homiletics
 Interpretation
 Oral Culture
 Oral History
 Oral Poetry
 Oratory
 Perception
 2. Speech
 Performance
 Persuasion
 Phonology
 Public Speaking
 Rhetoric
 Slips of the Tongue
 Sound
Sound Recording
 Speaking, Ethnography of
Speech
 Speech and Language Disorders
 Speech Anxiety
 Speech Play
 Telephone
 Testimony
 Other relevant articles under FOLKLORE; LANGUAGE AND LINGUISTICS; THEATER

TELEVISION

Cable Television
 Children
 3. Use of Media
 4. Media Effects
 Commercials
 Documentary
 Educational Television
 Entertainment
 Fact and Fiction
 Farnsworth, Philo
 Government-Media Relations
 Hollywood
 Interactive Media
 Quiz Show
 Rating Systems: Radio and Television
 Religious Broadcasting
 Sarnoff, David
 Satellite
 Schramm, Wilbur
 Soap Opera
 Sponsor
 Sports
 Stars
 Telecommunications Networks
Television History
 Television News

Video
 Zworykin, Vladimir K.
 Other relevant articles under ADVERTISING AND PUBLIC RELATIONS; COMMUNICATIONS RESEARCH; GOVERNMENT REGULATION; MOTION PICTURES; POLITICAL COMMUNICATION

THEATER

Acting
 Aristotle
 Choreometrics
 Comedy
 Dance
Drama
 Festival
 Mime
 Music Theater
 Opera
 Performance
 Puppetry
 Sound Effects
 Spectacle
Theater
 Tragedy
 Welles, Orson
 Other relevant articles under MOTION PICTURES; TELEVISION

THEORIES OF COMMUNICATION

Cognitive Consistency Theories
Communication, Philosophies of Communications, Study of
 Computer: Impact
 Cybernetics
 Development Communication
 1. History and Theories
 Ethics, Media
 Fact and Fiction
 Feminist Theories of Communication
 Gender
 Historiography
 Information Theory
 Marxist Theories of Communication
 Meaning
 Mode
Models of Communication
 Music Theories
 Poetics
 Psychoanalysis
 Reading Theory
 Sexism
 Sign

Sign System
 Social Cognitive Theory
 Structuralism
 Symbolic Logic
 Utopias
 Other relevant articles under COMMUNICATIONS RESEARCH; THEORISTS

THEORISTS

Adorno, Theodor
 Aristotle
 Babbage, Charles
 Bakhtin, Mikhail
 Barthes, Roland
 Bateson, Gregory
 Benjamin, Walter
 Boas, Franz
 Burke, Kenneth
 Cantril, Hadley
 Cherry, Colin
 Cooley, Charles Horton
 Darwin, Charles

Dewey, John
 Durkheim, Émile
 Foucault, Michel
 Freud, Sigmund
 Goffman, Erving
 Gramsci, Antonio
 Hovland, Carl
 Hyman, Herbert H.
 Innis, Harold
 Jakobson, Roman
 James, William
 Jung, Carl
 Lasswell, Harold D.
 Lazarsfeld, Paul F.
 Lévi-Strauss, Claude
 Lewin, Kurt
 Lippmann, Walter
 Locke, John
 Lowenthal, Leo
 Luria, Aleksandr
 McLuhan, Marshall
 Marx, Karl
 Mead, George Herbert
 Mead, Margaret

Merton, Robert K.
 Milton, John
 Morris, Charles
 Osgood, Charles
 Park, Robert
 Peirce, Charles S.
 Piaget, Jean
 Plato
 Richards, I. A.
 Sapir, Edward
 Saussure, Ferdinand de
 Schramm, Wilbur
 Schutz, Alfred
 Shannon, Claude
 Simmel, Georg
 Sullivan, Harry Stack
 Tarde, Jean-Gabriel de
 Von Neumann, John
 Vygotsky, Lev
 Weaver, Warren
 Weber, Max
 Whorf, Benjamin Lee
 Wiener, Norbert
 Wittgenstein, Ludwig

Index

Boldface numbers followed by a colon indicate the volume in which index entries can be found. Multiple page numbers within a given volume are separated by commas; volumes are separated by semicolons. When main entries in the index are also article titles in the text, they reflect capitalization practice for titles. An asterisk following a page number or a range of page numbers indicates the location of the article in the encyclopedia.

A

- À bout de souffle* (film), 3:175
À nous la liberté (film), 2:172; 3:70
 Aarne, Antti
 The Types of the Folktale (book), 2:182
 Abacus, 1:299; 3:212, 213
 Abbas, Khwaja Ahmed, 2:60
 Abbot, John, 1:108
 ABC. *See* American Broadcasting Co.
 'Abd al-Malik (caliph), 1:329
 Abe, Kobo, 4:21
 Abe, Shuya, 4:285
 Abelard, Peter, 4:271
Die Abenteuer des Prinzen Achmed (film), 1:92
Abidjan matin (newspaper), 3:187
 Abolition, speakers on, 3:395
 Aborigines, Australian, 1:155–158
 art, 1:260; 3:83
 film, 2:112
 sign language, 4:65, 66, 67
 song cycle, 3:231
 Abortion, 3:325
 Abraham ibn Ezra, 2:27
 Abrahams, Roger, 2:226; 3:114, 115, 266
 Abstract symbolization
 numbers, 3:211
 written language, 3:430
 Academy of St. Petersburg, 4:272
 Accademia del Cimento (Italy), 4:272
 Accademia delle Belle Arti, 4:29
 Accent, 2:401
 Access. *See* Citizen Access
Access (newsletter), 3:178
 Acción Cultural Popular (Colombia), 1:155; 2:218
 Accountability, 2:109
 Acculturation, 1:135; 2:331, 440; 4:251
 Achaemenid Empire, 2:351
Achhut kanya (film), 3:73
 Achinstein, Peter, 1:293
 Acoustics
 of animal signaling, 1:78–80
 in music, 3:128, 131, 139–142, 148, 249–250
 of speech, 1:257; 2:387
 study of, 4:101, 106
 Acres, Birt, 3:201
 Acronic analysis, 2:433
 Actantial model, 3:163
 Acting, 1:3–6*. *See also* Drama; Performance; Theater
 acting styles, 1:3–6
 biomechanical school, 1:5
 body movement in, 1:200
 in expressionist theater, 2:129
 in motion pictures, 3:68
 in performances, 2:65–66; 3:262
 styles, 1:3–6; 3:64
 Action-adventure genre, 1:347; 2:450; 4:51–53, 170–171, 221, 290, 292
 Action Group party (Nigeria), 3:187
Action Stations (film), 2:366
The Actors' Analects (book), 1:3
 Ada (computer language), 1:173, 384
 Adair, John, 2:111
 Adam, Adolphe
 Le postillon de Longjumeau (opéra), 3:118
 Adamov, Joe, 3:423
 Adams, Abigail, 2:417
 Adams, John, 1:338; 2:283, 417
 Adams, John Quincy, 2:26, 417
 Adams, Samuel, 3:307, 395
 Adanson, Michel, 1:293
 Adaptation, 1:67, 319
 Addison, Joseph, 3:181
 Address, forms of, 2:327
 Addressivity, 1:175
 Adjacency pairs, in conversation, 1:408–409
 Adler, Alfred, 2:203
 Adler, Mortimer
 Art and Prudence (book), 1:372
 The Paideia Proposal (book), 2:83
 Adler, N., 2:331
 Adornment. *See* Body Decoration; Clothing; Eyes; Face
 Adorno, Theodor, 1:6–7*
 aesthetics, 1:29
 Ästhetische Theorie (book), 1:7
 The Authoritarian Personality (book), 1:7
 Dialectic of Enlightenment (book), 1:7; 2:479
 ideology and the mass media, 2:108, 308–309
 on music, 1:373–374; 2:411; 3:101
 taste cultures, 4:198
 theory of modernism, 1:166, 184
 Adventure fiction. *See* Action-adventure genre
Adventures in Literature (book), 4:235
The Adventures of Dolly (film), 2:259
The Adventures of Prince Achmed (film), 2:259
 Advertising. *See also* Classified Advertising; Commercials; Consumer Research; Direct Response

- Advertising (*cont.*)
 Marketing; Motivation Research;
 Newspaper advertising; Radio,
 advertising; Television advertising
 aimed at children, 1:11, 269, 272–
 273; 2:333
 aimed at minorities, 3:29
 business-to-business, 1:11
 censorship in, 1:252
 cigarette, 1:18, 284; 2:404
 consumer research in, 1:401
 cost of, 1:23–24
 distinguished from public relations,
 3:391
 education, 1:361
 effects of, 1:25–26; 3:171
 in election campaigns, 2:95
 endorsements, by sports personali-
 ties, 4:163
 ethics in, 2:106–109
 Fairness Doctrine, 1:284
 by governments, 1:13–14
 to influence behavior, 1:147; 3:375
 institutional, 1:13, 19
 jingles, 1:18, 354; 3:382–383
 in Latin America, 2:405, 406, 407
 logos and trademarks, 2:279
 magazines, 2:463, 466; 3:288
 measurement of effectiveness of,
 3:353
 media ethics, 2:106–109
 and photojournalists, 3:288
 pioneers in, 2:403–404
 political, 3:311 (fig.), 325–326
 posters, 3:346–349
 and product information, 1:25
 and propaganda, 3:375
 radio, 3:418
 rating systems, radio and television,
 3:425
 sexism in, 4:56
 signs, 4:80–83
 and social groups, 1:423
 social marketing, 2:20
 sponsors, 4:155–158
 in sports media, 4:163
 storyboards, 1:352 (fig.)
- Advertising—Advertising Agency,
 1:12–13, 21–23*
 commission fees, 1:17, 22–23
 competition among, 1:12
 in-house agencies, 1:12, 22
 limited-service agencies, 1:22
 multinational agencies, 4:225
 role and structure of, 1:21–22, 23
 specialist agencies, 1:22
- Advertising—Advertising Economics,
 1:14, 23–26*
 economies of scale, 1:25
 role of competition and monopoly,
 1:12, 24–25; 3:46
- Advertising—History of Advertising,
 1:14–21*
 early advertisers, 1:14–16
 industrialism, 1:16–18
 twentieth-century changes, 1:18–
 21
- Advertising—Overview, 1:7–14*
 cultural effects, 1:11–12
 impact on communications, 1:14
 involvement in government, 1:13–
 14
 relation to consumption, 1:8–11
 research trends, 1:13
 U.S. influence, 1:12
- Advertising Service Guild, 2:499
- Advocacy, 2:194, 453
- Advocacy groups. *See* Pressure Group
- Aegis (computer system), 1:384
- Aelius Donatus, 2:396
- Aerophones, 3:146
- Aeschines, 3:394
- Aeschylus, 2:51–52, 215
Agamemnon (play), 4:254
The Eumenides (play), 4:254
The Libation Bearers (play), 4:254
Oresteia (play), 2:51
The Persians (play), 2:51
Prometheus Bound (play), 2:51
The Suppliant Women (play), 2:51
- Aesop, 2:183; 4:87
- Aesthetics, 1:27–30*
 aesthetic codes, 1:314, 315
 architecture, 1:96–105
 art, 1:27–30, 111–120; 2:196–
 198; 4:294–304
 avant-garde theories, 1:162–166
 child art, 1:258–260
 classicism, 1:289
 expressionism, 2:128
 film theory, 2:173
 folklore, 2:180–181
 implications of theories of, 1:29–
 30
 issues in, 1:128, 135
 literature, 2:442, 445; 3:298–304
 music, 3:116, 128
 poetics, 3:298–301
 poetry, 3:301–304
 semiotic theories, 4:46–47, 48
 theories of, 1:7, 27, 28–29; 3:124;
 4:193
- Affections, doctrine of, 3:129
- Affective meaning, 3:239–240; 4:40,
 41
- Affiliation, 1:313; 2:132–133, 342
- Affiliation, political party, 2:95
- Affixes, 2:388
- Affricates, 3:271
- Afghanistan, 2:311, 313
- Africa, Precolonial, 1:30–38*
 cultural diffusion, 1:35–38
 dance theater, 2:62
 geographical constraints, 1:31–34
 oral tradition, 1:34–35; 3:231–
 234
- Africa, Twentieth Century, 1:38–
 42*. *See also* African music;
 Newspaper: Trends—Trends in
 Africa; Slave Trade, African
- agricultural development, 2:19
 broadcasting, 1:41
 colonization, 1:331–339
 communications education in,
 1:368
 development communication,
 2:18–22
 development of the press, 1:38–39
 government censorship, 1:248
 inter-African cooperation, 1:41–42
 Kenyatta, Jomo, 2:379–380
 library history, 2:424
 magazines, 2:464
 national liberation movements,
 2:480
 Nkrumah, Kwame, 3:208–209
 publishing industry, 3:403
 radio and television, 1:39–40;
 3:421, 422; 4:223
- African Interpreter* (newspaper),
 3:208–209
- African music
 drum languages, 3:150–151
highlife, 3:98, 100
 history, 3:104–106, 111
 musical instruments, 3:150–151
 theories, 3:130, 131
- African Party for the Independence of
 Guinea-Bissau and Cape Verde,
 2:480
- African press. *See* Newspaper:
 Trends—Trends in Africa
- African slave trade. *See* Slave Trade,
 African
- African Standard* (newspaper), 1:39
- Afro-American music
 features of, 3:141
 in the recording industry, 4:119,
 120
 traditions in, 3:97, 102–103, 111,
 121, 141; 4:87, 104
- Afro-Americans
 Black consciousness, 3:89, 90, 324;
 4:87
 literacy, 2:439
 minorities in the media, 3:28–30
 minority media, 3:31
 television, 1:431
- Aftenposten* (newspaper), 3:192
- Aftonbladet* (newspaper), 3:192
- Agassiz, Louis, 3:248
- L'âge d'or* (film), 1:217–218; 2:172
- Age roles, 1:185, 189, 192, 431;
 3:228
- Agence France Presse, 3:44, 170,
 177; 4:228
- Agenda-Setting, 1:42–43*
 censorship, 1:250–251
 communications research, 1:369
 election campaigns, 2:96
 mass media effects, 2:495, 496;
 3:314, 320, 326, 388
 political communication, 3:312
 pressure groups, 3:350–352
- Agfa (company), 3:283

- Aggression. *See also* Violence
 in animals, 1:84, 86; 4:89
 children, media effects, 1:270–274
 ethology, 2:121
 mass communications research,
 2:490, 494
 nonverbal communication, 2:132,
 147; 4:248
 pornography, 3:333
 psychoanalysis, 3:385
 psychological theories, 3:385; 4:95,
 165, 166
 sex roles, 2:211–212
 sports, 4:160
 television viewing, 1:431; 3:269,
 321
- Agitprop, 3:310, 374. *See also* Propa-
 ganda
- Agraphia, 4:152
- Agricola, Gnaeus Julius, 1:188
- Agriculture, 2:16, 19, 213
- Agrippa, Menenius, 1:289
- Aha (king), 4:324
- Ahimsa (nonviolence), 2:210
- Al-Abram (newspaper), 2:228
- Air transport, 1:393; 2:39
- Aitken, William Maxwell. *See* Bea-
 verbrook, 1st Baron
- Ajdukiewicz, Kazimierz, 4:77
- Ajzen, Icek, 1:150–151
- Akahige (film), 2:382
- Akbar, 3:343
- Akerblad, Johann David, 2:89
- Akerman, Chantal, 1:282
- Akkad. *See* Babylonia
- Akkadian
 language, 1:439, 441, 442
 texts, 4:330
- Alam ara (film), 3:73, 144
- Alberti, Leon Battista, 2:105; 3:448,
 449, 454; 4:276
De Pictura (book), 1:289; 3:276
De Re Aedificatoria (book), 1:289
- Alchemy, Islam, 2:358
- Alcheringa/Ethnopoetics (magazine),
 2:116
- Alcuin, 2:423
- Aldine Press, 2:413
- Aldrich, Robert, 2:294
- Alea, Tomás Gutiérrez, 3:73
- Alembert, Jean Le Rond d'
Encyclopédie, 2:29, 31
- Alexander, Christopher, 4:131
- Alexander, James, 4:339
- Alexander II (emperor), 3:309
- Alexander the Great, 1:109, 188;
 2:269, 281, 423; 3:336; 4:84
- Alexanderson, Ernst F. W., 4:217
- Alexandr Nevskii (film), 2:92; 3:72
- Alexandria, 2:412, 423; 3:441. *See*
also Hellenic World
- Alexandrov, Grigori, 3:67, 72
- Alexieff, Alexander, 1:92
- Alexia, 4:152
- Alfarabius. *See* Fārābī, al-
- Alfred the Great, 1:188
- Algebra, 4:60, 77, 79
- Alger, Horatio, Jr., 2:451
- Algerian National Liberation Front,
 2:480
- Algerian television, 4:221, 223
- Ali, Muhammad, 4:161
- Alien and Sedition Act (U.S.), 2:232
- Alien (film), 2:294; 4:23
- Alienation, 2:440, 476–477; 3:487;
 4:85
- Alinsky, Saul, 2:109
- “All in the Family” (TV series),
 3:243
- All Quiet on the Western Front
 (film), 3:68
- All That Jazz (film), 3:144
- Allegory, 1:184; 2:291, 343, 444;
 4:255
- Allende, Salvador, 3:325
- Aller (magazine), 2:467
- Allgemeine deutsche Real-Enzyklo-
 pädie für die gebildeten Stände
 (encyclopedia), 2:102
- Allgemeine Elektrizitätsgesellschaft,
 4:115
- Allgemeine Zeitung (newspaper),
 3:182
- All-India Radio, 2:19; 4:157
- Allingham, Margery, 3:155
- Allophones, 3:251–255, 3:273
- Allport, Gordon W., 1:147, 1:198;
 3:489, 490
Psychology of Radio (book), 1:234
- All-Union State Institute for Cinema-
 tography, 1:363
- Allusion, 2:349, 350, 351
- Almanacs, 2:448
- Almond, Gabriel, 3:320, 387
- Alonso, Juan Carlos, 1:239
- Alphabet, 1:43–47*
 Canaanite, 1:44–46
 cuneiform, 1:439, 441
 Egyptian hieroglyphs, 2:89
 manual language codes, 4:69
 Semitic and European descendants
 of, 1:46
 transmission to the Greeks, 1:45
 writing history, 1:44, 45, 209;
 2:268, 272, 440; 3:33; 4:326–
 327
- Alston, Charles, 3:89
- Alternative communication, 2:15–17,
 407
- Alternative media. *See* Minority Me-
 dia
- Althusser, Louis, 2:175, 202, 310,
 478–479, 481
- Altman, Irwin, 2:262
- Altman, Rich, 3:142
- Alton, John, 1:280
- Altruism, in animals, 2:121
- Álvarez, Santiago, 4:281
- AM. *See* Amplitude modulation
- Amalgamated Press, 3:211
- Amateur Photographer (magazine),
 3:284
- Amateur Radio Service, 1:286
- Amauta (journal), 2:481
- Amazing Stories (magazine), 4:21
- Ambiguity (in literature), 3:300
- Ambler, Eric, 4:167
The Mask of Dimitrios (book),
 4:170
- Ambrose, Saint, 2:291
- American Amateur Photographer
 (magazine), 3:284
- American Assn. of Schools and De-
 partments of Journalism, 1:359
- American Assn. of Teachers of Jour-
 nalism, 1:359
- American Bell, 4:212
- American Biograph Co., 2:259, 285,
 287; 3:58, 59
- American Broadcasting Co., 3:444;
 4:220, 228
- American Chemical Society, 1:456;
 2:100
- American Council for Education in
 Journalism, 1:359
- American Cyclopaedia, 2:101
- An American Dictionary of the En-
 glish Language, 2:398; 4:311
- American English language, 2:401;
 3:271
- American Film Institute, 4:285
- American Folklore Society, 3:230
- An American in Paris (film), 3:144
- American Indians. *See* Native Ameri-
 cans
- American Institute of City Planners,
 2:47
- American Institute of Physics and En-
 gineering Index, 1:456
- American Institute of Public Opinion,
 2:209; 3:327
- American Library Assn., 2:427
- American linguistics, 1:190–191;
 2:434; 4:3, 317
- American Magazine, 2:464; 4:311
- American Marconi Co., 2:472;
 3:418, 420; 4:4
- American Medical Assn., 4:290
- American Mutoscope and Biograph
 Co., 3:58, 59
- American Photo Player Co., 3:112
- American Psychological Assn., 2:370;
 4:290
- American Research Bureau, 3:426
- American Revolution, 1:329–330;
 3:307, 458, 460
- American Samoa. *See* Samoa
- American Sign Language (ASL),
 1:262, 321; 4:65, 69, 72, 73
- American Society of Journalism
 School Administrators, 1:359
- American Spelling Book, 4:234
- American Telephone and Telegraph.
See AT&T
- American Tobacco Co., 3:392

- An American Tragedy* (film), 2:92
 American University (Egypt), 1:367
 American University (Lebanon), 1:368
 Americas, Pre-Columbian—Communications, 1:47–56*
 artifacts, 4:295, 296 (fig.), 297 (fig.), 299 (fig.)
 arts, 1:52
 belief systems, 1:52–53
 commerce, 1:54–55
 communication routes, 1:51–52
 exploration, 2:125–127
 language, 1:47, 49
 migration, 1:47, 49
 postal service, 3:343
 sign systems, 1:49, 50–51
 social networks, 1:53–54
 writing, 1:49–50; 4:323, 326
 Americas, Pre-Columbian—Writing Systems, 1:56–63*
 Aztec script, 1:57, 59–61
 Mayan counting systems, 3:212–213 (fig.)
 Mayan writing, 1:49, 57–62; 4:323, 326
 Mesoamerican writing systems, 1:60–63
 Mixtec writing, 1:57, 61
 Oaxacan script, 1:57–63
 Olmec script and iconography, 1:57
 origins, 1:57, 59
 writing materials, 4:332, 335–336
 Zapotec writing, 1:57, 61
 America's Cup, 4:162
 Ames, Adelbert, 3:258
 Ammianus Marcellinus, 2:281
 "Amos 'n' Andy" (radio series), 2:404; 3:243; 4:91
 Ampère, André-Marie, 1:443; 3:47; 4:318
 Ampex Corp., 4:283
 Amphibians, 1:77, 88
 Ampico Co., 3:112
 Amplification, 1:110, 458; 2:161; 3:11
 Amplitude modulation (AM), 3:420, 422
 Ana (genre), 1:188
 Analog codes, 1:312–313; 4:76, 78
 Analogy, in metaphor, 3:7–9
 Analytical engines, 1:173, 375
 Anchorpersons. *See* Television News
 Anderson, Lindsay, 3:75
 Anderson, Robin, 2:113
 Andersson, Bibi, 1:187
 Andersson, Harriet, 1:187
 Andrea del Sarto, 2:195
Andrei Rublev (film), 3:78
El angel exterminador (film), 1:218
 Angell, Robert Cooley, 1:410
Der Angriff (newspaper), 2:222
 Animal cognition. *See* Cognition, Animal
 Animal Communication, 1:63–68*.
See also Animal signals; Animal Song; Cognition, Animal; Ethology; Insects, Social; Smell
 functions of communicating, 1:67–68
 and human language, 2:386
 nonverbal communication, 1:198; 2:131–134, 147, 218
 referents in, 1:63–65
 response to signals, 1:65–67
 semiotics, 4:49
 study of, 1:181, 455; 4:101
Animal Farm (film), 1:95
 Animal-human communication. *See* Human-Animal Communication
 Animal psychology. *See* Psychology, animal
 Animal signals. *See also* Animal Communication; Cognition, Animal; Insects, Social; Smell
 formalization of signal receptors, 1:68–70, 72–74
 and human communication, 1:258; 2:131–134, 147, 218, 386
 sexual, 1:81–84, 86–87
 signal repertoires, 1:70–74
 study of, 1:455
 Animal Signals—Audible Signals, 1:64, 65, 66, 69, 70, 71, 74–81*; 4:148
 detection and perception of sound, 1:76–78
 sound production, 1:74–75; 4:101
 Animal Signals—Chemical Signals, 1:67, 69, 70, 81–83*
 Animal Signals—Overview, 1:68–74*
 Animal Signals—Visible Signals, 1:66, 68–69, 83–88*
 evolution of, 1:86–88
 forms of, 1:83–86
 Animal Song, 1:72, 88–90*
 amphibians, 1:88
 birds, 1:88–90
 insects, 1:88
 as a signal, 1:76
 study of, 2:118, 121; 4:101–102
 whales, 1:90
 Animation, 1:91–96*, 238
 commercials, 1:353
 educational television, 2:85
 origins of, 1:91
 sound era, 1:92–95; 3:69
 studios, 1:91–92
 Anka, Paul, 1:277
Annales group, 2:283
Annales Maximi (book), 2:281
 Annan Report (Britain), 3:445
 Annenberg, Walter H., 1:360
 Annenberg School of Communications. *See* University of Pennsylvania, Annenberg School of Communications; University of Southern California
 "Anno Domini" (TV series), 3:445
 Anomie, 3:7
 Anonymity, 1:369. *See also* Authorship
 Anschütz, Ottomar, 3:51, 52
 Anselm, Saint, 2:434; 4:74
 Anstey, Edgar, 2:47, 258
Answers to Correspondents (magazine), 3:211
 Anthologies, literary, 2:183, 442
 Anthony, Susan B., 2:159; 3:395
 Anthropological linguistics, 1:190–191; 2:432, 435; 4:3, 132, 317
 Anthropology
 artifacts, 1:128–135
 cultural, 1:193–194, 203, 208, 211–214; 4:139
 concept of culture in, 1:437
 ethnographic film, 1:180–181; 2:110–114, 505–506
 folklore, 2:179, 183, 186
 linguistic, 1:190–191; 2:432, 435; 4:3, 132, 317
 social, 1:437
 structural, 2:417–418, 446; 3:300; 4:53–54
 visual, 2:110
 Anthropomorphism, 4:102
 Anti-Imperialist League, 1:144
 Antin, David, 2:116
 Antiope (teletex), 4:289
 Anti-Semitism, 2:375
 Antisocial behavior. *See* Behavior, antisocial
 Antistasis, 4:154
 Antitrust litigation. *See* Monopoly
 Antoine, André, 1:5
 Antonioni, Michelangelo, 1:169, 361; 2:169; 3:73, 75, 167
 Antonius, Marcus (emperor), 1:275; 2:423
 Antonius Pius (emperor), 1:327
 Antony, Mark. *See* Antonius, Marcus
 Ants. *See* Insects, Social
 AP. *See* Associated Press
 Apartheid, 2:410, 422; 3:323; 4:223
 Apelles, 3:337
 Aphasia, 2:220, 369, 459; 3:10; 4:151–152
 Aphoria, 4:152
 APN. *See* Novosti Press Agency
 Apocrypha, 4:26
 Apollinaris Sidonius, 2:423
 Apollo (Greek and Roman god), 3:377
 Apologetics, 2:290
El apostol (film), 1:92
 Apple, Michael W., 2:83
Appleton's Annual Cyclopaedia and Register of Important Events, 2:101
 Appreciation, artistic, 1:27–30, 117–120; 3:34
 Apraxia, 4:152
 Apuleius
Metamorphoses (book), 2:182

- Aquatints, 3:360
- Arab League Educational, Cultural, and Scientific Organization, 2:335
- Arab Telecommunications Union, 2:335
- Arabic
 alphabet, 1:44, 46
 language, 2:27, 351, 360, 402
 music, 3:129, 131, 132, 141
- ARABSAT, 2:364
- Arakawa
Next to the Last (painting), 2:351
- Aramaic language, 1:46, 439, 441; 2:26–27
- Aravindan, G., 3:78
- Arbitration, 1:177–178
- Arbitron, 3:426
- Archaeology, 1:128–135, 275; 2:311–313
- Archer, Frederick Scott, 3:280
- Archetypes, cultural, 2:376
- Architecture, 1:96–105*
 art, 1:114, 126–127; 3:443
 classicism, 1:287, 289, 291
 design, 2:4, 6; 4:80–81
 Greek Revival, 1:289
 relation to sculpture, 4:27–33
 Renaissance, 3:448
 Roman Empire, 3:473, 474
 romanticism, 3:487
 South Asia, ancient, 4:127–129
 theatrical, 3:117
 visual image, 4:297, 303
- Archives, 1:105–108*. *See also* Data Base; Library—History; Library—Trends
 access to, 1:284
 history, 1:105–106; 2:73; 3:16, 19, 397, 475
 preservation of documents, 3:366, 368, 369
- Archives, Film, 1:108–109*; 2:49, 50, 110, 429; 3:205
- Archives, oral. *See* Oral History
- Ardener, Edwin, 2:212
- 'Are'are (Solomon Islands), 3:130, 141
- Arendt, Hannah, 1:423
- Arensberg, Conrad, 1:274
- L'argent* (film), 3:64
- Argentina, 2:481; 4:173. *See also* Latin America, Twentieth Century
- Argots, 4:155
- Argumentation, 1:148, 354, 356; 2:193, 194; 3:463; 4:75, 188–191
- Argus South African Newspapers, 3:187
- Argyle, Michael, 1:313
- Ariosto, Ludovico, 2:449
- Aristophanes, 3:411
Lysistrata (play), 1:340; 2:52
- Aristophanes of Byzantium, 2:423
- Aristotle, 1:109–110*
Categories, 1:109
 cognition, 1:316
 communication philosophies, 1:354
De anima, 1:109
De interpretatione, 1:109–110; 4:47, 74
De partibus animalium, 1:292
 ethics, 2:107, 358
 forensics, 2:193
 Hellenic world, 2:269, 270
 interpretation, 2:346
 mathematics, 2:500, 501
Metaphysics, 1:109; 2:358
 narrative, 3:162
Nicomachean Ethics, 1:109
Organon, 1:109; 2:434, 500
Physics, 1:109
 Plato, 3:293
 poetics, 3:298, 299, 300
Poetics, 1:27, 110, 343; 2:52, 61–62, 444, 445; 3:7, 8, 10, 298, 454; 4:107, 192, 253, 254–255
 poetry, 3:302
Politics, 1:109; 2:82, 270
Posterior Analytics, 1:110
Prior Analytics, 1:110
 prose, 3:379
Rhetoric, 1:110; 3:267, 387, 462, 464; 4:47
 sign system, 4:74, 77
 style, literary, 4:186
 symbolic logic, 4:46
Synagoge Technon, 3:267
 theater, 2:216; 4:238, 239
Topics, 1:110; 3:267
 visual image, 4:294
- Aristoxenus, 3:108
- Arithmetic, 1:375; 2:501. *See also* Number
- Armat, Thomas, 2:80; 3:52, 57
- Armstrong, Edwin H., 1:110–111*; 2:161; 3:420; 4:4, 218–219
- Armstrong, Gillian, 3:75
- Arnauld, Antoine
Grammaire générale et raisonnée (book), 4:77
- Arnheim, Rudolf, 1:373; 2:173; 3:274, 275, 458
- Arnold, Matthew, 1:435, 436; 2:446
- Arousal, 2:147, 496; 3:39–40, 331, 332
- Arousal theory, 4:291, 293
- Arp 2500, 2:99
- Arpanet (computer network), 1:384
- Arrivée d'un train à La Ciotat* (film), 1:282; 3:58
- L'arroseur arrosé* (film), 3:58
- Arsenal* (film), 3:64
- Art, 1:111–120*. *See also* Architecture; Avant-Garde; Artist and Society; Child Art; Visual Image
 abstract, 1:168–169; 2:187; 4:265
 aesthetics, 1:27–30, 117–120; 2:180–181; 3:34
- artifacts, 1:128–135
 caricature, 1:234–240
 classicism, 1:289–291
 communicative functions, 1:113–116
 concept of the artist, 1:112–113
 cultural role of, 2:418
 expressionism, 2:128
 films, 2:173, 174
 iconography, 1:234; 2:89, 91
 Marxist theories, 2:478
 media stars, 4:177, 183
 modern, 2:187; 3:95
 murals, 3:82–91
 museums, 3:93–97
 nouveau, 3:346–347; 4:263
 pictorial practice, 3:275–278
 portraiture, 3:334–341
 prehistoric, 1:111–112, 298; 3:82–85, 105–106; 4:298, 331
 primitive, 1:128, 135; 2:187
 realism, 3:434–438
 religious, 3:442–443
 Renaissance, 3:448–449
 representational, 1:180; 4:296
 romanticism, 3:484–488
 sculpture, 4:27–34
 skills, artistic, 1:116–120, 138, 140–141; 4:297
 tourist, 4:251–252
 unity in, 1:289
 video art, 4:285
 worlds, 1:140–141; 2:103
- Art, Funerary, 1:121–128*
 Africa, 1:35 (fig.)
 Americas, pre-Columbian, 1:52
 concepts of death in, 1:121–123
 heraldry, 2:274, 276
 murals, 3:84
 portraiture, 3:335–336, 337
 sculpture, 4:31–33
- L'art cinématographique* (journal), 3:63
- Art history
 artifacts, 1:133; 3:93–94, 95
 avant-garde, 1:164
 iconography, 2:303–307
 museums, 3:93–94, 95
- Art nouveau, 3:346–347; 4:263
- Artaud, Antonin, 1:163, 342; 2:60
- Arthaśāstra* (book), 2:40
- Arthur (king), 1:188
- Articulation, speech, 1:262; 2:386–387, 389–390; 3:271–273; 4:152
- Artifact, 1:128–135*. *See also* Craft-work
 approaches to study, 1:133–135
 art work as, 1:28
 collection, 3:91–97
 cultural, 1:35, 38, 320, 437; 2:110; 4:198–199
 design, 2:4, 6
 and material culture, 1:128, 130
 museums, 3:91–97

- Artifact (*cont.*)
 musical, 3:105–107, 146
 as signs, 1:130–134
 tourism, 4:251–252
 visual image, 4:295, 296, 297, 299
- Artificial Intelligence, 1:135–138*;
 4:319
 classification, 1:293
 computers, 1:316, 385, 391, 393–
 394, 445; 3:9
 expert systems, 1:136; 2:428
 library systems, 2:428
 natural language processing,
 1:137–138
 perception, 1:136
 reasoning, 1:136–137, 138
 robotics, 1:136
 role of, in classification, 1:293
 translation, 4:260
- Artificial languages, 1:254; 4:75, 76–
 78
- Artist and Society, 1:138–142*. *See*
also Art
- Arts and Crafts movement, 2:5;
 4:263. *See also* Craftwork
- “As the World Turns” (TV series),
 4:91
- Asahi shimbun* (newspaper), 3:183,
 189, 190
- L'ascenseur à l'échafaud* (film), 3:174
- Asch, Timothy, 2:111–112
- Asclepius, 3:480
- Ashby, W. Ross, 1:443, 444, 445;
 2:314
- Ashkenazim, 2:375
- Ashurbanipal (king), 2:423; 3:107,
 206–208 (fig.)
- Asia, Twentieth Century, 1:143–
 146*. *See also* East Asia, Ancient;
 South Asia, Ancient
 colonization, 1:331–339
 communications education, 1:364–
 366
 development communication,
 2:18–22
 magazines, 2:464
 national liberation movements,
 2:480, 482
 politicization, 3:326
 radio, 3:422
 sound recording industry, 4:119
 television history, 4:221, 223
- Asia Pacific Broadcasting Union,
 2:335
- Asian Mass Communication and Re-
 search Center, 1:365, 366
- Asian News Network, 3:191
- Asian press. *See* Newspaper:
 Trends—Trends in Asia
- Asimov, Isaac
I, Robot (book), 4:21
- Aśoka, 1:146*; 4:123
- Assembly languages, 1:376
- Asser (monk), 1:188
- Assertions, 4:44–46
- Assertiveness training, 4:97, 98
- Assimilation, 2:331; 3:31, 32, 272,
 490
- Associated Press (AP), 3:44, 45, 170,
 176, 288, 404; 4:211, 228
- Association de Recherche en Commu-
 nication de Québec, 1:362
- Association for Education in Journal-
 ism, 1:359
- Association for Education in Journal-
 ism and Mass Communication,
 1:359
- Association of Oppressed Peoples,
 1:144
- Association of Southeast Asian Na-
 tions, 1:145, 146
- Assyria, 1:46; 2:274; 3:206, 387
- Astaire, Fred, 3:142, 144
- Astronomy, 1:303; 2:358; 3:450
- Astruc, Alexandre, 2:174; 3:174
- AT&T
 advertising, 1:353; 4:156
 Bell Labs, 2:166, 314; 3:11; 4:202,
 203
 computer impact, 1:387
 history, 1:183, 458; 4:212, 213,
 218
 interactive media, 2:328
 radio, 3:418
 telecommunications, 2:166; 4:202–
 203, 205, 289
 television history, 4:4, 218
- L'Atalante* (film), 3:71
- Atatürk, Kemal, 2:409, 410
- Atelier Populaire, 3:349
- Atelier Yva, 3:349
- Athabaskan Indians, 3:379
- Athletics. *See* Sports
- Atlantic* (magazine), 2:398, 464
- Atlases, 1:212; 3:366–369. *See also*
 Cartography; Map Projection
- Atomic Energy Commission (AEC),
 1:456; 4:303
- Attenborough, David, 2:50
- Attention, 1:9, 268–269, 273;
 2:132–133; 4:93–94. *See also*
 Selective Reception
- Attenuation, 1:79–80
- Atticus, Titus Pomponius, 1:275;
 2:415
- Attitudes, 1:146–152*. *See also* Cog-
 nitive Consistency Theories;
 Mass Media Effects; Persuasion
 children, media effects, 1:270
 communications research, 1:234,
 371, 373, 410; 2:294–295
 diffusion of, 2:31–36
 expression of, 3:388
 about gender differences, 2:214;
 3:332, 333
 ideology, 2:308, 309, 310
 mass communications research,
 1:42; 2:103, 104, 490, 492
 measurement of, 1:152, 402–403;
 2:22, 498; 3:225; 4:42
 molar, 1:149–151
 molecular, 1:149–152
 motivation research, 3:81
 polls, 3:328
 process theories, 1:147–149
 selective reception, 4:37–40
 sleeper effect, 4:88
 structural theories, 1:149–152
- Attribution theory, 1:148; 4:39
- Auber, Daniel-Esprit
Fra Diavolo (operetta), 3:118
- Aubrey, John
Brief Lives (book), 1:188
- Auden, W. H., 2:47, 258
- Audience. *See also* Target audience
 art, 1:116–119, 142
 children's use of media, 1:268–270
 cultivation analysis, 1:430–433
 development programs, 2:18–22
 drama, performance, 2:62
 entertainment, 2:102, 104
 exposure to advertising, 1:10
 folktales, 2:185
 mass communications research,
 2:488–497; 3:36–44
 media stars, 4:178–180
 music, 3:100
 newspapers, 3:198
 oral poetry, 3:233, 234
 oratory, 3:235
 performance, 3:262–266
 performers' interaction with,
 3:114–116
 propaganda, 3:377
 segmentation, 1:252, 372
 selective reception, 4:37–40
 taste cultures, 2:229; 3:43; 4:197–
 199
 television news, 4:229–230
 theater, 4:236, 239–241, 242
 uses and gratifications, 2:411–412
- Audience measurement
 print-audience measurement,
 3:353–354
 rating systems, radio and television,
 3:425–429
 sponsors, 4:156
- Audience research
 audience overlap, 1:372
 consumer research, 1:401
 crowd behavior, 1:424
 Hovland, Carl, 2:295
 ideology, 2:309
 media stars, 4:181
 opinion measurement, 3:224, 387–
 388
 radio, 1:234, 372–374; 2:411–
 412; 3:425
 sleeper effect, 4:88
 taste cultures, 4:198
 violence, 4:289–294
- Audimeters, 2:412; 3:426
- Audio cassette recording
 Australasia, 1:157
 copyright, 1:422
 history, 4:115
 music, 3:99
 political communication, 3:311

- Qur'an, 2:363
 revolution, 2:363; 3:460
 sound recording industry, 4:120
 Audio tape recording, 2:97, 115;
 3:421; 4:104, 114–115, 117. *See*
also Magnetic, recording
 Audion, 1:458; 3:418
 Audiovisual Education, 1:153–155*.
See also Education; Educational
 Television
 children, media effects, 1:270–
 274
 communications, study of, 1:361,
 366
 development communication, 2:18
 effectiveness, 1:153–154
 interactive radio instruction, 2:124
 mass communications research,
 2:490
 Audit Bureau of Circulations (U.S.),
 2:467
 Audits of Great Britain, 3:427
 Auerbach, Erich, 3:437
 Augsburg Confession, 2:460
 Augustine, Saint, 2:282, 291, 434;
 3:294; 4:238, 239
City of God (book), 2:282
Confessions (book), 1:161; 3:3
De doctrina Christiana (book),
 3:462; 4:47, 74
De magistro (book), 3:462
De Trinitate (book), 4:74
Principia dialecticae (book), 4:74
 Augustinus, Aurelius. *See* Augustine,
 Saint
 Augustus (emperor), 1:123, 275;
 3:336, 341, 473, 475–477
 Aulnoy, Comtesse d'. *See* Le Jumel de
 Barneville de la Motte, Marie-
 Cathérine
La aurora de Chile (newspaper),
 3:194
 Aussat (satellite system), 1:157–158
 Austen, Jane, 2:168, 170; 3:481
Lady Susan (book), 2:416
 Austin, Gene, 4:119
 Austin, Gilbert, 1:203
Chironomia (book), 2:218
 Austin, John, 1:355; 2:238; 3:468;
 4:45
 Australasia, Twentieth Century,
 1:155–158*
 background, 1:155–156
 broadcasting, 1:155–158
 communications, study of, 1:364
 ethnic and multilingual broadcast-
 ing, 1:156–157; 3:422
 migration, 3:22
 Torres Straits Expedition, 2:112
 Australia, 1:156, 157, 247, 364;
 3:45, 75, 103. *See also* Aborig-
 ines, Australian; Australasia,
 Twentieth Century
 Australian Commonwealth Film Unit,
 2:112
 Australian Film Commission, 3:75
 Australian Institute of Aboriginal
 Studies, 1:157; 2:112
 Austria, 2:465, 466; 3:119, 346,
 412; 4:241
 Auteur theory, 2:174
 Authenticity, 1:158–160; 2:178,
 194–198, 243–244; 4:140, 141,
 251. *See also* Fact and Fiction
 Authoritarianism, 1:248; 2:309, 439
 Authors League of America, 3:402
 Authorship, 1:158–160*. *See also*
 Literary Criticism; Reading The-
 ory
 autobiography, 1:160–162
 copyright, 1:416–422
 and deconstruction, 1:158–160
 intertextuality, 2:349, 350; 4:54
 letters, 2:416
 oral culture, 2:178; 3:227
 performance, 3:262–264; 4:183
 publishing, 3:400, 402, 403, 405
 romanticism, 1:28–29; 2:343–344,
 445; 3:485; 4:186
 translation, 4:259
 Autism, 1:263; 4:151
 Autobiography, 1:160–162*; 2:281,
 416; 3:154, 229–231. *See also*
 Biography; Diary
 Autochrome, 2:458
 Automata, 2:360; 4:60, 305, 319
 Automation, 1:136, 381, 393, 394,
 395, 397
 factory, 1:136, 378, 379, 394,
 395
 office, 1:379, 394–396
 Automobiles, 2:57; 3:344
 Autonomic responses (animals), 1:87
 Autopoiesis, 1:445
 Autry, Gene, 4:220, 315
 Avant-Garde, 1:162–166*
 art, 1:113, 184, 258; 2:197
 culture, 1:436
 drama, history, 2:57
 film theory, 2:173, 175
 music, 3:141
 modernism, 1:162–166
 poetics, 3:301
 postmodernism, 1:163–166
 theater, 4:243
 Avant-Garde Film, 1:166–170*
 Buñuel, Luis, 1:217–218
 film, 2:172, 173; 3:62, 63, 65
 Ivens, Joris, 2:364–366
 Vertov, Dziga, 4:281
 video, 1:285; 4:284–287
 Averroës. *See* Ibn Rushd
 Avery, Tex, 1:93
 Avicenna. *See* Ibn Sīnā
Avvaiyar (film), 3:145
Awara (film), 3:145
 Awolowo, Obefemi, 3:187
Ax Fight (film), 2:112
 Axis Sally, 3:421
 Ayer, Francis Wayland, 1:17
 N. W. Ayer and Son, 1:17
 d'Azevedo, Warren, 1:135
 Al-Azhar University (Egypt), 1:367;
 2:364; 3:441
 Azikiwe, Nnamdi, 3:187
 Aztecs
 culture and communication, 1:49,
 50, 51, 52, 53, 54, 55
 script, 1:57, 59–61

B
 B.T. (newspaper), 3:192
 Babbage, Charles, 1:173*, 374–375
 Babbitt, Milton, 2:99
 Babcock, Barbara, 3:266; 4:143
 Babin, Nikolai, 3:349
 Babylonia, 2:167, 225, 274; 3:133,
 206
 Bach, Johann Sebastian
Art of the Fugue, 3:131
Gott ist mein König, 4:103
The Well-Tempered Clavier, 3:129,
 131
The Back Breaking Leaf (film), 1:277
 "Backstage Wife" (radio series), 4:91
 Bacon, Francis (artist), 3:49, 340,
 341
 Bacon, Francis (philosopher), 1:198;
 2:24; 3:462
Advancement of Learning (book),
 4:77
De Augmentis Scientiarum (book),
 4:77
Essays (book), 2:371
The New Atlantis (book), 4:19,
 275
Novum Organum (book), 2:308;
 4:19
 Bacon, Roger, 1:27; 4:47, 77
The Bad Sleep Well (film), 2:382
 Baedeker, Karl, 1:173–174*
 Baerends, Gerard, 2:119
Baila (music genre), 3:99–100
 Bailey, James A., 1:178–179
 Bain, Alexander
English Composition and Rhetoric
 (book), 3:462
 Baird, John Logie
 Baird televisions, 4:217–218
 Bakhtin, Mikhail, 1:174–175*, 342;
 2:164, 349, 476; 3:300; 4:48,
 143
The Dialogic Imagination (book),
 1:174
The Formal Method in Literary
Scholarship (book), 1:174
Freudianism (book), 1:174
Marxism and the Philosophy of
Language (book), 1:174
Problems of Dostoevsky's Poetics
 (book), 1:174
 Bakshi, Ralph, 1:95
 Balance theory, 1:322–323
 Balcon, Michael, 2:284
 Baldwin, Charles Sears
Ancient Rhetoric and Poetic Inter-

- Baldwin, Charles Sears (*cont.*)
preted from Representative Works (book), 3:462
- Baldwin, James Mark, 1:410
- Bales, Robert, 2:262
- Bali, 2:62, 66; 3:103, 109, 125, 126, 266; 4:139
- Balikci, Asen, 2:112
- Ball, Lucille, 4:220
- Ballad of a Soldier* (film), 3:78
- Ballads, 2:292, 448, 450, 451; 3:97–98, 227; 4:155
- Ballet, 1:142, 204, 454; 3:125, 144; 4:242
- Ballet mécanique* (film), 2:46
- Ball-Rokeach, Sandra, 2:214
- Bally, Charles
Cours de linguistique générale (book), 4:9
- Balzac, Honoré de, 1:180
Le comédie humaine (book), 2:168
Sarrasine (book), 3:163
- Balzac, Jean-Louis Guez de
Lettres (book), 2:416
- Bambi* (film), 2:41
- Bancroft, George, 2:283
- Bandini, Domenico
Fons Memorabilium Universi (encyclopedia), 2:101–102
- Bandura, Albert, 4:290, 291
The Bandwagon (film), 3:144
- Bandwagon Effects, 1:175–176*; 2:95; 3:329, 378
- Bangkok Recorder* (newspaper), 3:189
- Bangladesh, 2:12
- Banham, Reyner, 2:5
- Banjós, 3:147
- Banking, 1:392, 393, 397; 2:28; 3:18–19, 371
- Banner Co., 4:118
- Banshun* (film), 3:240
- Bantu languages, 1:35
- Banzhaf, John, III, 1:284
- Bar coding, 1:392
- Baran, Paul, 1:378
- Barbaja, Domenico, 3:220
- Barbellion, W. N. P., 2:25
- Barber, C. L.
Shakespeare's Festive Comedy, 1:342
- Barbera, Joe, 1:93
- Barclay and Fry, 3:364
- Bardeen, John, 1:376; 3:11
- Bargaining, 1:176–178*; 2:1, 335; 3:238; 4:158
- Bar-Hillel, Yehoshua, 4:77
- Bariloche Foundation
Catastrophe or New Society? (book), 2:15
- Barker, Roger, 4:129
- Barlach, Ernst, 4:29
- Barnard, Chester I.
The Functions of the Executive (book), 3:236
- Barnes, George, 1:280
- Barnes, Thomas, 3:181
- “Barney Miller” (TV series), 4:51
- Barnum, Phineas T., 1:17, 178–179*
How I Made Millions (book), 1:179
The Humbugs of the World (book), 1:179
The Life of P. T. Barnum (book), 1:179
- Baroque, 1:99, 289; 3:86, 133, 135, 220
- Barré, Raoul, 1:91
- Barrett, Dermot, 3:236
- Barry, Iris, 1:108
- Barrymore, Lionel, 2:259
- Barteneff, Irmgard, 1:274
- Barthélemy, Jean-Jacques, 2:89
- Barthes, John, 2:168
- Barthes, Roland, 1:179–180*
Elements of Semiology (book), 1:179
Empire of Signs (book), 1:179
 film theory, 2:175
 iconography, 1:134; 2:305
A Lover's Discourse (book), 1:180
Mythologies (book), 1:179
The Pleasure of the Text (book), 1:180
On Racine (book), 1:179
 reading theory, 1:29; 3:433; 4:194
Roland Barthes by Roland Barthes (book), 1:180
SadelFourier/Loyola (book), 1:179
 semiotics, 2:310; 3:7; 4:49
 structuralist theory, 2:350, 446; 3:162, 298, 300; 4:193
Système de la mode (book), 1:180
S/Z (book), 1:180
Writing Degree Zero (book), 1:179
- Bartók, Béla, 2:115; 3:110, 135; 4:103
- Barton, Bruce, 1:19
- Bartosch, Berthold, 1:92
- Barukh, 4:25
- Baseball, 2:340; 4:137, 165, 166
- Basedow, Johann Bernhard, 4:14
- BASIC (computer language), 1:376
- Basil, Saint, 2:291
- Basile, Giambattista
Il pentamerone (book), 2:183
- Baskerville, John, 4:262
- Basketball, 4:159, 161
- Bataille, Georges, 1:163
- Batavia shimbun* (newspaper), 3:189
- Batch processing, 1:393, 456
- Batchelor, Joy, 1:93, 95
- Bates, Elizabeth, 1:264; 2:392
- Bateson, Gregory, 1:180–181*
Balinese Character: A Photographic Analysis (book), 1:180–181
Communication: The Social Matrix of Psychiatry (book), 1:181
 cybernetics, 1:443, 445; 2:336, 338–339
 ethnographic film, 2:110, 506
 interaction, face-to-face, 2:224, 326
 metacommunication, 3:264, 295; 4:139
 nonverbal communication, 2:381; 3:209
Steps to an Ecology of Mind (book), 1:180; 3:295
- Bateson, Mary Catherine, 1:181
- Bateson, William, 1:180
- Bathing Babies in Three Cultures* (film), 2:110
- Batlle y Ordóñez (newspaper organization), 3:194
- “Batman” (comic book), 1:347; 3:156
- Batten, Barton, Durstine and Osborn, 1:19
- Battison, Robbin M., 4:72
- The Battle at Elderbush Gulch* (film), 2:259
- The Battle of San Pietro* (film), 2:49
- Battleship Potemkin* (film), 2:92; 3:64
- Baudelaire, Charles-Pierre, 1:184, 258; 3:304; 4:192
- Baudrillard, Jean, 1:166
- Bauer, Theo, 1:443
- Bauer, Wilhelm, 3:387
- Bauhaus, 2:5; 3:347; 4:265
- Bauman, Richard, 2:185; 3:115
- Baumgarten, Alexander G., 2:445; 3:301
Aesthetica Acroamatica (book), 1:27
Reflections on Poetry (book), 1:27
- Bavelas, Alex, 3:236
- Baxter, Richard, 3:394
- Bayer, Herbert, 4:265
- Bayle, Pierre
Dictionnaire historique et critique (encyclopedia), 2:102
- Bazin, André, 2:174; 3:164, 274, 452, 458
- Bazin, Germain, 3:93
- BBC. *See* British Broadcasting Corp.
- BBC: The Voice of Britain* (film), 2:47
- Beadle, Erastus, 2:451
- Beard, Charles A., 2:283
- Bearden, Romare, 3:89
- Beardsley, Monroe C., 1:28; 3:300
- Le beau serge* (film), 3:174
- Beauchamp-Feuillet notation, 1:203
- Beaumarchais, Pierre-Augustin Caron de
Le barbier de Seville (play), 2:56
Le mariage de Figaro (play), 2:56
- Beauty of the World* (film), 3:73, 144
- Beauvoir, Simone de, 4:56
- Beaverbrook, 1st Baron, 1:182*, 238; 3:181, 210
- Don't Trust to Luck* (book), 1:182
- Men and Power* (book), 1:182

- Politicians and the Press* (book), 1:182
- Bebop, 3:102, 131
- Beckett, Samuel, 4:257
Endgame (play), 1:341; 2:60
Waiting for Godot (play), 1:341; 2:60
- Bede, Saint, 2:423; 4:75
- Beer, Stafford, 1:443, 445
- Beerbohm, Max, 1:239
- Bees. *See* Ethology; Insects, Social
- Beethoven, Ludwig van, 1:374; 2:351; 3:132; 4:103
Pastoral Symphony, 4:112
- Behavior
 adoptive, 4:95
 antisocial, 4:289–294
 appetitive, 2:118–119
 approach-avoidance, 2:340–343
 collective, 2:1–3. *See also* Crowd Behavior
 courtship, 2:121
 goal-directed, 1:151
 innate, 2:118–122
 locomotory, 1:64
 prosocial, 1:272
 sexual, 3:331, 334
 symbolic, 1:116, 310; 2:418; 3:32–36; 4:92–96
- Behavioral codes, 1:312, 313
- Behavioral differential, 4:43
- Behavioral models, 3:39–41; 4:290–291
- Behavioral referents. *See also* Referents
- Behaviorism, 1:294; 2:120, 236–237
- Behaviorist psychology. *See* Psychology, behaviorist
- Beijing Broadcasting Institute, 1:365
- Beijing University, 1:365
- Bel canto, 3:103
- Belgium, 1:8; 4:208
- Beliakov, Ivan, 1:92
- Beliefs. *See* Attitudes
- Belier Agency, 3:349
- Bell, Alexander Graham, 1:183*; 2:166; 4:205, 212, 216
- Bell, Andrew, 4:14
- Bell, Chichester A., 4:113
- Bell, Clive, 1:113
- Bell, Daniel, 1:381, 436; 2:309
- Bell System, 4:213, 214
- Bell Telephone Co., 1:183; 4:212, 213. *See also* AT&T
- Belle de jour* (film), 1:218
- Belles lettres, 3:378
- Bells, 3:150
- Beltrán, Luis Ramiro, 2:16, 482
- Beltrán (newspaper organization), 3:194
- Ben-Amos, Dan, 2:181
- Benchley, Peter
Jaws (book), 2:452
- Benedict, Ruth, 1:190; 2:505; 4:188
Patterns of Culture (book), 2:505
- Benedict VIII (pope), 3:16
- Benefit segmentation, 3:81–82
- Benegal, Shyam, 3:78
- Benesh, Joan, 1:204, 208
- Benesh, Rudolph, 1:202
- Benesh notation, 1:203, 204, 208
- Ben-Gurion, David, 3:415
- Benia Krik* (film), 2:92
- Beniger, James, 2:204
- Benin, 1:155
- Benjamin, Walter, 1:29, 165–166, 183–185*; 2:243, 450; 4:193
 “The Author as Producer” (essay), 1:184
On Language as Such and the Language of Man (book), 1:183
One-Way Street (book), 1:184
The Origin of German Tragic Drama (book), 1:184
 “The Work of Art in the Age of Mechanical Reproduction” (essay), 1:184
- Bennett, James Gordon, 1:185–186*, 458; 2:267; 3:181, 406, 407
- Bennett, James Gordon, Jr., 1:186
- Bennington studies, 1:410
- Benny, Jack, 3:243, 421
- Bense, Max, 4:49
- Benshi, 1:186*; 3:64, 72
- Bentham, Jeremy, 2:409, 410
- Benton, Thomas Hart, 3:87
- Benveniste, Émile, 3:300
- Beowulf* (poem), 3:19, 232
- Berelson, Bernard, 1:403; 2:411, 488
The People's Choice, 2:309
- Berg, Alban, 1:6, 119
- Berg-Ejvind och hans hustru* (film), 3:62
- Berger, John
Ways of Seeing (book), 2:244
- Berger, Milton M., 4:287
- Bergman, Ingmar, 1:186–187*; 2:174, 292, 382; 3:73
- Bergman, Ingrid, 3:452
- Bergson, Henri, 1:423; 3:51; 4:18
Laughter (book), 1:342
- Berio, Luciano, 2:99
- Berkeley, Busby, 3:142
- Berkeley, George, 3:255
- Berkowitz, Leonard, 4:290, 291
- Berlin: Die Sinfonie der Grossstadt* (film), 2:46
- Berlin Phonogram Archive, 2:114
- Berliner, Emile, 4:113, 118
- Berliner, Paul, 3:151
- Berliner Morgenpost* (newspaper), 3:182
- Berlingske tidende* (newspaper), 3:192
- Berlioz, Hector, 3:221
- Bernard, Chester, 4:309
- Bernard of Angers
Miracles of St. Foy (book), 3:20
- Bernard of Clairvaux, Saint, 2:291, 415
- Bernard of Tiron, 3:20
- Bernays, Edward L., 1:18; 3:391, 392
- Berne Convention for the Protection of Literary and Artistic Works, 1:418–420, 421
- Berne Union. *See* International Copyright Union
- Bernet, Jordi, 1:351
- Bernhardt, Sarah, 4:181, 340
- Bernini, Giovanni, 1:114, 126, 141; 4:30
- Bertelsmann, 1:224; 3:405
- Bertolucci, Bernardo, 3:73, 167
- Best, Elsdon, 4:99
- Best-sellers, 2:450–452
- Bettelheim, Bruno, 2:167
The Uses of Enchantment (book), 2:186
- Betterton, Thomas, 1:6
- Bettettini, Gianfranco, 2:175
- Betti, Emilio, 1:28
- “Betty and Bob” (radio series), 4:91
- Beveridge, Albert Jeremiah, 3:396
- Beyond the Forest* (film), 4:181
- Bezbin Lug* (film), 2:92
- Bhagavad Gita, 2:210; 3:158
- Bharata, 3:124, 125, 146
- Bharata Natya (dance genre), 1:454; 3:124
- Bias
 cultural, 1:435
 ideology, 2:307–311
 interviewer, 2:405
 media, 1:461
 perceptual, 4:166
 propaganda, 3:374, 375, 376
 self-selection, 3:327
- Bible. *See also* Scripture
 Book of Acts, 3:480
 folktales, 2:182
 Hebrew, 2:373, 375
 historiography, 2:282
 homiletics, 2:290
 interpretation, 2:344, 345, 347, 444
 Luther, Martin, 2:459–460
 Middle Ages, 3:14, 20
 printing, 2:375; 3:356, 367, 368
 prose, 3:379–380
 translations of, 1:213–214, 215; 2:26, 449; 3:441
- “Bible Quiz,” 3:415
- Bibliographic data base. *See* Data Base
- Bibliographic Retrieval Services, 1:456; 2:100
- Bibliothèque bleue*, 2:448
- Bibliothèque Nationale (Paris), 2:424
- The Bicycle Thief* (film), 3:165
- The Big Boss* (film), 2:474
- The Big House* (film), 3:69
- The Big Swallow* (film), 3:58
- Bild Zeitung* (newspaper), 3:182, 191
- Bildschirmtext, 4:289

- Bilingualism, 2:291, 402–403, 435; 3:29
- Billboards, 4:80–83
- “Binaca Toothpaste Hour” (radio series), 4:157
- Binaural hearing, 1:257
- Bing Crosby Enterprises, 4:282
- Bingham, Caleb
Readers, 1799–1832 (books), 4:234
- Biograph. *See* American Biograph Co.
- Biography, 1:187–190*. *See also* Autobiography
 fictional characters, 2:169
 genre, 2:25, 216, 417; 3:69
 historiography, 2:281, 282; 3:230
 realism, 3:435
- Biology, study of, 1:445
- Bioluminescence, 1:84
- Bird, Robert Montgomery
Nick of the Woods (book), 4:313
- Birds, 1:68–76, 78–80, 83–90; 2:118, 119, 121; 4:101, 106
- Birdwhistell, Ray L., 1:202, 231, 274; 2:326, 380–381; 3:296
- Birmingham University, Center of Cultural Studies, 1:438
- The Birth of a Nation* (film), 1:257; 2:171, 259; 3:61
- Bishop, Henry Rowley, 3:118
- Bitter Rice* (film), 3:167
- Bitzer, G. W. “Billy,” 1:91, 281; 3:58
- Black, Max, 3:7, 9
The Black Cat (film), 2:293
- Black chamber, 1:429
- Black comedy, 1:341, 343
- Black Majesty* (film), 2:92
- Black Mask* (magazine), 3:156
- Blacking, John, 3:34, 36
- Blacklisting, 1:251; 2:288
- Blackmail* (film), 3:70
- Black music. *See* Afro-American music
- Blackmur, R. P., 3:300
- Blacks. *See* Afro-Americans
- Blackstone, Sir William, 1:247
- Blackton, J. Stuart, 1:91
- Blair, Hugh, 4:187
Lectures on Rhetoric and Belles Lettres (book), 2:397–398; 3:462
- Blake, William
Discourses (book), 2:445
- Blasetti, Alessandro, 3:72
- Blasons populaires*, 2:324
- Blatty, William Peter
The Exorcist (book), 2:452
- Der blaue Engel* (film), 1:186; 3:71
- Der blaue Reiter*, 2:128
- Bleuler, Eugen, 2:376
- Bleyer, Willard G., 1:359
- Blind Justice* (film), 3:62
- Blindness, 1:264, 391; 2:31, 242
- Blitzstein, Marc
The Cradle Will Rock (play), 4:312
- Bloch, Ernst, 1:184; 2:196
- Bloch, J., 2:478
- Bloch, Marc, 2:283
- Bloch, Maurice, 3:471
- Block-booking, 2:286–287, 288; 3:46, 203; 4:340
- Blood, Warwick, 1:43
- Blood and Fire* (film), 1:277
- Blood and Sand* (film), 3:65
- Bloom, Harold, 1:28, 160; 4:193
- Bloomfield, Leonard, 2:236, 434; 3:273
- The Blue Angel* (film), 1:186; 3:71
- Blues, 3:98, 141; 4:87. *See also* Afro-American music
- Blumberg, Rae Lesser, 4:55
- Blumlein, A. D., 4:114
- Blumler, Jay, 2:496
- Bluth, Don, 1:95
- Boas, Franz, 1:190–191*; 2:505
 artifacts as symbols, 1:130, 134, 135
Handbook of American Indian Languages (book), 1:191
 linguistics, 2:434; 4:3
- Boccaccio, Giovanni
De casibus (book), 2:215
- Decameron* (book), 2:182–183; 4:50
- Bodley, Sir Thomas, 3:398
- Bodmer, J. J., 3:301
- Bodoni, Giambattista, 4:262
- Body Decoration, 1:52, 191–198*, 201, 313; 2:137–143
- Body language. *See* Kinesics
- Body Movement, 1:198–203*
 acting, 1:3–6
 approaches to study, 1:198–201, 274
 in dance, 1:451
 gesture, 2:217–222; 3:235
 in interaction, 2:325
 kinesics, 2:380–381
 notation, 1:203–209
 presentational codes, 1:313
 in ritual, 3:470–471
 sources of information about, 1:201–202
- Body Movement Notation, 1:203–209*. *See also* Choreometrics
- Benesh notation, 1:203, 204, 208
- effort-shape analysis, 1:204, 208
- Eshkol-Wachmann notation, 1:203, 204
- Labanotation, 1:203–208
- notation systems, 1:202
- The Bodyguard* (film), 3:76
- Boethius, Anicius, 2:423, 434; 3:130
- Bogart, Humphrey, 3:156, 175
- Bogatyrev, Petr, 1:130, 131; 4:48
- Bogdanovich, Peter, 2:293–294
- Bohme, Franz Magnus, 3:135
- Boileau-Despréaux, Nicholas, 1:291
- Bok, Edward W., 2:465
- Bok, Sissela, 1:461; 2:107
- Bolingbroke, Lord (1st Viscount), 2:282
- Bolinger, Dwight, 4:99
- Bolívar, Simón, 3:194
- Bolivia, 2:16. *See also* Latin America, Twentieth Century
- Böll, Heinrich, 3:437
- Bol'shaya sovetskaya entsiklopediya* (USSR), 2:102
- Boltzmann, Ludwig, 2:314; 4:59
- Bolzano, Bernhard, 4:47
- “Bonanza” (TV series), 4:316
- Bond, James, 4:168, 170
- Bondarchuk, Sergei, 3:78
- Bondu sauvé des eaux* (film), 3:452
- Bonhoeffer, Dietrich
Ethics (book), 2:107
- Book, 1:209–217*. *See also* Authorship; Printing; Publishing—History of Publishing; Publishing—Publishing Industry; Typography
 authorship, 1:158
 burning, 3:441; 4:62
 censorship, 1:246–249
 comic books, 1:347, 349–350
 copyright, 1:411–416
 early history, 1:209–211; 2:73–74, 75–76; 3:450
 impact of books, 1:212–215; 4:11, 271
 Index of Forbidden Books, 1:215, 246, 247; 2:230; 3:398
 Islam, classical and medieval eras, 2:352–357
 library, 2:422–428, 429; 4:271
 literature, 2:167–169, 447–452
 printing, 1:211–217; 3:354–366
 scripture, 4:24–27
 story papers, 1:458
 typography, 4:243, 261–268
- Book clubs, 2:39; 3:402
- Book of Mormon*, 4:25
- Bookstores, 3:405
- Boole, George, 1:375
An Investigation of the Laws of Thought (book), 4:77
- Boolean algebra, 4:60
- Boomerang effect, 3:6
- Boon, James, 4:143
- Boone, Daniel, 4:313
- Boorstin, Daniel, 4:251
- Booth, Edwin, 1:6
- Booth Newspapers, 4:23
- Bopp, Franz, 2:434; 3:272
- Borba* (newspaper), 2:228
- Bordwell, David, 2:175
- Borgius, W., 2:478
- Borowczyk, Walerian, 1:95
- Bosch, Hieronymus, 2:303
- Bossak, Jerzy, 2:49
- Bossuet, Jacques-Bénigne, 2:283; 3:394
- Boston Gazette* (newspaper), 3:181
- Boston News-Letter* (newspaper), 1:296; 3:178, 180
- Boston Tea Party, 3:460

- Bosustow, Stephen, 1:93
 Boswell, James, 1:159, 189–190; 2:25, 26
Life of Samuel Johnson (book), 1:189; 2:371
 Boundaries, spatial, 4:130, 131
 Bourdieu, Pierre, 1:135; 2:8, 477; 4:198
 Bourgeoisie, 2:478; 3:434, 435
 Bourke-White, Margaret, 3:288
 Boustrophedon, 1:44, 45
 Boxing, 2:340; 4:162, 219, 292
 Boy Scouts, 2:81
 Boycotts, consumer, 1:252
 Boyd, William S., 4:315
 Boys, Charles Vernon, 3:51
Boy's Own Paper (serial), 2:450
 Bozzetto, Bruno, 1:94
 Bradford, Andrew, 2:464
 Bradford, Gamaliel
George Washington (book), 1:189
 Bradford, William, 4:339
 Bradley, Dan Beach, 3:189
 Bradley, Will, 4:263
 Brady, Mathew B., 3:286
 Braglia, Anton Giulio
Fotodinamismo futuristica, 3:51
 Brahmī script, 2:311
 Braidwood, Thomas, 2:209
 Brain
 cognition, 1:316, 318, 320
 damage, 2:220, 459; 4:151–152
 muscular control, 2:147
 "Brains Trust" (TV series), 3:415–417
 Brakhage, Stan, 1:168
 Brand names, 1:8, 19, 25, 26, 402
 Brandeis, Louis, 3:370
 Brando, Marlon, 1:3; 4:179
 Branly, Edouard, 3:417
 Brant, Joseph, 3:394
 Brattain, Walter, 1:376; 3:11
 Braudel, Ferdinand, 2:283
 Bault, Michel, 1:277
 Braun, Karl F., 2:472
 Bray, John R., 1:91–92
 Bray-Hurd Process Co., 1:92
 Brazil. *See also* Latin America, Twentieth Century
 Boqueirao do Sitio da Pedra Furada, 3:83
 education, 2:16
 film, 3:175
 literacy, 1:155; 2:20
 music, 3:115
 National Security Doctrine, 3:195
 politicization, 3:326
 slave trade, 4:85, 86, 87
 television, 4:225, 227
 Bread and Puppet Theater, 3:412
 Breathed, Berke
 "Bloom County" (comic strip), 1:347
Breathless (film), 3:175
 Breccia, Alberta, 1:351
 Brecht, Bertolt
The Caucasian Chalk Circle (play), 2:59
 drama, 1:5, 180, 184; 2:54, 59
 film theory, 2:175
Modellbücher, 2:64, 66
Mutter Courage und ihre Kinder (play), 2:59
 Breen, Joseph, 1:251–252; 2:288
 Breer, Robert, 1:169
 Brehm, Jack, 1:149
 Breiting, J. J., 3:301
 Bremmermann's Limit, 2:315
 Brémont, Claude, 2:184; 3:300
 Brennan, William, 2:421
 Bresson, Robert, 1:169; 2:174, 382
 Breteuil, Charles de, 3:187
 Breton, André, 1:164
 Bricolage, 1:132–133
The Bridge (film), 3:65
 Briggs, Leslie J., 1:154
 Brighton school, 3:58, 59
 Brill, E. E., 1:18
 Britain. *See* Great Britain
 British Authors' Society, 3:402
 British Broadcasting Corp. (BBC)
 government-media relations, 2:228, 229
 history, 1:368; 2:234; 3:438–439
 programming, 2:113; 3:376; 4:53, 157
 radio, 3:419, 423, 424, 425
 rating systems, radio and television, 3:426
 religious broadcasting, 3:445
 television, 4:217, 218, 221–222, 229
 videotex, 4:289
 British Cable Services, 1:224
 British Film Institute, 1:108
 British Gramophone Co., 4:118
 British Institute of Public Opinion, 2:210
 British International Pictures, 3:70
 British Library, 2:424
 British Museum (London), 3:93
 British Open University, 1:155; 2:19
 British Royal Academy, 2:445
 British Telecom, 2:234
 Britten, Benjamin, 2:47, 258
 Broach, Hermann, 1:423
 Broadcast codes, 1:315
 Broadcast Education Assn., 1:359–360
 Broadcast Rating Council (U.S.), 3:426
 Broadcast satellites. *See* Satellite Broadcasting. *See also* Africa, Twentieth Century; Australasia, Twentieth Century; Islamic World, Twentieth Century; Latin America, Twentieth Century; Radio; Radio, International; Religious Broadcasting; Television; Television History
 Broadcasting, religious. *See* Religious Broadcasting
 Broadcasting education, 1:361, 363, 365–366, 368
Broadway Melody (film), 3:142
 Brockhaus, Friedrich Arnold, 2:101, 102
Broken Blossoms (film), 2:259
Bronenosets Potyomkin (film), 2:92; 3:64
 Brontë, Charlotte, 3:481
 Brook, Clive, 3:68
 Brook, Peter, 3:408
 Brooks, Cleanth, 3:300
 Brooks, Virginia L., 3:255
Brother Jonathan (story paper), 1:458
 Broughton, James, 1:168
 Browder, Earl, 2:41
 Brown, Anthony Cave, 2:40
 Brown, Ford Madox, 3:435
 Brown, Lawrence, 2:32
 Browne, Dik
 "Hagar the Horrible" (comic strip), 1:347
 Brownell, Frank, 3:282
 Browning, Robert, 3:437
 Browning, Tod, 2:292
 BRS. *See* Bibliographic Retrieval Services
Die Brücke, 2:128
De Brug (film), 3:65
 Bruggmann, Karl, 2:434
 Brunelleschi, Filippo, 3:449
 Bruner, Jerome, 1:264, 265; 2:85; 3:430
 Brunswick Co., 4:118
 Brunswik, Egon, 3:256
 Bryan, William Jennings, 3:395, 396
 Bryant, William Cullen, 1:418
 Bryson, Lyman
Communication of Ideas (book), 2:405
 Buber, Martin, 2:336
 Buchan, John, 4:170
The 39 Steps (book), 4:167
 Bücher, Karl, 1:370
 Buchla Modular Electronic Music System, 2:99
 Büchner, Georg, 1:289
 Buckland, Gail, 3:274
 Buckle, H. T., 2:283
 Buddha, 2:303; 3:394, 440, 442–443
 Buddhism. *See also* Religion
 art, 1:122
 caste systems, 4:125
 diffusion, 4:84, 123, 124
 historiography, 2:280–281
 homiletics, 2:290
 ideology, 1:146; 3:440–441
 in Japan, 4:245
 missionaries, 3:440, 443
 monasteries, 4:126–128
 music, 3:122–128, 133, 136 (fig.), 139
 pilgrimage, 3:442; 4:126
 Tantric, 2:217
 texts, 3:441; 4:25, 26, 124, 126

- Bufano, Remo, 3:412
 Buffalo Bill. *See* Cody, William F.
 Buffon, Georges-Louis Leclerc, Comte de, 1:293
 Bugaku, 3:128
 Bugging, 1:428; 3:370
 Bühler, Karl, 4:48, 63, 78, 79
 Bulgarian music, 3:99, 130
 Bull, Lucien, 3:51
Bulldog Drummond (film), 1:280
 Bullock, William, 3:364
 Bulwer, John, 2:218
 Bulwer-Lytton's Act. *See* Dramatic Copyright Act
 Bunge, Mario, 2:435
 Bunny, John, 3:61
 Bunraku (Japanese puppetry), 1:186; 3:127–128, 133, 408; 4:107
 Buñuel, Luis, 1:167, 217–218*; 3:65, 73
 Bunyan, John
 Grace Abounding to the Chief of Sinners (book), 1:162
 Pilgrim's Progress (book), 2:449
 Bunzel, Ruth, 1:135
 Burckhardt, Jakob, 1:213
 Bureaucracy, 1:247, 248–249; 3:16, 315–316; 4:309–310
 Bürger, Peter, 1:163, 164, 165
 Theory of the Avant-Garde (book), 1:163
 Burgess, Anthony
 A Clockwork Orange (book), 4:21
 Burgess, Ernest W., 3:247
 Introduction to the Science of Sociology (book), 3:389
 Burial customs, 1:121–123, 200
 Burke, Edmund, 3:308, 395
 Burke, Kenneth, 1:218–219*; 3:463, 464
 Attitudes toward History (book), 1:218
 Counterstatement (book), 1:218
 A Grammar of Motives (book), 1:218
 Language as Symbolic Action: Essays on Life, Literature, and Method (book), 1:218
 Permanence and Change (book), 1:218
 The Philosophy of Literary Form (book), 1:218; 3:463
 A Rhetoric of Motives (book), 1:218
 The Rhetoric of Religion (book), 1:218
 Burlesque, 2:299, 349, 350; 3:120, 142
 Burletta, 3:118, 120; 4:242
 Burmese music theater, 3:125
 Burney, Charles, 3:111
 Burney, Fanny
 Evelina (book), 2:416
 Burns, Tom, 3:388
 Burroughs, Edgar Rice
 Mars (book), 4:20
 Burrowes, Robert, 4:187
 Busch, Wilhelm, 1:237, 344
 Bush, George, 3:319
 Bushkin, Alexander, 1:92
Business Week (magazine), 2:467; 3:179
 Business Wire, 3:199
 Byblos, 1:219–220*
 Byers, Paul, 2:506
 Byron, George Gordon, Lord, 1:173; 4:51
 Childe Harold (poem), 2:417
 Don Juan (poem), 2:417
 Manfred (play), 2:56
 Byzantium, coins, 1:327, 329
- C
- C³I, 1:384
Das Cabinet des Dr. Caligari (film), 2:129–130, 292, 293; 3:62–63
Cabiria (film), 1:282; 3:61
 Cable Communications Policy Act (U.S.), 1:223
 Cable News Network (CNN), 4:229
 Cable Telecommunications Act of 1984 (U.S.), 1:387; 3:371
 Cable Television, 1:223–225*
 CATV, 1:223–225
 educational programming, 1:154
 government regulation, 1:223, 421; 2:233; 3:46, 371; 4:294
 interactive systems, 1:284, 296; 2:328–329; 3:317
 Latin America, 2:407–408
 news programming, 4:229–230
 religious programming, 3:446
 technology, 1:223; 2:166
 telecommunications networks, 4:201
 television history, 4:225, 227
 video, 4:285–287
 Cables, submarine, 4:209, 211
 Cabral, Amílcar
 National Liberation and Culture (book), 2:480
 Caesar, Julius, 1:226, 275; 2:273, 410, 423
 Caesar, Sid, 4:220
Caesar (play), 4:312
 Cage, John, 2:61; 3:132
 "Cagney and Lacey" (TV series), 3:157
Cahiers du cinéma (journal), 2:174; 3:174, 175, 452
 Cahill, Thaddeus, 2:97
 Cairns, Francis, 2:216
 Cairo University, Institute of Journalism, 1:367
 Calculating machines, 1:173, 374
 Calculators, 3:13
 Calculus, 2:314–319, 501
 Calder, Alexander, 4:30
 Calderón de la Barca, Pedro
 La vida es sueño (play), 2:54
 Calendar, 1:57, 59–60, 225–230*; 3:212, 367, 461. *See also* Clock
 Calgary Stampede, 4:142
 Calhoun, John C., 3:395
 Calkin, Dick
 "Buck Rogers" (comic strip), 1:347
 "Call My Bluff" (TV series), 3:417
 Calligraphy, 2:74, 76; 3:367; 4:265, 328, 333
 Callimachus, 2:423
Calo, 4:155
 Calotype, 3:279
 Calvin, John, 2:460; 3:394; 4:272, 310
 Calvino, Italo, 2:168, 216; 3:437
 Calypso music, 3:99
 Cambridge, University of, 2:424, 426; 4:272
 Cameo Co., 4:118
 Camera obscura, 3:275
 Camera techniques, 1:91, 276, 279–283, 285; 2:172; 3:36, 259–261; 4:137
 Cameras. *See also* Photography, Amateur
 Arriflex, 1:282
 Brownie, 2:79
 cinematograph, 2:457
 history, 2:79–80; 3:48–51, 205
 kinetograph, 2:80
 Kodak system, 2:78–79; 3:275–281
 motion picture, 2:457; 3:52, 66–67
 photojournalism, 3:288
 Polaroid, 2:385
 television, 4:218, 219
 video, 4:105–106, 283, 287
 Camera-stylo, 2:174
Il cammino della speranza (film), 3:167
 Campaign studies, 2:492–497
 Campaigns, political
 advertising, 1:13–14, 23
 agenda-setting, 2:495
 bandwagon effects, 1:175–176
 broadcast debates, 3:318–319
 elections, 2:93–96; 3:329–330
 forensics, 2:193, 194
 history, 3:308, 311
 mass communications research, 2:490, 496–497
 political communication, 3:305, 311, 314–315, 325
 propaganda, 3:375, 376–378
 use of consultants in, 1:14; 3:314
 Campbell, George
 The Philosophy of Rhetoric (book), 3:462
 Campbell, John, 3:180
 "The Campbell Playhouse" (radio series), 4:312
 Campus, Peter, 4:285
 Canada
 audiovisual education, 1:155

- communications education in, 1:362
 culture, 1:437
 government-media relations, 2:228, 229
 government regulation of media, 3:371
 International Development Research Center, 2:15
 magazines, 2:466-467
 media monopoly, 3:45
 National Film Board of Canada, 1:95, 276-277, 284-285; 2:258; 4:286
 newspapers, 3:197-199
 sound recording industry, 4:120
 telegraphy, 4:211
 television, 4:221-222
 videotex, 4:289
 Canadian Broadcasting Corp. (CBC), 2:228
 Canadian Communications Assn., 1:362
 Candid camera technique, 4:282
 "The Candid Eye" (film series), 1:277
 Canetti, Elias, 1:423
 Caniff, Milton
 "Terry and the Pirates" (comic strip), 1:347
 Cannon, Bobe, 1:93
 Cannon, Walter B., 1:445
 Canons. *See also* Literary Canon
 religious, 3:440
 ritual, 3:467-472
 Canova, Antonio, 1:291
 Cantometrics, 1:201, 230-233*, 274; 2:114-116. *See also* Song
 Cantril, Hadley, 1:233-234*, 372; 2:411; 3:328
Gauging Public Opinion (book), 1:234
General and Specific Attitudes (book), 1:234
The Human Dimension: Experiences in Policy Research (book), 1:234
The Invasion from Mars (book), 1:234
The Pattern of Human Concerns (book), 1:234
The Political Beliefs of Americans (book), 1:234
The Psychology of Ego Involvement (book), 1:234
The Psychology of Radio (book), 1:234
The Psychology of Social Movements (book), 1:234
Social Attitudes and Identifications (book), 1:234
Soviet Leaders and Mastery over Man (book), 1:234
 Canudo, Ricciotto, 2:173
 Capa, Robert, 3:289
Cape Argus (newspaper), 3:187
Cape Times (newspaper), 3:187
Cape Town Gazette (newspaper), 3:186
 Čapek, Karel
R.U.R. (play), 4:22
War with the Neutts (book), 4:22
 Capella, Martianus, 2:215
Capital (film), 2:92
 Capitalism
 advertising, 1:8, 14-17
 avant-garde, 1:163, 164
 historical development, 3:19, 447
 ideology, 1:461; 2:178, 292, 308; 4:142, 179
 Marxist theories, 1:461; 2:292, 479
 sports, 4:161, 165
 Weber, Max, 4:309-310
 Capote, Truman, 2:216
 Capp, Al
 "L'il Abner" (comic strip), 1:347
 Capra, Frank, 2:48; 3:69
 Capriles, Osvaldo, 2:481
 Captain (videotex), 4:289
Captain America (comic book), 1:347
 Caracci family, 1:234, 236
 Caravans, 1:31-32; 2:352
 Cardano, Girolamo
Life (book), 1:161
 Caricature, 1:116, 234-240*, 344; 3:26, 340-341
La caricature (journal), 1:236
La caricature provisoire (journal), 1:236
 Carleton University (Ottawa), 1:362
 Carlos, Wendy, 2:99
 Carlson, Chester, 3:361
 Carlyle, Thomas, 1:418; 2:283
 Carmontelle, Louis, 3:382
 Carnap, Rudolf, 4:45
 Carne, Marcel, 3:71
 Carnegie, Andrew, 2:426; 3:396
 Carnegie Foundation, 2:106, 430
 Carnival. *See* Festival; Mask
 Carolingian Empire, 1:329
 Carpenter, Edmund, 4:106
 Carpenter, John, 2:294
 Carrington, John, 3:150
 Carroll, Berenice, 2:158
 Carroll, J. B., 3:430
 Carter, Jimmy, 3:319, 382
 Cartland, Barbara, 3:482
 Cartography, 1:240-244*. *See also* Map Projection
 exploration, 1:303; 2:125; 3:330, 450
 graphics, 2:255
 Peutingger Table, 3:478, 479
 satellite, 3:5-7
 Cartoons. *See* Animation; Comics
 Cartwright, Darwin, 1:323
 Caruso, Enrico, 3:221; 4:118
 "Casa Cecilia" (TV series), 4:90
 Casio Corp., 2:99
 Casmir, Fred L., 2:330
 Cassandre, 3:347
 Cassette recording. *See* Audio cassette recording; Videocassette recorders
 Cassian, John, 2:444
 Cassirer, Ernst, 4:49
The Philosophy of Symbolic Form (book), 3:463, 464
 Caste system, 4:121, 125-126
 Castillo, Arturo del, 1:351
 Castle, Henry, 2:503
 Castro, Fidel, 3:396; 4:223
Cat People (film), 2:293
 Catachresis, 3:10
 Catacombs, 1:123
 Çatal Hüyük, 1:298; 3:83, 105
 Catalog sales. *See* Mail-order catalogs
 Catechesis, 2:290
 Catechetics, 2:290
 Categorematic expression, 4:74, 77
 Catharsis, 4:166, 239, 254, 290
 Catherine II (empress), 3:309
 Catholic church, 3:395; 4:142
 alternative communication projects, 2:407
 archives, 1:106
 broadcasting, 2:15, 18; 3:444-445, 447
 censorship, 1:246; 2:287; 3:305, 398
 education, 4:12-14, 272
 historiography, 2:282
 homiletics, 2:290, 291
 Index of Forbidden Books, 1:215, 246, 247; 2:230; 3:398
 libraries, 2:424
 Luther, Martin, 2:459-460
 Middle Ages, 1:413; 3:16, 19-20
 papacy, 1:424-427; 3:16
 printing, 1:213-214, 215; 3:398
 Catholic University of São Paulo, 1:367
 Cato, 1:289
 Cato, Marcus Portius (the Elder), 2:281
 Cattell, Owen, 2:11
 CATV. *See* Cable Television
 Causality, 3:162; 4:290
 Causality, circular. *See* Circular causality
 Cavalcanti, Alberto, 2:258
 Cave, Edward, 2:464
 Cavell, Stanley, 3:274, 458
 Caxton, William, 1:244-245*; 2:400, 448
 CB radio. *See* Citizens Band Radio
 CBN. *See* Christian Broadcasting Network
 CBS. *See* Columbia Broadcasting System
 "CBS Evening News," 4:230
 CBS Records, 4:120
 CCIR. *See* International Consultative Committee for Radio
 CCITT. *See* International Consultative Committee for Telephone and Telegraph
 CDs. *See* Compact discs

- Ceefax, 2:100; 4:289
 Cellini, Benvenuto
 Life (book), 1:161, 162
 Cellophone, 4:117
 Cels, use in animation, 1:92
 Cemeteries, 1:126–128
 Censorship
 book, 1:215
 broadcasting, 1:251; 4:229
 copyright, 1:422
 Goebbels, Joseph, 2:223
 government, 3:326, 330
 Index of Forbidden Books, 1:215, 246, 247; 2:230; 3:398
 Islam, 2:353, 356, 361, 363
 media effects, 1:270
 New International Information Order, 3:173
 pornography, 3:331–332, 334
 print media, 1:349; 2:466; 3:244, 246, 305, 308–309; 4:339–340
 publishing history, 1:283; 2:397, 400
 theater, 4:242
 Tokugawa era, 4:245
 Censorship Act (Great Britain), 1:246
 Censorship—Government Censorship, 1:246–249*. *See also* Government Regulation
 Africa, 1:39; 3:187–188
 Asia, 3:189–190
 copyright, 1:414–416
 Latin America, 3:193, 194–195
 Middle East, 3:196–197
 Milton, John, 3:24–25
 monopolies, 3:44–46
 Russia, 1:417
 secret information, 4:35–36
 self-censorship, 1:247, 248; 2:408
 Censorship—Nongovernment Censorship, 1:249–252*; 2:287–288, 408; 4:294
 Censorship—Survey of Entries, 1:245–246*
 Census Bureau (U.S.), 1:386
 Center for European Sociology (Paris), 2:477
 Center for Information Sciences (Madagascar), 1:368
Cento novelle antiche (book), 2:183
 Central African Republic, 1:154, 155
 Central Australian Aboriginal Media, 1:157
 Central Commission for the Navigation of the Rhine, 2:332
 Central Intelligence Agency (CIA), 1:247; 2:40
 Central Organization of Cuban Trade Unions, 3:316
 Centration, 1:269
 Centre Pompidou, 4:285
 Centro Internacional de Estudios Superiores de Periodismo para América Latina (CIESPAL), 1:366–367
 Cerebral palsy, 4:152
 Ceremony. *See* Festival; Ritual
 Cerography, 1:244
 CETI, 1:252–255*
Ceylon Daily News (newspaper), 3:189
 Cézanne, Paul, 1:258
 Chabrol, Claude, 2:284; 3:174
 Chacón, Alfredo, 2:481
 Chafetz, Janet Saltzman, 4:55
 Chagall, Marc, 3:348
 Chagnon, Napoleon, 2:111–112
Le chagrin et la pitié (film), 1:279
 Chaiken, Shelley, 1:152
The Chair (play), 1:276
 Chall, Jeanne S., 3:430
Chambara (film genre), 2:473
 Chambers, Ephraim
 Cyclopaedia, 2:29, 101
 Chambre des Syndicats, 3:398
 Champion, Anne-Toinette, 2:29
 Champollion, Jean-François, 2:89
 Chandler, Raymond, 3:156
 Chaney, Lon, 2:292; 3:65
 Chang, K. C., 2:190
Chang (film), 2:111
 Channels of communication, 2:316, 317, 336–337; 3:238, 386, 387.
 See also Models of Communication
 Channing, William Ellery, 3:395
 Chansons de geste, 4:50
 Chants, 3:106, 110, 133, 135, 231
Chapayekas (Native American performers), 2:65
Chapayev (film), 2:92
 Chapbooks, 2:448–450
 “Chaplain Jim” (radio series), 4:91
 Chaplin, Charles, 1:3, 92, 255–257*, 342; 2:259, 286, 287; 3:61
 Chapple, Eliot, 2:325–326
Characteristics universalis, 4:77
Le charivari (journal), 1:236
 Charlemagne, 1:188; 2:27; 3:15, 110, 343
 Charles V (emperor), 3:336, 451
 Charles I (king), 1:329
 Charles II (king), 1:329; 2:231
 Charles VIII (king), 3:451
 Charles XII (king), 1:189
 Charles University
 Institute of General Education and Journalism (Prague), 1:364
 Institute of the Theory and Practice of Journalism (Prague), 1:364
Le charme discret de la bourgeoisie (film), 1:218
 Charters, W. W., 1:371
 Charts, 1:241–242; 2:469–470
 Chase, Stuart
 Tyranny of Words (book), 4:46
Chattanooga Times (newspaper), 3:217
 Chatterji, Basu, 3:78
 Chaucer, Geoffrey, 1:245
Canterbury Tales (book), 2:170, 183; 4:255
Troilus and Criseyde (poem), 2:170
 Chautauqua movement, 3:395
 Chekhov, Anton, 2:215, 417; 4:242, 257
 The Cherry Orchard (play), 2:58
Chelovek s kinoapparatom (film), 1:280; 2:45–46, 172; 4:281
 Chemical Abstract Service, 1:456
 Chermnykh, Mikhail, 1:238
 Chernyshevsky, Nikolai
 What Is to Be Done? (book), 3:309
 Cherry, Colin, 1:257–258*
 On Human Communication (book), 1:257–258
 Mathematical Theories (book), 1:257
 World Communication: Threat or Promise? (book), 1:258
 Chess, 2:360
 Chesterton, G. K., 3:155
 Chevet, Jean, 3:346–347
 “Cheyenne” (TV series), 4:220, 316
 Chiang Kai-shek, 2:47
 Chiaroscuro, 1:280; 2:129; 3:255, 450
 Chicago School of Sociology, 3:230
 Chicago Tribune Syndicate, 1:346
 Chief Joseph, 3:394
Un chien andalou (film), 1:167, 217–218; 3:65
 Chikamatsu Monzaemon, 2:54; 3:408
 Child Art, 1:258–262*. *See also* Children—Development of Symbolization
 Child psychology. *See* Psychology, child
 Childbirth, 1:200; 4:56
 Childers, Erskine, 4:167, 170
The Childhood of Maxim Gorky (film), 3:72
 Children. *See also* Infants
 cognitive development, 1:319
 gender roles, 2:192, 212
 humor, 2:298
 literature, 2:448, 450
 media effects, 1:272–273
 nonverbal communication, 1:199; 2:145, 220; 4:247, 249
 oral culture, 2:185–186; 3:228
 reading, 3:430–432
 socialization, 2:192, 494; 3:320–321
 sports, 4:166
 television, 4:289
 Children—Development of Communication, 1:262–264*; 2:459; 4:151
 language acquisition, 2:237, 390–393; 3:33–34
 mass communications research, 2:418, 490
 mother-child interaction, 2:506

- Children—Development of Symbolization, 1:264–268*
 acquisition of symbol systems, 1:267
 art, 1:258–262
 role of schools, 4:10
 theories of symbolic development, 1:265–267; 2:454, 459; 3:292
- Children—Media Effects, 1:270–274*. *See also* Mass Media Effects
 advertising, 1:11–12; 2:85
 audiovisual media, 1:153, 270–274
 communications research, 1:371–372; 2:489
 sex-role differences, 2:214
 television, 2:85–86; 3:39; 4:289–291
- Children—Use of Media, 1:268–270*, 431, 432
- Children's Television Workshop (CTW), 2:87
- Chile, 2:481–482; 3:325. *See also* Latin America, Twentieth Century
- Chimes at Midnight* (film), 4:313
- China. *See also* Asia, Twentieth Century; China, People's Republic of; East Asia, Ancient
 art, 1:112, 122, 123; 2:196; 3:85
 calendar, 1:225
 cartography, 1:240, 241
 censorship, 3:441
 colonization, 1:335
 Confucius, 1:400–401; 3:393
 drama, 2:53, 60
 espionage, 2:104
 heraldry, 2:275
 historiography, 2:280
 language, 2:71, 73
 literacy, 2:437, 440
 music, 3:102, 107, 109–111, 126–128, 130, 131, 133, 146, 148
 newspapers, 3:179
 papermaking, 4:334, 335
 poetry, 3:107
 portraiture, 3:335
 postal service, 3:341
 printing, 1:211, 400; 2:397; 3:356, 393
 professions, 1:411–412
 puppetry, 3:408–409
 relations with Japan, 1:144; 4:246
 Shihuang Di, 4:61–62
 Silk Road, 4:84
 South Asia, history of, 4:126–128
 theater, 4:238
 writing, 2:73, 89; 4:324–326, 327, 328, 331
- China, People's Republic of. *See also* Asia, Twentieth Century
 autonomous development, 2:14
 Chinese Revolution, 3:460
 Cultural Revolution, 1:365, 436; 2:480; 3:326
 diplomacy, 4:163
- drama, 2:60
 educational television, 2:87
 film, 1:95
 media monopoly, 3:44
 political communication, 3:310–311
 political mobilization, 2:20
 politicization, 3:326
 propaganda, 3:374
 status of women, 4:55
 television, 4:223
- China Strikes Back* (film), 2:47
- Chironomy, 3:132
- Chomsky, Noam
 cognition, 4:260
 language acquisition, 2:153, 391; 3:292
 linguistics, 2:369, 435, 447; 3:2, 263, 273, 294
 Marxist theories, 2:476
 sign system, 4:77–78
 symbol systems, 1:265
- Syntactic Structures* (book), 2:236–238
- Chordophones, 3:146
- Choreography, 1:203–209, 450–454
- Choreometrics, 1:201, 230, 274–275*; 2:110. *See also* Body Movement Notation; Dance
- Christensen, Benjamin, 3:62
- Christian Broadcasting Network (CBN), 3:446
- Christian Democratic party (Chile), 3:325
- Christian Science Monitor* (newspaper), 3:180
- Christianity. *See also* Religion
 art, 1:114, 123, 125; 3:85
 books, 1:210–211
 coins, 1:327
 Crusades, 1:424–428
 historiography, 2:281–283
 library history, 2:423–424
 missionaries, 4:245
 preaching, 2:290–292; 3:394–395
 religious broadcasting, 3:444–447
 rituals, 2:188
 Roman Empire, 3:480
 sexism in, 4:55
- Christie, Agatha, 3:155
- Christophe
 “La famille Fenouillard” (comic strip), 1:344
- Chromatic scale, 3:140
- Chromolithography, 1:17; 2:239
- Chronicle* (newspaper), 3:187
- Chronicle of a Summer* (film), 1:276, 277; 2:50, 111–112
- Chronometers, 1:303
- Chronophotography, 3:49–51
- Chrysostom, John, Saint, 2:291; 3:394
- Chuangi* tales, 2:75
- Chukhrai, Grigori, 3:78
- Churchill, Winston, 2:37; 3:340, 395, 439
- La chute de la maison Usher* (French film), 3:65
- Cicero, 1:275*
Brutus (book), 1:275
 communication philosophies, 1:354–355; 2:235; 3:8
De oratore (book), 1:275
 historiography, 2:281
 letters, 1:161, 412; 2:415–417
 oratory, 3:394, 462
Philippics (book), 1:275
- Cincinnati Post* (newspaper), 4:24
- Cinderella* (film), 1:93; 2:41, 171; 3:58
- Cinéa—Ciné pour tous* (journal), 3:63
- Cine-Eye, 4:281
- Cinéma du Réal (Paris), 2:111
- Cinema Eye* (film), 4:281
- Cinéma Vérité*, 1:276–279*. *See also* Documentary
 ethnographic film, 2:111
 new wave film, 3:175
 sound effects, 4:111
 Vertov, Dziga, 4:281
- Cinemascope, 1:280; 2:289; 3:74
- Cinémathèque Française, 1:108; 3:79, 175
- Cinematograph, 2:42–43, 80, 457–458; 3:53–54, 248; 4:162
- Cinematography, 1:279–283*. *See also* Film Editing
 avant-garde film, 1:166–170
 expressionism, 2:130
 film theory, 2:173
 lighting, 1:280; 3:67
 photographic techniques, 1:279–280
 silent film, 3:63–64
 sound film, 3:74
 special effects, 4:133–137
- Cinerama, 2:289; 3:74
- Cinéthique* (journal), 2:175
- Ciphers, 1:428, 429; 2:104–105; 4:76, 211
- Circuits
 heterodyne, 1:110; 2:161
 integrated, 1:378, 384; 3:11–13, 274
- Circular causality, 1:443–444, 445; 2:338–339; 3:237; 4:92–96
- Circumstantial evidence, 4:232
- The Circus* (film), 1:257
- “The Cisco Kid” (TV series), 4:316
- Citizen Access, 1:283–285*
 archives, 1:106
 in art, 3:89
 Australasia, 1:156–158
 broadcasting, 1:283–285
 to combat monopoly, 3:46
 computer impact on government, 1:386–388
 copyright, 1:421
 interactive media, 2:329–330
 Latin America, 2:407
 pressure group, 3:350–352

- Citizen Access (*cont.*)
 radio, 1:285–287; 3:422
 right to know, 4:35–36
 video, 4:285
- Citizen Kane* (film), 1:279, 280;
 3:70; 4:135, 312
- Citizens Band Radio, 1:285–287*.
See also Radio
- Citizens Radio Service, 1:285–287
- The City* (film), 2:47
- City Lights* (film), 1:257
- City of Gold* (film), 2:49
- Civil disobedience, 1:338; 2:210
- Cixous, Hélène, 2:159
- Clair, René, 2:172; 3:65, 67, 70
- Clairon, Mlle., 1:6
- Clanchy, Michael, 2:441
- Clark, Alfred, 4:134
- Clark, John Pepper
Ozidi (play), 2:60
Song of a Goat (play), 2:60
- Clarke, Arthur C., 4:19
Childhood's End (book), 4:21
A Fall of Moondust (book), 4:21
- Class consciousness, 2:439, 475, 476,
 478
- Classicism, 1:287–292*
 art, 1:114
 drama, 2:55; 3:118
 education, 4:11–12
 genre, 2:215
 literary criticism, 2:446
 neoclassicism, 1:289, 291; 3:437
 origins, 1:287–289
 poetics, 3:301
 poetry, 3:302
 realism, 3:435
 romanticism, 3:484, 487
 typography, 4:262
- Classics, literary. *See* Literary Canon
- Classification, 1:292–296*
 archives, film, 1:108–109
 artifacts, 1:133
 biological, 1:292–293
 cognition, 1:317
 conceptual frameworks, 1:293–
 294
 encyclopedia, 2:101
 folktales, 2:181, 183
 genre, 2:215
 libraries, 2:429
 linguistics, 2:235, 237, 434
 literature, 2:169
 Middle Ages, 3:19
 museums, 3:93
 scientific knowledge, 1:294–295
 sign system, 4:75
 theories of, 1:292–293
- Classified Advertising, 1:11, 15–16,
 296–297*. *See also* Newspaper
 advertising
- Classroom, 1:153, 272, 297–298*,
 388–391; 2:18, 86. *See also*
 Teaching; Textbook
- Claudius, 3:477
- Clay, Henry, 3:395
- Clay tablets, 1:107, 438, 441; 2:268,
 423; 3:206–208
- Clay Tokens, 1:298–301*, 438;
 2:423; 4:323, 331
- Clemens, Samuel, 1:418; 2:417
- Cleopatra VII (queen), 2:423; 4:84
- Clephane, James O., 3:5
- Clerc, Laurent, 2:209
- Cleveland, Harlan, 3:313
- Cleveland Penny Press* (newspaper),
 4:24
- Clifford, James, 4:251
- Cliques, 3:167–168, 238
- Clock, 1:302–305*. *See also* Calen-
 dar
- Close Encounters of the Third Kind*
 (film), 4:136
- “Close Up” (film series), 1:276
- Clothing, 1:305–312*
 advertising history, 1:17
 artifact, 1:128, 130
 body decoration, 1:194
 body movement, 1:199–201
 design, 2:8
 functions, 1:305–306
 meaning, 1:306–311; 4:183
 portraiture, 3:339
 revolution, 3:460
 sex-typed, 3:460–461
 signaling system, 1:306–309; 3:35,
 321
- Club of Rome, 2:15; 4:146
- Clubs, 2:38–39, 81
- Clymer, Theodore
Reading 360 Program (book),
 4:235
- CNN. *See* Cable News Network
- Coats of arms. *See* Heraldry
- Coaxial cable, 1:223, 225; 2:166;
 4:219
- Cobb, Lyman
North American Reader (book),
 4:234
- COBOL (computer language), 1:384
- Coca, Imogene, 4:220
- Cockburn, Alexander, 3:199
- Cocteau, Jean, 1:169; 2:174
- Code, 1:312–316*. *See also* Semi-
 otics; Sign System
 acting, 1:3
 analog and digital codes, 1:312–
 313
 art, 1:116–117; 3:337
 broadcast and narrowcast codes,
 1:315
 computer, 1:383
 cryptography, 1:428–430
 denotational and connotational,
 1:314–315
 genre, 2:215
 information theory, 2:314–316,
 317; 4:60
 language, 2:385; 4:258–259
 linguistics, 4:154–155
 machine readable (bar codes),
 1:392
- mode, 3:32–36
 presentational codes, 1:313–314
 regulatory codes, 1:312
 representational codes, 1:313–314
 semiotics, 4:48
 sign system, 2:310; 3:262; 4:75–
 76, 78–79
 sound, 4:102, 106
 structuralism, 4:183–185
 telegraphy, 4:211
 visual, 2:13, 85, 131–132; 4:141
 writing systems, 1:57, 298; 2:268
- Code breaking, 1:428–430; 2:104–
 106
- Code of Hammurabi, 1:442
- Codex, 1:209–211; 2:272, 355, 423,
 447; 3:14, 400
- Cody, William F., 4:313, 314
- Coeur fidèle* (film), 3:63
- Coffett, William, 3:308
- Cognition, 1:316–320*. *See also* In-
 formation processing
 artifacts, role of, 1:320
 artificial intelligence, 1:136
 attitudes, 1:148–149
 children, media effects, 1:273
 computer programming, as aid to,
 1:390
 cross-cultural approaches, 1:319–
 320
 cybernetics, 1:443, 445, 446
 developmental approaches, 1:319
 language, 1:163, 164, 250; 2:391
 and literacy, 2:438; 3:430, 432
 semantics, 4:44
 social, 4:150–151
 social cognitive theory, 4:92–96
 symbolic knowledge, 2:370; 3:7–9,
 33, 249, 292; 4:260–261
- Cognition, Animal, 1:320–322*;
 2:121; 4:148. *See also* Animal
 Communication; Human-Animal
 Communication
- Cognitive Consistency Theories,
 1:146–152, 322–326*; 2:295;
 3:266–269; 4:37–40
- Cognitive dissonance, 1:149, 324–
 326; 3:269; 4:37–38, 40
- Cognitive neoassociationism, 4:291,
 293
- Cognitive psychology. *See* Psychol-
 ogy, cognitive
- Cognitive science, 1:135–138, 316
- Cognitivism, 1:316–319
- Cohen, Bernard, 1:42; 3:388
- Cohen, Erik, 4:250, 251
- Cohen-Séat, Gilbert, 1:363; 2:174
- Cohl, Émile, 1:91
- Coins, 1:55, 326–331*; 2:39, 279;
 3:18
- Cold war, 1:144; 2:105, 288, 405;
 3:423–424; 4:168, 170–171
- Cole, Michael, 2:438; 3:430
- Coleridge, Samuel Taylor, 1:159; 3:8,
 298; 3:465; 4:51, 192
Biographia Literaria (book), 2:446

- Lyrical Ballads* (poetry), 2:56
Principles of Genial Criticism (book), 2:445
Table Talk (book), 1:188
 Collage (film), 1:169; 2:172
 Collecting, 2:39, 195, 422–428
 Collective bargaining. *See* Bargaining
 Collective representations, 2:67, 308
 Collective unconscious, 2:376
 College of William and Mary, 1:360
 Collier, Jeremy, 4:238
Colliers (magazine), 3:286
 Collins, Wilkie
 The Moonstone (book), 3:115
 Colman, Ronald, 3:68
 Colomb, Georges. *See* Christophe
 Colombia, 1:154, 155; 2:18; 4:155.
 See also Latin America, Twentieth Century
 Colomina, Marta, 2:481
 Colonialism, 1:143, 144, 338–339; 2:13; 4:15
 Colonization, 1:331–339*
 advertising, 1:15
 Africa, 2:380; 3:186–187
 Australasia, 1:155–156
 contemporary development, 1:338–339
 decolonization, 1:335, 338–339
 development communication, 2:9
 effect of, on culture, 1:437
 exploration, 2:125–128
 forms, 1:334–335
 language change, 2:386
 law, 2:410
 migration, 3:22–24
 postal service, 3:346
 racism, 1:339
 slave trade, 4:85
 telegraphy, 4:209, 211
 university, 4:272–273
 Coloration (animals), 1:69, 85–87
 Colorizers, 4:285
 Colossus (computer), 1:383
Colour Box (film), 1:92
 Columba of Iona, 1:413
 Columbia Broadcasting System (CBS)
 color television, 4:342
 communications research, 1:372
 libel, 2:421
 Paley, William, 3:243
 publishing industry, 3:405
 radio, 3:418, 420
 religious broadcasting, 3:444
 sound recording history, 4:119
 television news, 4:228, 229
 Columbia Phonograph Co., 4:118–119
 Columbia Phonograph Record Co., 3:243
 Columbia Pictures, 2:287, 290; 4:221
 Columbia University, 1:361; 3:328
 Bureau of Applied Social Research, 2:300, 455; 3:6, 328
 Center for the Social Sciences, 3:6
 Cross-Cultural Study of Expressive Style, 1:230
 Graduate School of Journalism, 1:359; 3:407
 Columbia-Brunswick-ARC, 4:119
 Columbia-Princeton Electronic Music Center, 2:97
 Columbus, Christopher, 1:192; 3:330
 First Letter (book), 2:125
 Comden, Betty, 3:143
 Comédie Française, 4:241
 Comedy, 1:340–343*. *See also* Theater
 film, 1:255–257; 3:59, 69, 142
 genres, 1:340–341
 humor, 2:297, 299
 literature, popular, 2:448
 mime, 3:28
 music theater, 3:116–122
 realism, 3:434
 situation comedies, 4:51–53
 sound effects, 4:108
 theater, 4:238
 theories, 1:341–343
 Comenius, Johann Amos
 Didactica Magna (book), 4:13
 Orbis Sensualium Pictus (book), 1:153; 4:14
 Comenius University (Czechoslovakia), 1:364
El comercio (Lima newspaper), 3:194
El comercio (Quito newspaper), 3:194
 Comics, 1:238, 270, 343–351*, 371; 3:156; 4:50–51
 Comics Code Authority, 1:349
 Commager, Henry Steele
 The Growth of the American Republic (book), 4:235
 “Command Performance” (radio series), 3:421
 Commedia dell’arte, 3:116; 4:178, 238, 241
 Commerce. *See* Trade
 Commerce, computer impact on. *See* Computer: Impact—Impact on Commerce
 Commercials, 1:351–354*. *See also* Advertising; Television advertising
 cognitive consistency theories, 1:325
 cultivation analysis, 1:430, 431
 effects, 1:269, 272–273, 353–354
 history, 1:353
 political, 2:108
 propaganda, 3:377
 radio, 3:418
 rating systems, radio and television, 3:429
 sponsors, 4:156
 sports media, 4:163
 television history, 4:219, 221, 222, 224
 types, 1:353
 Commission on Obscenity and Pornography (U.S.), 4:290–292
 Common Cause, 3:325
 Common law, 2:409
 Commonwealth Telecommunications Board, 3:439
 Communication, Philosophies of, 1:354–358*
 existential communication, 1:356–357
 interpretation, 1:356; 2:343–348
 logic, 1:354
 Marxist theories, 2:476–479
 meaning, 1:355
 pragmatics, 1:354–356
 rhetoric, 1:109–110, 354–355, 356; 3:293–294, 461–464
 Communication networks, 2:261, 263; 3:167–168, 238, 314–316
 Communication with extraterrestrial intelligence. *See* CETI
 Communications, Study of, 1:358–368*
 Africa and the Middle East, 1:367–368
 Asia, 1:364–366
 Australasia, 1:364
 Canada, 1:362
 Europe and the USSR, 1:362–364
 Latin America, 1:366–367
 United States, 1:358–368; 2:194
 Communications Act of 1934 (U.S.), 2:233; 3:420
 Communications Research: Origins and Development, 1:369–374*
 See also Cybernetics; Group Communication; Interpersonal Communication; Organizational Communication; Speech
 attitudes, 1:146–147, 234; 2:294–295, 308, 411
 audience research, 1:234, 372
 content analysis, 1:309, 370, 403–406; 2:405
 Cooley, Charles Horton, 1:410–411
 critical approach and culture studies, 1:308–309, 373–374
 group interaction, 1:371; 2:418–419
 information theory, 2:314
 Marxist theories, 2:308, 479
 mass communications research, 1:430–433; 2:308, 411, 418–419, 488–492; 4:17–18
 media effects, 1:270–271, 372–373; 2:492–497
 models of communication, 3:36–44
 motion pictures, 1:371–372, 373
 newspapers, 1:369–370; 3:246–247
 persuasion, 1:234, 371; 2:419
 popular culture, 2:455
 propaganda, 1:234, 370–371, 373; 2:405

- Communications Research (*cont.*)
 radio, 1:234, 372; 2:411–412
 soap operas, 2:309; 4:91
 Communications satellites, 4:7–9
 Communicative development. *See*
 Children—Development of Com-
 munication
 Communism, 2:9, 15; 4:168
Communist Manifesto, 2:475; 3:460
 Communist party, 1:248–249; 3:192,
 200
Communist Youth Pravda (newspaper),
 3:200
 Community antenna television
 (CATV). *See* Cable Television
 Community deficit model, 2:21
 Community Video Viewing Shops,
 4:286
 Comolli, Jean-Louis, 2:175
 Compact discs, 3:365; 4:117, 121
 Company publications, 2:466
*Compendious Dictionary of the En-
 glish Language*, 4:311
 Competence
 appreciative, 1:119, 120
 child art, 1:260
 intercultural communication, 2:330
 linguistics, 2:389, 432, 447; 3:263
 symbolic, 1:273; 3:32–36
 Competition
 advertising, 1:12, 24–25, 402
 animals, 1:67
 bargaining, 1:176
 computer industry, 1:382, 383
 festivals, 2:164–165
 game theory, 4:305
 magazines, 2:466; 3:179
 newspapers, 1:39, 184–185;
 2:267; 3:184–185, 197–198,
 407
 photography, 3:282–285
 pressure groups, 3:351
 sports, 4:161, 165, 166
 standards, 4:174
 telecommunications, 4:203, 204,
 205–208, 209–211, 212–216
 Compiler programs, 1:376
 Compliance
 forced, 1:325
 in interpersonal communication,
 2:337
 persuadability, 3:267–269
 Composition
 classicism, 1:288–289
 literacy, 2:437–438
 literary style, 4:186–187
 oral culture, 3:227
 in oral performance, 3:231–232
 rhetoric, 3:461–464
 unconscious, 4:186–187
 Composition, musical. *See* Music
 Composition and Improvisation
 Comprehension, 1:269–270; 3:32–
 36, 430; 4:200
 Comptometers, 1:374
 CompuServe, 2:100
 Computer: History, 1:374–380*;
 4:305. *See also* Computers
 calculating machines, 1:173
 commercial development, 1:376–
 378
 cybernetics, 1:444
 data base, 1:456–457
 early history, 1:173, 374–376
 impact on military affairs, 1:383
 microelectronics, 3:11–13
 video technology, 4:282, 285
 Computer: Impact—Impact on Com-
 merce, 1:391–394*; 4:206
 Computer: Impact—Impact on Edu-
 cation, 1:388–391*
 classroom, 1:297–298
 historical development, 1:389–390
 research issues, 1:390–391
 technological features, 1:388–389
 Computer: Impact—Impact on Gov-
 ernment, 1:386–388*
 Computer: Impact—Impact on Mili-
 tary Affairs, 1:383–385*, 429
 Computer: Impact—Impact on the
 Work Force, 1:394–398*
 Computer: Impact—Impact on the
 World Economy, 1:398–400*
 deregulation, 1:398–399
 international division of labor,
 1:399
 structure of the world economy,
 1:398
 Computer: Impact—Overview,
 1:380–383*
 Computer graphics, 1:91, 95, 203,
 204, 379; 2:249, 255
 Computer languages, 1:376; 2:236
 Computer literacy, 1:390; 2:438
 Computer memory, 1:376; 3:13
 Computer networks, 1:378, 390;
 2:263, 428–429
 Computer programming, 1:376, 390;
 4:60
 Computer-aided design (CAD), 1:395
 Computer-assisted instruction,
 1:388–391
 Computer-integrated manufacturing
 (CIM), 1:395, 396
 Computers. *See also* Microcomputers;
 Minicomputers
 artificial intelligence, 1:135–138
 copyright, 1:420, 422
 data bases, 1:456–457
 industry, 3:45
 library use, 2:427–429
 literary style, 4:187
 newspapers, 1:296; 3:184, 198
 political communication, 3:314–
 317
 printing history, 3:364–366
 projections, in elections, 2:95
 publishing industry, 2:99–100;
 3:406
 real-time systems, 1:393
 security, 1:428; 3:370–371
 simulation, 1:316
 special effects, 4:109–110, 134,
 136
 telecommunications networks,
 4:201
 time-sharing, 1:377, 384
 typography, 4:268
 videotex, 4:288
 Computer-Using Educators (CUE),
 1:389
Comradeship (film), 3:71
 Comrie, L. J., 1:375
 Comstock, George, 3:39–40
 Comstock Act (U.S.), 2:232
 Comte, Auguste, 2:66, 283, 308
 Conceptualism, 1:292
 Concordia University, 1:362
 Condillac, Étienne Bonnot de, 2:217,
 434; 4:47
*Essai sur l'origine des connais-
 sances humaines* (book), 4:77–
 78
 Condorcet, Marquis de
*Sketch for an Historical Picture of
 the Progress of the Human Spirit*
 (book), 4:276, 277, 278
 Confidentiality. *See* Privacy
 Conflict
 resolution, 1:176, 177; 2:408;
 3:238
 theories of, 2:263; 4:85
 Confucianism, 2:280–281; 3:440–
 441; 4:55, 245–246
 Confucius, 1:400–401*; 3:129, 130,
 341
Chun qiu, 1:400; 2:280
Li ji, 1:400
Shi jing, 1:400; 2:74
Shu jing, 1:400
Yi jing, 1:400; 2:74
 Conglomerates, media, 2:290; 3:405;
 4:120, 121
 Congo Reform Assn., 3:247
 Congregation for Propagating the
 Faith, 3:374
 Congress of Oppressed Nationalities,
 1:144
 Congreve, William, 1:341
The Way of the World (play), 2:55
 Congruity theory, 1:323–324
 Conner, Bruce, 1:169; 2:172
 Connoisseurship, 1:120
 Connolly, Bob, 2:113
 Connotation, 1:314–315; 3:7, 10;
 4:40–43, 44
 Conover, Willis, 3:423
 Conrad, Joseph, 2:168, 170–171
The Heart of Darkness (book),
 1:334
The Secret Agent (book), 4:167
 Conrart, Valentin, 2:218
 Conservatism, in art, 1:141; 3:486
 Constant, Benjamin, 2:25
 Constantine I (emperor), 3:14
 Constantinople, 1:426
 Imperial Library of, 2:423
 Patriarchal Library of, 2:423

- Constitution* (newspaper), 2:255
- Consumer goods
 advertising, 1:16, 17, 25; 2:6–8; 3:171
 design of, 2:6–8
 mass culture, 4:198–199
- Consumer protection, 1:12, 26
- Consumer publications, 2:463–464, 466; 3:178
- Consumer Research, 1:401–403*.
See also Advertising; Commercials; Motivation Research
 consumption patterns, 4:199
 design, 2:8
 direct response marketing, 2:38–39
 evaluation research, 2:123
 mass media effects, 2:492
 mass observation, 2:498, 499
 Muzak, 3:153
 polls, 3:327
 print-audience measurement, 3:353–354
 semantic differential, 4:43
- Content Analysis, 1:403–407*
 communications research, 1:370
 ideology, 2:309, 310
 intelligence gathering, 1:405
 limitations of, 1:407
 of literature, 1:405
 mass communications research, 1:434; 2:404, 455, 488–489
 mass media effects, 1:272; 2:492; 4:293
 procedures, 1:406–407
 television, 1:430–431
 uses of, 1:404–406
- Context analysis, 2:326
- Control, social. *See* Social control
- Control theory, 1:443–444
- Conundrums, 4:154
- Convention People's Party (Africa), 3:187, 209
- Conventions
 in art, 1:116–120; 3:337; 4:296
 meaning of, 3:1
 poetic, 3:233
 ritual, 3:470
- Conversation, 1:407–410*. *See also* Narrative
 analysis, 1:177; 2:226
 code, 1:313
 implicature, 1:355–356
 interaction, face-to-face, 2:325–327
 interpretation, 2:344, 345–348
 language acquisition, 2:153, 392–393
 nonverbal communication, 2:133, 143, 217–222, 343; 4:130
 oratory, 3:234, 235
 organization in, 1:408
 pauses in, 1:408, 409; 2:388
 semantics, 4:45–46
 sequencing in, 1:408–409
 skills, 4:97
 speech, 4:151, 153, 154–155
 tag questions in, 2:402; 4:58
- Conwell, Russell, 3:395
- Cooke, Sir William, 4:208
- Cooking. *See* Food
- Cooley, Charles Horton, 1:410–411*; 2:504; 3:386; 4:188
Social Organization (book), 1:410
- Coolidge, Calvin, 1:19, 458
- Coomaraswamy, Ananda, 1:114
- Cooper, Gary, 4:316
- Cooper, James Fenimore
 "Leather Stocking Tales" (books), 4:313
The Spy (book), 4:167
- Cooper, Merian C., 2:110
- Cooperative Analysis of Broadcasting (CAB), 3:426
- Copeau, Jacques, 1:5
- Copenhagen Linguistic Circle, 2:434; 4:10
- Copernicus, Nicolaus, 3:450
De Revolutionibus (book), 1:215
- Coping strategies, 4:94
- Copland, Aaron, 2:47
- Coptic language, 2:89; 3:106
- Copyists. *See* Scribes
- Copyright
 broadcasting, 1:418, 420
 content analysis, 1:404
 design, 2:4
 drama, 1:417
 government censorship, 1:246–247
 international organizations, 2:333–334
 lending-right statutes, 1:421
 library history, 2:424
 music, 3:153
 publishing history, 3:369, 397, 400
 sound recording industry, 3:100; 4:120
- Copyright Act of 1976 (U.S.), 1:421
- Copyright Acts (Great Britain), 1:416–417, 421
- Copyright—Challenge of the Communications Revolution, 1:420–422*
- Copyright—The Evolution of Authorship Rights, 1:411–416*
- Copyright—International Arena, 1:416–420*
 Berne International Copyright Convention, 1:418–420, 421
- Corante* (newsletter), 3:180
- Corax of Syracuse, 3:461
- Corbett, Edward P. J.
Classical Rhetoric for the Modern Student (book), 3:463
- Corman, Roger, 2:293
- Corneille, Pierre, 2:444; 3:117; 4:256
Le Cid (play), 2:55
- Cornell, Katherine, 4:311
- A Corner in Wheat* (film), 2:259
- Cornford, F. M., 4:238
- Corning Glass Works, 2:166
- Cornplanter, 3:394
- "Coronation Street" (TV series), 4:90
- Correspondence schools, 1:155
- Corriere della sera* (newspaper), 3:192
- Cortambert, Louis. *See* Latour, Charlotte de
- Cortés, Hernán, 3:394
- Cortez, Stanley, 1:280
- Corwin, Norman, 3:243
- Cosby, William, 4:339
- Cosmetics, 1:194–195, 313–314; 2:133, 137, 139
- Cosmography, 2:125
- Costello, Dan, 1:79
- Costens, Laurens, 3:369
- Coster of Haarlem, Laurens Janszoon, 3:356
- Costumes, 2:62; 3:264. *See also* Clothing; Mask
- Cotrim, Alvaro, 1:239
- Coubertin, Pierre de, baron, 4:164
- Coughlin, Charles E., 3:444
- Council of Europe, 2:335
- Council of Nicea, 1:226
- Council of the Cartagena Agreement, 2:408
- Council of Tours, 3:16
- Counter culture, 1:436; 3:89, 91, 349
- Counterintelligence, 2:104–105
- Counterpoint, 3:130, 131
- A Countess from Hong Kong* (film), 1:257
- The Country Doctor* (film), 2:259
- Country music, 4:100, 119
- Country Newspaper Advertising Agency, 1:17
- Coup, W. C., 1:179
- Courbet, Gustave, 3:435
- Couriers, 2:76, 269; 3:341, 343, 478–479
- Courrier français* (newspaper), 3:31
- Courtenay, Baudouin de, 3:273
- Courtrai, Siger de, 4:77
- Courts, 3:292; 4:232. *See also* Law
 Courtship behavior, in animals, 2:121
- Les cousins* (film), 3:174
- Cousteau, Jacques-Yves, 2:49–50
- Coutard, Raoul, 1:280
- Covarrubias, Miguel, 1:239
- The Covered Wagon* (film), 4:315
- Cowles Publications, 3:179
- Craftwork, 1:111; 2:4, 331; 4:252–253, 295. *See also* Artifact; Arts and Crafts movement
- Craig, Edward Gordon, 3:412
- Craig, Wallace, 2:118
- Crane, Stephen, 3:407
- The Cranes Are Flying* (film), 3:78
- Creativity
 art, 1:116–119, 141
 folklore, 2:178
 performance, 3:114, 263
 poetry, 3:302–303
 speech play, 4:155

- Credibility, 2:107; 4:234
 source, 1:148–149, 323–324;
 3:267–268, 376, 489–490; 4:88
- Credit records, 2:39; 3:371
- Creel, George, 1:18
- Cremation, 1:122, 123
- Creolization, 2:390
- Crepax, Guido
 “Story of O” (comic strip), 1:350–351
 “Valentina” (comic strip), 1:350–351
- Cressolles, Louis de, 2:218
- Cressy, David, 2:439
- Crests. *See* Heraldry
- Cries and Whispers* (film), 1:187
- Crime, 1:431, 432; 2:67; 3:154–157
- Criminology, 4:197
- Crisis* (film), 1:186
- Crisis management, 2:37
- Cristiani, Quirino, 1:92
- Critical theory. *See also* Frankfurt school
 Adorno, Theodor, 1:6–7, 29; 4:193
 Benjamin, Walter, 1:29, 183–184; 4:193
 communications research, 1:373–374
 Habermas, Jürgen, 1:356, 460; 2:343, 346, 347, 479
 ideology, 2:309, 310
 interpretation, 2:347–348
 Marxist theories, 2:479, 481–482
 mass media effects, 2:495, 496
- Croce, Benedetto, 2:215–216, 238; 4:186
- Crofts, Freeman Wills, 3:155
- Croix sonore, 2:97
- Cromberger, Juan, 2:400
- Cromwell, Oliver, 3:337–338
- Cromwell, Richard, 1:329
- Cronkite, Walter, 4:229–230
- Crookes, Sir William, 3:417
- Cros, Charles, 4:112
- Crosby, Bing, 3:421; 4:119
 Bing Crosby Enterprises, 4:282
- Cross-cultural communication. *See* Intercultural Communication
- Cross-cultural research. *See also* Cultural patterns
 anthropology, 1:190–191; 2:505–506
 cantometrics, 1:231
 cognition, 1:319–320
 dance, 1:274–275, 451–452
 gender, 2:211–215, 342–343
 interpersonal distance, 2:341–343
 language, 2:390–392
 meaning, 3:239; 4:40–43
 sex roles, 4:55
- Crossley, Archibald, 2:210; 3:327, 426, 489
- Crowd Behavior, 1:422–424*; 2:1–3, 67; 3:307; 4:197
- Cruikshank, George, 1:236
- Cruikshank, Isaac, 1:236
- Crumb, Robert, 1:349, 350
- Crusades, The, 1:424–428*; 2:28, 274, 275, 292; 3:394, 440. *See also* Islam, Classical and Medieval Eras; Middle Ages
- Crypt of Terror* (comic book), 1:349
- Cryptanalysis, 2:104–106. *See also* Cryptology
- Cryptoeidography, 1:428
- Cryptography. *See* Cryptology
- Cryptology, 1:257, 428–430*; 4:60, 260. *See also* Espionage; Secrecy
- Cryptophony, 1:428
- Csikszentmihalyi, Mihaly, 3:294
- Cuba, Larry, 1:95
- Cuba. *See also* Latin America, Twentieth Century
 film, 3:73
 literacy campaigns, 2:18, 20; 3:429
 political communication, 3:310
 revolution, 3:460
 slave trade, 4:86
 social realism, 3:89
 television, 4:221, 223
- Cuban missile crisis, 1:405, 407
- Cubism, 4:265, 304
- Cultivation Analysis, 1:430–433*; 2:491, 495; 4:292. *See also* Cultural Indicators
- Cultural anthropology. *See* Anthropology, cultural
- Cultural evolution theory, 1:339; 2:179, 183
- Cultural identity, 1:437; 2:179–180, 480–481. *See also* Ethnicity
- Cultural imperialism. *See also* Imperialism
 cultural integrity, 2:15
 ideology, 2:311
 Marxist theories, 2:481
 mass communications research, 2:492
 New World Information Order, 2:109; 3:169
 revolution, 3:461
 television programming, 4:227
- Cultural Indicators, 1:271, 433–435*; 2:310, 491, 495; 4:95, 292. *See also* Cultivation Analysis
- Cultural literacy, 3:429
- Cultural patterns
 anthropology, 1:437; 2:505–506
 child art, 1:259
 consumption, 4:199
 meaning, 4:40–43
 nonverbal communication, 1:200; 2:219, 341–342; 4:247–249
- Cultural pluralism, 3:29, 31
- Cultural Revolution, 1:365; 3:326
- Cultural stratification, 1:436; 4:197–199
- Cultural studies, 1:435, 438; 2:309–311
- Culture, 1:435–438*. *See also* Intercultural Communication; Mass culture; Popular culture
 advertising’s effect on, 1:11–12
 anthropological approach, 1:437–438
 architecture, 1:99–104
 art, 1:111–120
 cultural indicators, 1:433–434; 2:491
 folklore, 2:177, 179
 folktales, 2:185, 186–187
 gender, 2:211–215
 high, 1:315, 435, 436; 3:226; 4:50–51, 197–199
 ideology, 2:308–311
 language and, 1:263, 264; 2:431–432; 4:3
 Lévi-Strauss, Claude, 2:418
 literacy, 2:440; 3:226–229, 379
 literary canon, 2:441–443
 museums, 3:91–97
 romanticism, 3:484–488
 socialization, 2:81
 sports, 4:158–159, 161, 163
 taste cultures, 4:197–199
 tourism, 4:251–252
- Culture industry, 2:479
- Culture shock, 2:330; 4:252–253
- Cummins, Maria Susanna
The Lamplighter (book), 3:482
- Cuneiform, 1:438–443*
 alphabet, 1:44, 45
 clay tokens, 1:298
 Egyptian hieroglyphs, 2:87
 music, 3:106
 numbers, 3:213
 writing, 4:323–324, 326–327, 332, 336
- Curio, Gaius Scribonius, 2:415
- Curling, Chris, 2:114
- Currency. *See* Coins
- Curriculum, schools, 2:33; 4:11, 14, 15
- The Curse* (film), 3:79
- Cursus publicus, 3:341–343
- Curtis, Alberta, 3:6
- Curtis, Cyrus, 2:465
- Curtis, Edward, 2:110
- Curtiz, Michael, 4:316
- Cushing, Frank Hamilton
Zumi Breadstuff (book), 1:135
- Cushing, Peter, 2:293
- Cybernetics, 1:443–446*
 Bateson, Gregory, 1:181
 circular causality, 2:338–339; 3:237
 information theory, 2:314
 Shannon, Claude, 4:59–61
 Weaver, Warren, 4:309
 Wiener, Norbert, 1:443, 445; 4:318–319
- Cyclograph, 3:51
- Cyrano de Bergerac, 4:19
- Cyril of Jerusalem, Saint, 2:291
- Cyrillic script, 1:44, 46–47

- Cyrus II (king), 2:423
Czechoslovakia, 1:364; 3:79
- D**
- Da Vinci, Leonardo. *See* Leonardo da Vinci
- Dacier, André, 1:291
- Dadaism, 2:58; 4:265
- DaFeltre, Vittorino, 4:12
- Dagens nyheter* (newspaper), 3:192
- Daguerre, Louis, 1:449–450*; 3:48, 206, 274, 278
- Daguerreotype, 1:449–450; 3:48, 206, 278, 282
- Dahlbeck, Eva, 1:187
- Daily Express* (newspaper), 1:182; 3:181
- Daily Graphic* (newspaper), 3:39, 188, 286
- Daily Mail* (newspaper), 1:182; 3:181, 211
- Daily Mirror* (newspaper), 1:39, 182; 3:181, 191, 211, 286
- Daily Nation* (newspaper), 3:188
- Daily Times* (newspaper), 1:39; 3:186
- Daily Universal Register* (newspaper), 3:181
- Dalí, Salvador, 1:168, 217; 2:172
- “Dallas” (TV series), 4:53, 90, 92, 225
- Daly, Carroll John, 3:156
- Daly, Tom, 1:277; 2:258
- Damascus University, 1:368
- Dames* (film), 3:142
- Dana, Charles Anderson, 1:458
- Dance, 1:450–454*. *See also* Ballet; Choreometrics
- Americas, pre-Columbian, 1:52
 - Bharata Natya, 1:454; 3:124
 - body movement, 1:201
 - body movement notation, 1:203–209
 - drama, 2:53, 62, 65, 66; 4:238, 241
 - festival, 2:163
 - gesture, 2:217
 - Hollywood musicals, 3:142–144
 - mode, 3:33
 - performance, 3:262
 - touch, 4:249
- Danelia, Georgi, 3:78
- Dangerous* (film), 4:181
- Dante, 1:110, 355; 2:360; 3:387
- The Divine Comedy* (book), 2:444
 - La vita nuova* (book), 1:161
- Danto, Arthur, 1:28
- Darius I (king), 2:423; 3:341
- The Dark Command* (film), 4:316
- Darnton, Robert, 2:400
- Darwin, Charles, 1:454–456*
- animal signals, 1:68, 84, 87; 2:117–118, 121
- The Descent of Man* (book), 1:454, 455
- The Expression of Emotions in Man and Animals* (book), 1:454, 455
- nonverbal communication, 1:198; 2:143, 147
- The Origin of Species* (book), 1:454, 455
- Data Base, 1:456–457*. *See also* Archives
- computers, 1:390
 - electronic publishing, 2:100
 - information services, 3:178, 198; 4:288
 - libel, 2:420
 - library trends, 2:428
 - political communication, 3:314
 - privacy, 2:107; 3:370–371
 - telecommunications networks, 4:201, 204
 - videotex, 4:287–289
- Data processing, 3:274
- automated, 1:380–381, 386
- Data storage, 1:105–109, 376, 456–457; 2:422–431; 3:13
- Daumier, Honoré, 1:236–237; 3:435
- David, Jacques-Louis, 1:291; 2:305; 3:340
- Davidson, Donald, 3:3, 7, 9
- Davies, Marion, 4:156
- Davis, Bette, 4:181, 183
- Davis, James, 4:197
- Davis, Jim
- “Garfield” (comic strip), 1:347
- Davy, Sir Humphry, 2:155; 3:278
- “Davy Crockett” (TV series), 2:42
- Dawn, Norman, 4:134
- Day, Benjamin H., 1:296, 457–458*; 3:181
- A Day in the Country* (film), 3:452
- Daye, Stephen, 2:400
- The Days before Christmas* (film), 1:277
- DBS. *See* Direct broadcast satellites
- DC Comics, 1:350
- De Breteuil group (newspaper syndicate), 1:39
- De Forest, Lee, 1:458–459*; 3:11, 418–419; 4:117
- Father of Radio* (book), 1:459
- De Hooghe, Romeyn, 1:235
- De Man, Paul, 1:28; 2:477; 4:193
- De Mauro, Tullio, 4:9
- De Santis, Giuseppe, 3:167
- De Sica, Vittorio, 3:73, 165
- De Souza, Mauricio
- “Monica” (comic strip), 1:351
- De Stijl movement, 4:265
- De Tolnay, Charles, 4:29
- Dead Birds* (film), 2:111
- Dead Sea Scrolls, 4:333, 336
- Deaf Olympics, 4:69
- Deafness, 1:264; 2:209; 3:254, 293; 4:65, 71, 72–73
- “Death Valley Days” (TV series), 4:220
- Debate, 2:193–194; 3:247, 318–319. *See also* Political Communication—Broadcast Debates
- Debord, Guy
- La société du spectacle* (book), 4:140–141
- Debs, Eugene V., 3:396
- Debussy, Claude, 2:114
- Decca (company), 4:119
- Deception, 1:459–462*. *See also* Secrecy
- in advertising, 1:24, 353, 354, 459
 - in animals, 1:64, 67, 68; 2:121
 - clothing, 1:310
 - disinformation, 2:40–41
 - espionage, 2:104–106
 - facial expression, 2:145, 147
 - fact and fiction, 2:150–151
 - media ethics, 2:107
- Decipherment
- of ancient texts, 1:442–443; 2:89, 311, 313; 3:366–367
 - of coded material, 1:428–430; 2:104–106
- Decision making
- agenda-setting, 2:495
 - A-I-E-T-A model, 2:34
 - attitudes, 1:147
 - game theory, 1:445; 4:305–306
 - group communication, 2:262, 263
 - organizational communication, 1:387; 3:236, 237
 - product selection, 1:401–403
 - public opinion, 3:389
- “Decisions” (TV series), 1:278
- Deconstruction, 1:28, 29, 159–160, 163, 165; 2:348, 446–447; 3:487; 4:185
- Deductive reasoning, 1:136; 2:500. *See also* Symbolic Logic
- Deep structures, 2:236; 4:77
- Defamation, 2:419–420
- DeFanti, Tom, 4:285
- Defense Advanced Research Projects Agency (DARPA), 1:384
- DeFleur, Melvin, 2:214; 3:43
- Defoe, Daniel, 2:168; 3:178, 435
- Robinson Crusoe* (book), 2:449
- Degas, Edgar, 3:49, 435
- Deighton, Len
- Billion-Dollar Brain* (book), 4:168
 - The Ipress File* (book), 4:168
- Del Rio, Eduardo
- Castro for Beginners* (book), 1:351
 - Lenin for Beginners* (book), 1:351
- Delacroix, Eugène, 1:258; 2:242; 3:435
- Delbruck, Berthold, 2:434
- Deleuze, Gilles, 2:175
- Delluc, Louis, 1:168; 2:173; 3:63
- Demby, Emanuel, 3:81
- Demeny, Georges, 3:51
- Demetrius
- On Style* (book), 1:287

- Demetrius of Phalerum, 2:423, 426
 DeMille, Cecil B., 3:65
 Democracy
 censorship, 1:247–248, 250, 251
 election, 2:93–96
 historiography, 2:283
 media control, 3:313–314
 plebiscite, 3:297
 political communication, 3:308–309
 secrecy, 4:35–37
 Democratic Republic of Germany.
 See German Democratic Republic
 Democratization of communication, 3:173–174, 458
 Demonstration, 1:338; 2:1–4*;
 3:307–308, 310, 325, 460–461;
 4:231
 Demosthenes, 3:267, 394
 Demotic script, 2:87, 89
 Denisov, Viktor, 1:238
 Denmark, 1:416; 2:465, 467; 3:62
 Dennis, John, 1:291
 Denotation, 3:3, 7, 314–315, 456–457; 4:44
 Dentsu Advertising, 3:427
 Denver University, National Opinion Research Center, 3:328
 Dependency theory, 2:13
 Depression, Great, 1:19, 347; 2:174; 3:87, 419; 4:218
 Deregulation, 1:392, 399; 2:171, 232–234; 3:46
 Deren, Maya, 1:167 (fig.), 168
Les dernières vacances (film), 3:174
 Derrida, Jacques, 1:159, 160; 2:175, 446; 3:10; 4:185, 193
 De la grammatologie (book), 1:159
 Descartes, René, 2:201, 454; 3:1, 213; 4:77
The Descent of the Ganges (film), 3:269
 Desensitization, 4:153, 291–292
Desert Song (film), 3:142
The Deserter (film), 2:172
 Design, 1:133, 305; 2:4–9*, 340; 3:348; 4:261–268. *See also* Architecture
 Desktop publishing, 2:100; 3:365–366
Destry Rides Again (film), 4:315
 Destutt de Tracy, Antoine-Louis-Claude, 2:308
 Det Berlingske Hus (publisher), 2:467
 Detective fiction. *See* Mystery and Detective Fiction
 Determinatives (Egyptian hieroglyphs), 2:89, 91
Detroit Evening News (newspaper), 4:24
 Detroit News Assn., 4:24
Detstvo Gorkovo (film), 3:72
 Deutsch, Karl W., 1:445; 2:11
 Deutsche Grammophon-Polyphon Co., 4:119
Devdas (film), 3:145
 Development communication
 Africa, 1:38–42; 3:209
 Asia, 1:143–146
 communications, study of, 1:365, 366, 367
 culture, 1:437
 diffusion, 2:31
 education, 1:154; 2:83–84, 86–87; 3:429; 4:15
 evaluation research, 2:122–124
 international organizations, 2:333
 Islamic world, 2:361, 363
 Latin America, 2:406–408
 mass communications research, 2:490
 New International Information Order, 3:168–174; 4:146–147
 Development Communication—Alternative Systems, 2:12–17*
 Development Communication—History and Theories, 2:9–12*, 481–482
 Development Communication—Projects, 2:17–22*
 Developmental analysis, 4:306
 Developmental psychology. *See* Psychology, developmental
 Deviance, 1:250; 2:262–263; 4:197
 Deville, Michel, 3:175
 Devlin, Lord Patrick, 4:233
 Dewey, John, 1:354; 2:22–23*, 83, 262, 504
 Democracy and Education (book), 2:22
 Experience and Nature (book), 2:22
 The Public and Its Problems (book), 2:23
 Dewey, Thomas E., 3:327, 489
 Dhamma, 1:114, 146; 3:440
Dharani Sutra (book), 3:355
 Dharma. *See* Dhamma
 Dhorme, Edouard, 1:443
El día (newspaper), 3:194
 Diachronic analysis, 2:184, 433; 4:10
 Dialectic, 1:354; 2:260, 346; 3:293–294, 462
 Dialectology, 2:238, 389, 434–435
 Dialects
 in bird song, 1:89
 in language, 2:394, 396, 399–402
 DIALOG (computer language), 1:456; 2:428
 Dialogism, 1:174–175; 2:109
 Dialogue, 2:336, 346, 378; 3:293–294
 Diamond, Stanley, 2:116
Diamond Sutra (book), 1:211
El diario (newspaper), 3:194
 Diarmid (king), 1:413
 Diary, 2:23–26*
 autobiography, 1:161; 2:23, 26
 biography, 1:189; 2:25
 media diaries, 2:413–415, 490
 Diaspora, 2:26–29*. *See also* Judaism
 Díaz Bordenave, Juan, 2:482
 Díaz Rangel, Eleazar, 2:481
 Dibelius, Wilhelm, 3:299
 Dicey, Albert Venn, 3:386
 Dichter, Ernest, 3:80
 Dickens, Charles, 2:168, 351, 417; 4:50
 The Pickwick Papers (book), 2:170, 447, 450; 4:154
 A Tale of Two Cities (book), 4:167
 Dickson, W. K. L., 2:80; 3:52
 Dictating machines, 4:114, 115
 Dictionary, 3:3–4, 367; 4:173, 310–311. *See also* Language Reference Book
Dictionary of American Biography, 1:188; 3:217
Dictionary of National Biography, 1:188
Dictionary of the English Language, 2:371–372, 396
 Diderot, Denis, 2:29–31*, 101, 102, 217
 Correspondance littéraire (book), 2:31
 Encyclopédie, 1:111; 2:29, 31, 101, 102
 L'entretien entre d'Alembert et Diderot (book), 2:31
 Jacques le fataliste (book), 2:31
 Lettre sur les aveugles (book), 2:31
 Le neveu de Rameau (book), 2:31
 The Paradox of Acting, 1:6
 La religieuse (book), 2:31
 Le rêve de d'Alembert (book), 2:31
 Supplement to the Voyage of Bougainville (book), 4:276
 Didgeridoo, 3:103; 4:103
 Didot, François-Ambroise, 4:262
 Diem, Carl, 3:165
 Diesterweg, Friedrich, 4:14
 Difference engines, 1:173
 Diffusion, 2:31–36*
 Americas, pre-Columbian, 1:47, 49–50, 61
 artifacts, 1:133
 computers, 1:389, 390
 development communication, 2:10, 11, 14, 17
 folktales, 2:183–184
 ideas, 4:257–259
 innovations, 3:41
 Islam, 2:358–359
 Marxist theories, 2:482
 mass communications research, 2:491, 494, 496; 3:6
 modeling, 4:95
 network analysis, 3:167–168
 opera, 3:220
 printing, 3:366–367
 telegraphy, 4:208–209
 television, 2:71; 4:221
 word of mouth, 3:388, 489–490
 writing, 1:61; 4:321–323
 Digital codes, 1:312–313
 Digital Equipment Corp., 1:378

- Digital Image Articulator, 4:285
 Digital recording, 4:117
 Digital synthesizer, 2:99
 Diglossia, 2:389, 402, 435
 Dilthey, Wilhelm, 2:283–284, 308, 343, 344, 345
 DiMaggio, Paul, 4:198, 199
 Dime novels, 2:451; 4:313, 315
 Dimond, William
 Native Land; or the Return from Slavery (musical), 3:118
 Dinarchus, 3:394
 Diocletian, 3:477
 Diodorus Siculus, 2:281
 Dionysus of Halicarnassus, 2:281
 On Literary Composition (book), 1:287
 On the Ancient Orators (book), 1:287
 Dionysus (Greek god), 3:408; 4:238, 253, 257
 Dionysus II (the Younger), 3:293
 Diplomacy, 2:28, 36–37*, 77; 3:390; 4:244–246
 Direct broadcast satellites (DBS), 1:157, 221. *See also* Satellite cable television, 1:224
 New International Information Order, 3:171
 political communication, 3:316, 317
 radio, 3:425
 spectrum, 4:146
 telecommunications networks, 4:201, 203
 television history, 4:227
 Direct Marketing Assn., 3:38
 Direct Response Marketing, 1:111, 122; 2:38–40*; 3:178
 “Directions” (TV series), 3:444
 Dirks, Rudolph
 “The Katzenjammer Kids” (comic strip), 1:344, 345
 “Disappearing World” (TV series), 2:113
 Discourse, 1:407–410; 3:162–164.
 See also Conversation; Speaking, Ethnography of
 analysis, 1:177
 markers, 3:4
 The Discreet Charm of the Bourgeoisie (film), 1:218
 Disinformation, 2:40–41*, 104–106, 108; 3:376–377; 4:35. *See also* Deception
 Disinhibition and cue theory, 4:291, 292
 Disney, Walt, 1:92–94; 2:41–42*; 3:69
 Displacement, 1:321; 2:120
 Displays
 animal signals, 1:64, 70–74, 85; 2:118–121
 nonverbal communication, 1:198–202; 2:143–144, 147, 218
 ritual, 3:467
 Disraeli, Benjamin, 3:307, 395
 Dissemination. *See* Diffusion
 Dissent, 1:249, 251; 2:1, 2, 167; 3:30, 460–461
 Dissent media, 3:30
 Distance education, 1:155; 2:19, 86–87
 Divination, 1:49, 50, 59, 62; 2:71, 73; 4:325, 336
 Division of labor, 1:135; 2:212; 3:228
 gender, 1:135; 2:212
 La dixième symphonie (film), 3:63
 Dockwra, William, 3:345
Dr. Cyclops (film), 4:136
Dr. Jekyll and Mr. Hyde (film), 2:293
 “Dr. Who” (TV series), 4:23
 Doctorow, E. L., 2:216
 Docudramas, 2:42, 50, 107; 3:205
 Documentary, 2:42–51*. *See also* *Cinéma Vérité*
 Disney, Walt, 2:42
 ethnographic film, 2:110–111
 Flaherty, Robert, 2:43, 46, 176–177
 Grierson, John, 2:46–47, 174, 256–258
 Ivens, Joris, 2:364–366
 Lumière, Louis and Auguste, 2:42–43, 458
 Riefenstahl, Leni, 2:47–48, 50; 3:71
 sound effects, 4:110–111
 Vertov, Dziga, 2:43, 45–46, 50; 4:281
 video, 4:286
 Documentation, historical, 2:182–183, 280–284; 3:230
 Doeff, Hendrik, 4:246
 Dolbeer’s Law, 2:500
 Dolciani, Mary, 4:235
Die Dollarprinzessin (operetta), 3:119
 Dominic, Saint, 2:291
 Domitian (emperor), 3:473, 475
 Donen, Stanley, 3:143
Dong-a ilbo (newspaper), 3:190
 Donne, John, 1:188
 Donohew, Lewis, 3:42
 Donskoi, Mark, 3:72
Don’t Look Back (film), 1:277
 Doré, Gustave, 3:435
 Dore, John, 1:264
 Dorham, Kenny, 3:102
 Dorson, Richard, 4:87, 251
 Dostoyevsky, Fyodor, 2:170
 Double standard, 4:57–59
 Double-bind hypothesis, 1:181; 2:339. *See also* Schizophrenia
 Doublier, Francis, 3:201
 Douglas, Aaron, 3:89
 Douglas, Ann
 Industrial Peacemaking (book), 1:177
 Douglas, Mary, 1:250; 2:188
 Douglas, Stephen A., 2:194
 Douglass, Frederick, 3:395
 Dovzhenko, Aleksandr, 1:168, 361; 3:64, 72
 Dow Jones, 3:197
The Downfall of Osen (film), 3:64
 Down’s syndrome, 1:264
 Doyle, Arthur Conan, 3:155
Dracula (film), 2:292; 3:69
 Drama. *See also* Acting; Comedy; Performance; Theater; Tragedy
 classicism, 1:289–291
 closet drama, 1:289
 copyright protection, 1:417
 expressionism, 2:128–129
 festivals, 2:162–163
 genre, 2:216
 Greek, 3:301
 Indian, 2:62, 63, 64
 as a literary genre, 2:216
 mime, 3:26–28
 music theater, 3:116–128
 as a narrative device, 2:446; 3:266
 puppetry, 3:407–408, 411–412
 radio, 3:243, 419–420; 4:90–91, 311–313
 sound effects, 4:107–112
 television, 4:91–92, 218, 221
 Drama—History, 2:51–61*; 3:434–435
 Drama—Performance, 2:61–66*; 4:139, 177–178
 Dramatic Copyright Act (Great Britain), 1:417
 Dramatism, 1:218–219; 3:463
 Dravidian language, 2:313
 Dreams, 2:186, 202–203, 376; 3:384–386; 4:193
 Dresden Codex, 4:328
 Drew, Robert, 1:276, 277; 2:50
 Drew Associates, 1:276
 Dreyer, Carl, 1:169, 282, 283; 2:172, 292; 3:62, 65
 Driessen, Paul, 1:95
Drifters (film), 2:257
 Dritzehn, Andreas, 2:264
 Drum languages, 1:33–34, 38; 3:150–151; 4:103
 Drums, 3:102, 112, 147, 150
 Drusius, John, 4:272
 Dryden, John, 1:188, 189, 291
 Mac Flecknoe (book), 2:216
 Du Maurier, Daphne
 Rebecca (book), 3:483
 Du Maurier, George, 4:216
 Dubbing, 3:70. *See also* Soundtrack
 DuBois, W. E. B., 1:338; 3:395
 Dubuffet, Jean, 1:258
 Duchamp, Marcel, 1:119, 120, 168; 2:197
 Duddell, William, 1:97
Duel in the Sun (film), 4:316
 Dukas, Paul-Abraham
 The Sorcerer’s Apprentice (music), 4:112
 “The Dukes of Hazzard” (TV series), 2:108
 Dulac, Germaine, 1:168; 2:173; 3:63

- Dumas, Alexandre, 2:450
Dumbo (film), 2:41
 Dumont Television Network, 3:445
 Duncan, Hugh Dalziel, 1:218
 Duncker, Karl, 3:259
 Dundes, Alan, 2:179, 184, 186
 Dunlap, Ian, 2:112
 Dunn, Linwood, 4:135
 Dunning, George, 1:95
 Duo-Art Co., 3:112
 Duras, Marguerite, 2:168; 3:174
 Dürer, Albrecht, 2:24; 3:359, 451
 Durkheim, Émile, 1:423; 2:66–68*, 81, 177–181, 308, 496; 3:228
Les formes élémentaires de la vie religieuse (book), 2:67
Le suicide (book), 2:67
 Durkin, Kevin, 2:214
 Dürrenmatt, Friedrich
The Visit (play), 1:341
 Duse, Eleonora, 1:6
 Dutch. *See also* Holland; Netherlands language, 2:400 painting, 3:434
 Dutch East India Co., 4:245, 246
 Duverger, Maurice, 3:307
 Duvivier, Julien, 3:71
 Dylan, Bob, 1:277
 Dynamo, 2:155
 Dynaphone, 2:97
 "Dynasty" (TV series), 2:350; 4:90
 Dysarthria, 4:152
 Dysphonia, 4:152
 Dystopia, 4:278
- E**
- Eagleton, Terry, 1:28
 Eakins, Thomas, 3:49
 Ealing Studios, 3:75
Earth (film), 3:64
The Earth Thirsts (film), 3:72
The Earth Trembles (film), 3:165
East African Standard (newspaper), 3:187
 East Asia, Ancient, 2:71–78*. *See also* South Asia, Ancient
 Confucius, 1:400–401
 encyclopedia, 2:101
 historiography, 2:280–281
 music theater, 3:122–128
 numbers, 3:213
 printing history, 1:211; 3:355
 public speaking, 3:393
 puppetry, 3:407, 408–409
 Shihuang Di, 4:62
 writing materials, 1:211
Easter Parade (film), 3:143
 Eastman, George, 2:78–79*, 80; 3:281
 Eastman Co., 3:52
 Eastman Kodak, 3:74, 248, 281
 Easton, David, 3:320
Ebony (magazine), 2:455
 Echolalia, 4:149
 Echolocation, 1:76, 78, 79, 80
 Eckermann, Johann
Conversations with Goethe (book), 1:188
 Eckert, J. Prosper, 1:376
 Eckert, Wallace J., 1:375
 Eckert-Mauchly Computer Corp., 1:376
Éclairleur de la Côte d'Ivoire (newspaper), 3:187
 ECMA. *See* European Computer Manufacturers Assn.
 Eco, Umberto, 1:100; 4:49, 54, 193
 École des Beaux-Arts, 3:373
 École des Ponts et Chaussées, 3:373
 École Normale Supérieure, 3:373
 École Polytechnique, 3:373
 École Pratique des Hautes Études, 2:417
 Centre d'Études de Communications de Masse, 1:362
 Ecology of mind, 1:445
 Economic development, 1:144; 2:9, 12–17
Economicheskaya gazeta (newspaper), 3:200
 Economies of scale (advertising), 1:25
Economist (magazine), 2:468; 3:179
 Ecuador, 2:406
 Eddy, Nelson, 3:142
 Edes, Benjamin, 3:181
 Edgerton, Harold, 3:51
Edinburgh Review (newspaper), 3:308
 Edison, Thomas Alva, 2:79–80*
 communications, study of, 1:360
 film, 2:43; 3:52, 57, 58, 201
 sound recording, 4:112–113, 118
 telephone, 4:212
 Edison Co., 2:285; 3:58; 4:19
 Edison Vitascope, 3:57
 Edit Droid, 4:286
 Editing, 3:405–406; 4:187, 228
 Edouart, Farciot, 4:136
 Education, 2:80–84*. *See also* Audiovisual Education; Distance education; Educational Television; School; Teaching; Textbook; University
 Americas, pre-Columbian, 1:53
 bilingualism in, 3:29
 children, media effects, 1:270
 civic, 2:82; 3:374
 classicism, 1:288–289
 classroom, 1:297–298
 cognition, 1:320
 compulsory, 2:83; 4:14–15
 computer impact, 1:388–391
 development communication, 2:10, 17–19, 407
 East Asia, ancient, 2:71
 family, 2:154–155
 Islam, 2:353, 355
 literacy, 2:16, 291, 437–441
 Marxist theories, 2:482
 mathematics, 2:499–500
 oral culture, 3:228
 popular education movements, 2:83–84
 profession, 3:373
 Roman Empire, 3:476–477
 video, 4:287
 Educational Development Corp., 2:112
 Educational film movement, 2:110
 Educational Television, 1:270, 271; 2:18–19, 84–87*, 124; 4:221, 224. *See also* Audiovisual Education
 EDVAC (computer), 1:376
 Edward I (king), 2:277
 Edward III (king), 1:329; 3:336 (fig.)
 Edwards, Jonathan, 3:395
 Edwards (newspaper family), 3:194
 Edwards Personal Reference Schedule, 3:80
 Effects research. *See* Mass Media Effects
 Effigies, 1:123, 128; 2:483
 Effort-shape analysis, 1:204, 208
 Efron, David, 2:219
 Eggeling, Viking, 1:92, 168
 Eginhard (biographer), 1:188
 Ego, 3:385
 Egungun (theater genre), 2:62
Egyetemes magyar encyclopaedia, 2:102
 Egypt
 art, 1:122, 123, 161; 2:91; 3:335–336; 4:31–33
 calendar, 1:225–226
 Hellenic world, 2:269, 272
 literacy, 2:437
 mathematics, 2:500, 501
 newspapers, 3:195–196
 Roman Empire, 3:478
 social marketing programs, 2:22
 stamps, 4:172–173
 Egyptian Hieroglyphs, 2:87–92*
 alphabet, 1:44, 45
 Indus script, 2:313
 printing, 3:366–367
 writing, 4:324, 328, 331, 332–333
 Egyptian Wisdom of Amenemope (proverb collection), 3:382
 Eibl-Eibesfeldt, I., 1:198
1860 (film), 3:72
 Eimert, Herbert, 2:99
 Einstein, Albert, 2:418, 503; 4:305
 Eisenhower, Dwight D., 1:376; 3:415
 Eisenstadt, Alfred, 3:288
 Eisenstein, Elizabeth, 2:440, 495
 Eisenstein, Sergei, 1:361; 2:92–93*, 172, 173; 3:67, 72, 364
Film Forum (book), 2:93
Film Sense (book), 2:93
 Eisner, Lotte, 2:129
 Ejkenbaum, Boris, 3:298
 Ekman, Paul, 1:460; 2:145, 147
El (film), 1:218
 El Lissitzky, 3:349
 El Salvador, 1:154; 2:18, 87. *See also*

- Latin America, Twentieth Century
- Elamite writing, 1:441, 442
- Eleanor of Castile, 2:277
- Election, 2:93–96*. *See also* Campaigns, political; Voting behavior
- advertising, 1:13–14, 23
- agenda-setting, 1:43
- bandwagon effects, 1:175–176
- broadcast debates, 3:318–319
- computer projections, 1:376
- content analysis, 1:405
- mass communications research, 2:490, 496
- political communication, 3:314–315
- politicization, 3:325
- polls, 2:209–210; 3:326–330, 388–389, 488
- Electric and Musical Industries (EMI), 4:119–120
- “The Electric Company” (TV series), 2:85
- Electricity, 2:79–80, 155; 3:47; 4:208
- Electromagnetic field theory, 2:155, 472, 503; 3:417; 4:144, 208, 309
- Electromagnetic pulse (EMP), 1:385
- Electromagnetic radiation, 3:11
- Electromyography, 2:147
- Electronic church, 3:446
- Electronic data interchange, 1:392
- Electronic Industries Assn., 4:174–175
- Electronic mail, 1:378, 379; 2:328, 329; 3:314, 346, 371
- Electronic Music, 2:97–99*, 114; 3:103, 153; 4:109, 284. *See also* Music Machines; Musical Instruments
- Electronic newsgathering (ENG), 4:283
- Electronic Numerical Integrator and Calculator. *See* ENIAC
- Electronic Publishing, 1:456; 2:99–101*; 3:359, 365–366, 406
- Electronic scanning, 4:218
- Electronic TV* (video), 4:282
- Electronics, 1:384; 3:274; 4:4, 5, 144, 146–147. *See also* Microelectronics
- Electrotachyscope, 3:51, 52
- ELHILL (online data base), 1:456
- Eliot, George, 1:141; 2:158; 3:437
- Eliot, T. S., 1:291; 2:446, 466; 3:299, 433, 437
- Notes towards the Definition of Culture* (book), 1:437
- Elisions, 3:261
- Elites
- cultural, 4:197–199
- development communication projects, 2:20, 21
- mass communications research, 2:491, 495, 496
- media control, 3:313
- political, 1:338; 3:304–305
- Elizabeth I (queen), 1:414; 2:105, 142; 3:336; 4:272
- Elizabeth II (queen), 1:257, 331
- Elizabethan era, 2:448; 3:265
- Ellis, A. J., 2:114, 115
- Ellis, Edward S.
- Seth Jones* (book), 4:313
- Ellmann, Richard
- James Joyce* (book), 1:189
- Ellul, Jacques, 2:108
- Elton, Arthur, 2:47, 258
- Elzevir, Louis, 3:398
- Emancipation, 2:83–84
- EMC. *See* Empirical modification cycle
- Emerson, Ralph Waldo, 3:395
- Emicon, 2:97
- Emotions, 1:198, 313; 2:118, 133, 137, 143–148; 4:94
- Empire Broadcasting Service, 1:156
- Empirical modification cycle (EMC), 3:296
- Empiricism, 1:267, 319; 2:283, 330, 445, 454
- Employment, 1:396–397; 3:238. *See also* Profession
- Empson, William, 2:446
- Emshwiller, Ed, 1:95
- The Enchanted Drawing* (film), 1:91
- Enciclopedia italiana*, 2:102
- Enciclopedia universal ilustrada europeo-americana*, 2:102
- Encoding, 1:428–430; 2:391–392; 3:38; 4:259, 309
- Enculturation. *See* Socialization
- Encyclopaedia Britannica*, 2:102; 3:400
- Encyclopedia, 1:188, 250, 456; 2:29, 31, 101–102*. *See also* Language Reference Book
- Encyclopédie*, 2:29, 31; 3:400
- Encyclopédie française*, 2:102
- Encyklopedia powszechna*, 2:102
- The End of St. Petersburg* (film), 3:64
- The End of the World* (film), 3:63
- Endorsements, commercial, 1:353; 2:95; 3:377; 4:163
- Engels, Friedrich, 2:212, 308, 476, 477; 3:460
- The Communist Manifesto*, 2:475
- The German Ideology* (book), 2:477
- Engineering Information, Inc., 1:456
- Engl, Jo, 4:117
- England. *See also* Great Britain; and individual entries under British
- censorship, 1:246–249
- drama, 2:54, 55–56, 59; 3:118, 119, 434–435; 4:241
- epistolary novel, 2:416
- heraldry, 2:274–279
- law, 2:410, 419, 420
- Stamp Acts, 2:231; 3:305, 308
- university, 4:273
- Engler, Rudolf, 4:9
- English, Michael, 3:349
- English language, varieties of, 2:401; 4:310–311
- English Navigation Act, 1:339
- English revolution, 3:458, 460
- English Royal Society, 3:380
- Engravers' Copyright Act, 1:417
- Engraving, 2:239, 240, 275; 3:359, 360–361
- ENIAC, 1:376, 383, 444; 3:11
- Enigma machine, 1:429
- Enlightenment
- avant-garde, 1:162, 164, 165
- books, 1:215; 2:396
- censorship, 1:247, 250, 251
- education, 2:83
- folklore, 2:178
- French, 2:29, 31
- ideology, 2:308
- interpretation, 2:344, 346–348
- Jewish (Haskalah), 2:27, 28, 373, 375
- literacy, 2:439
- museums, 3:92, 93
- printing, 3:366
- realism, 3:435
- romanticism, 3:484–487
- structuralism, 4:183
- university, 4:272–274
- Enmerkar and the Lord of Ratta (epic), 1:438
- Ensor, James, 1:239
- Enter the Dragon* (film), 2:474
- Entertainment, 2:102–104*
- communications research, 1:373, 431
- mass media effects, 2:494, 496
- media ethics, 2:106, 108–109
- politicization, 3:326
- spectacle, 4:137, 139, 142–143
- sports, 4:165–166
- stars, 4:176–180
- television, 1:273; 3:171; 4:224–227
- Entr'acte* (film), 3:65
- Entropy, 2:314, 316–318; 4:61
- Entuziazm: Simfoniya Donbassa* (film), 2:172; 4:282
- Enuma Elish (epic), 1:442; 3:207
- Environment, spatial, 4:130–131
- Épée, Charles-Michel de l', 2:209; 4:70
- Epics
- cuneiform, 1:442
- fiction, 1:188; 2:167
- Indian, 3:158; 4:121–123
- oral poetry, 3:231–233
- poetry, 3:301, 303; 4:330
- Epigram, 2:215
- Epithalamium (wedding poem), 2:215
- Epstein, Jean, 1:217; 2:173; 3:63, 65, 168
- Equal temperament, 3:135, 140
- Equal time rule, 2:233
- Equiheptatonic, 3:141

- Equivocation, 2:316–317
 Erasmus, 2:416; 3:382, 448; 4:12
 Eratosthenes, 2:423
Ereignisse für Millionen (video), 4:284
 Ergonomics, 1:201
 Erikson, Erik, 4:166
 Young Man Luther (book), 1:189
 Erk, Wilhelm, 3:135
Ersatz (film), 1:94
 Ervin-Tripp, Susan, 2:327
 Erwin, Charles R., 2:403
 Escher, Maurice, 3:256
 Eshkol, Noa, 1:204
 Eshkol-Wachmann notation, 1:203, 204
 Eskimo. *See* Inuit
The Eskimo Fight for Life (film), 2:112
 Eskimo languages, 1:293
 Espe, Hartmut, 4:43
El espectador (newspaper), 3:195
 Esperanto, 2:393; 4:77
 Espionage, 2:104–106*. *See also* Spy Fiction—History; Spy Fiction—Themes
 Americas, pre-Columbian, 1:52, 55
 cryptology, 1:428–430
 deception, 1:459–462
 disinformation, 2:40–41
 Hellenic world, 2:273
 radio, 3:418, 421
 spy fiction, 4:167–171
 Tokugawa era, 4:246
 Essanay Co., 2:286
O estado de São Paulo (newspaper), 3:194
La estrella del sur (newspaper), 3:193
 Etchings, 2:239, 240; 3:360, 451
 “The Eternal Light” (radio series), 3:444
 Etherage, George, 1:340–341
 The Man of Mode (play), 2:55
 Ethics, 1:400–401, 459–461; 3:441
 Ethics, Media, 2:106–110*; 3:289; 4:230, 231–232
 Ethiopia, 2:12
 Ethiopian script, 1:46
Ethnic and Regional Foodways in the United States (book), 2:190
 Ethnic cultures, 2:188, 189–190, 372–376; 3:97–98
 Ethnic humor, 2:299
 Ethnic press, 3:30
 Ethnicity, 1:128–135, 437; 2:480–481
 Ethnoaesthetics, 1:135; 2:187
 Ethnographic Film, 1:274; 2:110–114*, 505–506
 Ethnography, 1:135, 181, 190–191; 2:185, 212, 213. *See also* Speaking, Ethnography of
 Ethnology, 1:437
 Ethnomethodology, 2:326
 Ethnomusicology, 2:114–116*; 3:101–104, 128, 139–142, 146–153; 4:103
 Ethnopoetics, 2:116–117*, 181, 186–187, 432; 3:262
 Ethnosemantics, 1:135
 Ethograms, 2:120
 Ethology, 2:117–122*. *See also* Animal Communication
 animal signals, 1:68–87; 4:101–102
 animal song, 1:88–90
 cognition, animal, 1:320–322
 Darwin, Charles, 1:455
 human-animal communication, 2:295–296
 nonverbal communication, 2:147, 218
 rituals, 3:467
 Étienne, Robert, 3:368
 Etiquette, 1:200; 2:191, 193, 326; 3:35; 4:75
 ETV. *See* Educational Television
 Euclid, 2:358, 501
 Stoicheia (book), 2:73
 Eumenes II (king), 4:333
 Euphemisms, 4:58
 Euripides, 2:268; 4:254, 256
 The Bacchae (play), 2:52
 Cyclops (play), 2:62
 Electra (play), 2:52
 Hippolytus (play), 2:52
 Medea (play), 2:52
 The Trojan Women (play), 2:52
 European Broadcasting Union, 2:332
 European Computer Manufacturers Assn. (ECMA), 4:174–175
 European Conference of Postal and Telecommunications Administration, 2:335
 European Economic Community (EEC), 1:382; 2:245–246, 335
 European press. *See* Newspaper: Trends—Trends in Europe
 Eurovision, 4:224
 Evaluation Research, 2:32, 85, 86, 122–125*, 300. *See also* Consumer Research
 Evangelism, 3:395, 444–447
 Evans, Augusta. *See* Wilson, Augusta Evans
 Evans, Franklin B., 3:80
Evening News (newspaper), 3:181, 211
Evening Standard (newspaper), 1:182, 238; 3:181
Everybody's Magazine, 2:436
 Evidence, 1:407; 4:232–234
 Evolution, 1:67, 68, 69, 71, 86–88; 2:212; 4:149
 Evolution theory, 1:67, 198, 455; 2:117–122
Excelsior (newspaper), 3:194
 Excess energy theory, 4:165–166
 Excommunication, 1:251
 Exegesis, 2:290
 Exhibitions. *See* Spectacle
 Existentialism, 1:341, 356–357
The Exorcist (film), 2:294
 Expectations, 1:11–12, 273–274. *See also* Motivation
 Expert systems, 1:136; 2:428
 Expertise, 3:267–268, 373, 374
The Exploits of Elaine (films), 3:62
 Exploration, 2:125–128*
 Americas, pre-Columbian, 1:47
 Australasia, 1:155
 cartography, 1:240–241
 CETI, 1:252, 253
 East Asia, 2:77–78; 3:330–331
 Renaissance, 3:450
 Exposure, selective. *See* Selective Reception
Expressen (newspaper), 3:192
 Expressionism, 1:168; 2:57, 128–131*, 293; 3:62–63, 340–341
 Extension services, 2:10, 19, 81
The Exterminating Angel (film), 1:218
Extra bladet (newspaper), 3:192
 Extraterrestrial intelligence. *See* CETI
 Eyal, Chaim, 1:43
 Eyck, Jan van, 2:303; 3:449
 Eyes, 2:131–134*
 acting, 1:4, 6
 animal signals, 1:84, 87
 body decoration, 1:194
 children, 1:264
 code, 1:313
 facial expression, 2:137, 143, 147; 3:235
 gaze and attention, 2:132–133, 342, 343
 perception, 3:255–262
 proxemics, 3:383
 Eyewitness testimony, 3:490; 4:232–233

F
 Fabulation, 2:216
 Face, 2:137–143*
 animal signals, 1:84–85
 body decoration, 1:193, 194
 code, 1:313
 facial expression, 2:132, 133, 143–148; 3:235
 masks, 2:483, 484
 “Face Values” (TV series), 2:113
 Face-to-face interaction. *See* Interaction, Face-to-Face
 Facial Action Coding System, 2:145
 Facial Expression, 2:143–148*
 animal signals, 1:84–85
 code, 1:313
 deception, 1:460, 461
 drama, 2:62; 3:26–28, 124
 face, 2:132, 133, 137; 3:235
 human-animal communication, 2:296

- interaction, face-to-face, 1:262; 2:325
 interpersonal distance, 2:342, 343
 kinesics, 2:380–381
 sex differences, 4:58
- Fact and Fiction, 1:159; 2:42, 148–151*, 169
- Fact finding, 1:177, 178
- Faction, 2:149, 216
- Factor analysis, 1:231; 2:120; 3:239–240; 4:40–41
- Fair comment, 2:420–421, 422
- Fair information practices, 3:371
- Fair use doctrine, 1:422
- Fairbanks, Douglas, 1:255; 2:259, 286, 287; 3:62
- Fairness Doctrine (U.S.), 1:284; 2:233
- Fairy tales, 2:181, 182; 3:163, 226; 4:22
- The Fall of the House of Usher* (U.S. film), 2:293
- The Fall of the Romanov Dynasty* (film), 2:45
- False consciousness, 1:461; 2:308
- Family, 2:151–155*
 children, use of media, 1:268
 education, 1:53; 2:81
 gender, 2:212–213
 influence on opinion formation, 3:388
 interpersonal communication, 2:338
 language acquisition, 2:152–153
 literacy skills, 2:154–155
 oral communication development, 2:153–154
 psychoanalytic theories of, 2:185–186
 socialization, 2:151–152, 494
- Family planning, 2:10, 11
- Family Plot* (film), 2:284
- Family therapy, 1:445
- Family viewing period (TV), 4:290
- Famous Players in Famous Plays, 4:340
- Famous Players-Lasky, 2:284, 287; 4:340
- Fan magazines, 2:285; 4:92, 180–181
- Fanny och Alexander* (film), 1:187
- Fanon, Frantz
This Is the Voice of Algeria (book), 2:480
- Fans (sports), 4:166–167
- Fantasia* (film), 1:92; 2:41
- Fantasmagorie* (film), 1:91
- Fantastic Four* (comic book), 1:349
- Fantasy Factory, 4:286
- Far Eastern University (Philippines), 1:365
- Fārābī, al-, 2:360; 3:129, 130
- Farabundo Martí Front, 2:480
- Faraday, Michael, 2:155–156*
Experimental Researches in Electricity (book), 2:503
- Faraj* (literary genre), 2:183
- Farce, 2:62; 3:120; 4:108, 241, 242
- Farmer's Brother, 3:394
- Farnsworth, Philo, 2:156–157*; 4:4, 218, 341
- Farrell, J., 4:176
- Fascism, 1:144, 330
- Fashion. *See* Clothing
- Fassbinder, Rainer Werner, 1:169, 361; 3:76
- "Father Knows Best" (TV series), 4:220
- Father Sergius* (film), 3:62
- Faulkner, William, 2:169
- Favart, Charles-Simon
La chèreuse d'esprit (opereetta), 3:118
- Favre de Vaugelas, Claude
Remarques sur la langue française (book), 2:396
- FCC. *See* Federal Communications Commission
- Fear appeals, 3:268–269
- The Feast* (film), 2:112
- Febvre, Lucien, 2:283
- Federal Advisory Committee Act of 1972 (U.S.), 4:36
- Federal Bureau of Investigation (FBI), 1:286; 2:40
- Federal Communications Commission (FCC)
 Fairness Doctrine, 1:284; 2:233
 monopoly, 3:46
 radio, 1:110, 285–287; 3:420
 standards, 4:176
 telecommunications, 4:202, 203, 215, 216
 television, 1:110, 223; 2:233, 234; 4:219, 221, 290, 294
- Federal Radio Commission (FRC), 3:420
- Federal Radio Corp. of Nigeria, 1:40
- Federal Republic of Germany. *See* Germany, Federal Republic of
- Federal Theatre, 4:311, 312
- Federal University of Rio de Janeiro, 1:367
- Federal Writers' Project, 3:230
- Fédération Internationale de Football Assn., 4:159
- Feedback
 biological, 2:120; 3:296
 evaluation research, 2:123–124
 information theory, 2:319; 4:318
 models of communication, 3:36–44
- Feeding the Baby* (film), 3:58
- Feiffer, Jules
 "Feiffer" (comic strip), 1:347
- Feilitzen, Cecilia von, 3:41–42
- Feininger, Lyonel
 "The Kin-der-Kids" (comic strip), 1:345
 "Wee Willie Winkie's World" (comic strip), 1:345
- Feld, Steven, 3:101
- Sound and Sentiment* (book), 4:106
- Feline Follies* (film), 1:92
- Félix, Élixa, 1:6
- Fellini, Federico, 2:174; 3:73, 167
- Feminist Theories of Communication, 2:157–160*. *See also* Gender; Sexism
 artifacts, 1:135
 feminism, 2:310, 443; 3:386, 461
 feminist press, 3:30
 film theory, 2:175; 4:179
 history, 3:389, 395
 interpretation, 2:347
 literary criticism, 2:447
 popular literature, 2:200; 3:482
 popular music, 3:101
 pornography, 3:332, 333–334
- Fenton, Roger, 3:285
- Ferguson, Charles, 2:389
- Fermi, Enrico, 1:255
- Fernández, Fernando, 1:351
- Fessenden, Reginald, 1:458; 2:160–161*; 3:417
- Festinger, Leon, 1:324, 325
- Festival, 2:161–166*
 Americas, pre-Columbian, 1:53
 masks, 2:485, 486
 performance, 2:64–65; 3:264
 spectacle, 4:137–143
- Feudalism, 2:274, 275; 3:14, 17
- Feuerbach, Ludwig, 2:308
- Feuillade, Louis, 3:61, 62
- FEX. *See* Union of Soviet Socialist Republics, Factory of the Eccentric Actor
- Feyden, Jacques, 3:71
- FIAF (International Federation of Film Archives), 1:108
- Fiber Optics, 1:83, 225; 2:166–167*; 4:201, 203
- Fiction, 2:167–169*, 291. *See also* Literature, Popular; Novels; and individual genres
 epistolary, 2:416
 fact and fiction, 1:161, 162, 188; 2:148–151
 folktales, 2:181–187
 genre, 2:216
 metafiction, 2:216
- Fiction, Portrayal of Character in, 2:169–171*; 3:434; 4:50–54
- Field, Harry, 3:328
- Field hockey, 4:159
- Field theory, 2:260, 418
- Field theory, electromagnetic. *See* Electromagnetic field theory
- Fielding, Henry, 2:168; 3:435
Tom Jones (book), 2:449
- Fields, Gracie, 3:99
- Fields, W. C., 3:69
- Fiestas, 4:137, 142
- Le figaro* (newspaper), 3:183, 192
- Figures of speech. *See* Metaphor
- Fiji. *See* Australasia, Twentieth Century
- Filipacchi, Daniel, 2:467–468

- Film. *See also* Motion pictures
criticism, 2:173; 3:175–176
distinguished from video, 1:91;
3:258, 259; 4:282, 286
distribution, 2:285–290; 4:180,
340–341
independent filmmakers, 1:285;
2:176; 3:74–75
independent production, 2:288–
289
stocks, 1:279; 3:74, 278
three-dimensional, 2:289, 385
- Film, musical. *See* Musical, Film—
Bombay Genre; Musical, Film—
Hollywood Genre
- Film archives. *See* Archives, Film
- Film Australia, 2:112
- Film Editing, 2:171–173*. *See also*
Cinematography
avant-garde film, 1:167
cinéma vérité, 1:276, 277
cross-cutting, 3:59
cuts, 3:260
dissolves, 3:261
documentary, 2:43, 45, 46, 50
Eisenstein, Sergei, 2:92
fact and fiction, 2:149–150
film theory, 2:173
flash-forwards, 2:172
flashbacks, 2:172; 4:92
freeze frames, 2:50
Hollywood, 3:61
impressionist, 3:63
instant replays, 2:50; 4:283
Ivens, Joris, 2:366
montage, 2:172; 3:64, 67
new wave film, 3:175
Ozu, Yasujiro, 3:240
point-of-view, 2:174
Porter, Edwin S., 3:58
shots, 1:282; 2:171–172
silent film, 3:58–59, 61, 63, 64
slow motion, 4:283
sound film, 3:66–67
soundtrack, 1:92; 2:172; 3:67–68
special effects, 4:133–137
splicing, 2:171
stars, 4:179
Vertov, Dziga, 4:281–282
video, 4:283, 284
- Film Finance Corp. (India), 3:78
- Film industry. *See* Hollywood; Mo-
tion pictures; *and individual*
countries
- Film Institute of India, 3:78
- Film preservation. *See* Archives, Film
- Film Quarterly* (journal), 1:359
- Film studies, 1:358, 359, 360–361,
363–364, 365
- Film Theory, 2:173–176*
avant-garde film, 1:168–170
cinéma vérité, 1:278–279
Eisenstein, Sergei, 2:92–93
expressionism, 2:128–129
Lacan, Jacques, 2:310
neorealism, 3:164
new wave film, 3:174–176
stars, 4:178–179
Vertov, Dziga, 4:281–282
- Film Truth* (film), 1:276; 2:45, 50;
4:281
- Film Weekly* (journal), 4:281
- Filmstrips, 1:153
- Filmverlag der Autoren, 3:76
- Fine, Gary, 3:489
- Fine Arts Copyright Act (Great Brit-
ain), 1:417
- Fine Arts Guild of America, 2:195
- Fingerspelling. *See* Sign Language—
Manual Language Codes
- Finian of Moville, 1:413
- Finis Terrae* (film), 3:63
- Finney, Charles, 3:395
- Fire* (film), 3:59
- Fire and Ice* (film), 1:95
- Fires Were Started* (film), 2:49
- First Contact* (film), 2:113
- Firth, J. R., 2:434
- Fischer, Gunnar, 1:187
- Fischinger, Oskar, 1:92, 168
- Fish, 1:69, 70, 75, 76, 78, 80; 2:119
- Fish, Stanley, 1:28, 29; 3:434
- Fishbein, Martin, 1:149–151
- Fisher, H. C. “Bud”
“Mutt and Jeff” (comic strip),
1:345
- Fisher, R. A., 2:314
- Fiske, Marjorie
The Focused Interview (book), 3:6
- Fisscher, J. F. van Overmeer, 4:246
- Flags, 2:278
- Flaherty, Robert, 1:276; 2:43, 46,
110, 111, 176–177*
- The Flaming Frontier* (film), 4:315
- Flaubert, Gustave, 1:289; 2:417,
455; 3:437
- Flavius Josephus, 2:26
- Fleetway Press, 3:211
- Fleischer, David, 1:92
- Fleischer, Max, 1:92
- Fleming, Ian, 4:168, 170
- Fleming, John Ambrose, 1:458; 2:80;
3:11
- Flesh and the Devil* (film), 3:65
- Flexible manufacturing systems
(FMS), 1:394
- Fliegende Blätter* (journal), 1:237
- Florentine Camerata, 3:117, 219
- Flutes, 3:103, 111
- Fluxus movement, 4:284
- Flying Down to Rio* (film), 3:142
- Flynn, Errol, 4:316
- FM. *See* Frequency modulation
- Focus groups, 1:402, 403
- Fodor, Jerry, 4:260
- Fogtdal, Palle, 2:467
- Fokker, Adriaan, 3:141
- Folk culture, 1:435, 436
- Folk music. *See* Music, Folk and Tra-
ditional; Proverb
- Folk songs, 3:102, 103
- Folklore Preservation Act (U.S.),
2:180
- Folklore, 2:177–181*
artifacts, 1:128–135
culture, 1:436
insults, 2:324–325
oral history, 3:229
performance, 2:64; 3:115, 263
riddles, 3:465
- Folktale, 2:181–187*
fiction, 2:167–168
oral culture, 3:226, 227
performance, 3:263
popular literature, 2:292, 448–449
- Fonda, Henry, 4:316
- Fonda, Jane, 1:276
- Food, 1:133, 135; 2:163, 187–193*,
212, 213; 4:184
- Football, 2:340; 4:137, 142, 159–
160, 166
- Foote, Cone and Belding, 2:404
- Footlight Parade* (film), 3:142
- Forbidden Paradise* (film), 3:65
- Ford, Ford Madox, 2:168
- Ford, Gerald, 3:319; 4:36
- Ford, Henry, 2:5
- Ford, John, 2:130; 3:70, 167; 4:315,
316
- Foreign-language press, 3:30–32
- Forensics, 2:193–194*; 3:392–396;
4:150. *See also* Political Commu-
nication—Broadcast Debates;
Rhetoric
- Forgery, 2:40; 4:173
- Forgery, Art, 1:112; 2:194–198*
- Forkel, Johann Nikolaus, 3:111
- Formalism, 2:173–174, 175, 343,
346, 348, 444–447; 4:184. *See*
also Russian formalism
- Forman, Miloš, 3:79
- Formants, 3:252; 4:99–100
- Formative evaluation. *See* Evaluation
Research
- Formby, George, 3:99
- Forrester, Jay, 1:376
- Forster, E. M., 2:170
- Forsyth, Frederick, 4:170
- FORTAN (computer language),
1:376
- Fortune* (magazine), 2:455, 456;
3:327
- 42nd Street* (film), 3:142
- Forward, Soviet!* (film), 4:281
- Fosdick, Harry Emerson, 3:395
- Foster, Harold
“Prince Valiant” (comic strip),
1:347
“Tarzan” (comic strip), 1:347
- Il fotografo*, 3:285
- Fotonovela, 1:350; 2:198–201*
- Foucault, Michel, 1:461; 2:201–202*
The Archaeology of Knowledge
(book), 2:201
authorship, 2:350; 3:433

- Discipline and Punish* (book), 2:201
 ideology, 2:310; 3:373; 4:251
 interpretation, 1:29; 2:347
Madness and Civilization (book), 2:201
Les mots et les choses (book), 2:201
The Four Feathers (film), 3:70
Four Hundred Blows (film), 3:174
The Four Hundred Million (film), 2:48, 364
Four More Years (film), 4:286
 Fourier, Charles, 2:256; 4:277, 278
 Fournier le Jeune, Pierre-Simon, 4:262
 Fowler, H. W.
 A Dictionary of Modern English Usage, 2:398
 Fowles, John
 The French Lieutenant's Woman (book), 2:349, 350, 351
 Fox, Charles James, 3:395
 Fox Film Corp., 2:287
 Fox Movietone, 3:66
The Fox Movietone Follies (film), 3:142
Fox Movietone News (newsreel), 3:202, 205; 4:117
 Foxe, John
 Book of Martyrs (book), 2:449
 Frame of reference, 1:265; 4:191
 Frames, in artificial intelligence, 1:136
 Frampton, Hollis, 1:169
 France, Anatole
 La vie littéraire (book), 2:446
 France. *See also individual entries under* French
 Alliance Israélite Universelle, 2:28
 art nouveau, 3:346
 Bibliothèque National, 2:424
 censorship, 1:247
 colonization, 1:39, 339; 3:187
 copyright, 1:416–417
 education, 1:155; 3:373
 film, 1:217–218; 2:173; 3:58, 63–64, 70–71, 75–76, 174–176, 452–453
 film industry, 2:286; 3:247–248
 fotonovelas, 2:198, 200
 government-media relations, 2:227, 228, 229; 3:312
 government regulation, 2:231, 233, 234
 heraldry, 2:275, 277
 historiography, 2:283
 letters, 2:416
 libel, 2:422
 magazines, 2:465, 467
 newspapers, 1:369–370; 3:182–183, 191–192, 308–309
 painting, 3:435–437
 political communication, 3:316–317
 puppetry, 3:410, 412
 slave trade, 4:86
 sound recording industry, 4:118, 120–121
 telephone, 4:212, 213
 television, 1:223, 224; 3:316–317, 427; 4:223
 theater, 3:117, 118, 120; 4:237, 241, 243
 Treaty of Versailles, 3:297
 university, 4:271, 272
France-Afrique (newspaper), 3:187
France-Soir (newspaper), 3:183, 192
 Francis, Saint, 2:291
 Franciscan monastic order, 1:427
 Franco, Francisco, 2:364
 Franju, Georges, 3:174
 Frank, Anne, 2:26
Frank Leslie's Illustrated Newspaper, 3:286
Frankenstein (film), 2:292; 3:69
 Frankfurt school
 Adorno, Theodor, 1:6–7
 aesthetics, 1:29
 Benjamin, Walter, 1:184
 communications research, 1:373, 374; 4:488, 495
 crowd behavior, 1:424
 ideology, 2:308–309
 interpretation, 2:346
 literary criticism, 2:447
 Marxist theories, 2:479, 481
 media ethics, 2:108
Frankfurter Allgemeine (newspaper), 3:182, 191
 Franklin, Benjamin, 2:464, 466; 3:31, 395; 4:310
 Pennsylvania Gazette, 1:16
 Franklin, James, 3:305
Frantic (film), 3:174
 Frederick II (emperor), 1:426
 Frederick III (emperor), 3:344
 Frederick II (king), 2:410
 Free, Lloyd A., 1:234
 Freiburg, Victor Oscar, 1:361
 Freed, Arthur, 3:143, 144
 Freedman, Jonathan, 4:37, 39
 Freedom of expression
 copyright, 1:422
 government censorship, 1:246, 247
 libel, 2:420
 media content, 4:293–294
 monopoly, 3:45
 New International Information Order, 3:172
 Freedom of information, 2:15, 232; 4:35, 36–37
 Freedom of Information Act, 4:36
 Freedom of speech, 1:250, 252; 2:420, 421; 3:370
 Freedom of the press
 censorship, 1:251
 citizen access, 1:283
 copyright, 1:415
 European press, 3:192
 Hutchins Commission on a Free and Responsible Press, 2:405; 4:17
 libel, 2:420, 421
 Middle Eastern press, 3:195–197
 Milton, John, 3:24–25
 New International Information Order, 3:170
 newspaper history, 3:180, 182; 4:339–340
 North American press, 3:199
 privacy, 3:370
 public opinion, 3:387
 publishing history, 3:400
 terrorism, 4:232
Freedom's Journal (newspaper), 3:31
 "Freestyle" (TV series), 1:273
 Frege, Gottlob, 3:300; 4:44–45
 Frei, Eduardo, 3:325
 Freire, Paulo, 2:16, 20, 108, 109, 482; 3:429
 Pedagogy of the Oppressed (book), 2:20
 Freleng, Friz, 1:93
 French, Patrice, 4:143
 French Academy, 2:235, 396, 397, 399, 417
French Cancan (film), 3:452
 French language, 2:394, 396, 400
 French National Radio, 2:97
 French Revolution, 3:458, 460, 461
 archives, 1:106
 calendar, 1:230
 censorship, 1:247
 coins, 1:330
 crowd behavior, 1:422
 government regulation, 2:231
 ideology, 2:308
 museums, 3:93
 plebiscites, 3:297
 political communication, 3:307, 308
 postal service, 3:344
 public opinion, 3:387
 romanticism, 3:484
 Frequency allocation. *See* Spectrum
 Frequency modulation (FM), 1:110, 111; 3:420, 422; 4:218–219
 Fresco, 3:84, 87
 Freud, Sigmund, 2:202–203*
 humor, 2:297; 4:88
 ideology, 2:308, 310
 The Interpretation of Dreams (book), 2:202; 3:384
 Jokes and Their Relation to the Unconscious (book), 1:342
 Jung, Carl, 2:376
 literature, 1:162; 2:169, 349
 psychoanalysis, 3:384, 385
 sexism and, 4:56
 sports psychology, 4:165–166
 symbolism, 4:193
 Freudianism, 1:28, 29; 2:185, 186; 4:184
 Freund, Karl, 1:282
 Frey, Frederick, 2:10

Fricatives, 2:387; 3:271, 272
 Friedman, William F., 1:429; 2:105
 Friedrich-Ebert Stiftung (foundation), 1:366
 Friese-Green, William, 3:52
 Friesen, Wallace, 2:145, 147
Fritz the Cat (film), 1:95
 Froebel, Friedrich, 4:14
 Frohman, Daniel, 4:340
 Frokel, Johann Nikolaus, 3:111
Front Page (film), 3:69
 Frontier Films, 2:47
 "Frontiers of Faith" (TV series), 3:444
 Frost, Robert, 2:466
 Frye, Northrop, 2:446; 3:300; 4:193
Anatomy of Criticism (book), 2:216; 4:54
 Fugelsang, Andreas, 2:14
 Fuggers family, 2:273
 "The Fugitive" (TV series), 4:53
 Fujitsu, Ltd., 1:382
 Functional Analysis, 2:96, 203–206*, 489, 494; 3:40, 42, 489–490.
See also Merton, Robert K.
 Functionalism, 1:100–101; 2:5, 6, 175, 186
 Fundamental (vocal frequency), 4:98, 99
 Funerary art. *See* Art, Funerary
 Furet, François, 2:439
 Furtado, Celso, 2:13
 Furu, Takeo, 1:27
 Fust, Johann, 2:264
 Futurism, 2:58; 4:265
 Futzle Nutzle. *See* Kleinsmith, Bruce
Os fuzis (film), 3:73

G

Gabor, Dennis, 1:257
 Gábor, Pál, 3:79
 Gaboriau, Émile, 3:155
 Gadamer, Hans-Georg, 1:28–29, 356; 2:343–348
Wahrheit und Methode (book), 1:102; 2:344
 Gagné, Robert M., 1:154
 Gaines, William, 1:349
 Gainsborough, Thomas, 3:338 (fig.)
 Gainsborough Studios, 2:284
 Gainza Paz (newspaper organization), 3:194
 Gale, Leonard, 3:48
 Galen (physician), 2:357
 Galileo, 2:502; 3:450; 4:272
 Gallaudet, Thomas, 2:209*
 Gallup, George, 1:19; 2:209–210*; 3:327, 488
 Gallup International, 3:328
 Gama, Vasco da, 1:334; 2:125, 126
 Gambia, 2:122
 Game shows. *See* Quiz Show
 Game theory, 1:177, 445; 4:305
 Gamelan, 3:103, 109, 129, 140–141, 149
 Games, 1:137; 2:327, 345, 360; 4:129, 154–155, 165
 Gance, Abel, 1:168, 281; 2:173; 3:63, 248
 Gandhi, Indira, 2:417; 3:170
 Gandhi, Mohandas, 1:144, 145, 338; 2:210–211*; 3:321
Gandhi (film), 2:108
 Gandy, Oscar, 3:352
Gangavataran (film), 3:270
 Gangster films, 3:69, 78
 Gannett (newspaper organization), 3:197
 Gans, Herbert J., 4:197–199
 Garamond, Claude, 4:262
 Garbo, Greta, 3:65
 García, Alan, 2:13
 García Lorca, Federico, 1:217
Blood Wedding (play), 2:59
The House of Bernarda Alba (play), 2:59
Yerma (play), 2:59
 García Márquez, Gabriel, 3:437
 Gardner, Alexander, 3:286
 Gardner, Allen, 1:321
 Gardner, Beatrix, 1:321
 Gardner, Burleigh, 3:80
 Gardner, Howard, 1:265
 Gardner, Robert, 2:111
 Garfinkel, Robin, 2:85
 Garland, Judy, 3:143, 144
 Garnier, Robert, 3:117
 Garrel, Philippe, 1:168
 Garrick, David, 1:6
 Garrison, William Lloyd, 3:395
 Garroni, Emilio, 2:175
 Garrow, David J., 3:324
 Garvey, Marcus, 3:396
 Gatekeepers
 agenda-setting, 1:43
 citizen access, 1:283
 communication models, 3:43
 diffusion, 2:35
 group communication, 2:261
 Lewin, Kurt, 2:419
 mass communications research, 1:371; 2:489
 political communication, 3:314, 315
 sexism, 4:56
 GATT. *See* General Agreement on Tariffs and Trade
 Gaudet, Hazel
The People's Choice (book), 2:309
 Gaumont, Léon, 1:91
 Gaumont Co., 3:70, 202
 Gautier, Théophile, 2:292
 Gay, John
The Beggar's Opera, 3:118
 Gaynor, William J., 3:287
 Gaze
 facial expression, 2:131–134, 143, 147

interaction, face-to-face, 2:325, 326, 327
 interpersonal distance, 2:342, 343
La gazeta de México (newspaper), 3:193
 GE. *See* General Electric Co.
 Geary, Rick, 1:350
 Geertz, Clifford, 1:135, 437; 3:266; 4:139
 Geiger, Theodor, 1:373–374
 Gellner, Ernest
Spectacles and Predicament (book), 4:140
 Gemayel, Bashir, 2:421
 Gender, 2:211–215*. *See also* Men; Sex/gender roles; Women
 animal song, 1:90
 body movement, 1:198, 199
 choreometrics, 1:274
 clothing, 1:310
 dance, 1:453
 festival, 2:164
 interpersonal distance, 2:341–342, 343
 language varieties, 2:402
 masks, 2:484, 485
 media portrayals, 1:273; 2:214; 4:179
 origins of male dominance, 2:212–213
The General (film), 3:65
 General Agreement on Tariffs and Trade (GATT), 2:335; 4:146, 204
 General Electric Co. (GE)
 radio, 1:110, 111, 458; 3:418; 4:156
 Sarnoff, David, 4:4–5
 television, 4:217, 218
General Magazine and Historical Chronicle, 2:464
 General Mobile Radio Service, 1:286
 General semantics. *See* Semantics, General
 Generative phonology, 3:273
 Genet, Jean, 1:342
The Balcony (play), 2:60
 Genetic signals, 4:89
 Genetics, 2:118, 121; 4:306
 Genette, Gérard, 1:289; 3:163, 300; 4:49
 Geneva linguistic school, 2:434
 Genghis Khan, 3:341
 Gennett (company), 4:118
 Genre, 2:215–217*. *See also* individual genres
 fiction, 2:167, 452
 folktales, 2:182, 184
 poetry, 3:301–302
 prose, 3:378
Gentleman's Magazine (London), 2:371, 464
 Geography, 1:240–244, 437; 2:283, 468–470
 Geometry, 2:501; 3:129

- George III (king), 1:236, 330, 338
 George VI (king), 2:498; 4:173
 Georgetown University, 4:146
Georgia Cherokee Phoenix (newspaper), 3:31
 Gerace, Frank
 Comunicación horizontal (book), 2:16
 Gerard of Cremona, 4:271
 Gerbner, George, 1:430, 433, 434; 2:108, 310; 3:37; 4:292
 Géricault, Theodore, 2:242
 German Democratic Republic, 1:155; 3:99, 100; 4:172–173, 223
 German expressionism. *See* Expressionism
 German language, 2:400
 Germany, Federal Republic of
 Agency for Technical Cooperation, 1:41
 Bundespost, 1:224
 computer impact, 1:396
 film, 3:76, 175
 government-media relations, 2:228
 libel, 2:422
 lobbying, 2:453
 magazines, 2:465, 466, 467, 468
 newspapers, 3:179, 182, 191
 polls, 3:330
 privacy, 3:371
 rating systems, 3:427
 sound recording industry, 4:120
 telecommunications, 2:234; 3:46; 4:289
 television, 1:8, 155, 223, 224; 4:223
 Germany, pre-1946. *See also* Hitler, Adolf; Holocaust, Nazi
 art, 1:237; 3:346
 avant-garde, 1:165–166
 coins, 1:330–331
 communications research, 1:362, 371
 film, 2:48, 129–131, 292–293; 3:62–63, 71
 historiography, 2:283
 media ethics, 2:108
 music machines, 3:112
 news agencies, 3:176–177
 newspapers, 3:182, 191
 plebiscite, 3:297, 298
 propaganda, 2:222–223; 3:311, 374
 public speaking, 3:311, 395
 puppetry, 3:411, 412
 sound recording industry, 4:118–119
 stamps, 4:173
 telephone, 4:212, 213
 television history, 4:218
 theater, 4:237, 243
 university, 4:271, 272
 Geremi, Pietro, 3:167
 Gernsback, Hugo, 4:21
 Gershwin, George
 Lady, Be Good (musical), 3:121
 Gerth, Hans H., 1:373
Gertie the Dinosaur (film), 1:91
Gesta Romanorum (book), 2:183
 Gestalt psychology. *See* Psychology, Gestalt
 Gestalt theories, 3:256, 258
 Gesture, 2:217–222*. *See also* Mime
 acting, 1:3–6; 3:124
 animal signals, 1:84–85
 body movement, 1:198, 202; 2:380–381
 body movement notation, 1:204, 208
 children, 1:262–263
 code, 1:313
 cultural variation, 2:219
 dance, 1:274, 452, 454; 2:62; 3:124, 125, 443
 facial expression, 2:132, 143–145
 interaction, face-to-face, 2:325
 neurological bases, 2:220
 sign language, 1:50; 3:106, 293; 4:65–69
 social-gestural mode, 3:33, 35
 speech, 3:235, 254; 4:148–149
 symbolism, 1:357; 2:303; 3:1
 touch, 4:246–249
 Getino, Octavio, 3:73
 GFK (rating system), 3:427
 Ghana, 1:39, 155, 188, 331; 2:227, 228; 3:208–209
Ghanaian Times (newspaper), 3:188
 Gianini, Giulio, 1:94–95
 Gibbs, J. W., 4:318
 Gibbs, Wolcott, 3:178
 Gibson, Hoot, 4:315
 Gibson, James J., 3:258
 Gibson, William, 2:379
 Gide, André, 2:26, 170
 Giedion, Sigfried, 1:99, 100
 Gifts, 1:134
 Gilbert, John, 3:68
 Gilbert, W. S.
 H.M.S. Pinafore (operetta), 3:119
 The Mikado (operetta), 3:119
 The Pirates of Penzance (operetta), 3:119
 Gilbreth, Frank, 1:18; 3:51
 Gilbreth, Lillian, 1:18
 Gilgamesh (epic), 1:442; 2:167; 3:207; 4:257
 Gill, John, 3:181
 Gillette, Frank, 4:285
 Gilligan, Carol, 4:56
 In a Different Voice (book), 2:157
 Gillray, James, 1:236, 344
 Gilmore, Myron, 3:367
Gimme Shelter (film), 1:277
 Giotto di Bondone, 3:276
 Giovio, Paolo, 3:337
 Girard, René
 Violence and the Sacred (book), 1:3
 Giraud, Jean, 1:350
 Giraudoux, Jean, 2:52
The Girl from Utah (musical), 3:121
 Girl Scouts, 2:81
 Gish, Dorothy, 3:62
 Gish, Lillian, 2:259; 3:62
 Gladstone, William, 3:395
 Glasersfeld, Ernst von, 1:446
Glasnost, 1:249; 3:200
The Glass House (film), 2:92
 Glassie, Henry, 1:130, 134
 Glavlit, 1:249
 Glides, 3:271
 Global Atmospheric Research Programme, 4:6
 Global mosque, 2:361
 Global village, 2:463; 3:314; 4:284
 Globe Theatre, 4:108
 Glossematics, 4:46, 49
 Glossolalia, 4:155
 Glottochronology, 1:49
 Godard, Jean-Luc, 1:169, 280, 361; 2:175; 3:174, 175
 Gödel, Kurt, 1:444; 2:502
 Godel, Robert
 Les sources manuscrites du Cours de linguistique générale de F. de Saussure (book), 4:9
 Godkin, E. L., 1:359
Godzilla (film), 2:294
 Goebbels, Joseph, 1:238, 405; 2:108, 222–223*; 3:71, 421
 Goethe, Johann Wolfgang von, 1:162; 2:53; 3:298, 299; 4:192, 237
 Elective Affinities (book), 1:184
 Faust (play), 2:56; 3:412
 Götz von Berlichingen (play), 2:56
 Hermann und Dorothea (poem), 3:299
 Die Leiden des jungen Werthers (book), 2:416
 Von deutscher Baukunst (essay), 1:101, 102
 Goffman, Erving, 2:223–225*
 animal signals, 1:73
 Asylums (book), 2:224
 Forms of Talk (book), 2:224
 frame analysis, 3:264; 4:139
 Frame Analysis (book), 2:224
 Gender Advertisements (book), 2:224
 interaction, face-to-face, 2:326; 4:129
 presentation of self, 1:460; 2:388; 3:339; 4:251
 The Presentation of Self in Everyday Life (book), 2:224
 Gogh, Vincent van, 1:258
 Gogol, Nikolay, 2:293
 Gold and Stock Co., 4:212
 Gold Coast, 3:187, 188, 209. *See also* Ghana
Gold Coast Daily Graphic (newspaper), 3:186
Gold Diggers of 1933 (film), 3:142

- Gold Diggers of 1935* (film), 3:142
The Gold Rush (film), 1:257
 Goldberg, Anatole, 3:423
The Golden Coach (film), 3:452
 Golding, Peter, 2:14
 Goldmann, Lucien, 1:438
 Cultural Creation in Modern Society (book), 2:478
 The Hidden God (book), 2:478
 Towards a Sociology of the Novel (book), 2:478
 Goldmark, Peter, 3:316; 4:114
 Goldschmidt, E. P., 1:159
 Goldsmith, Oliver
 She Stoops to Conquer (play), 2:56
 The Vicar of Wakefield (book), 2:167
Der Golem (film), 2:292
 Gombrich, Ernst, 3:455
 Gómez, Sara, 3:73
 Goncourt, Edmond, 2:16
 Goncourt, Jules, 2:16
Gone with the Wind (film), 3:70
 Gongs, 3:109
 Gonzales, José, 1:351
 González Casanova, Pablo, 2:13
 Goodman, Benny, 4:119
 Goodman, Nelson, 1:28, 265; 3:9, 10, 255, 456–458
 Goody, Jack, 1:35; 2:440; 4:329
 Cooking, Cuisine and Class (book), 2:189
 Gorbachev, Mikhail, 1:249
 Gorgias of Leontini, 3:379
 Encomium of Helen, 3:461
 Goro, Fritz, 3:288
 Goscinny, René
 “*Astérix*” (comic strip), 1:350
 Goshō, Heinosuke, 3:72
 Gospel music, 3:97, 141
 Gossen, Gary, 2:226
 Gossip, 2:107, 225–226*, 455, 498; 3:370, 389, 390
 Gothic novels, 2:292, 452; 3:481, 482, 484
 Gough, Kathleen, 2:440
 Gould, Chester
 “*Dick Tracy*” (comic strip), 1:347
 Gould, James, 1:67
 Gould, Jay, 3:407
 Gouzenko, Igor, 4:167
 Government and culture, 1:436–437
 Government censorship. *See* Censorship—Government Censorship
 Government Regulation, 2:230–234*
 advertising, 1:8, 12, 26, 353, 354
 Africa, 1:40
 Australia, 1:156–157
 censorship, 2:231–232; 3:326, 331, 334
 computer impact, 1:392
 copyright, 1:414–422
 deregulation, 2:232–234
 education, 4:14–16
 monopoly, 3:44–46
 New International Information Order, 3:171
 newspaper history, 3:180–181
 polls, 3:330
 postal service, 3:343, 345
 privacy, 3:370–371
 publishing, 3:397, 404
 radio, 1:286–287; 3:311, 317, 418, 420
 telecommunications policy, 4:205–208
 telephone industry, 4:214–216
 television, 1:223; 3:311, 317; 4:221–227, 285, 293–294
 Government-Media Relations, 2:226–230*
 adversarial press, 2:227, 229
 Africa, 1:39, 40
 antithetical press, 2:227, 229
 Asian press, 3:188, 189–190
 bureaucratic press, 2:228
 functional analysis, 2:204–205
 government secrecy, 4:35
 history, 3:180–181, 308–309
 Latin America, 2:408
 mass media effects, 2:495
 Middle Eastern press, 3:196
 monopoly, 3:44–45
 obesant press, 2:229
 partisan press, 2:228–229
 politicization, 3:326
 symbiotic news organizations, 2:227–228, 229
 Goya y Lucientes, Francisco José de, 1:236; 2:305
 Graburn, Nelson, 4:141, 251–252
 Graef, Roger, 1:278
Der Graf von Luxemburg (operetta), 3:119
 Graff, Harvey, 2:439
 Graffigny, Madame de
 Lettres d'une Péruvienne (book), 2:416
 Graffiti, 2:180; 3:476; 4:57 (fig.), 154
Gräfin Mariza (operetta), 3:119
 Graham, Dan, 4:285
 Grainger, Percy, 2:115
 Grammar, 2:234–238*
 alternatives to generative grammar, 2:237–238
 generative grammar, 2:236–237; 3:263
 language, 2:388, 391
 language reference book, 2:396, 398; 4:311
 linguistics, 2:431–435
 phonology, 3:273
 transformational, 2:236–237, 369
 Universal Grammar, 2:391
 Grammars, 2:396, 398
 Gramophone, 4:113
 Gramophone Co., 4:118–119
 Gramsci, Antonio, 1:438; 2:238–239*, 308, 478, 480, 482; 4:198
Quaderni del carcere, (book), 2:238
 Grand Guignol, 2:57
 Grand National Pictures, 2:287
La grande illusion (film), 3:71, 452
Grandma's Reading Glass (film), 3:58
 Grant, Cary, 2:284
 Grant, Ulysses S., 2:142–143, 256
 Granth, 4:25
 Graphic Reproduction, 2:239–245*;
 3:206, 281, 285, 287, 346–349;
 4:263
 Graphics, 2:245–255*
 cartography, 1:242; 3:468–470
 computer graphics, 1:91, 95, 203, 204, 379; 2:249, 255
 design, 2:4
 matrix theory, 2:245–247
 perception, 3:256, 261
 semiology of, 2:245, 247–253
 signage, 4:80–83
Grass (film), 2:110, 111 (fig.)
 Grassi, Ernesto
 Rhetoric as Philosophy: The Human Tradition (book), 3:464
 Grauer, Victor, 1:230
 Gray, Asa, 3:248
 Gray, Elisha, 2:97; 4:212
 Gray, Harold
 “*Little Orphan Annie*” (comic strip), 1:346
 Gray, William S.
 Dick and Jane readers (books), 4:235
 Great Britain. *See also* England; Ireland; Scotland; *and individual entries under* British
 citizen access, 1:283–284
 College of Arms (The Herald's College), 2:279
 colonialism, 1:38, 155, 339; 3:186–187
 computer impact, 1:397
 Confederation of British Industries, 2:453
 Court of the Star Chamber, 2:420
 film, 2:46–47, 256–258, 284–285; 3:58, 70, 75
 government-media relations, 2:226, 228, 229
 government regulation, 2:231–234
 information services, 4:288
 Jewish Colonization Assn., 2:28
 libel, 2:422
 lobbying, 2:453
 magazines, 2:464, 467, 468
 media monopoly, 3:44–46
 migration, 3:22
 newspapers, 3:181–182, 191
 printing history, 3:357, 363, 364
 professions, 3:374
 Public Record Office, 1:106
 public speaking, 3:395
 radio, 3:419

- Royal Anthropological Institute, 2:113
 Royal Institution Laboratories, 2:155
 slave trade, 4:86
 sound recording industry, 4:118–120
 stamps, 4:173
 telegraphy, 4:210–211
 telephone, 4:212
 television, 1:223, 224; 4:90, 217–218, 221–223, 226, 283, 286
 Trades Union Council, 2:453
The Great Dictator (film), 1:257
Great Ferghana Canal (film), 2:92
The Great Train Robbery (film), 2:172; 3:58; 4:134, 315
 Greece, ancient. *See* Hellenic World
Greed (film), 3:65
 Greek
 language, 2:26, 235, 291; 3:14, 479
 literature, 2:357–358
 script, 1:44–46
 theater, 2:61, 62, 215; 3:116, 219, 301; 4:107, 236–239, 253–255
 Greek Revival architecture, 1:289
 Greeley, Horace, 1:185–186, 359, 458; 2:255–256*; 3:181
 Green, Adolph, 3:143
 Green, Anna Katharine, 3:155
 Green, John R., 2:283
Green Hornet (comic book), 3:156
 Greenberg, Joseph, 2:238
 Greene, Graham, 4:167, 170
 Greenfield, Patricia, 2:392; 3:430
 Greenstein, Fred, 3:320
 Greenwich Mean Time, 1:305
 Greetings, 1:72–73; 2:218, 220, 325; 4:248
 Gregg, Richard B.
 Symbolic Inducement and Knowing (book), 3:464
 Gregorian calendar, 1:226, 228, 230
 Gregorian chants. *See* Chants
 Gregory IX (pope), 3:20
 Gregory XIII (pope), 1:226
 Gregory VII, Saint, 3:16
 Gregory of Nazianzus, 2:29
 Gregory of Nyssa, 2:291
 Greiman, April, 4:268
 Greimas, A. J., 3:163, 300
 Grey, Zane, 2:452; 4:315
Grey Gardens (film), 1:277
 Grey Gull (company), 4:118
 Grgic, Zlatko, 1:95
 Grice, H. Paul, 1:355–356, 409–410; 2:238; 3:1; 4:45, 97
 GRIDSET (computer), 1:384
 Grierson, John, 1:155–158; 2:46–47, 174, 256–259*, 366; 4:281
 Griffin, Donald, 2:121
 Griffith, Coleman Roberts, 4:165
 Griffith, D. W., 1:255, 281, 282; 2:172, 259–260*, 286, 287; 3:61
 Griffo, Francesco da Bologna, 4:262
 Grimault, Paul, 1:95
 Grimm, Jacob, 2:183, 235, 434, 449; 3:272
 Grimm, Wilhelm, 2:183, 449
Gritos, 3:115
 Groos, Karl, 4:165
 Grotefend, Georg Friedrich, 1:442
 Grotowski, Jerzy, 1:3
 Group Communication, 2:260–263*
 communications research, 1:371
 decision-making, 2:262
 interpersonal communication, 2:336
 leadership, 2:261–262, 263
 Lewin, Kurt, 2:418
 network analysis, 3:167–168
 support groups, 2:262
 Group identity, 2:161, 162, 179–180, 299
 Gruner + Jahr (company), 2:468
 GTE, 2:166
 Guarani language, 2:389, 402
 Guccione, Robert, 2:467
 Guerra, Ruy, 3:73
La guerre est finie (film), 4:168
 Guerrilla warfare, 1:335, 338; 2:13
 Guevara, Ernesto "Che," 2:480
 Guibert of Nogent, 3:20
 "The Guiding Light" (radio series), 4:91
 "The Guiding Light" (TV series), 4:91
 Guitar, 2:97
 Gulf and Western, 2:290; 3:405
 Gulfvision, 2:364
The Guns (film), 3:73
 "Gunsmoke" (TV series), 4:220, 316
 Gutenberg, Johannes, 2:263–264*
 books, 1:212, 213, 413; 4:261
 copyright, 1:413
 graphic reproduction, 2:240
 Middle Ages, 3:13, 246
 printing history, 3:356, 357, 365, 366, 369, 387, 402, 450
 Gutenberg-Bladene (magazine publisher), 2:467
 Gutiérrez, Francisco
 Lenguaje total (book), 2:16
 Guyana, 4:172–173
- ## H
- Habermas, Jürgen, 1:7, 356, 460; 2:108, 343, 346, 347, 479
 Communication and the Evolution of Society (book), 2:477
 Theory of Communicative Action (book), 2:477
 Habituation to media violence, 4:291–292
 Hachette Publishing Co., 3:400
 Hadamard, Jacques, 3:35
 Hadden, Briton, 2:456; 3:178
 Hadrian (emperor), 1:123, 327, 412
Haevnens nat (film), 3:62
 Hagen, Everett, 2:17
 On the Theory of Social Change (book), 2:10
 Hägerstrand, Torsten, 2:35
 Hagiography, 1:188
 Hair, 1:313; 2:140–142
 Haire, Mason, 3:80
 Hajj (pilgrimage to Mecca), 2:352, 363; 3:442
 Halas, John, 1:93, 95
 Halberstam, David, 2:227
 Hale, J. R., 2:125
 Haley, Alex
 Roots (book), 2:452
 Haley, Russell, 3:81
 Half-tone process, 1:17; 2:239; 3:287
 Hall, Edward T., 2:340, 341; 3:383
 Hall, Stuart, 2:108
 Halle, Morris, 2:369; 3:273
Hallelujah! (film), 3:67–68
Halloween (film), 2:294
 Halmos, Peter, 2:499
 Hals, Frans, 3:244
 Ham radio. *See* Citizens Band Radio; Radio
 Hamartia, 4:255
 Hamelink, Cees, 2:109
 Hamilton, Alexander, 2:228; 3:181
 Hamilton, Andrew, 4:339
 Hammarskjöld Foundation, 2:15
 Hammer, Mike, 4:170
 Hammer Films, 2:293
 Hammerstein, Oscar, 3:102, 142
 Hammett, Dashiell, 3:156
 Hammond, Laurens, 2:97
 Hammurabi (king), 1:442; 2:410
The Hand (film), 1:94
 Hand preferences, 1:199, 201; 2:220
 Handel, Leo, 3:203
 Handicrafts. *See* Craftwork
 Handler, Richard, 4:251
Handling Ships (film), 1:93
 Hani, Susumu, 3:76
 Hanna, Bill, 1:93
 Hanson, Duane, 4:33
 Haq, Wajih Abdul, 3:141
Harambe (self-help) schools, 2:83
 Harappa, 2:311
 Harary, Frank, 1:323
 Harbou, Thea von, 3:71; 4:20
 Harding, Sandra, 2:157
 Harding, Warren G., 1:353; 2:403; 3:203
 Hardy, Thomas, 1:141
 Tess of the D'Urbervilles (book), 2:349
 Hare, Jimmy, 3:286
 Hare Krishna movement, 3:444
Harijan (periodical), 2:210
Harischandra (film), 3:64
 Harlequin Romances, 3:482

- Harman, Fred
 "Red Ryder" (comic strip), 1:347
 Harmony (music), 3:130, 131
 Harmsworth, Alfred Charles William.
 See Northcliffe, Alfred
 Harmsworth, Harold, 3:181
 Harper, Marion, Jr., 1:20
Harper's (magazine), 2:464
Harper's Weekly (magazine), 1:238;
 2:242; 3:286
 Harris, Benjamin, 3:180
 Harris, Louis, 3:328
 Harris, Oren, 3:426
 Harris, Townsend, 4:246
 Harris, Zellig, 2:236, 435
 Harrison, Jane Ellen, 2:164
 Harrison, Tom, 2:497, 498, 499
 Hart, Johnny, 1:347
 "B.C." (comic strip), 1:347
 Hart, W. S., 4:315
 Hartman, Geoffrey, 1:28, 160; 4:193
 Hartssock, Nancy, 2:157
 Hārūn ar-Rashīd, 2:27
Harvard Dictionary of Music, 3:101
Harvard Law Review, 3:370
 Harvard University, 1:360, 383;
 4:272
 Project Zero, 1:265–267
 Socialist Club, 2:436
 Haskalah, 2:27, 28, 373, 375
 Hassoun, Rizek Allah, 3:195
 Hastings Center, 2:106
 Hastorf, Albert, 1:234
 Hastrup, Jannick, 1:95
 Hatin, Eugène, 1:369–370
The Haunt of Fear (comic book),
 1:349
 Hausa language, 1:32
 Havas, Charles, 3:176, 177
 "Have Gun—Will Travel" (TV se-
 ries), 4:316
 Havelock, Eric, 2:270; 3:379
Al-Hawadeth (newspaper), 3:196
 Hawes, Leonard, 3:236
 Hawkins, John, 3:111
 Hawks, Howard, 1:282; 3:69; 4:316
 Hawthorne, Nathaniel, 2:292
Häxan (film), 3:62
 Hayakawa, S. I.
 Language in Action (book), 4:46
 Haycraft, Howard, 3:157
 Haydn, Franz Joseph, 3:132, 484
 Hayes, C., 1:321
 Hayes, K. J., 1:321
 Hays, Will, 2:403
The Hazards of Helen (films), 3:62
 HBO. *See* Home Box Office
 Hearing, 1:74–80; 4:101–106
 Hearing aids, 3:12
 Hearing impairments. *See* Deafness
 Hearst, George, 2:267
 Hearst, William Randolph, 1:345;
 2:227, 267–268*; 3:70, 181,
 286, 407; 4:312
Hearst Metrotone (newsreel), 3:202,
 205
- Heartfield, John, 3:349
 Heath, D. C., 4:235
 Heath, Stephen, 2:175
 Hebdige, Dick, 4:198
 Hebern, Edward H., 1:429
 Hebrew
 Bible, 2:373, 375
 language, 2:26, 27, 291, 375;
 4:272
 script, 1:44–46
 Hebrew University of Jerusalem,
 Communications Institute, 1:367
 Hegel, G. W. F., 1:29, 357; 2:283,
 308, 347; 3:488; 4:193
 Hegemony
 cultural, 1:438; 2:28; 4:198
 film industry, 2:285–290
 government-media relations, 2:228
 ideology, 2:308, 495
 Marxist theories, 2:238, 478, 482
 political communication, 3:305,
 309–311
 Heidegger, Martin, 1:29, 356, 357
Being and Time (book), 2:344,
 345, 347
The Origin of the Work of Art (es-
 say), 1:102
 Heidelberg University, 4:271
 Heider, Fritz, 1:322–323
*The Psychology of Interpersonal
 Relations* (book), 2:336
 Heine, Thomas Theodor, 1:237
 Heinicke, Samuel, 2:209
 Heinroth, Oskar, 1:68; 2:118
 Heiratic script, 2:87–89
 Helberger, Bruno, 2:97
 Helical scan technology, 4:283, 286
 Heliography, 3:206, 278–279
 Hellenic World, 2:268–274*. *See*
 also individual entries under
 Greek
 architecture, 1:96, 97
 art, 1:111, 114; 3:84
 authorship, 1:412
 coins, 1:326
 education, 1:288; 2:437; 4:12
 historiography, 2:281
 Islam, classical and medieval eras,
 2:357–358
 mathematics, 2:500
 music, 3:108, 111, 133
 poetry, 3:301
 prose, 3:379–380
 public speaking, 2:291; 3:394
 recordkeeping, 2:272–273
 rhetoric, 3:267, 387, 461–462
 Roman Empire, 3:480
 tourism, 4:249
 writing, 1:210; 2:92, 268–270,
 272
 Hellertion, 2:97
 Hellman, Lillian
 Watch on the Rhine (play), 4:167
 Helmholtz, Hermann von, 2:114;
 4:104
 Helms, Richard, 2:40
- Help-wanted ads. *See* Classified Ad-
 vertising
Helsingin sanomat (newspaper),
 3:192
 Helvétius, Claude-Adrien, 2:308
 Hemingway, Ernest, 3:156
Det hemmelighedsfulde X (film), 3:62
 Hempel, Carl, 2:284
 Henley, Nancy, 4:59
 Hennion, Antoine, 3:101
 Henry, Joseph, 3:48
 Henry, O. *See* Porter, William Sidney
 Henry, Patrick, 3:395
 Henry, Pierre, 2:98
 Henry, William E., 1:373
 Henry I (king), 2:274
 Henry VII (king), 1:245
 Henry VIII (king), 1:215, 414–415;
 2:231
 Henschling, Andrée, 3:452
 Hensel, Frank, 1:108
 Henson, Jim, 3:412
 Hepworth, Cecil, 3:58, 270
 Heraclitus, 1:293
 Heraldry, 2:274–280*; 4:75, 80–83
 Herbart, Johann Friedrich, 4:14
 Herbert, Frank
 Dune (book), 4:21
 Herder, Johann Gottfried von, 2:181,
 236, 434, 449
 Volklied (book), 2:181
 Heredity, 1:198; 2:118, 121, 222
 Heresy, 1:246, 250; 3:20, 440–441
 Hergé
 "Tintin" (comic strip), 1:350
 Hermeneutics, 1:28, 102, 356; 2:290,
 343, 446–447; 4:185. *See also*
 Interpretation
 Hermogenes, 1:289
 On Types of Style, 1:287, 289
 Herndon, Marcia, 3:115
 Hero of Alexandria, 1:443
 Herodotus, 1:429; 2:104, 182;
 2:269, 281; 3:341, 379, 407
 Heroes, 2:168, 169
 comics, 1:347, 349
 mystery and detective fiction,
 3:155, 156
 spy fiction, 4:170–171
 westerns, 4:313, 315
Herr Arnes pengar (film), 3:62
 Herriman, George
 "Krazy Kat" (comic strip), 1:345
 Herron, George, 3:395
 Herschel, John, 1:449–450
 Hersh, Seymour, 3:199
 Hershfield, Harry, 1:346
 Hertz, Carl, 3:54
 Hertz, Heinrich, 2:472; 3:417
 Hertzog, Albert, 4:223
 Hervé. *See* Ronger, Florimond
 Herzl, Theodor, 2:28
 Herzog, Herta, 1:373; 2:411; 3:80;
 4:91
 Herzog, Werner, 1:169; 3:76
 Hesiod, 3:301

- Hesire, 4:300
Hessling, Catherine. *See* Henschling, Andrée
Heth, Joice, 1:178
Hets (film), 1:186
Heuristics, 1:136, 137
Heye Foundation, 2:111
Heyer, Georgette, 3:482
Heyl, Henry R., 3:52
Hibbert, Eleanor Buford, 3:482
Hierarchical effect, 2:34–35
Hierarchies
 behavioral patterns, 2:119
 in diffusion, 2:34–35
 inversion of, 2:164; 4:142
 organizational communication, 3:237
 prestige, professional, 3:372–374
 spatial, 4:129
Hieratic script, 2:87, 88 (fig.), 89
Hieroglyphs, Egyptian. *See* Egyptian Hieroglyphs
Hieroglyphs, Mesoamerican, 1:57
Higden, Ranulf
 Polychronicon (book), 2:282
High culture, 1:315, 435, 436; 3:226; 4:50–51, 197–199
High Noon (film), 4:316
High School (film), 1:277
Higher School of Political and Social Science (Czechoslovakia), 1:364
Highlife (African music form), 3:98, 100
Hilberman, David, 1:93
Hilbert, David, 4:305
Hill, Anne
 A Dictionary of Communications and Media Studies, 2:40
Hill, Roger
 Everybody's Shakespeare (book), 4:311
Hill, Sir Rowland, 3:345; 4:171
“Hill Street Blues” (TV series), 4:53
Himmelweit, Hilde, 1:268, 271
Hincks, Edward, 1:442
Hindemith, Paul, 1:291
Hindenburg (zeppelin), 3:344
Hindu
 dance traditions, 4:68–69
 food system, 2:188, 190
 theater, 2:62–63; 3:122–125
Hinduism. *See also* Religion
 public speaking, 2:290; 3:394
 sexism, 4:55
 South Asia, 4:122, 124, 126, 128–129
Hindustan Film Co., 3:270
Hi-Ovis, 2:166
Hippocrates, 2:357
Hiroshima mon amour (film), 3:174
Hiroshima-Nagasaki, August 1945 (film), 2:49
Hirsch, E. D., Jr., 1:28, 29
Hirsch, Paul, 4:198
Hirschfeld, Albert, 1:239
Hirst, F. W., 1:369
Hispanic media, 3:31
Hispanics, in the media, 1:431; 3:29
Histograms, 2:255
Histoire du soldat inconnu (film), 3:65
Historical materialism. *See* Materialism, historical
Historical novels, 2:149; 3:482
Historicism, 1:29; 2:284, 344, 346, 443; 3:433, 488
Historico-critical method, 2:343–348
Historiography, 2:280–284*. *See also* Oral History
 Africa, 1:34–35
 Asia, 2:280–281
 Christian, 2:281–282, 444
 feminist, 2:212
 Greece and Rome, 2:281
 interpretation, 1:29; 2:343, 344
 modern, 1:184; 2:282–284
 monasticism, 2:282
 romanticism, 3:488
 text criticism, 2:282–283
 traditional, 2:280–282
History, oral. *See* Oral History
A History of the Civil War (film), 4:281
Hitachi, Ltd., 1:382
Hitchcock, Alfred, 1:282; 2:284–285*; 3:66, 70, 74; 4:50, 167–168
Hitler, Adolf
 caricature, 4:173
 communications research, 1:371, 372, 373
 diary, 2:25
 diplomacy, 2:37
 espionage, 2:105
 film, 1:257; 2:48; 3:71
 Goebbels, Joseph, 2:222, 223
 Mein Kampf, 1:212
 newspaper history, 3:182
 public speaking, 3:311, 395
Hitori musuko (film), 3:240
Hjelmstev, Louis, 2:175, 434; 3:7; 4:64, 193
 Prolegomena to a Theory of Language (book), 4:49
Ho Chi Minh, 1:144, 145
 The Case against French Colonialism (pamphlet), 1:338
Hobbes, Thomas, 1:110, 342; 2:297, 308, 434
Hobsbawm, E. J., 1:21
Hochberg, Julian, 3:255
Hockham, G. A., 2:166
Hodge, Frederick, 2:111
Hodges, Louis, 2:107
Hodkinson, W. W., 4:340
Hoe, Richard, 3:184
Hoedeman, Co, 1:95
Hoffmann, E. T. A., 2:292
Hoffmanns Erzählungen (film), 3:62
Hogarth, William, 1:235, 344
Hogarth's Act. *See* Engravers' Copyright Act
Hoge Raad van Adel, 2:279
Hoggart, Richard, 4:198
Holbach, Paul-Henri-Dietrich d', 2:308
Holbrook, Josiah, 3:395
Hölderlin, Friedrich, 1:98
Holland, 1:155, 235; 3:434; 4:86.
 See also Netherlands; *and entries under* Dutch
Höllerith, Herman, 1:375
Hollywood, 2:285–290*. *See also* Motion pictures
 animation, 1:92, 93
 antitrust, 2:288–289; 3:46
 beginnings, 2:285–287; 4:315
 censorship, 2:287–288
 European influences, 2:130
 film, characteristics of, 1:138, 141, 166; 4:111
 Griffith, D. W., 2:259
 musical film, 3:142–144
 neorealism, 3:164, 167
 silent film, 3:60, 61–62
 sound film, 3:68–70, 73–75
 stars, 1:257; 4:180–183
 studio system, 2:287
 television, 2:234, 289; 4:220
 trade barrier, 2:289–290, 405
 Zukor, Adolph, 4:340–341
The Hollywood Revue of 1929 (film), 3:142
Holmes, Sherlock, 3:155, 156
Holocaust, Nazi, 2:375, 376
Holocaust (film), 1:278
Holst, Erich von, 2:120
Holsti, Ole, 1:403
Holt, Victoria. *See* Hibbert, Eleanor Buford
Home banking systems, 1:392, 393
Home Box Office (HBO), 1:223–224
Home drama (film genre), 3:240
Home shopping, 2:38
Homeostasis, 1:443–444, 445
Homer, 1:429; 2:193, 215, 281, 345, 444
 Iliad (epic), 2:169–170; 3:301
 Odyssey (epic), 3:301
Homiletics, 2:290–292*; 3:20, 394–395, 462. *See also* Oratory; Religion; Scripture
Homophones, 1:439, 442; 2:87
Homophony, 3:135
Hondo (film), 4:316
Honduras, 2:20, 122
Honegger, Arthur, 1:92; 2:97
 Pacific 231 (music), 4:112
Hong Kong, 4:223–224
Hooch, Pieter de, 3:434
Hooker, Richard, 1:188
Hooper, Claude, 3:426
Hoover, Herbert, 1:353; 4:156
“Hopalong Cassidy” (TV series), 4:316
Hope, Bob, 3:421
Hopkins, Claude, 1:18
Hopkins, John, 4:286

- Horace, 1:289, 340; 2:213, 415, 444; 4:239, 240
Ars poetica (book), 1:27
Horgan, Stephen H., 3:286
Horkheimer, Max, 1:373; 2:108, 308, 455, 479, 488
Dialektik der Aufklärung (book), 1:7
Hormones, 1:81, 83; 4:90
Hornbostel, Erich M. von, 2:114–115; 3:146–147
Hornbostel-Sachs *Systematik*, 3:146–147
Hornius, George, 2:283
Horror fiction, 2:452
Horror Film, 2:130, 292–294*; 3:62, 69; 4:109
Hosoya, Gan, 3:349
Hospitalers, 1:427
Hough, Emerson, 4:315
House of Rothschild (film), 3:69
Houseman, John, 4:311
Housing Problems (film), 2:47, 258
Hovland, Carl, 1:147, 148, 371; 2:294–295*, 411; 4:88
Communication and Persuasion (book), 3:463
The Order of Presentation in Persuasion (book), 3:463
How Yukong Moved the Mountains (film), 2:366
Howard, Cordelia, 1:178
Howard, Eliot, 2:118
Howard, Roy, 4:24
Hrozný, Bedřich, 1:442
Hsiu, Pei, 1:240
Hsiung Fo-hsi, 2:60
Hua chu (talking drama), 2:60
HUAC. *See* United States, House of Representatives Un-American Activities Committee
Hubbard, Gardiner G., 4:212
Hubley, Faith, 1:95
Hubley, John, 1:95
The Hudson Review (journal), 1:219
Hugh of Saint Victor
Diascalicon: De Studio Legendi (encyclopedia), 2:101, 102
Hughes, Everett C., 2:224; 3:372
Hugo, Victor, 2:168; 3:437; 4:257
Cromwell (play), 2:57
Hernani (play), 2:57
Hugo awards, 4:21
Huillet, Danièle, 2:175
Huizinga, Johan, 4:166
Hulme, T. E., 2:446
“Hum Log” (TV series), 4:90
Human Sciences Research Council, 1:367
The Human Torch (comic books), 1:347
Human-Animal Communication, 2:295–296*. *See also* Cognition, Animal
Humanism, 1:289, 354–355; 2:201; 3:333, 447; 4:184
L'humanité (newspaper), 2:229; 3:192
Humboldt, Wilhelm von, 2:236, 431, 434; 3:299; 4:47, 78
Humboldt University, 4:272
Hume, David, 2:454; 3:390, 462
Hummert, Ann, 4:91
Hummert, Frank, 4:91
Humor, 1:342, 343; 2:296–299*, 324–325; 3:268; 4:154–155
Humorous Phases of Funny Faces (film), 1:91–96
Humphrey, Hubert H., 1:276
Hunayn ibn Ishāq, 2:357, 358
The Hunchback of Notre Dame (film), 2:292; 3:65
The Hundred-to-One Chance (film), 3:59
Hungary, 2:215, 278–279; 3:79, 99
Hunt, Leigh, 1:6
The Hunters (film), 2:111
Hunting/gathering societies, 2:212–213
Hupfeld Co., 3:112
Hurd, Earl, 1:92
Las Hurdes (film), 1:218
Hus, Jan, 3:20
Husserl, Edmund, 2:446; 4:48, 64, 77
Huston, John, 2:49
Hutchins, Robert, 2:404
Hutchins Commission on a Free and Responsible Press, 2:405; 4:17
Huxley, Aldous
Brave New World (book), 4:21, 278
Huxley, Julian, 1:68; 2:118
Huygens, Christiaan, 1:303
Huysen, Andreas, 1:165
Education's Lasting Influence on Values (book), 2:300
The Enduring Effects of Education (book), 2:300
Interviewing in Social Research (book), 2:300
Political Socialization (book), 2:300; 3:319
The Secondary Analysis of Sample Surveys (book), 2:300
Survey Design Analysis: Principles, Cases and Procedures (book), 2:300
Of Time and Widowhood: Nationwide Studies of Enduring Effects (book), 2:300
Hyman, Herbert H., 2:299–300*
Hymes, Dell, 2:116–117, 187, 390; 3:263
Hyperbole, 3:10; 4:58
Hyperides, 3:394
- I
- “I Love Lucy” (TV series), 3:243; 4:53, 220
“I Spy” (TV series), 4:168
I Walked with a Zombie (film), 2:293
I Was Born, but . . . (film), 3:64
IBM
computers, 1:375–379, 382, 383, 386
Satellite Business System, 4:206
standards, 4:175, 204
typewriters, 3:357
Ibn ad-Durayhim, Ali, 2:104
Ibn Khaldūn, 3:110
Ibn Rushd, 2:360
Ibn Sīnā
Logica, 4:77
Philosophia Prima, 4:77
Ibsen, Henrik, 2:215; 4:242, 257
A Doll's House (play), 2:58
An Enemy of the People (play), 2:58
Ghosts (play), 2:58
Hedda Gabler (play), 2:58
Pillars of Society (play), 4:257
ICA. *See* International Communication Assn.
Ichikawa, Kon, 1:280; 2:50; 3:75
Iconography, 2:303–307*. *See also* Art; Visual Image
Americas, pre-Columbian, 1:57, 61
artifacts, 1:130, 134
Egyptian hieroglyphs, 2:87, 91–92
religious images, 3:443; 4:33–34
signage, 4:80–83
symbolism, 1:259; 2:6; 3:33, 35; 4:193
Iconology, 1:208; 2:303, 304
Iconoscope, 2:156; 4:341
Icons, 2:303; 4:47, 62, 63, 74, 75, 77, 295–296
L'idée (film), 1:92
Identification, 3:386; 4:178
Ideograms, 2:89, 91
Ideographs, 1:209–211; 2:73; 4:103
Ideology, 2:307–311*. *See also* Language Ideology
censorship, 1:248–249, 251
code, 1:315
critical approaches, 2:309–311
deceptive, 1:459–460, 461
early conceptions, 2:308
education, 2:84
feminist theories, 2:157–160
iconography, 2:304–305
imperialism, 1:144, 339
literacy, 2:438, 439
literary canon, 2:169, 442–443
Marxist theories, 2:238, 239, 476–479; 3:101
mass communications research, 1:430; 2:308–309, 491, 494, 495
propaganda, 3:375
religion, 3:439–444
stars, 4:179
Idiolect, 4:186
Idiophones, 3:146

- Idler* (newspaper), 3:181
 Idolatry, 3:455
 IEEE. *See* Institute of Electrical and Electronic Engineers
Ikiru (film), 2:381, 382
 Ikoma, Raiyu, 1:186
 Ilford Co., 3:281
 Illich, Ivan, 2:83, 108, 109
 Illiteracy. *See* Literacy
 Illocutionary acts, 1:355; 4:45–46
Illustrated London News (newspaper), 3:285
L'illustration (magazine), 3:285
Die illustrierte Zeitung (magazine), 3:285
 Ilyenko, Yuri, 3:78
 Imagery, visual, 2:305–306; 4:137, 139. *See also* Visual Image
 Imam Mohamed Ibn Saud Islamic University, Higher Institute of Islamic Communication (Saudi Arabia), 1:368
 Imam Muhamed Ibn Abdel Wahhab University (Saudi Arabia), 2:364
 Imhof and Mukle (company), 3:112
 Imitation. *See also* Mimesis
 animal song, 1:89
 classicism, 1:287–290
 literary criticism, 2:349, 350, 351, 444, 445
 visual image, 4:294, 296
 Immigrant press, 3:30–32
 Imparja (broadcasting consortium), 1:157
 Imperialism, 1:144, 331–339; 3:189. *See also* Cultural imperialism
 Impression management theory, 1:149
 Impressionism, 1:258; 2:128; 3:63, 437; 4:298, 304
 Imprinting, 2:119, 121
 Improvisation, 3:97, 101–104, 232
In the Land of the Head Hunters (film), 2:110
The Incredible Hulk (comic book), 1:349
 Incunabula, 3:368, 450; 4:261
 Independence movements, 1:144, 145, 338; 3:189; 4:15. *See also* Nationalist movements
Independent (Korean newspaper), 3:189
Independent (London newspaper), 3:182
 Independent Broadcasting Authority (Great Britain), 4:222
 Index, 1:265; 4:47, 62–63, 75
 Index of Forbidden Books, 1:215, 246, 247; 2:230; 3:398
 Index of the Council of Trent, 2:230
Index to Journals in Communication Studies through 1985, 1:359
 Indexes
 books, 1:212; 2:101; 3:368
 data, 3:225–226
 Indexicals, 1:355; 3:3
- India. *See also* Asia, Twentieth Century; South Asia, Ancient
 agricultural development, 2:19
 audiovisual education, 1:154, 155
 Bhopal disaster, 3:325
 Brahmi script, 2:311
 communications, study of, 1:365, 366
 dance, 1:454; 2:62, 63; 3:124, 125
 film, 2:465; 3:64–65, 73, 76–78, 144, 157–158, 270
 Gandhi, Mohandas, 1:338; 2:210–211
 history, 1:146; 2:280, 437, 440; 3:343; 4:121–129
 music, 3:130–132, 133, 141, 146–148, 152
 National Film Archives, 3:78
 National Institute of Community Development, 1:366
 public speaking, 3:394
 Sanskrit grammarians, 2:235
 script, 1:46
 SITE project, 1:157
 sound recording industry, 4:118
 television, 4:90, 224
 theater, 2:62, 63 (fig.), 64; 3:122–125; 4:238
 women's status, 4:55
 Indian Bureau (U.S.), 2:439
Indian Express (newspaper), 3:183
 Indian Institute of Mass Communication, 1:365
Indian Journal of Communication, 1:365
 Indiana University, Research Center for Language and Semiotic Studies, 4:49
 Indic languages, 4:123–124
 Indirect communication, 1:357
 Individualism, 1:112; 2:177–178, 345, 440; 4:310
 Indoctrination, 1:249; 2:222, 223; 3:83–84, 307, 310–311. *See also* Propaganda
 Indonesia
 agricultural development, 2:19
 music, 3:103, 133, 141
 music theater, 3:125
 PALAPA satellite system, 1:157; 2:86–87
 puppetry, 4:107
 social marketing programs, 2:22
 Sukarno government, 1:40
Indonesia Calling (film), 2:364
 Indus Script, 2:311–314*. *See also* Writing
 Industrial Revolution, 4:165, 262–263
 Industrialization, 1:16–18; 4:15–16
 Industry, 2:10; 3:313
 Infants, 1:199; 2:143–144, 148, 217, 220; 4:247. *See also* Children
 Inference, 1:148, 409–410
 Influence, 2:339; 3:40, 41; 4:94
- Information
 campaigns, 2:18–20, 300
 censorship, 1:246–252
 control, 3:312; 4:278
 distortion, 2:40–41; 3:489–490
 industry, 1:396–397
 knowledge gap, 2:494, 496
 in network analysis, 3:168
 overload, 2:261
 policies, 1:381–382; 3:370–371
 standards, 4:174
 storage and retrieval, 2:422–430
 technologies, 1:398–399; 3:198; 4:287–289
 Information flow
 diffusion, 2:32
 information theory, 2:314–320
 mass communications research, 2:491
 New International Information Order, 3:168–174
 opinion leader, 3:222
 political communication, 3:316–317
 rumor, 3:489–490
 spectrum, 4:144, 145–146
 telecommunications policy, 4:205, 206
 Information processing, 1:147, 148–149; 2:245–255, 319; 3:239; 4:60–61. *See also* Cognition
 Information science. *See* Library—History; Library—Trends
 Information society
 computer impact, 1:381, 382, 398–399
 interactive media, 2:329
 library trends, 2:429, 430, 431
 Information Theory, 2:314–320*
 Cherry, Colin, 1:257–258
 cybernetics, 1:443, 444; 3:209–210
 extensions of, 2:319–320
 limitations of, 2:319
 Osgood, Charles, 3:239
 redundancy of information, 4:185
 Shannon, Claude, 4:59–61
 statistical theory of communication, 2:316–318
 structural models, 2:318–319
 Weaver, Warren, 4:309
 Wiener, Norbert, 4:318–319
The Informer (film), 2:130
 Ingarden, Roman, 3:433
 Inglehart, Ronald, 1:433, 434
 Ink, 1:211–212; 3:354, 356, 359
 Inman, Arthur, 2:25
 INMARSAT. *See* International Maritime Satellite Organization
 Innis, Harold, 1:362; 2:320–321*, 440, 491; 3:313, 379
The Bias of Communication (book), 2:320
Empire and Communications (book), 2:320
 Innocent III (pope), 3:16

- Innocent IV (pope), 1:427
- Innovation
 art, 1:112, 113, 141; 3:488
 diffusion of, 2:11, 14, 31–36, 494;
 3:41; 4:95
 group communication, 2:263
 oral culture, 2:178; 3:228
- Inquisition, the, 1:215; 2:375; 3:20,
 440
- Inscriptions
 Aśoka, 1:146
 Byblos, 1:219–220
 cuneiform, 1:442
 East Asia, ancient, 2:73
 Egyptian hieroglyphs, 2:92
 Nineveh, 3:206
 Roman Empire, 3:473
 South Asia, ancient, 2:73; 4:123
 writing, 4:325, 326, 329, 332
- Insects, Social, 1:63, 69, 70, 73, 75,
 77–78, 79, 81, 83, 88; 2:120,
 321–323*
 ants, 1:67, 69, 70
 bees, 1:65, 67, 68, 69, 75
 moths, 1:81
- “Insight” (TV series), 3:445
- Insignia. *See* Heraldry
- INSPEC, 2:428
- Instinct, 1:455; 2:117–122
- Institut de Filmologie
Review (journal), 2:174
- Institut de Recherche et Coordination
 Acoustique Musique, 2:99
- Institut Français de Presse, 1:362
- Institut für den Wissenschaftlichen
 Film, 2:110
- Institute for International Social Re-
 search, 1:233
- Institute for Latin America, 2:407
- Institute for Papuan New Guinea
 Studies, 2:113
- Institute for Propaganda Analysis
 (U.S.), 3:378
- Institute for the Study of the Press
 (Germany), 1:362
- Institute of Electrical and Electronic
 Engineers (IEEE), 2:157; 4:174,
 175
- Institute of Journalism (Ghana),
 1:368
- Institute of Journalists (Great Brit-
 ain), 1:362
- Institute of Press Science (France),
 1:362
- Institute of Studies in Journalism
 (Czechoslovakia), 1:364
- Instituto Cubano del Arte y Industria
 Cinematográficos, 3:73
- Instituto Interamericano de Ciencias
 Agrícolas, 1:367
- Instituto Latinoamericano de Estudios
 Transnacionales, 2:16–17
- Instruction. *See* Education; Teaching
- Insult, 2:218, 220, 297, 323–325*,
 419, 422; 4:100, 155
- Intaglio, 1:244; 2:240; 3:359, 360,
 363, 364
- Integrated circuits. *See* Circuits, inte-
 grated
- Integrated Services Digital Network
 (ISDN), 2:167; 4:202, 203, 205,
 207
- Intel, 3:13
- Intellectuals, role of, in society,
 2:238–239, 478, 480
- Intelligence gathering
 computer impact on military af-
 fairs, 1:384
 content analysis, 1:405
 espionage, 1:428, 429; 2:104
 government censorship, 1:248
 telecommunications, 4:6–7, 211
- Intelligence quotient (IQ), 1:294;
 2:85
- INTELSAT. *See* International Tele-
 communications Satellite Con-
 sortium
- Intention, 1:150, 151; 3:1–3, 263,
 375, 376
- Intention movements, 2:120, 147
- Intentionality, 1:27–29, 119; 3:464
- Interaction, Face-to-Face, 2:325–
 328*. *See also* Conversation; So-
 cial interaction
 bargaining, 1:177
 context analysis, 2:326
 deception, 1:460
 Goffman, Erving, 2:223–224
 gossip, 2:225–226
 interpersonal communication,
 2:336–339
 nonverbal communication, 2:131–
 134, 217–222, 340–343, 380–
 381; 3:383
 oral culture, 2:180–181; 3:227,
 228
- Interaction, small-group, 1:202;
 2:260, 298, 494; 4:85, 306
- Interaction chronograph. *See*
 Chapple, Eliot
- Interactional theory, 2:338–339
- Interactive Media, 2:328–330*
 citizens band radio, 1:285–287
 computer impact, 1:388–391
 data base, 1:456
 policy issues, 2:329–330
 political communication, 3:314,
 316
 radio, 2:21–22, 123–124
 telephone, 4:212–216
 videotex, 4:287–289
- Inter-Allied Propaganda Commission,
 2:436
- Interamerican Institute of Agricultural
 Studies, 1:367
- Interamerican Press Assn., 3:194
- Intercontinental ballistic missile
 (ICBM), 1:384
- Intercultural Communication, 2:330–
 332*
- Africa, 1:35
 attitude systems, 1:339; 2:125–
 126; 4:42–43
 language varieties, 1:32–33;
 2:402–403
 religion, 3:439–440, 443–444
 social skills, 4:96, 98
- Interest groups. *See* Special-interest
 groups
- Intergovernmental Bureau of Infor-
 mation, 2:335
- Intermediaries, 1:392–393; 2:453
- International Advanced School of
 Journalism (Cameroon), 1:368
- International Assn. for Mass Com-
 munications Research, 2:335
- International Assn. for Semiotic Stud-
 ies, 4:49
- International Bank for Reconstruction
 and Development. *See* World
 Bank
- International Business Machines. *See*
 IBM
- International Center for Advanced
 Studies in Journalism in Latin
 America, 1:366–367
- International Civil Aviation Organi-
 zation, 2:334
- International Commission for the
 Study of Communication Prob-
 lems. *See* MacBride Commission
- International Committee on Ethno-
 graphic Film, 2:111
- International communication, 2:16,
 333; 3:168–174, 316–317;
 4:158–161, 163
- International Communication Assn.
 (ICA), 1:359; 2:335
- International Consultative Committee
 for Radio (CCIR), 4:145, 176
- International Consultative Committee
 for Telephone and Telegraph
 (CCITT), 4:145, 174, 175
- International Copyright Act, 1:418
- International Copyright Union,
 1:418–420
- International Council on Archives,
 1:106
- International Documentation and
 Communication Center, 2:335
- International Encyclopedia of Unified
 Science*, 3:47
- International Federation of Film Ar-
 chives. *See* FIAF
- International Federation of Informa-
 tion Processing, 2:335
- International Federation of Journal-
 ists, 2:335; 3:171
- International Federation of Newspa-
 per Editors, 3:171
- International Fingerspelling Alphabet,
 4:69
- International Frequency Registration
 Board, 4:145
- International Institute for the Train-

- ing of Journalists (Hungary), 1:368
- International Institute of Communications, 2:335
- International Journal of American Linguistics*, 1:191
- International Maritime Consultative Organization (IMCO), 2:334
- International Maritime Satellite Organization (INMARSAT), 2:335; 4:7
- International Organization for Standardization (ISO), 4:174, 175
- International Organization of Journalists, 1:368; 2:335
- International Organizations, 2:332–336*. *See also individual organizations*
- computer impact on world economy, 1:398
- development communication, 1:145; 2:9–22
- diplomacy, 2:36–37
- standards, 4:174
- telecommunications, 2:109; 4:9, 144, 145, 204
- United Nations, 2:333–335
- International Phonetic Alphabet (IPA), 4:75
- International Press Institute, 2:335; 3:171
- International Press Publishers, 2:335
- International Program for the Development of Communication (IPDC), 2:334, 364, 172
- International Psychoanalytic Society, 2:376
- International Research Associates, 3:328
- International Telecommunication Union (ITU)
- computer impact, 1:382, 398
- government regulation, 2:233
- international organizations, 2:332–335
- spectrum, 4:145, 146, 147
- telecommunications, 4:9, 174, 175, 204, 207
- International Telecommunications Satellite Consortium (INTELSAT), 1:41; 2:335, 363, 408; 4:7
- International Telegraph Union, 4:145
- International Telephone and Telegraph (ITT), 2:157
- International Thomson Organization, 3:181
- International Typeface Corp., 4:266
- Internationalization, 2:467–468
- Interpersonal Communication, 2:336–340*. *See also Interaction, Face-to-Face*
- communications research, 2:159–160, 491
- nonverbal communication, 2:340–343; 4:246–249
- Sullivan, Harry Stack, 4:188
- Interpersonal Distance, 1:200, 202, 313; 2:325, 340–343*; 4:129, 131, 246–249
- Interposition, 3:255, 260
- Interpretant, 3:249; 4:48, 74–75
- Interpretation, 2:343–349*. *See also Hermeneutics*
- aesthetics, 1:28–30
- authorship, 1:158, 160
- cognition, 1:318
- communication philosophies, 1:355
- ideology, 2:310
- literary, 2:349, 350, 444–447; 3:9, 302; 4:187
- phenomenological, 2:330; 4:18–19
- psychoanalytical, 2:185–187; 3:384–386
- reading theory, 3:433–434
- religion, 3:440, 441
- semiotics, 4:47
- sign, 4:64–65
- structuralism, 4:184
- symbolism, 4:193
- translation, 4:257–261
- Interpretive communities, 1:29; 2:437; 3:434
- INTERSPUTNIK, 2:335
- Interstellar communication, 1:252–253
- Intertextuality, 1:160; 2:64, 349–351*, 452; 3:299; 4:54. *See also Reading Theory*
- Intervals, music, 2:115; 3:139–141
- Interviewing
- evaluation research, 2:123
- opinion measurement, 3:223, 224, 225
- oral history, 3:229–231
- techniques, 1:402; 3:6, 80, 329, 353–354
- Intervision, 4:224
- Intimacy, 2:336, 340–343; 4:247, 248, 249
- Intolerance* (film), 1:281, 282; 2:259; 3:61
- Intonation
- music, 3:139, 148; 4:99
- speech, 2:325, 388; 3:254; 4:102
- Intrapsychic communication, 2:203, 376; 4:306
- Introspection, as a research technique, 1:401–403; 4:93
- Inuit, 2:43, 176; 3:131
- The Invasion of the Body Snatchers* (film), 2:294; 4:22
- Ionesco, Eugène
- The Bald Soprano* (play), 2:60
- The Lesson* (play), 2:60
- IPDC. *See* International Program for the Development of Communication
- IQ. *See* Intelligence quotient
- Iran, 1:228; 3:311, 323, 460, 461; 4:222. *See also* Islam, Classical and Medieval Eras; Islamic World, Twentieth Century
- Irani, Ardeshir M., 3:73, 144
- Iraq, 3:196
- Ireland, 2:410; 3:22, 98
- The Iron Claw* (film), 3:62
- The Iron Horse* (film), 4:315
- Irony, 2:351, 446; 3:10, 300
- Isaac (interpreter), 2:27
- Isaacs, John D., 3:48
- ISDN. *See* Integrated Services Digital Network
- Iser, Wolfgang, 1:28; 3:433
- Isidore of Seville
- Originum seu etymologiarum libri XX* (encyclopedia), 2:101, 102
- Iskra* (newspaper), 3:199
- Islam, Classical and Medieval Eras, 2:351–361*
- architecture, 1:99
- books and writing, 1:211; 2:353, 355–356
- calendars, 1:228
- coins, 1:327, 329
- Crusades, 1:424–428
- Diaspora, 2:27
- espionage, 2:104–105
- library history, 2:424, 425
- music, 3:110, 124–125, 130
- number, 3:213
- postal service, 3:343
- Islam (religion). *See also* Islam, Classical and Medieval Eras; Islamic World, Twentieth Century
- homiletics, 2:290–291
- prohibitions against images, 1:114, 116; 3:335
- scripture, 4:25
- women in, 4:55–56
- Islamic Broadcasting Union, 2:335
- Islamic World, Twentieth Century, 2:361–364*
- broadcasting, 3:445–446; 4:221, 222
- communications, study of, 1:367–368
- revolution, 3:323, 460, 461
- Isn't Life Wonderful* (film), 2:259
- ISO. *See* International Organization for Standardization
- Isocrates, 3:293, 379
- Against the Sophists* (book), 3:461
- Antidosis* (book), 1:161
- Isoglosses, 2:400
- Israel
- editorship, 1:248
- communications, study of, 1:367
- Diaspora, 2:28–29
- Judaism, 2:292, 374, 375
- newspapers, 3:196
- television, 4:283
- Istoriya grazhdenskoi voini* (film), 4:281

- Italy
 architecture, 2:4; 3:448
 art nouveau, 3:346
 city-states, 3:387
 coins, 1:330
 film, 3:59–60, 71–72, 73, 164
 government-media relations, 2:226, 228, 229
 humanism, 1:354–355
 language, 2:400
 Ministry of Posts and Telegraphs, 2:472
 newspapers, 3:192
 opera, 3:217–220
 puppetry, 3:412
 Renaissance, 3:447–451
 television, 2:234; 4:90, 222–223
 theater, 3:117; 4:243
 university, 4:271, 272
Itihāsa (book), 2:280
It's Always Fair Weather (film), 3:144
 ITT. *See* International Telephone and Telegraph
 ITU. *See* International Telecommunication Union
Ivan Grozny (film), 2:92; 3:72
 Ivanov, Alexander, 1:92
 Ivanov, V. V., 3:301; 4:49
 Ivens, Joris, 2:48, 364–366*; 3:65
La Seine a recontré Paris (film), 2:366
 Ives, Charles, 3:141
 Ivins, William M., 3:35
Prints and Visual Communication (book), 2:242
 Ivory Coast, 2:18
 Iwasaki, Akira, 2:49
Iwe Irohin (newspaper), 3:186
 Iwerks, Ub, 2:41
Izvestia (newspaper), 3:180, 192, 200
- J**
 Jacob, François, 2:502
 Jacquard, Joseph-Marie, 1:173
 Jacquard loom, 1:374–375
Jaguar (film), 2:111
 Jairazbhoy, Nazir, 3:129
 Jakobovits, Leon, 4:43
 Jakobson, Roman, 2:369*
 film editing, 2:172
 linguistics, 1:265; 2:417, 434; 4:103
 metaphor, 3:10
 poetics, 3:298, 299, 300, 304
 semiotics, 4:48
 sign, 4:63, 78
 speech play, 4:154
 Jamaican Creole language, 2:401
 James, Henry, 2:169, 292, 351, 417
 James, William, 1:354; 2:169, 170, 369–371*; 3:249, 463
Pragmatism: A New Name for Some Old Ways of Thinking (book), 2:370
The Principles of Psychology (book), 2:370, 504
The Varieties of Religious Experience (book), 2:370
The Will to Believe and Other Essays (book), 2:370
 Jameson, Fredric, 1:28; 2:216
 Jamías, Juan, 2:14
 Jancsó, Miklós, 1:283; 3:79
 Jandy, Edward, 1:410
Jane (film), 1:276
 Janet, Pierre, 2:376
 Jankovics, Marcell, 1:95
 Jannings, Emil, 3:68
 Janowitz, Morris, 1:371
 Janssen, Pierre-Jules-César, 3:49, 52, 53
 Japan. *See also* Asia, Twentieth Century; East Asia, Ancient; Tokugawa Era: Seclusion Policy
 baseball, 4:165
 caricature, 1:238
 communications education, 1:365–366
 computers, 1:379, 382, 395–397
 drama, 2:53, 60
 film, 1:93, 95, 186; 2:381–382; 3:64, 76–78, 240
 film industry, 3:72–73
 foreign relations, 3:161; 4:163, 245
 history, 2:71–76, 280–281
 as industrial power, 1:338
kanban, 1:14, 15 (fig.)
 language, 2:71
 libel, 2:422
 media monopoly, 3:45, 46
 Meiji Restoration, 1:143; 4:245, 246
 music, 3:109–110, 127–128, 133
 newspaper history, 3:188–191
 portraiture, 3:335
 printing history, 1:211; 3:355
 puppetry, 3:408
 radio, 1:283; 3:419, 421, 422
 sound recording, 4:120, 121
 stamps, 4:172, 173
 telecommunications, 2:166; 3:316; 4:289
 telephone, 4:214
 television, 2:86, 87; 3:427; 4:221, 223, 289, 293
 theater, 1:5; 2:62, 63–64, 66; 3:127–128; 4:237, 238, 242 (fig.)
 writing, 4:327
 Japan Broadcasting Corp. *See* NHK
 Japan Newspaper Publishers and Editors Assn., 1:366
 Japanese National Theater, 3:408
 Jarry, Alfred
Ubu roi (play), 3:412
 Jaspers, Karl, 1:354, 423; 2:107
 Jaus, Hans Robert, 1:28
- Java, 3:102, 109, 129–131, 140, 149, 409
 Jazz, 1:140; 3:98, 102–103, 121, 131, 141; 4:87
Jazz Comedy (film), 3:72
The Jazz Singer (film), 2:287; 3:69, 142
 Jeanneret, Charles-Édouard. *See* Le Corbusier
 Jefferson, Gail, 1:408
 Jefferson, Thomas, 2:194, 228; 3:395
Jeffersonian (newspaper), 2:255
 Jencks, Charles, 1:101
 Jenkins, C. Francis, 2:80; 3:52, 57
 Jenkins, Roy, 3:211
 Jennings, Humphrey, 2:49, 258, 497
 Jenny, Laurent, 2:350
 Jenson, Nicolas, 1:245; 3:369; 4:261
 Jephson, Henry
The Platform (book), 2:231
 Jeremiah, 4:25
Jesse James (film), 4:315
 Jestbooks, 2:448
 Jesus, 1:426; 2:65, 281, 282, 290; 3:394–395; 4:255
Jet (magazine), 3:179
 Jevons, Frank Byron, 3:379
 Jevons, William S., 4:77
 “The Jewel in the Crown” (TV series), 4:53
 Jewish script. *See* Hebrew, script
 Joachim of Fiore, 2:282
 Jochi University (Japan), 1:365
 Jodorosky, Alexandro, 3:79
 Johann of Speyer, 1:413
 Johansson, Gunnar, 3:258
 John of Salisbury, 4:77
 Johns-Heine, Patrick, 1:373
 Johnson, Eldridge, 4:113
 Johnson, Joseph French, 1:359
 Johnson, Lyndon B., 3:29; 4:4, 230, 319
 Johnson, Mark, 3:9
 Johnson, Samuel, 1:159, 289; 2:215, 371–372*; 3:181; 4:311
A Complete Vindication of the Licensors of the Stage (book), 2:371
Dictionary of the English Language, 2:371, 372, 396, 398; 4:311
A Journey to the Western Islands of Scotland (book), 2:371
Preface to Shakespeare (book), 4:256
Prefaces, Biographical and Critical, to the Works of the English Poets (book), 1:189; 2:445
Rambler, 1:189; 2:371
Rasselas (book), 2:371
 Johnstone, Henry W., Jr.
Philosophy, Rhetoric, and Argumentation (book), 3:463
 Joinville studio, 3:70
 Joking, 1:342, 343; 2:179, 299, 324; 3:384; 4:154

- Jolson, Al, 2:287; 3:142
 Joly, Yves, 3:412
 Jonas, Justus, 2:460
 Jones, Buck, 4:315
 Jones, Chuck, 1:93
 Jones, Daniel, 2:398
 Jones, Inigo, 1:289; 2:486
 Jones, Kennedy, 3:181
 Jonson, Ben, 1:340; 2:169, 486; 4:256
 The Alchemist (play), 2:54
 Volpone (play), 2:54
 Jordan, 3:196
 Jordan, I. King, 4:72
 Josephus Flavius, 2:423
 Josquin des Prez, 3:449
 Journal. *See* Diary
Journal des Scavans, 2:464
Journal of Broadcasting and Electronic Media, 1:359
Journal of Communication, 1:359
 Journalism. *See also* Newspaper: History; *and entries under* Newspaper: Trends
 advertising history, 1:16
 agenda-setting, 1:42
 Beaverbrook, 1st Baron, 1:182
 Bennett, James Gordon, 1:185–186
 caricature, 1:236–240
 censorship, 1:247–249, 251–252
 communications education, 1:358–368
 communications research, 1:369–370
 documentary, 2:42–51
 gatekeeping, 1:43; 3:43
 Hearst, William Randolph, 2:267–268
 information subsidies, 3:352
 investigative, 1:459; 3:199
 journalists, 3:324
 Kenyatta, Jomo, 2:379–380
 libel, 2:419–422
 Lippmann, Walter, 2:436–437
 Luce, Henry, 2:455–456
 Marxist theories, 2:481
 mass media effects, 2:492–497
 media ethics, 2:106–107; 4:231–232
 monopoly, 3:45
 New International Information Order, 3:171, 173
 newsmagazines, 3:178–179
 newsreels, 3:200–205
 Northcliffe, Alfred, 3:210–211
 Ochs, Adolph S., 3:217
 political communication, 2:94–96; 3:304–312
 popular, 2:448
 pressure groups, 3:350–352
 Pulitzer, Joseph, 3:406–407
 Reith, John, 3:438–439
 television news, 4:228–230
 “Thought News,” 2:23; 3:246
Journalism Quarterly, 1:359
Journey into Fear (film), 4:312
- Joyce, James, 2:168, 169
 Ulysses (book), 3:437
 Judaism, 2:372–376*. *See also* Diaspora; Religion; *and entries under* Hebrew
 anti-Semitism, 2:374–375
 art, 1:114, 123
 calendars, 1:225, 230
 food, 2:188
 historiography, 2:281
 homiletics, 2:290–292
 Jewish identity, 2:374, 376
 Jewish law and writing, 2:372–373
 religious broadcasting, 3:444
 scripture, 4:25
 sexism, 4:55
Judex (film), 3:62
Jugendstil, 3:349
Juju (music), 3:100
 Jukeboxes, 1:421; 3:112; 4:113
 Jules-Rosette, Bennetta, 4:252
 Jung, Carl, 2:185, 186, 203, 376*, 458; 4:193
Jungfrukällan (film), 1:186
Junggrammatiker, 2:235–236
 Jurgensen, Fritz, 1:239
 Justinian I (emperor), 2:410
 Juula Manding language, 1:32
 Juvenal, 1:340
 Juvenile delinquency, 4:289–290
- K**
- Kabuki
 acting, 1:3
 benshi, 1:186
 dance, 1:451
 drama, 2:54, 64, 66; 3:126–128; 4:178, 238
 puppetry, 3:408
 Kael, Pauline, 2:259
 Kafka, Franz, 2:216
Kagemusha (film), 2:382
 Kahles, Charles
 “Hairbreadth Harry” (comic strip), 1:346
 Kahn, David
 The Codebreakers (book), 2:104
 Kais, Ernst, 3:385
 Kaiser, Georg
 Gas (play), 2:129
 Kalatozov, Mikhail, 3:78
 Kalem (film company), 2:287; 4:180
 Kalevala (epic), 3:231
 Kālidāsa
 Śakuntalā (play), 2:53
 Kaluli (Papua New Guinea), 1:263; 2:392; 3:129, 130; 4:106
 Kama Sutra, 1:200; 2:137, 139
 Kamau, Johnstone. *See* Kenyatta, Jomo
Kameradschaft (film), 3:71
 Kampfner, Engelbert, 4:246
 Kandinsky, Wassily, 2:128
- Kant, Immanuel, 1:316, 341; 3:8; 4:78
 aesthetics, 1:27, 165; 2:173, 343, 344; 3:302
 Critique of Judgment (book), 1:27; 2:445, 446
 Critique of Pure Reason (book), 3:248
 deception, 1:461
 ethics, 2:108
 romanticism, 3:488; 4:192
 Kao, K. C., 2:166
 Kaplan, Bernard, 1:265
 Kapoor, Raj, 3:145
 Karcevskij, Sergej, 4:48
 Karl Marx University (Leipzig), 1:363
 Karloff, Boris, 2:292, 293; 4:19
 Karmen, Roman, 2:48
 Karmiloff-Smith, Annette, 2:391
 Karnad, Girish, 3:78
 Karno, Fred, 1:255
 Kashruth, 2:188
 Kathak (dance genre), 3:124
 Kathakali (theater genre), 2:62, 63 (fig.); 3:124, 125
 Katsu, Shintaro, 2:473
 Katz, Elihu, 1:410, 423; 3:40–41, 222
 Personal Influence (book), 2:309
 Katz, Jerrold J., 3:4
 Kauffer, Edward McKnight, 3:347
 Kaufman, Denis A. *See* Vertov, Dziga
 Kaufman, Mikhail, 1:280; 2:45; 4:281
 Kawalerowicz, Jerzy, 3:79
Kawaraban (newsletter), 3:189
 Kazimierzczak, Waclaw, 2:49
 Kean, Edmund, 1:6
 Keating, Tom, 2:198
 Keaton, Buster, 3:65
 Kees, Weldon
 Nonverbal Communication (book), 3:209
 Keio University, 1:366
 Kelemen, János, 2:477
 Keller, Helen, 2:379*
 The Story of My Life (book), 2:379
 Kellogg, Robert, 3:227
 Kelly, Gene, 3:143, 144
 Kelly, Walt
 “Pogo” (comic strip), 1:347
 Kelmscott Press, 4:263
 Kendall, Patricia
 The Focused Interview (book), 3:6
 Kennedy, John F., 1:18, 194, 276; 2:436; 3:318, 319, 327
 Kenya, 2:83, 380; 3:187, 188
 Kenya African National Union, 2:380
 Kenyatta, Jomo, 2:379–380*; 3:187
 Facing Mount Kenya (book), 2:380
 Kenya: Land of Conflict (book), 2:380
 My People of Kikuyu (book), 2:380
 Kenyon, Doris, 2:404

- Kerbey, J. O., 2:105
 Kern, Jerome, 3:102
 Show Boat (musical), 3:121
 Kerner, Otto, 3:29
 Kerner Commission. *See* National Advisory Commission on Civil Disorders
 Ketcham, Hank
 "Dennis the Menace" (comic strip), 1:347
 Keynes, John Maynard, 2:404
 Keystone Co., 1:255; 3:61
 KGB, 2:40
 Khamraev, Ali, 3:78
 Khare, R. S.
 Hindu Hearth and Home (book), 2:188
 Khlebnikov, Velemir Vladimirovich, 2:369
 Khomeini, Ayatollah Ruholla, 2:363; 3:311, 323, 445, 460, 461
 Khrushchev, Nikita, 3:78, 382
 Kibbutzim, 4:278
The Kid (film), 1:255
Kid Auto Races at Venice (film), 1:255
 Kierkegaard, Søren, 1:357; 2:25
 Kilpatrick, F. P., 1:234
 Kilvert, Francis, 2:26
 Kilwardby, Robert, 4:77
Kind Hearts and Coronets (film), 3:75
 Kinemes, 1:453
 Kinescope, 4:341
 Kinesics, 1:202, 313; 2:326, 380–381*; 3:383; 4:49
 Kinesiology, 1:203, 204
 Kinetograph, 2:80
 Kinetophone, 4:114
 Kinetoscope, 1:360; 2:43, 79, 80; 3:52, 57
 King, Allan, 1:278
 King, Cecil, 3:186
 King, Frank
 "Gasoline Alley" (comic strip), 1:346
 King, Martin Luther, Jr., 1:284; 2:210, 421; 3:324, 396
 King, Stephen, 2:452
 King Abdul Azziz University (Saudi Arabia), 1:368
 King Features Syndicate, 1:347; 3:327
A King in New York (film), 1:257
King Kong (film), 4:135
The King of Jazz (film), 3:142
 Kingsbury Commitment (U.S.), 4:214
 Kinney Services, 2:290
Kinoglaz (film), 4:281
Kinograms (newsreel), 3:202
Kinonedelia (journal), 4:281
Kinopravda (newsreel), 1:92, 276; 2:45, 50; 4:281
 Kinsey Institute, 1:293
 Kinship systems, 2:212–213
 Kinugasa, Teinosuke, 3:64
 Kipling, Rudyard
 Kim (book), 4:171
Kiplinger Washington Letter (newsletter), 3:178
 Kircher, Athanasius, 2:89
 Kirchner, Ernst, 2:128
 Kirk Karkorian Enterprises, 2:290
 Kissing, 4:248, 249
Kithara da damas, 3:141
 Kittay, Eva, 3:7, 9
Kladderratsch (journal), 1:237
 Klapper, Joseph, 2:491
 The Effects of Communication (book), 2:309
 Klee, Paul, 1:93, 258, 259 (fig.); 2:128
 Klein, Alexander, 1:459
 Kleine Co., 2:287
 Kleinsmith, Bruce, 1:350
 Kleist, Heinrich von, 3:412
 Klimt, Gustav, 3:340–341
 Kline, Michael B., 3:369
 Kline, Morris, 2:499–500
 Klinger, Friedrich Maximilian von, 2:56–57
 Kluckhohn, Clyde, 1:437
 Kluge, Alexander, 3:76
 Kluttsis, Gustav, 3:347, 349
 Knapp, Robert, 3:489
 Knies, Karl, 1:369
 Knight-Ridder (newspaper organization), 3:198
 Knopf, Terry Ann, 3:489
 Knowledge gap, 1:390–391; 2:494, 496; 3:314, 316; 4:289
 Kobayashi, Masaki, 3:76
 Koberger, Anton, 3:398
 Koch, Howard, 4:312
Kodak Magazine, 3:284
Kodak News (magazine), 3:284
Kodak Recorder (magazine), 3:284
 Kodak system of photography, 2:78–79; 3:281, 282–283
 Kodály, Zoltán, 3:135
 Koenig, Friedrich, 3:364
 Koenig, Wolf, 1:277; 2:49
 Koestler, Arthur, 2:196
 Koffka, Kurt, 3:256
 "Kojak" (TV series), 3:157
 Koji, Takabyashi, 2:63
 Kokoschka, Oskar, 3:341, 348
 Kokusai, 3:177
 Kolberg, Oskar, 3:135
Kolibelnaya (film), 4:282
 Kolmogoroff, Andrei N., 2:314; 4:59
Komsomol (film), 2:364
Komsomolskaya pravda (newspaper), 3:192, 200
 Kong Qiu. *See* Confucius
Konyets Sankt-Peterburga (film), 3:64
 Koponen, Arthur, 3:80
 Koran. *See* Qur'an
 Korda, Alexander, 3:70
 Korda, Vincent, 3:70
 Korda, Zoltan, 3:70
 Korea
 history, 2:71–76; 3:188–191; 4:238, 246
 language, 2:71
 music, 3:133, 137 (fig.), 150
 printing, 3:355, 356
 Korean War, 4:220
 Korff, Kurt, 3:288
 Korn, Alfred, 3:288
 Korte's laws, 3:259
 Korzybski, Alfred, 4:46
 Koss, Stephen, 3:387
 Kotekan (orchestra), 3:103
 Kowsan, Tadeusz, 4:236
 Kracauer, Siegfried, 2:129
 Theory of Film (book), 2:174
 Krakow Short Film studio, 1:94
Krasnaya zvezda (newspaper), 3:200
 Krauss, Rosalind, 3:274, 275
 Kripke, Saul, 3:3
 Kris, Ernst, 1:371; 3:385
Kris (film), 1:186
 Kristeva, Julia, 2:349; 3:300; 4:143, 194
 Kroeber, Alfred L., 1:190, 437; 4:198
 Kroitor, Roman, 1:277; 2:50
Krokodil (journal), 1:238
 Krolikiewicz, Grzegorz, 3:79
 Krylov, Porfiry, 1:238
 Kubelka, Peter, 4:281
 Kublai Khan, 3:330
 Kubrick, Stanley, 3:75
 Kuhn, Thomas, 1:250, 294–295; 4:193
 Kukai (monk), 1:114
 Kukryniksy, 1:238
 Kuleshov, Lev, 1:168; 2:172, 173; 3:72
 Kullback, Solomon, 2:314
 Kumar, Krishan, 1:381
Kumonosujo (film), 3:76
K'un ch'u (music drama), 2:53
 Kung fu films. *See* Martial Arts Film
 Küpfmüller, Karl, 4:59
 Kupriyanov, Mikhail, 1:238
 Kurosawa, Akira, 2:381–382*, 473; 3:76
Kurutta ippeiji (film), 3:64
 Kuwait, 3:196
 Kwakiutl, 2:66
 Kwanami Kiyotsugo
 Sobota komachi (play), 2:54
 Kyd, Thomas, 4:255
 Kyogen (theater genre), 2:62
 L

- La Barre, Weston, 1:198
 La Belle, Thomas J., 2:84
 La Rochefoucauld, François de, 1:342
 Laban, Rudolf, 1:202, 203, 204, 208
 Effort Shape System, 1:274
 Labanotation, 1:203–208; 3:262

- Labor* (newspaper), 3:192, 200
 Labor relations, 1:399
 Labov, William, 2:185, 238, 401; 3:164, 273
 Lacan, Jacques, 1:29, 357; 2:310, 446; 4:49, 193
 Lacis, Asja, 1:184
 Lack, David, 1:66
 Laclos, Pierre Choderlos de
 Les liaisons dangereuses (book), 2:416
 Ladd, Alan, 4:316
Ladies Home Journal (magazine), 2:465
Ladri di biciclette (film), 3:165
The Lady Vanishes (film), 2:284
 Laing, R. D., 2:337
 Lakhdar-Hamina, Mohamed, 3:79
 Lakoff, George, 3:9
 Lakoff, Robin, 4:59
 Lamb, Charles, 4:236
 Lamb, Derek, 1:95
 Lambert, Johann Heinrich, 4:47
 Lancaster, Joseph, 4:14
 Lancelot, Claude
 Grammaire générale et raisonnée (book), 4:77
 Lanchester, Waldo, 3:412
 Land, Edwin, 2:385*; 3:281–283
Land in Anguish (film), 3:73
Land without Bread (film), 1:218
 Lander, Lew, 2:293
 Landon, Alfred M., 2:210; 3:327, 488
 Landseer, Edwin, 3:435
 Lang, Fritz, 2:129, 172; 3:71; 4:167, 316
 Lang, Gladys, 1:43; 2:496
 Lang, Kurt, 1:43; 2:496
 Lange, Oskar, 1:445
 Langer, Susanne, 1:265; 4:63
 Philosophy in a New Key (book), 3:463
 Langevin, Paul, 4:341
 Langlois, Henri, 1:108; 3:175
 Language, 2:385–390*. *See also* Communication, Philosophies of; Linguistics; Sign languages; Speaking, Ethnography of; Speech
 as action, 1:460
 artificial, 1:254; 4:75, 76–78
 Boas, Franz, 1:191
 code, 1:314
 cognition, 1:250, 317, 318; 2:458–459
 cognition, animal, 1:320–321
 drum, 1:33–34, 38; 3:150–151; 4:103
 grammar, 2:234–238
 history, 2:386; 3:272
 interpretation, 2:344–345, 446–447
 language change, 2:389–390
 lexical mode, 3:32–36
 metaphor, 3:7–10
 natural languages, 1:137–138, 295; 2:236–237; 4:44–45, 73–79, 185
 oral culture, 3:226–229
 philosophies of, 2:434; 4:320–321
 pitch, 4:98–99
 relationship to writing, 3:430; 4:329–330
 register languages, 2:401; 4:99
 Saussure, Ferdinand de, 4:9
 semantics, 3:2; 4:46
 sexism, 4:55, 58
 sign systems, 1:47–49; 2:89, 91–92, 313; 4:65–66
 sound, 4:102
 speech, 4:147–151
 speech sound production, 2:386–387
 style, literary, 2:394; 4:186
 symbolism of, 1:219; 3:322
 theories of, 1:163, 164; 2:212, 369, 476–477; 3:300; 4:47, 183
 tone, 4:98–99
 translation, 4:257–261
 use, 2:234–235, 389, 432, 435; 4:43–46
 vernacular, 1:213–214, 215; 2:235, 291, 396, 434, 438, 460; 3:14, 16, 380, 440, 441
 whistle, 1:49
 Language Acquisition, 2:385–386, 390–393*
 cognition, animal, 1:320–321
 communicative development, 1:262–264; 2:237; 3:292–293
 family, 2:152–153
 Jakobson, Roman, 2:369
 linguistics, 2:431; 3:273
 meaning, 3:2
 mode, 3:33–34
 reading, 3:432
 social context, 2:392–393
 speech, 3:254; 4:149–150
 Language disorders. *See* Speech and Language Disorders
 Language Ideology, 2:393–395*. *See also* Language Varieties; Ideology
 conceptualization of ideas, 1:293; 4:3, 78, 260, 317
 feminist theories, 2:157–160
 language choice and standardization, 1:339; 2:389, 393–394, 395; 3:323
 linguistic incompetence, 2:394–395
 linguistics, 2:395, 432
 sexism, 4:57–58
 Language Reference Book, 2:395–399*. *See also* Dictionary
 language ideology, 2:394
 language reform, 2:397–398
 meaning, 3:3–4
 printing, 3:367, 368, 369
 standard language, 2:396–397, 400, 434, 454–455; 4:311
 Language standardization, 2:393–394, 395–399, 400, 432
 Language Varieties, 2:385, 389, 399–403*. *See also* Language Ideology; Linguistics; Speaking, Ethnography of
 Africa, 1:32, 33, 35
 Americas, pre-Columbian, 1:47, 49
 Australasia, 1:155–158
 calo, 4:155
 creole languages, 2:401
 dialect, 2:399–401
 East Asia, 2:71, 73
 Judaism, 2:375
 linguistics, 2:236, 238, 431
 literary, 2:394
 multilingualism, 1:437; 2:402–403
 pidgin languages, 2:390, 403
 play languages, 4:155
 register and style, 2:401
 social factors, 2:401–402
 South Asia, 4:123–124
 Language-thought relationship, 2:236, 431, 434; 4:3, 77, 148, 260
Langue, 1:175; 2:178, 369, 432, 446; 4:10, 48, 78, 184
Lanka Dahan (film), 3:270
 Lanzmann, Claude, 1:278
 Larousse & Co., Inc., 3:400
 Lasers, 2:166; 3:357; 4:117
 Lasker, Albert, 1:18; 2:403–404*
 After the Peace, What? 2:403
 Lasky, Jesse L., 4:340
 Lasso, Orlando di, 3:449
 Lasswell, Harold D., 2:404–405*
 attitude research, 1:147; 2:309
 communications research, 1:370–371, 403, 433; 2:205
 models of communication, 3:36, 37
 National Security and Individual Freedom, 2:405
 political symbols, 3:322
The Last Days of Pompeii (film), 3:61
The Last Laugh (film), 1:282
Last of the Cuiva (film), 2:113
The Last Starfighter (film), 4:136
The Last Vacation (film), 3:174
Late Spring (film), 3:240
 Latimer, Hugh, 3:394
 Latin America, Twentieth Century, 2:405–408*
 broadcasting, 2:405, 406–407
 censorship, 1:248
 communications education, 1:366–367
 copyright, 1:417
 development communication, 2:12–17, 18–22
 film, 3:73
 fotonovelas, 2:198–200
 national liberation movements, 2:480–483
 popular education movements, 2:83–84

- Latin America (*cont.*)
 press, 3:193–195, 312
 radio, 3:419, 422
 sound recording industry, 4:119, 120, 121
 television, 2:406; 4:221, 222, 225
 Latin America Video Network, 2:407
 Latin American Assn. of Radio Schools, 2:407
 Latin American Economic System, 2:408
 Latin American Institute for Economic and Social Planning, 2:408
 Latin language
 alphabet, 1:46
 grammar, 2:386, 390
 language change, 2:390
 Middle Ages, 3:14; 4:271
 religion, 3:440
 Roman Empire, 3:479
 Latour, Charlotte de, 4:75
 Lattuada, Alberto, 3:167
 Latvia, 3:200
 Laudon, Kenneth, 3:314
 Laughlin, Charles, 3:296
 “Laugh-O-Grams,” 1:92
 Laughter, 2:143, 297
 Lavado, Joaquín
 “Mafalda” (comic strip), 1:351
 Lavater, Johann Kaspar, 2:137
The Lavender Hill Mob (film), 3:75
 Law. *See also* Copyright; Evidence; Libel; Testimony
 censorship, 1:247, 248, 250
 civil, 2:409
 Jewish, 2:372–373
 Marxist theories, 2:478
 Middle Ages, 3:17, 19–20
 privacy, 2:107; 3:370–371
 traditions of, 1:442; 2:268; 3:229
 Law, Andrew Bonar, 1:182
 Law and Communication, 2:408–411*
Law and Order (film), 1:277; 4:315
 Lawrence, D. H., 2:170
 Layard, A. H., 3:206
 Lázaro, Hernando
Comunicación horizontal (book), 2:16
 Lazarsfeld, Paul F., 2:411–412*. *See also* Opinion Leader
 bandwagon effects, 1:175
Communications Research: 1948–1949, 2:309
 functional analysis, 2:205, 300; 3:6
 mass communications research, 1:372; 2:489, 491; 3:40–41
The People’s Choice (book), 2:309, 412
Personal Influence (book), 2:309
 Lazarus, Mel
 “Mama” (comic strip), 1:347
 “Miss Peach” (comic strip), 1:347
 Le Bon, Gustave, 2:1
The Psychology of Crowds (book), 1:422
 Le Breton, André, 2:31
 Le Carré, John, 4:170
Tinker, Tailor, Soldier, Spy (book), 4:168
 Le Corbusier, 1:99, 102; 4:29
Vers une architecture (book), 1:101
 Le Fanu, Sheridan, 2:293
 Le Grice, Malcolm, 1:169
 Le Jumel de Barneville de la Motte, Marie-Cathérine, 2:181
 Le Prince, Louis A. A., 3:52
 Le Queux, William, 4:167, 170
 Le Roy, Mervyn, 3:69
 Le Roy Ladurie, Emmanuel, 2:283
 Leach, Edmund, 1:194; 4:141
 Leacock, Eleanor, 2:212
 Leacock, Richard, 1:276; 2:50
 Leadership, 2:261–263, 418; 3:236, 237. *See also* Opinion Leader
 Leaf, Caroline, 1:95
 League of Nations, 2:333–334, 403; 3:396
 Lean, David, 3:75
 Learning
 audiovisual education, 1:153–154; 2:18
 direct experience, 4:93
 disabilities, 3:431; 4:151
 ethology, 2:119, 120, 121
 media effects, 1:273; 2:494; 3:40
 mode, 3:33–34
 observational, 4:93, 94 (fig.)
 oral culture, 2:180; 3:228
 reading, 3:430, 431
 social cognitive theory, 4:93, 94
 teaching, 4:199–201
 Leavis, F. R., 1:436; 3:433
 Lebanese University, 1:368
 Lebanon, 1:424; 3:196
 Lecky, William E., 2:283
 Lee, Bruce, 2:474
 Lee, Christopher, 2:293
 Lee, Ivy, 3:391, 392
 Lee, Robert E., 1:359
 Leenhardt, Roger, 3:174
 Legal systems. *See* Law; Law and Communication
 Legends, 2:167, 181–182; 3:227
 Léger, Fernand, 1:168; 2:46, 172
 Legg, Stuart, 2:47
 Legion of Decency, 2:287
 Legisign, 4:63, 75
 Legitimation, by media, 2:20, 93–96, 495; 3:308, 311
 LeGuin, Ursula
The Left Hand of Darkness (book), 4:22
 Lehár, Franz
The Merry Widow (operetta), 3:119
 Lehmbruck, Wilhelm, 4:33
 Lehrer, Adrienne, 3:9
 Leibniz, Gottfried Wilhelm, 4:77
 language, 2:89; 4:275
 mathematics, 1:374; 2:501
 poetics, 3:301
 semiotics, 4:47
 Leigh, Janet, 2:284
 Leipzig University, 1:358
Leipziger Illustrierte (newspaper), 3:286
 Leisure, 1:271; 2:412–415*, 496; 3:422; 4:142, 166, 220. *See also* Tourism
 Leites, Nathan, 1:371, 373
 Lely, Peter, 3:338
 Lem, Stanisław, 4:19
 Lending-right statutes, 1:421
 Leni, Paul, 2:292, 293
 Lenica, Jan, 3:349
 Lenin, V. I., 1:127
 Asia, twentieth century, 1:144
 concept of the press, 1:248–249, 363; 2:232; 3:182
 film, 2:45; 3:72
 Marxist theories, 2:478
 political communication, 3:244, 309
 revolution, 3:461
 Soviet press, 3:199
Leningrad at War (film), 2:48
 Lenses, camera, 1:279; 3:260, 276–277; 4:219
 Leo X (pope), 2:460
 Leonardo da Vinci
The Last Supper (painting), 3:86
 notebooks, 2:24; 3:450
 photography, 3:276
 visual image, 1:115; 3:255; 4:295
 Leone, Sergio, 4:316
 Lerner, Daniel, 2:14, 17
The Passing of Traditional Society (book), 2:12
 Lerner, Gerda, 2:212, 213
 Lertes, Peter, 2:97
 Leslie, Frank, 3:286
 Leśniewski, Stanisław, 4:77
 Lessing, Alfred, 2:196
 Lessing, Doris
The Golden Notebook (book), 2:216
 Lessing, Gotthold, 4:31
Hamburg Dramaturgy (book), 4:256
Laokoon (book), 1:27
Miss Sara Sampson (play), 4:256
 Letter, 2:269, 415–417*; 3:435, 475
Letyat zhuravli (film), 3:78
Der letzte Mann (film), 1:282
 Level, Pierre, 2:421
 Levellers, 3:460
 Levin, Samuel, 3:9
 Levine, David, 1:239
 Lévi-Strauss, Claude, 2:417–418*
 culture, 1:437–438
 food, 2:187, 188
 gender, 2:213
 masks, 2:483

- Mythologiques* (book), 2:418
La pensée sauvage (book), 2:417
 the raw and the cooked, 1:193; 2:188
 structuralism, 2:175, 310, 446; 4:184
Structuralist Anthropology (book), 4:49
Les structures élémentaires de la parenté (book), 2:417
Tristes tropiques (book), 2:417, 418
- Lewes, George Henry, 1:3
 Lewin, Kurt, 2:418–419*
 communications research, 1:371
 Cooley, Charles Horton, 1:410
 group communication, 2:260
 mass communications research, 2:489
 opinion leader, 3:222
 Schramm, Wilbur, 4:17
- Lewis, C. S., 3:437
 Lewton, Val, 2:293
 Lexical mode, 3:32–36
 Lexicography, 2:372, 396, 398, 433; 3:3–4; 4:310–311. *See also* Dictionary
- LEXIS (online data base), 1:456
 L'Herbier, Marcel, 3:63
 Libel, 2:419–422*
 constitutional protection, 2:421
 Europe, 2:422
 fiction, 2:168, 169
 government censorship, 1:247
 government regulation, 2:231
 history, 1:246–247; 2:231, 419–420; 3:400; 4:339–340
 malice controversy, 2:421
 newspaper, 3:181, 182, 199
 seditious, 2:419
 slander/libel dichotomy, 2:419, 420
- Liberation* (journal), 2:201
 Liberia, 3:430, 432
Liberty Is Ours (film), 3:70
 Library Assn. (U.K.), 2:427
 Library—History, 2:422–428*. *See also* Archives; Book; Copyright
 Alexandrian royal libraries, 3:441
 Ashurbanipal, 3:206–208
 Islam, 2:355
 national libraries, 2:424
 popular literature, 2:449–450
 public libraries, 2:426–428
 publishing history, 3:398, 400
 Roman Empire, 3:476
 special libraries, 2:426
 university, college, and school libraries, 2:424, 426; 4:271
 Library—Trends, 2:428–431*. *See also* Archives, Film; Data Base
 cataloging, 2:429
 collection development, 2:429; 3:246
 professional education, 2:430–431
 public services, 2:428–429
- Libya, 3:196
 License fees, 3:418; 4:157, 221, 223
 Licensing
 copyright, 1:419–421
 fees, 3:418; 4:157, 221, 223
 government regulation, 3:46; 4:294
 press, 1:283; 3:24–25, 171
 profession, 3:372
 publishing, 1:415; 3:398, 400
 radio, 1:286; 3:418, 420
 spectrum, 4:145, 146
 television, 4:218–219, 229
- Lie detector tests, 1:461
Das Lied der Ströme (film), 2:366
Life (magazine), 2:455, 456, 467; 3:288
 “Life as It Is” (film series), 3:61
 “Life Is Worth Living” (TV series), 3:445
The Life of an American Fireman (film), 3:58
The Life of Christ (film), 3:270
 “Lights Out” (radio series), 3:420
 Likert, Rensis, 3:328
 Lillo, George
The London Merchant (play), 4:256
Limelight (film), 1:257
 Limericks, 4:155
 Lincoln, Abraham, 2:194; 3:394, 395
 Lind, Jenny, 1:178
 Linder, Max, 3:61
 Lindgren, Ernest, 1:108
 Lindsay, Norman Alfred, 1:239
 Lindsay, Vachel, 2:173
 Lindstrom Co., 4:118, 119
 Linear A and B, 1:44
 Lingala language, 1:32
 Lingua franca, 2:402
 Linguistics, 2:431–436*. *See also* Grammar; Language; Language Varieties; Phonology
 American, 1:190–191; 2:434; 4:317
 anthropological, 2:432, 435
 artificial intelligence, 1:137
 conversation, 1:409
 feminist theories, 2:158
 history, 2:395, 433–435
 ideology, 2:309–310
 interaction, face-to-face, 2:326
 kinesics, 2:381
 literary criticism, 2:446, 447; 3:300; 4:187
 Marxist theories, 2:476–477
 meaning, 3:4
 performance, 3:232, 263
 relativity, 1:293–294; 4:3, 260, 317
 semantics, 4:45–46
 sound, 4:102, 103
 speech perception, 3:251
 Linguistics, structuralist, 1:438; 2:433–435
 Jakobson, Roman, 2:369
- Lévi-Strauss, Claude, 2:417–418
 semiotics, 4:46, 48–49
 structuralism, 4:9–10, 183–185
 Linguistics of Visual English (LOVE), 4:71
 Linnaeus, Carolus, 1:295
 Linné, Olga, 3:41–42
 Linotype machines, 3:5, 357; 4:263
 Lippmann, Walter, 1:18, 42; 2:46, 436–437*
Liberty and the News (book), 2:437
The Phantom Public (book), 2:436, 437
Public Opinion (book), 2:436–437
 Lippold, Richard, 4:29
 Lipset, Seymour Martin, 2:309
 List, George, 4:99
Listen to Britain (film), 2:49
 Literacy, 2:437–441*. *See also* Reading
 Africa, 1:32–33, 39, 41
 books, 1:213, 215
 children, 1:264, 266–267
 computer literacy, 1:390
 cultural, 3:429
 development communication, 2:11, 12, 16, 18, 20
 education, 1:155; 2:81; 4:14, 15
 family, 2:154–155
 folklore, 2:180, 181, 182
 Hellenic world, 2:268, 269, 291
 historical development, 2:437–438
 Islam, 2:352
 Marxist theories, 2:482
 measures of, 2:440–441
 media, 2:85
 Middle Ages, 1:413; 3:14, 16, 19, 21
 music, 3:132–139
 printing, cultural impact, 3:366
 publishing, 2:448; 3:396, 400, 403
 Roman Empire, 3:475–478
 scripture, 4:24
 social control, 2:158, 159, 438–439
 Literary agents, 3:402
 Literary Canon, 2:169, 216, 345, 437, 441–444*, 447; 4:54
 Literary Criticism, 2:444–447*. *See also* Authorship; Literary Canon; Poetics; Reading Theory; Style, Literary
 Barthes, Roland, 1:179–180
 Burke, Kenneth, 1:218–219
 classicism, 1:291
 early models, 2:444–445
 folktales, 2:187
 genre, 2:216
 interpretation, 2:348
 intertextuality, 2:349, 350
 linguistics, 2:432
 realism, 3:435
 rhetoric, 3:463
 Richards, I. A., 3:465

- Literary Criticism (*cont.*)
 symbolism, 4:193
 twentieth-century influences,
 2:446–447
- Literary Digest* (magazine), 2:209–
 210; 3:327
- Literary journals, 2:463, 464, 465
- Literature. *See also* Literary Canon;
 Literature, Popular
 autobiography, 1:160–162
 biography, 1:187–190
 books, 1:210
 content analysis, 1:405
 copyright, 1:411–416
 cuneiform, 1:442
 East Asia, ancient, 2:74–75
 fiction, 2:167–169
 genre, 2:215
 Jewish, 2:375
 and minorities, 2:442–443
 oral culture, 3:226, 227
 poetics, 3:298–301
 poetry, 3:301–304
 realism, 3:434–438
 romanticism, 3:484–488
 scripture, 4:24, 25
 unity in, 2:444–446; 3:227
 writing, 4:330–331
- Literature, Popular, 2:447–452*. *See*
also Fiction; Novels; and *indi-*
vidual genres
 best-sellers, 2:450–452
 comics, 1:343–351
 folktales, 2:181–187
 fotonovelas, 2:198–200
 horror, 2:292
 mass communications research,
 2:488
 mystery and detective fiction,
 3:154–157
 oral culture, 3:226
 origins, 2:447–448
 romances, 3:481–484
 science fiction, 4:19–23
 serials, 4:50–51
 spy fiction, 4:167–171
 westerns, 4:313, 315
- Literaturnaya gazeta* (newspaper),
 3:192
- Lithography
 graphic reproduction, 1:236, 244;
 2:239, 242
 Niepce, Joseph-Nicéphore, 3:205,
 278
 photography, 3:278
 printing history, 3:357, 360, 361,
 363, 364–365
- Lithuania, 3:200
- Litotes, 3:10
- Littin, Miguel, 3:73
- Little, Brown and Co., 2:457
- Little by Little* (film), 2:111
- Little Caesar* (film), 3:69, 156
- Little Crow III, 3:394
- Little Nemo* (film), 1:91
- Little Port Royal Schools, 4:13
- Little Turtle, 3:394
- “The Living Camera” (film series),
 1:276, 278
- The Living Desert* (film), 2:42
- Livy, 2:281; 3:116
- Llewelyn-Davis, Melissa, 2:114
- Lloyd George, David, 1:182
- Llull, Ramon
Ars Magna, 4:64
- Lobbying, 1:156, 353; 2:452–454*;
 3:325, 328, 350–352, 375
- Local area networks (LAN), 1:395
- Locke, John, 2:83, 434, 454–455*;
 3:8, 462
An Essay concerning Human Un-
derstanding, 2:454; 4:46
Some Thoughts concerning Educa-
tion, 2:416
- Locke, Richard Adams, 1:457
- Lockheed Corp., 1:456
- Locutionary acts, 1:355; 4:45–46
- Lodge, Henry Cabot, 3:396
- The Lodger* (film), 2:284
- Loew’s, Inc., 2:287
- Log Cabin* (newspaper), 2:255, 256
- Logan, 3:394
- Logic, 1:136; 2:193, 236, 237;
 3:462, 463; 4:44, 460. *See also*
 Symbolic Logic
- Logical positivism, 4:44–45, 320
- Logico-mathematical mode, 3:33, 35
- LOGO (computer language), 1:390
- Logograms, 1:60; 2:89; 4:326, 327
- Logology, 1:218
- Logos, 4:83
- Lomax, Alan, 2:110, 201, 230, 274
- Lomonosov State University of Mos-
 cow, 1:363
- Lon Nol, 3:190
- Londe, Albert, 3:51
- London Films, 3:70
- London linguistic school, 2:434
- London School of Economics and Po-
 litical Science, 1:362
- London University, 1:362
- “The Lone Ranger” (TV series),
 4:316
- Lonely Boy* (film), 1:277; 2:50
- The Lonely Villa* (film), 2:259
- Long Island Newsday* (newspaper),
 3:197
- The Longest Trail* (film), 1:275
- Longinus, 1:289; 2:444
On the Sublime (book), 1:27, 287;
 3:302
- Longmans Co., 3:400
- Lönnrot, Elias
Kalevala (folk-song collection),
 2:181
- Look* (magazine), 2:467
- “Look Up and Live” (TV series),
 3:444
- Lorang’s Way* (film), 2:112
- Lorant, Stefan, 3:288
- Lord, Albert, 3:226
- Lord, D. M., 2:403
- Lord and Thomas, 1:17, 18; 2:403
- Lorentz, Pare, 2:47
- Lorenz, Konrad, 2:117–120, 506;
 4:165
- Loridan, Marceline, 2:366
- Lorre, Peter, 2:293
- Lotman, Jurij, 2:175; 3:298, 300;
 4:49
- Lotyanu, Emil, 3:78
- Louis XIV (king), 1:235, 330; 2:416;
 3:220, 245, 336
- Louisiana Story* (film), 1:276; 2:176,
 177
- Louis-Philippe (king), 1:236–237
- Love, Cecil, 4:135
- Love of a Poet* (film), 2:92
- “Love of Life” (TV series), 4:91
- Love on the Wing* (film), 1:92
- Love Parade* (film), 3:142
- Lovelace, Augusta Ada, 1:173
- Low, Colin, 2:49, 258
- Low, Sir David, 1:238
- Lowenfeld, Viktor, 1:259
- Lowenthal, Leo, 1:373; 2:411, 455*;
 488
Literature, Popular Culture, and
Society (book), 2:455
- Low-power television (LPTV), 1:224
- Loyola College (Montreal), 1:362
- Lubalin, Herb, 4:266, 267 (fig.)
- Lubin Co., 2:287
- Lubitsch, Ernst, 3:62, 65, 142
- Lucas, George, 4:286
- Lucasfilm, 4:286
- Luce, Henry, 2:455–457*; 3:178,
 288, 488
- Lucian of Samosata
True Stories (book), 4:274
- Ludlul Bel Nemeqi (epic), 3:207
- Luening, Otto, 2:99
- Lugosi, Bela, 2:293
- Lukács, György, 1:29; 2:308
History and Class Consciousness
 (book), 1:184; 2:476, 478
- Łukasiewicz, Jan, 4:77
- Lullaby* (film), 4:282
- Lumière, Louis and Auguste, 2:457–
 458*
 cinematography, 1:282
 documentary, 2:42–43
 film editing, 2:171
 Pathé, Charles, 3:248
 photography, 3:281
 silent film, 3:52–54, 58; 4:162
- Lumière Co., 3:281, 283
- Lunar Society of Birmingham, 4:272
- L’unità* (newspaper), 2:229
- Lunt, Paul S., 4:197
- Luquet, Georges H., 1:261
- Luria, Aleksandr, 1:265; 2:458–
 459*; 3:430
- Luther, Martin, 2:459–460*
 biography, 1:188
 education, 4:12
 homiletics, 2:291
 Ninety-five Theses, 1:212, 213

pamphlets, 1:234; 3:244, 245
 public speaking, 3:394
 Renaissance, 3:448
 Lüthi, Max, 2:187
 Lutyen, Edwin Landseer, 1:128
 Luzzati, Emanuele, 1:94–95
 Lycurgus, 3:394
 Lydgate, John
 The Fall of Princes (play), 4:255
 Lye, Len, 1:92
 Lying. *See* Deception
 Lyle, Jack
 Television in the Lives of Our Children (book), 4:17
 Lynd, Helen, 1:19
 Lynd, Robert, 1:19; 2:411
 Lynes, Russell, 4:197
 Lynn, Vera, 3:99
 Lyotard, Jean-François, 1:165; 4:194
 Lysenko, Trofim, 3:373

M

- M (film), 2:172; 3:71
 "Ma Perkins" (radio series), 4:91
 Mabillon, Jean, 2:282
 MacAloon, John
 Rite, Drama, Festival, Spectacle (book), 4:139–140
 Macartney-Filgate, Terence, 1:277
 Macaulay, Thomas Babington, 1:189, 417; 2:410; 3:395
 MacBride, Sean, 3:170
 MacBride Commission, 2:15, 16, 109; 3:170–173; 4:147
 Many Voices, One World (book), 2:109; 3:170–173; 4:147
 McCabe, Colin, 2:175
 McCaffrey, Anne, 4:22
 McCann-Erikson, 1:20
 MacCannell, Dean, 4:142, 250–251, 253
 The Tourist (book), 4:141
 McCarey, Leo, 3:69
 McCarthy, John, 4:60
 McCarthy, Joseph, 3:243; 4:167
 McCartney, Paul, 3:99
 McCay, Winsor, 1:91, 92
 "Little Nemo in Slumberland" (comic strip), 1:345
 McClelland, David C., 1:433; 2:17
 The Achieving Society (book), 2:10
 McClure, S. S., 2:465
 McCombs, Maxwell, 1:42
 McCrea, Joel, 4:316
 McCrimmon, James
 Writing with a Purpose (book), 4:235
 McCulloch, Warren S., 1:443–445
 McCullough, Colleen
 The Thornbirds (book), 2:452
 MacDonald, Dwight, 1:436; 4:198
 MacDonald, Jeannette, 3:142
 MacDougall, David, 2:112
 MacDougall, Judith, 2:112
 McEwen, Arthur, 2:267
 Macfadden, Bernarr, 3:281
 McGill University, 1:362
 McGoohan, Patrick, 4:168
 McGrath, Joseph, 2:262
 McGuffey *Readers* (books), 4:234
 McGuire, William J., 1:152
 Mach, Ernst, 3:51
 Machiavelli, Niccolò, 2:308
 Il principe (book), 3:448
 Machine language, 1:376
 Machine-readable codes, 1:392
 McKay, Donald, 1:257
 Macke, August, 2:128
 McKean, Philip, 4:252
 Mackenzie, William, 2:43
 McKeon, Richard, 3:464
 McKimson, Robert, 1:93
 McKinley, William, 2:143, 267
 McLaren, Norman, 1:92, 95; 2:258
 MacLean, Malcolm, 3:38
 MacLeish, Archibald
 The Fall of the City (play), 3:420
 McLeod, Norma, 3:115
 McLuhan, Marshall, 1:362; 2:463*, 491, 495; 3:314
 Culture Is Our Business (book), 1:436
 The Gutenberg Galaxy: The Making of Typographic Man (book), 1:436; 2:463
 The Mechanical Bride: Folklore of Industrial Man (book), 1:436; 2:463
 The Medium Is the Massage (book), 2:463
 Understanding Media (book), 1:436; 2:463
 McManus, George
 "Bringing Up Father" (comic strip), 1:345
 McManus, John, 3:296
 MacNelly, Jeff
 "Shoe" (comic strip), 1:347
 McPharlin, Paul, 3:412
 McPherson, Aimee Semple, 3:395, 442
 McQuail, Denis, 1:42
 McQuown, Norman, 2:326
 McRae, Milton, 4:24
 Macready, William Charles, 1:6
 McRobbie, Angela, 2:160
 MacWhinney, Brian, 2:392
 Macy, John, 2:379
 Macy Foundation, 1:443
 Mad (magazine), 1:349
The Mad Masters (film), 2:111
Mad Max (film), 3:75
Madame Dubarry (film), 3:62
Madamu to nyobo (film), 3:72
Mädchen in Uniform (film), 3:71
 Madge, Charles, 2:497, 498
 Maecenas, 1:412
 Maeterlinck, Maurice, 3:412
 Magazine, 2:463–468*. *See also* Newsmagazine; Photojournalism; Publishing
 advertising, 1:17, 296
 communications research, 1:373
 fotonovelas, 2:198
 history, 2:450, 455–457, 464–466; 3:210–211, 244
 industry, 2:467
 internationalization, 2:467–468
 monopoly, 3:45
 print-audience measurement, 3:353
 pulp, 3:156
 serials, 4:50
 trade, 2:463–464, 465
 Magellan, Ferdinand, 2:125
 Mager, Jörg, 2:97
 Magic, 1:194; 3:83, 116; 4:25, 297, 303
 Magic lanterns, 3:53
 Magnani, Anna, 3:452
 Magnetic disks, 3:13
 recording, 3:421; 4:114–115, 117
 storage, 1:107
 tape, 4:282, 283
 Magnetic Ink Character Recognition (MICR), 1:392
 Magnetism, 2:155
 Magnetton, 2:97
The Magnificent Ambersons (film), 1:280; 4:312
 Magruder, Frank A.
 American Government (book), 4:235
 Mahabharata (epic)
 drama, 2:53; 3:124
 fiction, 2:167
 film, 3:64–65, 158
 puppetry, 3:409
 religion, 3:441
 South Asia, ancient, 4:122, 123
 Mahāvira, 4:124, 126
 Maieutic communication, 1:356–357
 Mailer, Norman, 2:169
 Mail-order catalogs, 1:17; 2:38
 Maimonides, 2:27
Mainichi shimbun (newspaper), 3:183, 189, 190
 Mainstreaming, 1:430, 431, 432–433
Les maîtres fous (film), 2:111
 Makavejev, Dušan, 1:169; 3:79; 4:281
 Malapropisms, 2:299; 4:88, 154
 Malawi, 1:155
 Malaysia, 3:29–30
 Malcolm X, 3:396
 Maletzke, Gerhard
 Psychologie der Massenkommunikation (book), 3:39
 Malinche, 3:394
 Malinowski, Bronisław, 1:130, 134; 4:188
 Mallarmé, Stéphane, 4:193
 Malle, Louis, 3:174
 Malraux, André, 2:174; 3:94, 96
 Musée imaginaire (book), 2:244

- Malthus, Thomas
An Essay on the Principle of Population, 1:455
- Mamber, Stephen, 1:276
- Mammals, 1:69–72, 74–80
- Mamoulian, Rouben, 3:66, 142
- Ma'mūn, al- (caliph), 2:357
- Man, Felix H., 3:288
- "Man" (TV series), 2:114
- A Man Called Bee* (film), 2:112
- "The Man from UNCLE" (TV series), 4:168
- Man of Aran* (film), 2:176, 177
- The Man Who Knew Too Much* (film), 2:284
- The Man with the Movie Camera* (film), 1:280; 2:45–46, 172; 4:282
- Management, 1:18, 386, 387, 396; 2:330; 3:236–238
- Management information systems (MIS), 1:395
- Manchester Guardian* (newspaper), 3:181
- Mandabi* (film), 3:79
- Mandeville, Sir John, 2:125
- Mandolins, 3:112
- Manes (religious leader), 4:26
- Manet, Édouard, 1:258; 3:435
- MANIAC. *See* Mathematical Analyzer, Numerical Integrator and Computer
- Manjusri, 3:126
- Mankiewicz, Herman J., 4:312
- Manley, Michael, 2:13
- Mann-Elkins Act (U.S.), 4:214
- Mannheim, Karl, 2:308
Ideology and Utopia (book), 2:478
- Mannucci, Aldo, 1:413; 3:398; 4:261–262
- Mansfield, Lord Chief Justice (William Murray), 3:400
- Manual alphabet. *See* Sign Language—Manual Language Codes
- Manushi* (journal), 2:158
- Manutius, Aldus. *See* Mannucci, Aldo
- Many Voices, One World* (book), 2:109; 3:170–173; 4:147
- Manyoshu* (verse collection), 2:75
- Mao Zedong, 2:480, 482; 3:310, 377, 460; 4:223
Little Red Book, 3:382
- Map Projection, 1:241; 2:125, 468–471*; 3:367. *See also* Cartography
- Maps, 1:153; 2:253–255. *See also* Cartography; Map Projection
- Marceau, Marcel, 3:26, 28
- The March of Time* (newsreel), 3:205
- "The March of Time" (radio series), 2:50, 456; 4:311
- Marchetti, Victor, 2:40
- Marconi, Guglielmo, 1:458; 2:160, 472*; 3:417; 4:144, 162
- Marconi Co., 3:417. *See also* American Marconi Co.
- Marcos, Ferdinand, 3:190
- Marcus, George, 4:251
- Marcus Antonius (emperor), 1:275; 2:423
- Marcus Aurelius (emperor)
Meditations (book), 1:161
- Marcus Loew Enterprises, 4:340
- Marcuse, Herbert, 1:7; 2:108, 308
One-Dimensional Man (book), 2:479
- Marey, Étienne-Jules, 1:198; 2:42; 3:49, 52
- Margaret of Burgundy, 1:245
- Margarita Philosophica Encyclopaediam Exhibens*, 2:101
- Mariachis, 3:115
- Mariategui, José Carlos, 2:481
- Marie-Antoinette (queen), 3:245
- Marine charts, 1:241
- Marionettes. *See* Puppetry
- Marivaux, Pierre, 3:435
- Mark 1 (computer), 1:383
- Mark I synthesizer, 2:99
- Markel, Norman, 1:231
- Markers. *See* Status markers
- Market research. *See* Consumer Research
- Market segmentation, 1:401; 3:31–32, 81–82; 4:199
- Marketing, 1:251, 252; 2:38–40; 4:180
 cross-cultural, 1:23
 international, 1:12, 21, 23
 target, 1:10, 13; 2:39; 3:198
 telemarketing, 2:38–39
- Markman effect, 1:321
- Markov, Andrey A., 4:61
- Marks, John D., 2:40
- Marler, Peter, 2:121
- Marlowe, Christopher, 2:54; 4:255
- Maroto, Esteban, 1:351
- Marques de Melo, José, 2:14
- Marr, N. Y., 2:476
- A Married Couple* (film), 1:278
- Marrou, H. I.
A History of Education in Antiquity (book), 2:83
- Marsh, Mae, 2:259
- Marsh, Ngaio, 3:155
- Marshall, Herbert, 3:68
- Marshall, John, 2:111
- Marshall Plan (U.S.), 2:9
- Martenot, Maurice, 2:97
- Martial (poet), 1:412
- Martial Arts Film, 2:472–475*; 3:64, 76; 4:316
- Martinez, Raúl, 3:349
- Martinville, Léon Scott de, 4:112
- Martyn, Thomas J. C., 3:179
- Marumaru chinbun* (magazine), 1:238
- Maruyama, Magoroh, 1:444
- Marvel Comics, 1:349, 350
- Marx, A. B., 3:132
- Marx, Groucho, 3:415
- Marx, Karl, 1:437; 2:283, 308, 475–476*; 3:460; 4:278
The Communist Manifesto, 2:475
A Contribution to the Critique of Political Economy (book), 3:477–478
The German Ideology (book), 2:477
Grundrisse (book), 2:476
Das Kapital (book), 1:212
- Marx Brothers, 3:69
- Marxism, 2:238, 283, 308; 4:184
- Marxist Theories of Communication—Origins and Development, 2:476–479*
 Adorno, Theodor, 1:7; 3:101
 aesthetics, 1:28, 29; 2:173, 175
 Benjamin, Walter, 1:183–184
 culture, 1:437, 438
 feminist theories, 2:158
 ideology, 2:308, 310, 477–479
 interpretation, 2:347, 447
 mass communications research, 1:434; 2:491
 popular music, 3:101
- Marxist Theories of Communication—Third World Approaches, 2:479–483*
 cultural dependency, 2:481–482
 cultural revolution, 1:436, 437
 wars of liberation, 2:480–481
- Mary, Queen of Scots, 2:105
- Mary Jane's Mishap* (film), 3:58
- Mary Poppins* (film), 2:42
- Mary Tudor (queen), 1:415
- Masaccio, 2:59
- Masefield, John, 3:420
- Masereel, Frans, 1:92
- "M*A*S*H" (TV series), 4:51
- Mask, 2:483–487*. *See also* Costumes
 festivals, 2:162, 165
 performance, 1:4; 2:63, 66; 3:104, 264
The Mask of the Demon (film), 2:293
- Maslow, Abraham H., 3:82
- Masmoudi, Mustapha, 3:169
- Mason, Max, 4:309
- Mason, Otis T., 1:133
- Masque, 3:117
- Masquerades, 2:484, 485, 486
- Mass Communications Research, 2:487–492*. *See also* Communications Research: Origins and Development; Models of Communication
 agenda-setting, 1:42–43
 attitude research, 1:147; 2:214, 308
 children, 1:268–270
 consumer research, 1:401–403
 content analysis, 1:403–407
 Cooley, Charles Horton, 1:410
 crowd behavior, 1:423
 cultivation analysis, 1:430–433
 cultural indicators, 1:433–435

- feminist theories, 2:159, 160
functional analysis, 2:203–206
Hovland, Carl, 2:294–295
Lasswell, Harold D., 2:404–405
Lazarsfeld, Paul F., 2:411–412
leisure, 2:412–415
Lewin, Kurt, 2:418–419
media effects research, 2:308–309, 490–491, 492–497; 4:289–294
media institutions, 2:489
network analysis, 3:167–168
persuasion, 3:266–270
propaganda, 3:374–378
public opinion, 3:222–226, 386–391
 sleeping effect, 4:88
Mass Communications Research Center of Hungarian Radio and Television, 1:364
Mass culture, 1:6–7, 162, 163, 435–437; 2:455, 481–482; 4:142–143, 197–199
Mass Media Effects, 2:492–497*. *See also* Communications Research: Origins and Development; Mass Communications Research
agenda-setting, 1:42–43; 2:495
bandwagon effects, 1:175–176
on children, 1:268–274; 2:84–86
commercials, 1:353–354
Cooley, Charles Horton, 1:410–411
crowd behavior, 1:423
cultivation analysis, 1:430–433, 434
demonstrations, 2:1–3
development communication, 2:12, 481
diffusion, 2:34; 4:95
elections, 2:93–96
functional analysis, 2:203–206; 3:6–7
Hovland, Carl, 2:294–295
ideology, 2:309–310, 495
Innis, Harold, 2:320
knowledge gap, 2:494
Lazarsfeld, Paul F., 2:411–412
McLuhan, Marshall, 2:463
models of communication, 3:36–44
opinion leader, 3:222
persuasion, 2:492, 494; 3:266–270
political communication, 3:316–317
propaganda, 3:374–378
public opinion, 3:386–391
selective reception, 4:37–40
sleeping effect, 4:88
socialization, 2:214, 494–495; 3:320–321
uses and gratifications, 1:434; 2:411–412, 490, 494, 496; 4:38
violence, 2:310; 4:289–294
Mass Observation, 1:422–424; 2:497–499*
Mass production, 2:4; 4:373
Mass society, 1:424; 2:488, 491, 492, 495
Massachusetts Institute of Technology, 1:376, 384, 390; 4:318
Massification, 1:436, 437; 4:198
Massolle, Joseph, 4:117
“Mastermind” (TV series), 3:416
Mat (film), 3:64
Mata Hari (film), 4:167
“Match Game” (TV series), 3:416
Material culture, 1:128–135, 437; 2:180
Materialism, 1:135; 2:477–478
 dialectical, 2:292
 historical, 2:308, 475
Mathematical Analyzer, Numerical Integrator and Computer (MATHIAC), 4:305
Mathematical theory of communication, 2:316–318; 4:59–61
Mathematics, 1:136, 314; 2:499–502*; 3:33, 35–36. *See also* Number; Symbolic Logic
Mathesius, Vilem, 2:434
Matisse, Henri, 1:93
Matriliney, 2:213
Matrix theory, 2:245–247
Matshrdont (queen), 2:142
Matsumoto, Reiji, 1:351
Mattelart, Armand, 2:16, 481
Mattelart, Michele, 2:481
Matter, Herbert, 3:349
Maturana, Humberto R., 1:445
Matuszewski, Boleslaw
 A New Source of History (book), 1:108
Matza, David, 1:460
Mauborgne, Joseph O., 1:429
Mauchley, John, 1:429
Maugham, Somerset
 Ashenden (book), 4:167
Maupassant, Guy de, 2:168
Maupertuis, Pierre-Louis Moreau de, 2:434
Mauriac, François
 Vipers' Tangle (book), 3:163
Maurice of Nassau, 3:336
Mauss, Marcel, 1:130, 134, 198
“Maverick” (TV series), 4:316
Maxwell, James, 2:155, 502–503*; 3:417
Maxwell, Robert, 1:224
Mayakovsky, Vladimir, 2:369; 4:281
Mayan
 calendar, 1:228
 murals, 3:85
 texts, 4:323, 326, 328
Mayan writing. *See* Americas, Pre-Columbian—Writing Systems
Maynard, Ken, 4:315
Mayo, Rev. John, 3:445
Maysles, Albert, 1:276, 277
Maysles, David, 1:276, 277
Mazarin, Cardinal, 3:220
Mazzoni, Jacopo, 2:444
M'Bow, Amadou-Mahtar, 3:170
MCI, 4:202, 203, 215
Mead, George Herbert, 1:354, 410, 411; 2:336, 337, 503–504*; 3:266; 4:18
 Mind, Self, and Society (book), 2:504
Mead, Margaret, 1:190, 274, 445; 2:110, 381, 505–506*
 Balinese Character: A Photographic Analysis (book), 1:180–181; 2:506
 Male and Female (book), 2:211
 Patterns of Culture (book), 2:505
 Sex and Temperament in Three Primitive Societies (book), 2:505
Meaning, 3:1–5*. *See also* Interpretation; Semiotics; Sign; Sign System
 aesthetics, 1:28, 29
 authorship, 1:158, 160; 3:433–434
 code, 1:312–316
 communication philosophies, 1:355
 feminist theories, 2:158
 grammar, 2:235, 237–238
 ideology, 2:158, 307, 310
 language, 2:388, 395; 3:2–3, 7–9
 Lévi-Strauss, Claude, 2:417–418
 literary criticism, 2:349, 350, 446–447
 Osgood, Charles, 2:239–240; 3:37–38
 Peirce, Charles S., 3:249
 reading theory, 1:158, 160; 2:496; 3:433–434
 rebus principle of, 4:326
 Saussure, Ferdinand de, 4:10
 Schutz, Alfred, 4:18–19
 semantic differential, 4:40–43
 semantics, 1:137; 4:43–46
 sound, 4:101–104
 speech perception, 3:251
 style, literary, 4:186
 symbol systems, 1:265
 symbolism, 2:303–307; 4:192, 193
 theory of coordinated management of, 2:338
 translation, 4:257–261
Mechanical recording, 4:112–114
Media, self-regulation of, 1:251–252; 2:287; 4:294
Media agendas, 1:43
Media conglomerates. *See* Conglomerates, media
Media ethics. *See* Ethics, Media
Media events, 2:495, 496; 3:325, 352
Media-government relations. *See* Government-Media Relations
Mediation, 1:177–178; 4:306
Medici family, 2:273
Mediterranean, ancient, 1:219–220; 2:291
Medvedev, P. N., 1:174
Meegeren, Han van
 Christ at Emmaus (painting), 2:195
 Meet Marlon Brando (film), 1:277

- Meet Me in St. Louis* (film), 3:143
 Megasthenes, 4:125
 Mehring, Franz
 Die Lessing-Legende (book), 2:478
 Mei Lan-fang, 1:5
 Meiji Restoration (Japan), 1:143;
 4:245, 246
 Meiklejohn, Alexander, 2:421
 Meiland, Jack, 2:196
 Meisenbach, Georg, 3:286
 Meissonier, Jean-Louis-Ernest, 3:49
 Melanchthon, Philipp, 2:291, 460;
 4:12
 Meletinsky, Eleazar, 2:184
 Méliès, Gaston, 2:287
 Méliès, Georges, 1:282; 2:171; 3:53,
 58, 270; 4:134
 Mellertion, 2:97
 Melochord, 2:99
 Melodium, 2:97
 Melodrama, 3:59, 60, 118; 4:242,
 255
 Melody, 2:115; 3:102; 4:99
Melody of Love (film), 3:144
 Melograph, 2:115; 3:137
 Membranophone, 3:146
 Memoirs. *See* Autobiography; Diary
 Memorials, 1:127–128; 3:336
Memories of Underdevelopment
 (film), 3:73
 Memorization, 3:132, 231, 232;
 4:200
 Memory
 cognition, 1:318
 computer, 1:376; 3:13
 folktales, 2:183, 184
 oral culture, 3:98, 228
 oral history, 3:230
 social cognitive theory, 4:93, 94
 testimony, 4:232, 233
 Men. *See also* Sex/gender roles;
 Women
 fiction, 2:450
 food, 2:189, 192–193
 gender, 2:211–214
 humor, 2:198
 stars, 4:179
 as storytellers, 2:185
 touch, 4:249
 violence against women, 4:291–
 292
 Ménage, Gilles
 Ménagiana (book), 1:188
 Menander, 1:340; 2:52
 Mencius, 1:400, 401
 Meng Zi. *See* Mencius
 Mengers, Anton Raphael, 1:289
 Menshov, V., 3:78
 Mental illness, 1:181, 199–200;
 2:201, 224, 262; 4:188
 Mental retardation, 4:151
 Menzel, Jiří, 3:79
 Mercator, Gerardus, 2:469, 470
El mercurio (Santiago newspaper),
 3:194
El mercurio (Valparaíso newspaper),
 3:194
 Mercury Theatre, 3:420; 4:312
 “Mercury Theatre on the Air” (radio
 series), 4:312
 Mereology, 3:299–300
 Mergenthaler, Ottmar, 3:5*; 4:263
 Meringer, Rudolf, 4:88
 Merleau-Ponty, Maurice, 1:357;
 2:174
 Merriam-Webster dictionaries, 4:311
 Merritt, Marilyn, 1:297
The Merry Widow (film), 3:142
 Merton, Robert K., 2:300, 411; 3:6–
 7*. *See also* Functional Analysis
 The Focused Interview (book), 3:6
 Mass Persuasion: The Social Psy-
 chology of a War Bond Drive
 (book), 3:6
 Social Theory and Social Structure
 (book), 2:309
 MESM (computer), 1:383
 Mesoamerica. *See* Americas, Pre-Co-
 lumbian—Communications;
 Americas, Pre-Columbian—Writ-
 ing Systems
 Mesopotamia
 art, 1:121–123
 cuneiform, 1:44, 439, 441; 3:106
 writing, 4:329–331, 332
 Message units, 2:385, 386, 388, 389
 Messages
 characteristics, 2:330; 3:267, 268
 cryptology, 1:428–430
 decoding, 1:254
 encoding, 4:309
 espionage, 2:104–106
 information theory, 1:444; 2:314–
 320; 4:318
 message system analysis, 1:433
 models of communication, 3:36–
 38
 quantification, 2:314–319
 ritual, 3:467–470
 Messengers, 1:52; 2:76, 269; 3:341,
 343
 Messiaen, Olivier, 2:97; 3:132; 4:103
 Messmer, Otto, 1:92
 Messter, Oskar, 3:52
 Meszáros, Márta, 3:79
 Metacommunication, 2:319, 338;
 3:264, 295, 467–472
 Metaphor, 3:7–11*. *See also* Tropes
 art, 1:114
 Bateson, Gregory, 1:180, 181
 cognition, 1:318
 film, 2:172
 food, 2:188
 sports as a, 4:166
 Metaphysics, 3:294
 Metaplasms, 4:154
 Meteorology, 4:5–7
 Methodius, Saint, 1:46
 Meton (astronomer), 1:225
 Metonymy, 3:10
 Metro-Goldwyn-Mayer (MGM),
 1:93; 2:130, 287, 290; 3:142–
 144
 Metromedia television, 1:224
Metropolis (film), 2:129, 131 (fig.)
 Metz, Christian, 2:175
 Mexico. *See also* Latin America,
 Twentieth Century
 communications education, 1:366–
 367
 control of the press, 2:226; 3:312
 film, 1:217–218
 foreign debt, 2:13
 fotonovelas, 2:198, 200
 mural, 3:87
 television, 4:221, 222
 Meyer, Hannes, 1:100
 Meyer, Leonard B., 1:117; 2:197;
 3:34, 36
 Emotion and Meaning in Music
 (book), 4:104
 Meyerhold, Vsevolod, 1:5
 Mezquita (newspaper organization),
 3:194
 Mezzotint, 3:360
 MGM. *See* Metro-Goldwyn-Mayer
MGM News of the Day. *See* Hearst
 Metrotone
 “Miami Vice” (TV series), 3:157
 Michelangelo, 2:195; 3:86, 449; 4:29
 David (sculpture), 4:29, 30 (fig.)
 Michelet, Jules, 2:125, 283
 Microcomputers, 1:378, 388–391,
 456; 2:100. *See also* Computers
 Microelectronics, 1:374–379; 2:428;
 3:11–13*, 274, 422. *See also*
 Circuits, integrated
 Microfilm, 1:107
 Microphones, 2:363; 3:66–67; 4:109
 Microprocessors, 3:12, 13
 Microtonality, 3:133, 141
 Microwave Communications Inc. *See*
 MCI
 Microwave transmission, 1:253;
 4:215, 283
 Middle Ages, 3:13–21*
 alphabet, 1:46
 architecture, 1:99
 art, 1:27, 125–126; 3:85, 366;
 4:303
 authorship, 1:158–159
 biography, 1:188
 bookkeeping, 2:272, 273
 books, 1:212
 classicism, 1:289
 clocks, 1:302, 305
 coins, 1:329
 copyright, 1:412–413
 Crusades, 1:233–236
 education, 4:12, 271
 forensics, 2:193
 heraldry, 2:274–277
 historiography, 2:281–282
 language and writing, 3:14–16
 Latin language, 2:235

- law, 3:17, 19–20
 library history, 2:423–424
 linguistics, 2:434
 literacy, 2:437–438, 439; 3:14, 16, 19, 21
 music, 3:133, 135, 140
 oral traditions, 3:16–17
 postal service, 3:343
 prose, 3:380
 public opinion, 3:387
 religion, 2:291; 3:440
 sign system, 4:74, 77
 structuralism, 4:183
 theater, 2:54, 215; 3:116; 4:108, 237, 238, 255
- Middle East. *See* Islam, Classical and Medieval Eras; Islamic World, Twentieth Century; *and individual entries under countries*
- Middle Eastern newspapers. *See* Newspaper: Trends—Trends in the Middle East
- A Midsummer Night's Dream* (film), 1:94
- Mifune, Toshiro, 2:473
- Migration, 3:21–24*. *See also* Diaspora; Slave Trade, African
 Africa, 1:35
 Americas, pre-Columbian, 1:47, 49
 Australasia, 1:155–158
 colonization, 1:331–339, 437
 diffusion, 2:35; 3:122
 Roman Empire, 3:480
 South Asia, 4:121, 125
- Mikagura*, 1:451
- Mikhalkov, Nikita, 3:78
- Milestone, Lewis, 3:67–68
- Milgram, Stanley, 1:423, 461
- Milhaud, Darius, 2:97
- Milieu therapy, 4:188
- Military. *See also* Computer: Impact—Impact on Military Affairs
 censorship, 1:248
 cryptology, 1:429
 disinformation, 2:40–41
 heraldry, 2:274, 275
 intelligence, 1:405, 407
 propaganda, 3:374–378
 satellite, 4:5, 6, 7
 spectrum, 4:144, 145
 training films, 1:93, 153, 371; 2:41, 294
- Mill, John Stuart, 1:162, 247; 4:197
Considerations on Representative Government (book), 2:82
On Liberty (book), 2:82, 231; 3:32
- Millais, John Everett, 3:435
- Miller, Arthur, 2:215; 4:257
Death of a Salesman (play), 2:59
- Miller, George, 3:75
- Miller, J. A., 1:28, 415; 4:117
- Millet, Jean-François, 3:435
- Mills, C. Wright, 2:491
- Mills Novelty Co., 3:112
- Milton, John, 1:249; 2:83, 215; 3:24–25*, 244, 303
Areopagitica, 1:283, 415; 3:24–25
Eikonoklastes, 1:415
Lycidas, 1:188
Paradise Lost, 1:415; 2:442; 3:24
Paradise Regained, 3:24
- Mime, 2:217–219; 3:26–28*, 117, 409. *See also* Drama; Theater
- Mimesis, 1:27; 3:300, 454, 455; 4:102, 107. *See also* Imitation
- Mind. *See also* Cognition
 concept of, 1:410–411; 2:504
 cultural-historical approach, 2:458–459; 3:487–488
 theories of, 2:445
- Mindak, William, 4:43
- Miniatur studio, 1:94
- Miniaturization, 1:384; 2:428; 3:11, 421
- Minicomputers, 1:378. *See also* Computers
- Minimum principle, 3:256
- Miniseries. *See* Television programming, miniseries
- Ministry of Enlightenment and Propaganda (Nazi Germany), 3:374
- MINITEL system (France), 2:429
- Minnelli, Vincente, 3:143, 144
- Minnesota Mining and Manufacturing Corp., 4:136
- Minnesota Multiphasic Personality Inventory (MMPI), 1:294
- Minorities and literature, 2:442–443
- Minorities in the Media, 1:156–158, 431; 2:310; 3:28–30*
- Minority Media, 2:407; 3:30–32*, 179
- Miracle plays, 2:54; 4:255
The Miracle Worker (film), 2:379
- Mir'at al-Ahwal* (newspaper), 3:195
- Miró, Joan, 1:93, 258; 3:348
- Miró Quesada (newspaper organization), 3:194
- Miron, Murray, 4:41
The Mirror for Magistrates (book), 4:255
- Misch, Georg, 1:161
- Misère au Borinage* (film), 2:364
- Mishima, Yukio
Hanzo (play), 2:60
Sotoba komachi (play), 2:60
- El misisipi* (newspaper), 3:31
- "Mission Impossible" (TV series), 4:168
- Missionaries
 Africa, 1:38
 Crusades, 1:424
 in Mesoamerica, 1:50
 religion, 1:196; 3:440, 443–444
 South Asia, 4:123
 Tokugawa era, 4:245
- Missions of California* (film), 4:134
- "Mister Rogers' Neighborhood" (TV series), 1:272
- Mitchell, Margaret
Gone with the Wind (book), 3:481, 482
- Mitchum, Robert, 4:316
- Mitre (newspaper organization), 3:194
- Mitry, Jean, 2:174
- Mix, Tom, 4:315
- Mixtec writing, 1:57, 61
- Mixturtraonium, 2:97
- Mizoguchi, Kenji, 1:283; 3:64, 73, 76
- Moana* (film), 2:43, 46, 110, 176–177
- Mochalov, Pavel, 1:6
- Modal rhythm, 3:135
- Mode, 3:32–36*
 artistic expression, 1:113
 code, 1:312; 3:33
 Lévi-Strauss, Claude, 2:418
 metaphor, 3:9
 performance, 3:262
 visual image, 4:295, 297–298
- Models of Communication, 3:36–44*. *See also* Mass Communications Research; Mass Media Effects
- Cherry, Colin, 1:257–258
 cybernetics, 1:444
 information theory, 2:314–320
 network analysis, 3:168
 Shannon, Claude, 4:59–61
 two-step flow, 1:410, 423; 2:96, 412; 3:39–41; 4:95
 Weaver, Warren, 4:309
 Wiener, Norbert, 4:318–319
- Modern Electrics* (magazine), 4:21
- Modern Times* (film), 1:257, 342
- Modernism
 avant-garde, 1:162–166, 168
 classicism, 1:291
 design, 2:5
 modern art, 2:187; 3:95
 poetics, 3:301
 reading theory, 3:434
 realism, 3:437
 romanticism, 3:488
 typography, 4:262, 263, 265, 268
 visual image, 4:304
- Modernization. *See also* Development communication
 theories of, 2:10–12
- Moebius. *See* Giraud, Jean
- Mohammad Reza Shah Pahlavi, 2:363; 3:323
- Moist Canons* (book), 4:74
- Molar attitudes, 1:149–151
- Molecular attitudes, 1:149–151
- Molière, Jean-Baptiste, 1:340, 342; 3:378; 4:237
L'avare (play), 2:55
Le malade imaginaire (play), 2:55
Le misanthrope (play), 2:55
Tartuffe (play), 2:52, 55

- Monasteries, 1:412–413; 2:291, 423–424, 438; 3:343; 4:126, 127
 Monasticism, 2:282
Le monde (newspaper), 2:227; 3:183, 192
 Monet, Claude, 1:258
Money (film), 3:64
The Money Order (film), 3:79
 MonitEur, 4:285
 Monochord, 2:99
 Monody, 1:289
 Monogenesis, 2:183
 Monogram Pictures, 2:287
 Monopolies and Merger Act (Great Britain), 3:45
 Monopoly, 3:44–46*
 advertising 1:24–26
 AT&T, 4:202–203, 205, 212, 215
 British Telecom, 2:234
 broadcasting industry, 2:234; 3:45, 46, 243, 348
 copyright, 1:422
 ethical issues, 2:108
 film industry, 2:285–286, 288; 3:72–73, 74; 4:340–341
 government, 4:157, 221–223
 news agencies, 3:45, 171, 177
 profession, 3:373, 374
 publishing, 1:246, 413–416; 3:400
 Radio Corp. of America, 3:420; 4:4, 5
 telecommunications policy, 4:205–208
 telegraphy, 1:183; 4:209–211
 telephone, 4:202–203, 212, 215
 television programming, 4:225
 Monroe, Paul
 Cyclopedia of Education, 3:462
Monsieur Verdoux (film), 1:257
 Montage, 2:92, 172; 3:64, 67, 349
 Montagu, Ewen
 The Man Who Never Was (book), 4:167
 Montague, Richard, 2:237
 Formal Philosophy (book), 4:44
 Montaigne, Michel de, 2:24
 Montalboddo
 Paesi Novamente Retrovati (book), 2:125
 Montesquieu, Baron de La Brède et de (Charles-Louis de Secondat)
 Lettres persanes (book), 2:416; 4:276
 The Spirit of Laws (book), 4:246
 Montgomery Ward, 1:17
 Montreal Telegraph Co., 4:211
Monumenta Germaniae Historica (books), 2:283
 Monuments, 1:57, 100; 3:473; 4:29–30, 332
 Moody, Dwight L., 3:395
 Moog synthesizer, 2:97
 Moore, Charles, 2:351; 3:5
 Moore, G. E., 4:320, 321
 Moore, Henry, 4:30–31, 32 (fig.)
- Morality plays, 2:54; 4:255
 More, Sir Thomas, 1:188; 4:274–275, 278
 Utopia (book), 4:21, 274
 Moreno, Jacob, 3:168
 Moréri, Louis
 Grand dictionnaire historique, 2:101
 Morgenstern, Oskar, 1:445
 Theory of Games and Economic Behavior (book), 4:305
 Morin, Edgar, 1:276; 2:50, 111, 174
 Morison, Samuel Eliot, 2:256
 The Growth of the American Republic (book), 4:235
 Morison, Stanley, 4:266
Morning Chronicle (newspaper), 3:181
Morning Post (newspaper), 3:188
 Morocco, 1:339
 Morphemes, 2:89, 432, 433; 3:251, 254; 4:79
 Morpheostasis, 2:319
 Morphogenesis, 1:444
 Morphokines, 1:453
 Morphological features, in animal signaling, 1:85–86
 Morphology, 2:184–186, 235, 432, 434, 435; 3:299
 Morphophonemics, 4:317
 Morphophonology, 2:433, 435
 Morris, Charles, 1:354; 3:46–47*; 4:63
 Foundations of the Theory of Signs (book), 3:46–47; 4:43, 47–48
 Morris, Desmond, 2:220
 Morris, Lewis, 4:339
 Morris, William, 2:5; 4:263
 Morse, Samuel F. B., 3:47–48*, 417; 4:208
 Morse code, 2:315; 4:75
 Moscoso, Victor, 3:349
 Moscovici, Serge
 The Age of the Crowd (book), 1:424
Moscow (film), 2:92
Moscow Does Not Believe in Tears (film), 3:78
 Moscow Linguistic Circle, 2:369
 Moscow State Puppet Theater, 3:412
 Moscow-Tartu School, 3:300; 4:49
 Moser, Brian, 2:113
 Moses, 2:104, 290, 410; 4:25
Al-Mostaqbal (newspaper), 3:196
 Mosteller, Frederick, 4:187
Mother (film), 3:64
 Mother-child interaction. *See* Parent-child interaction
The Mothering Heart (film), 3:61
 Motion, perception of, 3:258–262
 Motion parallax, 3:256
 Motion Photography, 1:198; 2:42; 3:48–51*, 52, 258–261; 4:282
 Motion Picture Council of America, 1:371
 Motion Picture Export Assn. of America, 4:225
 Motion picture industry. *See* Hollywood; *and entries under individual countries*
 Motion Picture Patents Co., 2:80, 285–286; 3:24; 4:340
 Motion Picture Producers and Distributors Assn. of America, 1:251, 252
 Motion Picture Production Code, 2:287
 Motion Picture Research Council, 4:136
Motion Picture Story (magazine), 4:188
 Motion pictures. *See also* *Cinéma Vérité*; Documentary; Film; Motion Pictures—Prehistory; Motion Pictures—Silent Era; Motion Pictures—Sound Film; Newsreel
 acting, 1:5, 6
 animation, 1:91–95
 censorship, 1:248, 251, 252
 children, media effects, 1:270–271
 communications research, 1:371–373
 copyright, 1:418, 420
 film archives, 1:108–109
 Hollywood, 2:285–290
 opera, 3:221
 patents, 3:248
 screenwriting, 3:68
 serials, 4:50, 51–53
 stars, 4:177–180
 violence, 4:289, 291–294
 Motion Pictures—Prehistory, 2:42–43, 79–80, 457–458; 3:52–57*
 Motion Pictures—Silent Era, 3:57–66*
 Australia, 1:156
 avant-garde, 3:62, 63, 65
 Chaplin, Charles, 1:255–257
 cinematography, 1:279–282
 Denmark, 3:62
 documentary, 2:43–46
 film theory, 2:174
 France, 3:58, 63–64
 Germany, 2:128–130; 3:62–63
 horror film, 2:292
 India, 3:64–65
 Japan, 1:186; 3:64
 sound effects, 4:108
 Soviet Union, 3:62, 64
 Sweden, 3:62
 transition to sound, 3:60–62, 66–68
 United States, 2:285–287; 3:58, 61–62, 65–66
 Motion Pictures—Sound Film, 3:66–80*
 Australia, 3:75
 cinematography, 1:279–282
 Czechoslovakia, 3:79
 Disney, Walt, 2:41–42
 documentary, 2:46–51

- film editing, 2:172
 film theory, 2:174
 France, 3:70–71, 75–76
 Germany, 2:129–130; 3:71
 Germany, Federal Republic of, 3:76
 Great Britain, 3:70, 75
 horror film, 2:292–294
 Hungary, 3:79
 impact of television, 2:289; 3:73, 75–76; 4:220–221
 India, 3:73, 78
 Islamic world, 2:362
 Italy, 3:71–72, 73
 Japan, 1:186; 3:72–73, 76–78
 Latin America, 2:406; 3:73
 Poland, 3:79
 postsynchronization, 3:67–68
 sound effects, 2:172; 4:109–111
 sound recording history, 4:117, 119
 Soviet Union, 3:72, 78
 United States, 2:287; 3:66–70, 73–75
 westerns, 4:314–316
 wide-screen format, 1:280; 3:74
 Yugoslavia, 3:79
- Motivation, in ethnological research, 2:118–121
 Motivation Research, 1:150; 3:80–82*
 advertising, 1:8, 18
 consumer research, 1:402
 Muzak, 3:154
 social cognitive theory, 4:93, 94, 95
 sports psychology, 4:165
 teaching, 4:200
- Mott, Frank Luther, 1:359; 2:256
 Mott, Lucretia, 3:395
Al-Moubasher (newspaper), 3:195
 Mouchon, Pierre, 2:101
 Mozambique Liberation Front, 2:480
 Mozart, Wolfgang Amadeus, 2:56; 3:102, 132, 218, 412, 484
 Mu'āwiyah (caliph), 3:343
 Mucha, Alphonse, 4:263
 Muckraking, 2:227
 Mudras, 2:62, 217; 3:124, 126, 443
 Muhammad, 1:127, 228; 2:290; 4:25
 Muhammad Ali Pasha, 3:195
 Muhammad Bello, 1:35
Muiguithania (newspaper), 2:380; 3:187
 Mujica, Hector, 2:481
 Mukařovský, Jan, 3:298, 299, 300; 4:48
The Mulaga Seed Ceremony (film), 2:112
 Müller-Brockmann, Josef, 4:265
 Multichannel multipoint distribution services (MMDs), 1:224
 Multilingualism, 2:389, 402–403
 Multinational corporations
 advertising, 1:12, 23
 colonization, 1:338
- Latin America, 2:405–406, 407–408
 New International Information Order, 3:169, 170–171
 propaganda, 3:376
 telecommunications policy, 4:207, 208
 world economy, 1:398–399; 3:317
- Multiple-system operators (MSOs), 1:224
 Mulvey, Laura, 2:175
 Mumford, Lewis, 2:47
 Mummers, 2:485
The Mummy (film), 3:69
 Munk, Andrzej, 3:79
 Munkacsi, Martin, 3:288
 Munn, Nancy, 1:130, 134
 Munsey, Frank Andrew, 2:465
 Münsterberg, Hugo, 2:173; 3:247
 On the Witness Stand (book), 4:232–233
 Mural, 1:52, 112; 3:82–91*
 Murdoch, Rupert, 1:224; 3:182
 Murdock, George Peter, 1:274
 Murnau, F. W., 1:282, 361; 2:292
 Murray, Gilbert, 4:238
 Murray, Henry A., 3:80
 Murray, John, III, 1:174
 Murrow, Edward R., 3:243, 395, 419; 4:230
Musansha shimbun (newspaper), 1:238
 Musäus, Johann Karl August
 Volksmärchen der Deutschen (book), 2:181
 Musée de l'Homme, 2:111, 417
 Museum, 3:91–97*
 art, 1:118, 141; 2:198; 4:29
 artifacts, 1:128, 135
 graphic reproduction, 2:244
 origins, 3:91–93
 role of, in experiencing art, 3:93–94
 structuring the experience of art, 3:93–94
 video, 4:285
 Museum of Modern Art, 1:108, 132; 4:285
- Music
 conducting, 3:102, 132
 criticism, 3:128–132, 220–221
 drama, performance, 2:62
 festivals, 2:163
 mode, 3:33–36
 program music, 4:111–112
 radio, 1:373–374
 twelve-tone, 2:99; 3:250
 videos, 2:108; 4:285, 289
 Music, Folk and Traditional, 3:97–98*
 cantometrics, 1:230–233
 ethnomusicology, 2:114–116
 folklore, 2:177, 181, 448
 music performance, 3:114
 music theories, notations and literacy, 3:135, 137
- Music, Popular, 3:98–101*
 Adorno, Theodor, 1:373–374
 music composition and improvisation, 3:102–103
 musical film, 3:142
 radio, 3:421
 rock and roll, 1:140, 270; 3:98, 99, 100, 122; 4:120
 “Music and the Spoken Word” (radio series), 3:444
 Music boxes, 3:112
 Music Composition and Improvisation, 3:101–104*
 artist and society, 1:140, 142
 ethnomusicology, 2:115
 mode, 3:36
 music history, 3:110
 music performance, 3:114
 music theories, 3:128, 130, 132
 musical instruments, 3:152
 Music History, 3:104–111*. *See also* Song
 ethnomusicology, 2:114–116
 Florentine Camerata, 1:289–291; 3:117, 219
 music performance, 3:114
 music theories, 3:139–142
 opera, 3:217–222
 Renaissance, 3:449
 Music Machines, 2:97–99; 3:111–114*; 4:104, 108, 112–117
 Music Performance, 3:114–116*. *See also* Performance
 copyright, 1:417
 ethnomusicology, 2:114–116
 mode, 3:36
 music composition and improvisation, 3:101–104
 music history, 3:104–111
 music theater, 3:116–128
 music theories, 3:130, 132–139
 song, 4:100–101
 Music Theater—Asian Traditions, 2:53–54; 3:73, 122–128*; 4:122, 123, 129. *See also* Theater
 Music Theater—Western Traditions, 3:116–122*. *See also* Opera; Theater
 Music Theories—Notations and Literacy, 3:130, 131, 132–139*
 artist and society, 1:141
 mode, 3:33
 music composition and improvisation, 3:102
 music history, 3:104, 106–107, 110
 music performance, 3:114
 Music Theories—Overview, 2:114; 3:107–108, 128–132*. *See also* Perception—Music
 Music Theories—Tuning Systems, 3:114, 139–142*, 146, 148–151; 4:102
 Musical, Film—Bombay Genre, 3:125, 144–146*; 4:224

- Musical, Film—Hollywood Genre, 3:68–70, 142–144*
- Musical Instruments, 3:146–153*.
See also Electronic Music
- Americas, pre-Columbian, 1:51
- classification, 3:146–147
- music composition and improvisation, 3:102–103
- music history, 3:104, 105–107, 147–148
- music machines, 3:111–114
- music perception, 3:250
- music performance, 3:114
- music theories, 3:133, 148
- tuning systems, 3:139–142
- Musique concrète, 2:98; 4:109
- Musset, Alfred de, 1:27
Il faut qu'une porte soit ouverte ou fermée (play), 3:382
- Mussolini, Benito, 1:138, 330; 3:72, 288, 419
- Mussorgsky, Modest, 1:92
- Muybridge, Eadward, 1:198; 2:42, 50, 80; 3:48, 52
Animal Locomotion, 3:49
- Muzak, 3:153–154*; 4:106
- Muzak Corp., 3:153
- Mwindo Epic, 3:227
- My Brilliant Career* (film), 3:75
- My Darling Clementine* (film), 4:316
- The Mysterious Lady* (film), 3:65
- The Mysterious X* (film), 3:62
- Mystery and Detective Fiction, 2:452; 3:154–157*; 4:170, 171
- Mystery plays, 2:54; 3:441; 4:108
- Mysticism, 2:351, 356; 3:488
- Mythological Film, Asian, 3:64–65, 73, 157–158*, 270. *See also* Musical, Film—Bombay Genre
- Mythologies, 2:310; 4:193
- Myths
 culture, 1:436, 437
- folktales, 2:181–182
- historiography, 2:280, 281
- ideology, 2:310; 4:55
- interpretation, 2:343
- Lévi-Strauss, Claude, 2:418
- literary criticism, 2:446; 3:7
- personal, 2:376
- political, 3:322
- religion, 3:440, 441
- ritual, 3:469
- structuralism, 4:183, 184
- utopias, 4:274
- westerns, 4:313, 314
- N**
- NAACP. *See* National Assn. for the Advancement of Colored People
- Nabataean script, 1:46
- Nabokov, Vladimir, 3:437
Pale Fire (book), 2:216
- La nación* (newspaper), 1:367
- El nacional* (newspaper), 3:194
- Nai* (film), 2:111
- Nakahama Manjiro, 3:161*
- Nakazawa, Keiji
 "Gen of Hiroshima" (comic strip), 1:351
- Nam June Paik, 4:284–285
- Name recognition, 2:94–95
- Naming, 3:453–454; 4:74
- Nanook of the North* (film), 2:43, 110, 176
- Nap* (magazine), 1:238
- Napoléon* (film), 1:281; 3:64
- Napoléon I, 1:230; 2:105, 331, 410; 3:195, 297; 4:272
- Napoleonic empire, 3:485
- Napoleonic Wars, 3:93
- Narbone, Jean, 2:175
- Narmer (king), 4:324, 325 (fig.), 326
- Narration, 1:186; 2:46, 49; 3:200, 203, 420
- Narrative, 3:161–164*
 autobiography, 1:161
- biography, 1:188
- diary, 2:24–25
- fiction, 2:75, 167–171
- film, 1:166, 167, 169; 2:171–172; 4:181, 183
- folktales, 2:181–187
- historiography, 2:282, 284
- narratology, 3:299
- plot, 3:163
- poetry, 3:231–234
- proverb, 3:381
- serials, 4:50–54
- tragedy, 4:255
- Narrowcasting, 1:315; 3:28–29
- Nasser, Gamal Abdel, 3:396, 445; 4:223
- Nast, Thomas, 1:238, 239
- Natanson, Maurice
Philosophy, Rhetoric, and Argumentation (book), 3:463
- The Nation* (magazine), 2:227
- National Academy of the Arts of Design, 3:47
- National Advisory Commission on Civil Disorders (U.S.), 3:29, 489
- National Aeronautics and Space Administration (NASA), 1:157, 253–254, 456; 4:5
- National Assn. for the Advancement of Colored People (NAACP), 3:396
- National Assn. of Academic Teachers of Public Speaking, 1:360
- National Assn. of Broadcasters (NAB), 1:459
- National Assn. of Evangelicals, 3:446
- National Bell, 4:212
- National Broadcasting Co. (NBC), 3:228, 229, 243, 418, 444; 4:91, 162, 219
- National Chengchi University (China), 1:365
- "National Citizenship Quiz" (TV show), 1:273
- National Commission on the Causes and Prevention of Violence (U.S.), 2:310; 4:290
Violence and the Media: A Staff Report to the National Commission on the Causes and Prevention of Violence (book), 2:310
- National communication policies, 2:15, 481; 3:172, 316–317
- National Council of Nigerian Citizens party, 3:187
- National Council of Teachers of English, 1:360
- National Council of the Churches of Christ, 3:444
- National development. *See* Development communication
- National Electric Signaling Co., 2:160
- National Enquirer* (newspaper), 2:448
- National Federation of Local Cable Programming, 1:284
- National Film Board of Canada. *See* Canada, National Film Board of Canada
- National independence movements. *See* Independence movements
- National Ministries of Post, Telephone, and Telegraph. *See* PTTs
- National Opinion Research Center (NORC), 2:300; 3:328
- National Parent-Teacher Assn., 4:288
- National Religious Broadcasters, 3:446
- National Science Foundation (NSF), 2:328; 4:233
- National Socialism. *See* Germany, pre-1946; Hitler, Adolf; Nazism
- National Television Systems Committee, 2:406
- National University of La Plata (Argentina), 1:367
- National University of Zaire, 1:368
- Nationalism
 African press, 3:186
- anticolonial movements, 1:338
- Asian press, 3:189
- cartography, 1:242
- culture, 1:435
- historiography, 2:283
- plebiscite, 3:297
- romantic, 2:177, 178, 180–181, 183; 2:449; 3:229
- Nationalist movements, 2:480; 3:458–461. *See also* Independence movements
- Africa, twentieth century, 1:38, 39, 40; 2:379–380; 3:209
- Asia, twentieth century, 1:143, 144, 145
- Nationality press, 3:30
- Native Americans
 artifacts, 1:131–135
- body decoration, 1:193
- ethnographic film, 2:111

- European exploration, 2:127
 languages, 1:49, 190, 191; 4:3, 260, 317
 Lévi-Strauss, Claude, 2:418
 literacy, 2:439
 minority media, 3:29, 31
 music performance, 3:115
 oral poetry, 3:231–234
 public speaking, 3:394
 sign language, 4:65, 66
 theater, 2:64–65, 66
 Nativism, 1:267; 2:237
Nattvardsgästerna (film), 1:187
 Natural selection, 1:67, 455; 2:118, 121
 Naturalism. *See also* Realism
 drama, 1:5; 2:57–58, 62; 4:257
 expressionism, 2:128, 130
 literary criticism, 2:445
 pictorial, 3:276; 4:301
 Renaissance, 3:450
Nāṭyaśāstra (book), 1:4; 2:66; 3:124, 146
Naughty Marietta (operetta), 3:120
 Nauman, Bruce, 4:285
 Navajo Film Project, 2:111
 Navajo music, 3:129
 Navigation. *See also* Transportation
 Africa, precolonial, 1:30–31
 Americas, pre-Columbian, 1:51
 colonization, 1:334, 339
 Diaspora, 2:28
 East Asia, 2:77
 Renaissance, 3:479
 Roman Empire, 3:450
The Navigator (film), 3:65
Nazarin (film), 1:218
 Nazism, 1:330–331; 2:222–223; 3:199. *See also* Holocaust, Nazi
 NBC. *See* National Broadcasting Co.
 NEC Corp., 1:382
 Negopy (computer program), 3:168
 Negotiation, 2:333; 3:238, 240. *See also* Bargaining
 Negri, Pola, 3:68
 Nehru, Jawaharlal, 1:144
Glimpses of World History (book), 2:417
The Neighbor's Wife and Mine (film), 3:72
 Nelson, Lyle, 4:18
 Neo-Babylonian Proverbs and Sayings of Aḥiqar (proverb collection), 3:382
 Neolithic period, 1:298, 301; 3:147
 Neon, 4:81
 Neorealism, 3:73, 164–167*, 175
Nepszabadsag (newspaper), 3:192
 Nero (emperor), 1:327, 478
 Nerva (emperor), 1:327
 Netherlands. *See also* Holland; and *individual entries under* Dutch audiovisual education, 1:155
 citizen access, 1:283
 film, 2:364–366
 heraldry, 2:275, 278, 279
 media monopoly, 3:45, 46
 radio, international, 4:423
 telegraphy, 4:208
 Nettl, Bruno, 3:128
 Network Analysis, 3:167–168*. *See also* Communication networks
 diffusion, 2:31, 32–33, 494
 group communication, 2:260–263
 mass media effects, 2:492
 organizational communication, 3:238
 social cognitive theory, 4:95
 social networks, 1:138–142
 Network of State Polls, 3:328
 Networks, computer. *See* Computer networks
Neue Zürcher Zeitung (newspaper), 3:192
Neues Deutschland (newspaper), 3:192
 Neurolinguistics, 2:431, 434, 459
 Neurology, 1:443, 444, 445; 2:220
 Neuropsychology, 2:459
 Neurosis, 3:385
 Nevins, Allan, 3:230
New African (newspaper), 3:209
New Criticism, 2:346, 348, 349, 446; 3:299, 433, 465; 4:193
 New Deal projects, 2:47, 233; 3:87; 4:311, 312
New England Primer (book), 4:232
New English Dictionary. *See* *Oxford English Dictionary*
New Graphic Design (magazine), 4:265
 New International Economic Order, 1:145; 2:13, 16; 3:168–170; 4:146
 New International Information Order, 3:168–174*
 Asia, 1:145
 copyright, 1:419
 development communication, 2:15
 international organizations, 2:334
 Latin America, 1:366; 2:405–408; 3:194
 Marxist theories, 2:481
 mass communications research, 2:492
 media ethics, 2:106, 109
 spectrum, 3:425; 4:144, 146
 telecommunications networks, 4:204
 television, 4:227, 230
New Republic (magazine), 2:436, 437
 New South Wales Film Corp., 3:75
 New Wave Film, 3:73, 75–76, 174–176*, 452
 New World Economic Order. *See* New International Information Order
 New World Information and Communication Order. *See* New International Information Order
New York Daily News (newspaper), 1:346
New York Gazette (newspaper), 4:339
The New York Hat (film), 2:259
New York Herald (newspaper), 1:185–186, 458; 2:472, 3:181; 4:162
New York Herald Tribune (newspaper), 2:436; 3:197
New York Journal (newspaper), 1:16; 3:181, 286, 407
 New York Linguistic Circle, 2:369; 4:49
New York Morning Journal (newspaper), 2:267
New York Morning Post (newspaper), 2:255
New York Post (newspaper), 3:182
New York Review of Books (magazine), 1:239
New York Sun (newspaper), 1:296, 457; 3:181
New York Times (newspaper), 1:247; 2:421, 437; 3:181, 198, 217
New York Times Index, 3:217
New York Tribune (newspaper), 1:458; 2:255–256; 3:5, 181
 New York University, 1:361
New York Weekly Journal (newspaper), 2:232; 3:181; 4:339
New York Weekly Tribune (newspaper), 2:256
New York World (newspaper), 1:345; 2:267; 3:181, 286, 406–407
New York World Telegram (newspaper), 3:407
 New Zealand, 1:364; 4:173. *See also* Australasia, Twentieth Century
Newark News (newspaper), 3:197
 Newcomb, Theodore M., 1:323, 410; 2:337, 412; 3:38
 Newhall, Beaumont, 3:274
 Newhouse (newspaper organization), 3:197
 News Agencies, 3:176–177*
 Africa, 1:41–42; 3:209
 Asian press, 3:188, 191
 government-media relations, 2:227
 Latin American press, 3:194
 monopoly, 3:44
 New International Information Order, 3:170–171
 photojournalism, 3:288, 289
 Soviet press, 3:200
 telegraphy, 4:211
 television news, 4:228
 News coverage. *See also* Newsmagazine; Newspaper: History; Television News; and *individual entries under* Newspaper: Trends
 agenda-setting, 1:42–43
 censorship, 1:248
 demonstration, 2:1–3
 election, 2:94–96

- News coverage (*cont.*)
 fact and fiction, 2:149–150
 gatekeeping, 3:43
 government-media relations, 2:226–230
 media ethics, 2:106–107; 4:292
 newsreels, 3:200–205
 photojournalism, 3:285–292
 politicization of, 3:324–326
 pressure group, 3:351–352
 publishing industry, 3:405
 radio, 3:419–420
 telegraphy, 4:211
 terrorism, 4:231–232
 Newsletter, 3:177–178*, 180, 189
Newsletter on Newsletters, 3:178
 Newsmagazine, 2:456; 3:178–179*.
 See also Magazine; Photojournalism
- Newton, John, 1:264
 Newspaper: History, 3:179–186*.
 See also Magazine; Photojournalism; and individual entries under Newspaper:
 Trends
 censorship, 1:246, 251–252; 3:181; 4:339–340
 circulation wars, 1:185; 2:267–268; 3:181, 407
 comics, 1:344–345
 communications research, 1:369–370
 development, 3:180
 elections, 2:94
 feminist newspapers, 2:159
 function of newspapers, 3:183
 government-media relations, 1:247; 2:228–229, 231
 minority media, 3:31
 news agencies, 3:176
 newsletters, 3:178, 180
 political communication, 3:305, 307–311
 public opinion, 3:387; 4:197
 role of television, 3:184–186
 yellow journalism, 1:345, 369; 2:267–268; 3:182, 286, 370
- Newspaper: Trends—Trends in Africa, 1:38–42, 338; 2:380, 422; 3:44–45, 186–188*, 209
- Newspaper: Trends—Trends in Asia, 1:338, 365; 3:44–45, 188–191*
- Newspaper: Trends—Trends in Europe, 1:182; 2:226–230, 422; 3:44–45, 191–193*
- Newspaper: Trends—Trends in Latin America, 1:367; 2:226–230; 3:193–195*, 312, 326
- Newspaper: Trends—Trends in North America, 2:226–230, 414, 420–421; 3:28, 44–45, 197–199*; 4:23–24, 162–163
- Newspaper: Trends—Trends in the Middle East, 2:226–230, 361; 3:195–197*
- Newspaper: Trends—Trends in the Soviet Press, 1:363; 3:44–45, 199–200*
- Newspaper advertising, 1:8, 16, 296
 Bennett, James Gordon, 1:185
 Day, Benjamin H., 1:457–458
 European press, 3:192–193
 Latin American press, 3:194
 newspaper history, 1:369, 370; 3:181, 184
 North American press, 3:197–199
 Soviet press, 3:200
- Newspaper Advertising Bureau, 3:82
 Newspaper Enterprise Assn., 4:24
 Newsreel, 1:279; 2:43, 49; 3:200–205*; 4:111, 230
- Newsweek* (magazine), 2:467; 3:179
- Newton, H. J., 3:286
 Newton, Isaac, 2:501; 4:272
- New-Yorker* (newspaper), 2:255–256
- Nexis (company), 2:100
 Ng'weno, Hilary, 3:188
- NHK (Nippon Hosai Kyokai), 1:366; 2:86, 114; 4:223, 229, 283
- Nicaragua, 2:18, 20, 122; 3:91, 429, 460; 4:173. See also Latin America, Twentieth Century
- Nicholas II (czar), 2:457; 3:201
- Nickelodeons, 2:285
- Nicolson, Harold, 2:26
- Nielsen, A. C., 3:426; 4:291
- Nielsen ratings, 3:425–429; 4:158
- Niepce, Claude, 3:278
- Niepce, Joseph-Nicéphore, 1:449; 3:205–206*, 278
- Nietzsche, Friedrich, 1:29, 30; 2:202, 347; 3:8–10
- The Birth of Tragedy* (book), 4:257
- Nieuwe Gronden* (film), 2:364
- Niger, 1:154
- Nigeria, 1:38–39; 2:83; 3:100, 186–188, 335
- Nigerian Television Authority, 1:40
- Nigerian Tribune* (newspaper), 3:188
- Night and Fog* (film), 2:49
- Night Mail* (film), 2:47, 258
- Night of the Living Dead* (film), 2:293
- A Night on Bald Mountain* (film), 1:92
- Nikkatsu film company, 3:72
- Nin, Anaïs, 2:25
- Nineveh, 1:442; 2:423; 3:206–208*
- Nipkow, Paul, 4:216–217
- Nipkow disk, 4:216–217
- Nippon Hosai Kyokai. See NHK
- Nippon Telephone and Telegraph, 4:214
- Nixon, Richard M., 1:43; 2:194, 232, 233; 3:318, 327–328; 4:36
- Nketia, J. H. K., 1:33
- Nkrumah, Kwame, 1:331, 368; 3:187, 188, 208–209*; 4:223
- No (theater genre), 1:3; 2:54, 60, 62, 63–64, 66; 3:126, 127, 408; 4:178, 238
- Nodier, Charles, 2:292
- Noelle-Neumann, Elisabeth, 1:251; 3:389
- Noise, 1:257, 444; 2:316–318, 389; 3:37
- Non-Aligned Movement, 1:145; 2:13, 15; 3:168, 169; 4:146
- Nonverbal Communication, 3:209–210*. See also Sign languages
 body decoration, 1:191–197; 3:209–210
 body movement, 3:209–210; 4:58–59
 clothing, 1:305–312; 3:209–210
 code, 1:313–314
 dance, 1:450–454
 Darwin, Charles, 1:454, 455
 deception, 1:459–461
 drum languages, 1:33–34, 38; 3:150–151; 4:103
 face, 2:131–134, 137–148; 3:209–210
 gesture, 2:217–222; 3:26–28, 209–210, 235, 269
 heraldry, 2:274–280
 interaction, face-to-face, 2:326; 3:209–210
 intercultural communication, 2:330
 interpersonal distance, 2:340–343; 3:209–210; 4:58–59
 kinesics, 2:380–381; 3:209–210
 proxemics, 3:209–210, 383–384
 smell, 3:209–210; 4:89–90
 social skills, 4:96, 97–98
 touch, 3:209–210; 4:246–249
- Nonviolence, 1:338; 2:210–211
- Nordenstreng, Kaarle, 3:171
- Nordisk Co., 3:61
- Nordvision, 4:224
- Norris, Chuck, 2:474
- North, Robert, 3:240
- North by Northwest* (film), 2:284
- Northcliffe, Alfred, 1:182; 3:181, 210–211*
- Northwest German Radio, 2:97
- Northwestern University, 1:361
- Norton, Thomas, 4:255
- Norway, 1:8; 3:297
- Nosferatu* (film), 2:292
- Notation. See Body Movement Notation; Music Theories—Notations and Literacy; Number; Writing
- Notorious* (film), 3:483
- Noussance, Henri de, 1:370
- Novels
 documentary, 2:216
 fiction, 2:167–169
 popular literature, 2:449–452
 prose, 3:378, 380
 publishing history, 3:400
 realism, 3:434–438
- Novosti Press Agency (APN), 3:200
- Nowland, Phil
 “Buck Rogers” (comic strip), 1:347
- Nuclear weapons. See Weaponry
- Nuit et brillard* (film), 2:49

Une nuit sur le Mont Chauve (film), 1:92
 Number, 1:57, 59, 299, 301; 3:211–214*; 4:321. *See also* Mathematics
 Numinous experience, 3:471–472
 Numismatics. *See* Coins
Nurse Edith Cavell (film), 4:167
 Nye, Robert
 Faust, 2:351
 Nykvist, Sven, 1:187
 Nyquist, Harry, 4:59

O

- Oakley, Annie, 3:57–58
 Oaxacan script, 1:49–50, 57
 Oberlander, Adolph, 1:237
 Objectivist theory, 2:445
Oblomov (film), 3:78
 Oboler, Arch, 3:74; 4:420
 “Lights Out” (radio series), 4:109
 Obraztsov, Serge, 3:412
 Obscenity, 1:248; 2:298, 299
 Observation, as a research technique, 1:294; 2:123, 489, 505
 Observational learning, 4:93, 94
Observer (newspaper), 3:181, 211
 O’Casey, Sean
 Juno and the Paycock (play), 2:59
 Ochs, Adolph S., 3:217*, 287
 OCLC (Online Computer Library Center), 2:428–429
 Octavian. *See* Augustus
 O’Donnell, Peter
 “Modesty Blaise” (comic strip), 1:351
 “Odyssey” (TV series), 2:114
 OECD. *See* Organization for Economic Cooperation and Development
 Oedipus complex, 3:385
Of Human Bondage (film), 4:181
 Offenbach, Jacques, 3:118–119
 La belle Hélène (operetta), 3:119
 La grand-duchesse de Gérolstein (operetta), 3:119
 Orphée aux enfers (operetta), 3:119
 La vie parisienne (operetta), 3:119
 Office of Public Opinion Research, 3:328
 Official Secrets Act (Great Britain), 1:248; 3:182
 Ogburn, William F.
 Recent Social Trends in the United States (book), 1:433
 Ogden, C. K., 4:47
 Foundations of Aesthetics (book), 3:465
 The Meaning of Meaning (book), 3:463, 465; 4:47
 Okeh Co., 4:118
Oktiabr (film), 2:92
- Olbrechts-Tyteca, L.
 La nouvelle rhétorique: Traité de l’argumentation (book), 3:463
Old and New (film), 2:92
 Olfaction. *See* Animal Signals—Chemical Signals; Smell
 Oliveros, Pauline, 2:99
 Olivier, Laurence, 3:75
 Olmec writing, 1:57
 Olson, David R., 2:85; 3:380; 4:430, 432
 Olson-Belar synthesizer, 2:99
Los olvidados (film), 1:218
Olympia (film), 1:280; 2:50
 Olympic Games, 4:137, 139, 161, 163–165
 Oman, 3:196
 Omdurman Islamic University (Sudan), 1:368; 2:364
The Omen (film), 2:294
On the Town (film), 3:143–144
 Ondes martenot, 2:97
1001 Arabian Nights (book), 2:182; 4:50–51
 Oneida Community, 4:278
 O’Neill, Eugene, 1:257; 2:215, 466; 4:257
 The Iceman Cometh (play), 2:59
 Long Day’s Journey into Night (play), 2:59
One-Sixth of the World (film), 2:45; 4:281
 Ong, Walter, 2:440; 3:137
 Online Computer Library Center. *See* OCLC
 Online systems. *See* Data Base
The Only Son (film), 3:240
 Onomatopoeia, 4:102, 103, 112
 Ontogenesis, 1:444, 445; 4:149–150
 Ontogeny, 2:118, 120, 121
 Open University (England), 2:87
 Opera, 1:289, 315; 2:53; 3:126, 217–222*; 4:118, 241. *See also* Music Theater—Western Traditions
 Operetta, 3:119–120, 142
 Ophuls, Marcel, 1:278
 Opinion Leader, 3:222*. *See also* Lazarsfeld, Paul F.
 communications research, 1:371; 2:490; 3:6, 41
 diffusion, 2:33, 36; 4:95
 election, 2:96
 Opinion Measurement, 3:222–226*. *See also* Poll; Public Opinion
 bandwagon effects, 1:175–176
 Cantril, Hadley, 1:233, 234
 Gallup, George, 2:209–210
 Lazarsfeld, Paul F., 2:411–412
 motivation research, 3:80–82
 Roper, Elmo, 3:488–489
 Opinion Research Corp., 3:328
 Oppenheim, E. Phillips, 4:167
 Oppen, F. B.
 “Happy Hooligan” (comic strip), 1:345
 “And Her Name Was Maud” (comic strip), 1:345
 Oppert, Jules, 1:442
 Optic arrays, 3:255–256, 261
 Optic Nerve (video group), 4:284
 Optical character recognition (OCR), 3:365
 Optical disks, 3:13
 Optical fibers. *See* Fiber Optics
 Optical recording, 4:117
 Oracle (company), 2:100
 Oracles, 4:24, 325
 Oracular communication, 1:357
 Oral Culture, 3:226–229*. *See also* Culture; Literacy; Oral Poetry
 Africa, 1:34–35; 4:87
 Americas, pre-Columbian, 1:49
 folklore, 2:180–181
 folktales, 2:181–187, 448–449, 450
 Hellenic world, 2:268–269
 Middle Ages, 3:16–21
 music, 2:115; 3:102, 111, 114
 oral, literate, and mixed cultures, 3:226–227
 oral history, 2:353; 3:231
 oral vs. written language, 2:320, 432; 3:430
 prose, 2:167; 3:378
 South Asia, 4:124
 Oral History, 1:34–35; 2:116, 274; 3:229–231*, 379. *See also* Historiography
 Oral Poetry, 3:231–234*. *See also* Ethnopoetics; Oral Culture
 composition and transmission, 3:231–232
 East Asia, ancient, 2:75
 folktales, 2:187
 Islam, 2:353, 360
 literature, popular, 2:451
 modes and contents of presentation, 3:233; 4:99, 107
 oral-formulaic process, 3:232, 234
 poetry, 3:301
 South Asia, 4:122–123
 writing, 4:328
 Oratory, 1:5, 275; 2:193; 3:234–236*, 294, 379; 4:132. *See also* Homiletics; Public Speaking; Rhetoric
 ORBIT (data base), 1:456
 Orchestras, 3:102, 103, 110
 Orchestrion, 3:112
 Ordericus Vitalis
 Ecclesiastical History (book), 3:19
L’ordine nuovo (journal), 2:238
 Organ (musical instrument), 2:97; 3:111, 112
 Organization for Economic Cooperation and Development (OECD), 2:332, 335; 4:202, 205
 Organization of African Unity (OAU), 1:41; 2:335
 Organization of American States (OAS), 2:335

- Organization of Broadcasting Services in Islamic Countries, 2:364
- Organizational Communication, 3:236–239*. *See also* Group Communication
- communication models, 3:42–43
- diffusion, 2:33–34
- interactive media, 2:329
- public relations, 3:391–392
- self-regulation, 1:251–252
- Orientalism, 4:251
- Origen, 2:291
- Originality, 1:112, 118; 2:194–198. *See also* Authorship
- Orizuru osen* (film), 3:64
- Das Ornament des verliebten Herzen* (film), 1:92
- Ornithology, 2:118
- Orozco, José Clemente, 3:87
- Orphans of the Storm* (film), 2:259
- Ortega y Gasset, José, 1:423; 4:259
- La deshumanización del arte* (book), 1:436
- La rebelión de las masas* (book), 1:436
- Ortelius, Abraham
- Theatrum* (book), 3:368
- Orthography, 1:60, 61, 62; 2:398
- Ortner, Sherry B., 2:212, 214; 4:56
- Orwell, George, 1:95; 3:246
- Animal Farm* (book), 4:278
- 1984 (book), 4:21, 278, 287
- Osaka University of the Arts, 1:366
- Osborne, John
- Look Back in Anger* (play), 2:59
- Oscillation, 2:97
- Osgood, Charles, 1:323; 3:37, 239–240*; 4:40, 41, 320
- An Alternative to War or Surrender* (book), 3:240
- The Cross-Cultural Universals of Affective Meaning* (book), 3:239
- The Measurement of Meaning* (book), 3:239
- Oshima, Nagisa, 1:169; 3:76
- L'osservatore romano* (newspaper), 3:45, 192
- Ostwald, Peter F.
- The Semiotics of Human Sound* (book), 4:106
- O'Sullivan, Timothy, 3:286
- Oswald, Richard, 3:62
- Otets Sergii* (film), 3:62
- Otis, James, 3:395
- Ottawa Journal* (newspaper), 3:197
- Otto, James H.
- Modern Biology* (book), 4:233
- Otto, Rudolph, 3:471
- Otto of Freising, 2:282
- Ottoman Empire, 2:125; 3:335
- "Our Gal Sunday" (radio series), 4:91
- "Out of the Inkwell" (film series), 1:92
- Outcault, Richard, 2:267
- "Buster Brown" (comic strip), 1:345
- "Yellow Kid" (comic strip), 1:345
- The Outlaw and His Wife* (film), 3:62
- Ovid, 2:137, 415, 417
- Owen, Robert, 4:14, 278
- The Ox-Bow Incident* (film), 4:316
- Oxford English Dictionary*, 2:372, 397, 455
- Oxford, University of, 2:424, 426; 4:271, 272, 273
- Ozu, Yasujiro, 3:64, 73, 76, 240*
- P**
- Pablos, Juan, 3:400
- Pabst, G. W., 3:67–68, 71
- Packard, Vance
- The Hidden Persuaders* (book), 3:80
- Packet switching, 1:378, 384
- Padeniye dinasti Romanovikh* (film), 2:45
- Padua University, 4:269
- Paganini, Niccolò, 3:488
- Page, Arthur W., 3:391
- Page, C. G., 2:97
- A Page of Madness* (film), 3:64
- Paget Gorman Systematic Sign, 4:71
- Paine, Thomas
- Common Sense* (pamphlet), 1:212, 305, 338; 3:244, 245 (fig.), 246
- The Painted Lady* (film), 3:61
- Painting. *See also* Art
- body movement, 1:198
- caricature, 1:237
- classicism, 1:289–291
- compared with sculpture, 4:27, 31, 34
- forgery, 2:194–198
- history, 3:275–278
- museums, 3:95
- palimpsest, 3:244
- portraiture, 3:334–341
- realism, 3:434–438
- Renaissance, 3:448–450
- visual image, 4:295, 296
- El país* (newspaper), 3:192
- Paisan* (film), 3:165
- Pakistan, 2:311; 3:22
- PAL (color television standard), 4:176
- Paladins of France* (film), 1:95
- PALAPA (satellite system), 1:157; 2:363–364
- Palestine, 1:424; 3:196–197
- Palestine Jewish Colonization Assn., 2:28
- Palestrina, Giovanni Pierluigi da, 3:449
- Paletz, David, 2:228
- Paley, William, 3:243*, 478
- Palimpsest, 2:194–198; 3:243–244*
- Palladio, Andrea, 1:101 (fig.), 114, 289
- Palmares, 4:87
- Palmer, Frederick, 3:286
- Palmer, Volney B., 1:17
- Pamphlet, 1:338; 2:448, 452; 3:244–246*, 305, 310, 388; 4:239
- Pan African Telecommunications Union (PATU), 2:335
- Pan-African News Agency (PANA), 1:41, 42
- Pan-African Telecommunications Network (PANAFTEL), 1:41, 42
- Pan-Islamism. *See* Islamic World, Twentieth Century
- Panavision, 3:74
- Pañcatantra* (book), 2:182
- Panckoucke, Charles-Joseph, 3:400
- Pāṇini, 2:235; 3:271
- Panizzi, Antonio, 2:426
- Pannikar, K. M., 2:127
- Pannonia studio, 1:94
- Panofsky, Erwin, 2:303, 306; 3:275
- Panter, Gary, 1:350
- Pantomime. *See* Mime
- Paparazzi, 3:289
- Paper
- books, 1:211; 2:447
- East Asia, ancient, 2:73
- graphic reproduction, 2:240
- Islam, classical and medieval eras, 2:351, 352, 360
- printing history, 3:355–356
- writing materials, 4:334–335
- Papert, Seymour, 1:390
- Paperwork Reduction Act of 1980 (U.S.), 1:387
- Papua New Guinea. *See also* Australasia, Twentieth Century
- body decoration, 1:193, 194
- dance, 3:467, 468, 471
- Institute for Papuan New Guinea Studies, 2:113
- language acquisition, 2:392
- music, 3:129, 130; 4:106, 120
- Papyrus
- books, 1:209–211
- Byblos, 1:219
- Egyptian hieroglyphs, 2:89
- Hellenic world, 2:269, 272
- Islam, classical and medieval eras, 2:351
- library history, 2:423
- Middle Ages, 3:14, 16
- Roman Empire, 4:475
- writing materials, 1:107, 441; 4:324, 332–333
- Paradox, 2:446; 3:300
- Paradzhanov, Sergei, 1:169; 3:78
- Paraguay, 2:389, 402
- Parallel distributed processing (PDP), 1:318–319
- Paramount Co., 4:118
- Paramount News* (newsreel), 3:202
- Paramount on Parade* (film), 3:142

- Paramount Pictures, Inc.
 Flaherty, Robert, 2:176
 Griffith, D. W., 2:259
 monopoly, 2:285–286, 288, 290
 motion pictures, 2:110, 130; 3:70,
 74; 4:180
 Paley, William, 3:243
 Zukor, Adolph, 4:340–341
- Parchment
 Islam, classical and medieval eras,
 2:351
 library history, 2:423
 Middle Ages, 3:14, 16
 reuse, 3:243
 writing materials, 1:107, 441;
 4:333
- Parent-child interaction, 2:132, 133,
 325, 506; 3:383; 4:247
- Parents (magazine), 2:468
- Paris-Dakar (newspaper), 3:187
- Park, Robert, 1:370; 3:246–247*,
 339
*Introduction to the Science of Soci-
 ology* (book), 3:247, 389
The Man Farthest Down (book),
 3:247
- Parker, Charlie "Bird," 3:102–103
- Parker, Claire, 1:92
- Parker, Edwin, 3:313
*Television in the Lives of Our
 Children* (book), 4:17
- Parker, Everett C., 1:284
- Parody, 2:349, 350–351
- Parole, 1:175; 2:178, 369; 4:10, 48,
 78, 184
- Parry, Milman, 3:226
- Parsing, 1:137; 2:254
- Parsons, Talcott, 1:434; 3:6, 229;
 4:198
- Partch, Harry, 1:141; 3:141
- Parthian Empire, 1:326, 327
- Participation
 development communication, 2:12,
 17, 21–22, 439
 in group life, 2:162, 163–164;
 3:265, 467–472; 4:140, 141
 political, 2:109; 3:305, 312, 313,
 315
Une partie de campagne (film), 3:452
- Pascal, Blaise, 1:374; 2:455, 478
Lettres provinciales (book), 2:416
- Pask, Gordon, 1:445
- Pasolini, Pier Paolo, 2:175; 3:73
- Pasquali, Antonio, 2:481
Le passion de Jeanne d'Arc (film),
 3:65
- "Password" (TV series), 3:46
- Pastiche, 2:194–198, 349, 350, 351
- Pastregicus, Gulielmus
De Originibus Rerum Libellus (en-
 cyclopedia), 2:101
- Pastrone, Giovanni, 1:282
- Patel, Ishu, 1:95
- Patents, 1:414–415; 2:285; 3:70,
 247; 4:118, 218
- Pater, Walter
*Studies in the History of the Re-
 naissance* (book), 2:445–446
The Path of Hope (film), 3:167
- Pathé, Charles, 2:110; 3:58, 202,
 247–248*; 4:113, 118, 180
- Pathé (film studio), 3:58, 59, 70
- Pathé Frères, 2:176, 287; 3:202, 248;
 4:113, 118, 119
- Pathé Journal* (newsreel), 3:202, 247
- Pathé Weekly* (newsreel), 3:202, 247
- Pathé-Cinéma, 3:248
- Pathé-Consortium, 3:248
- Patriarchy, 2:157–160, 212–214
- Patronage
 art, 1:138, 141; 3:95, 435
 authorship, 1:414, 415
 opera, 3:217
 publishing, 3:397, 405
- Patterson, Frances Taylor
Cinema Craftsmanship (book),
 1:361
- Patterson, Joseph, 1:346
- Patterson, Thomas E., 3:319
- Paul, Robert W., 3:52, 54, 58, 201
- Paul, Saint
Epistles, 4:25
- Paul VI (pope), 4:189
- Paul XXIII (pope), 4:284
- Paulay, Forrestine, 1:274
- Pavlov, Ivan, 4:63
- Pavlova, Anna, 3:125
- Pay television. *See* Cable Television
- Payne Fund Studies, 1:270–271,
 371–372, 373
- PBS. *See* Public Broadcasting Service
- PBX, 1:378
- PDP. *See* Parallel distributed process-
 ing
- Pearson, C. Arthur, 3:181
- Pearson and Thomson, 3:405
- Peasant cultures, 1:435; 2:177, 183;
 3:97–98
- Pedagogy, 3:461–462; 4:235
- Peer pressure, 2:32–33
- Peirce, Charles S., 3:248–249*
 communication philosophies,
 1:354, 355
 Cooley, Charles Horton, 1:411
 James, William, 2:370
 Morris, Charles, 3:46
 ritual, 3:468
 semiotics, 1:101; 4:47, 49
 sign, 4:62–63, 64, 74–75
 symbolism, 1:265; 4:193
- Pelok, 3:141
- Pencils, 4:334
- Penelope, Julia, 1:157, 158
- Pennebaker, Donn A., 1:276, 277
- Pennsylvania Gazette* (newspaper),
 1:16
- Penny dreadfuls, 2:450
- Penny post, 3:345
- Penny press, 1:16, 185, 296, 457,
 458; 2:256; 3:309
- Penrose, Lionel, 3:256
- Penrose, Roger, 3:256
- Pens, 4:333–334
- Pentagon Papers, 1:247; 2:232
- Pentel, 2:100
- Penthouse* (magazine), 2:467
- People* (magazine), 2:455
- The People* (newspaper), 3:182
- "Peoples of the Western Australian
 Desert" (film series), 2:112
- People's Republic of China. *See*
 China, People's Republic of
- People's Video Theater, 4:284
- Pepin (king), 3:110
- Pepys, Samuel, 2:24–25
- Perception
 animal signals, 1:74–81, 83–87
 artificial intelligence, 1:136
 aural, 1:257
 avant-garde, 1:163–166
 body movement notation, 1:204,
 208
 child art, 1:259
 cognitive consistency theories,
 1:322–326
 cybernetics, 1:443
 depth, 3:255–256, 260
 facial expression, 2:147
 graphics, 2:245–255
 media, 1:273; 2:85
 mode, 3:35
 models of communication, 3:36, 42
 selective, 3:490; 4:39–40, 232
 sexism, 4:57–59
 social skills, 4:97–98
 spatial, 3:383
 subliminal, 4:40
 visual image, 4:294–304
- Perception—Music, 3:249–250*. *See*
also Music Theories—Tuning
 Systems; Sound
- Perception—Speech, 3:251–255*. *See*
also Speech
- Perception—Still and Moving Pic-
 tures, 3:255–262*
 cinematography, 1:279–283;
 3:52–57, 258–261
 direct perceptual theories, 3:258,
 259
 Gestalt theories, 3:256
 graphic reproduction, 2:239
 law of good continuation, 2:256
 minimum principle, 3:256
 motion photography, 3:48–49
 perception of motion, 3:258–261
 pictorial distortions, 3:255–256
 representation, pictorial and photo-
 graphic, 3:454–455
 rigidity principle, 3:258, 259
 still pictures, 3:255–256
- Perceptual bias, 4:166
- Percy, Thomas
Reliques of Ancient English Poetry
 (book), 2:181
- Perekop* (film), 2:92

- Perelman, Chaim
La nouvelle rhétorique: Traité de l'argumentation (book), 3:463
Perestroika, 3:200
 Perfect Co., 4:118
Perfection of Wisdom, 4:25
 Performance, 3:262–266*. *See also*
 Acting; Drama—Performance;
 Music Performance
 comedy, 1:342–343
 copyright, 1:417–418, 420
 dance, 1:450–454; 4:68–69
 deception, 1:460
 mime, 3:26–28
 mode, 3:32–36
 music, folk and traditional, 3:97–98
 narrative, 2:185; 3:162
 oral, 2:116–117, 178, 180–181;
 3:227, 228, 232–234
 in public events, 2:161, 162–163,
 483, 484, 485; 3:467–472;
 4:139
 puppetry, 2:407
 sports, 4:165, 166
 stars, 4:177–180, 181
 theater, 3:122–128; 4:236–244
 Perfumes, 1:81; 4:89
 Pergolesi, Giambattista
La serva padrone (opera), 3:218
 (fig.)
 Peri, Jacopo
Euridice (opera), 3:219
 Pericles, 3:394
 Peries, Lester James, 3:79
 Perlocutionary acts, 4:45–46
 Perls, Klaus, 2:196
 Perry, Matthew Calbraith, 3:161;
 4:163, 245
 “Perry Mason” (TV series), 4:220
 Persia, 1:46, 326, 327; 3:110, 341
Persona (film), 1:187
 Personal Radio Service, 1:286
 Personal space. *See* Interpersonal Dis-
 tance
 Personality
 code, 1:313
 face, 2:137, 143, 145
 intercultural communication, 2:330
 interpersonal distance, 2:341–343
 motivation research, 3:80–82
 persuasion, 3:269
 shaped by media, 2:495
 traditional, 2:10, 19
Perspectiva, 3:275
 Perspective
 body movement notation, 1:204,
 208
 narrative, 3:163
 perception, still and moving pic-
 tures, 1:279; 3:255, 258, 275,
 454, 457
 visual image, 1:289; 3:85–86;
 4:303–304
 Persuasion, 3:266–270*. *See also* Fo-
 rensics
 advertising, 1:13, 18; 2:107, 403–
 404
 attitudes, 1:147, 151, 322–326;
 2:295, 419; 3:320; 4:39
 bandwagon effects, 1:175–176
 channel variables, 3:268–269
 diffusion, 2:32; 3:41
 input/output analysis, 3:267–269
 lobbying, 2:452–453
 mass communications research,
 1:371, 410; 2:309, 490, 492,
 496; 3:6
 message variables, 3:268
 motivation research, 3:80–82
 Plato, 3:294
 propaganda, 2:108; 3:375
 public opinion, 3:387
 receiver variables, 3:269
 rhetoric, 3:8, 461–464
 sleeper effect, 4:88
 source variables, 3:267–268
 target variables, 3:269
 Peru, 2:13; 3:335; 4:90. *See also*
 Americas, Pre-Columbian—Com-
 munications; Latin America,
 Twentieth Century
 Pestalozzi, Johann Heinrich, 1:153;
 4:14
Peter Pan (film), 1:93
Peter the Great (film), 3:72
 Peter the Hermit, 3:394
 Peterson, Richard, 4:198, 199
 Peterson, Sidney, 1:168
 Peterson, Theodore
Four Theories of the Press (book),
 2:226; 4:17–18
Petit à petit (film), 2:111
Le petit sénégalais (newspaper),
 3:187
 Petitionary communication, 3:304,
 305, 307–308, 311
 Petrarch, 2:415; 3:448
The Secret (book), 1:161
 Petronius
Satyricon (book), 2:182
 Petrov, Vladimir, 3:72
 Petrovic, Aleksandr, 3:79
 Petrus Helias, 2:434; 4:77
 Pets, 2:295–296
 Pettengill and Co., 1:17
 Pettinato, Giovanni, 1:443
 “Peyton Place” (TV series), 4:90, 92
 Phalke, Dhundiraj Govind, 3:64–65,
 158, 270–271*
 Phalke, Saraswathi, 3:270
The Phantom of the Opera (film),
 2:292; 3:65
 Phase Alternation Line. *See* PAL
 Phasmatrophe, 3:52
 Phelippes, Thomas, 2:105
 Phenakistiscope, 3:52
 Phenomenology
 aesthetics, 1:28, 29
 architecture, 1:101–103
 film theory, 2:174, 175
 intercultural communication, 2:330
 interpretation, 2:344, 346
 literary criticism, 2:446–447
 Schutz, Alfred, 4:18–19
 Pherecydes, 3:379
 Pheromones, 1:69, 81; 2:321, 323;
 4:90
Philadelphia Evening Bulletin (news-
 paper), 3:197
Philadelphia Public Ledger (news-
 paper), 3:184
Philadelphia Zeitung (newspaper),
 3:31
 Philately. *See* Stamps
 Philco, 2:156
 Philip (king of Macedon), 3:394
 Philip II (king of Spain), 1:415
 Philip (Roman emperor), 1:327
 Philipon, Charles, 1:236
 Philippine Press Institute, 1:365
 Philippines, 3:45, 188–191; 4:221,
 222
 Philips Co., 4:115, 117
 Phillips, David, 4:292
 Phillips, Irma, 4:91
 Phillips, Wendell, 3:395
 Philo Judaeus, 2:26
 Philology, 2:183, 184, 358, 446;
 3:462; 4:183
 Philosophy. *See also* Communication,
 Philosophies of; Pragmatism
 aesthetics, 1:27–30; 2:173–175
 analytic, 4:320
 interpretation, 2:343–348
 Marxist ideology, 2:308
 meaning, 3:1–4; 4:43–46
 moral, 1:461; 2:106
 natural, 1:109
 phenomenology, 4:18–19
 poetics, 2:444–445; 3:298–301
 political, 1:275; 2:436–437; 3:294
 religion, 2:357–358; 3:441
 rhetoric, 3:461–464
 romanticism, 3:487, 488
 theories of symbolism, 1:218–219;
 4:192
 Phoenicians, 1:44–46; 2:268
 Phonemes, 3:251, 252, 254, 273;
 4:75
 Phonemics, 3:383
 Phoneticism, 1:60–61, 62, 439;
 4:326–329
 Phonetics, 2:432, 434, 435; 3:251–
 255
 Phonics, 3:430
 Phonograms, 2:89, 91; 4:75
 Phonograph, 2:115; 3:229, 421;
 4:104, 109, 112–114, 118–121
 Phonology, 3:271–274*
 comparative method in, 3:272
 generative, 3:273
 language, 2:386–388, 389–390
 linguistics, 2:235, 432, 434, 435;
 4:102
 perception, speech, 3:251–255
 phoneme, 3:273
 sign, 2:369; 4:64

- structuralism, 3:272–273; 4:48
 Photo League group, 2:47
 Photocomposition, 3:357, 359, 365
 Photodetectors, 2:166
 Photograms, 3:274, 278
 Photographic processes
 calotype, 3:279
 daguerreotype, 1:449–450; 3:48, 206, 278, 282
 dry plate, 2:78–79; 3:48–49, 282
 graphic reproduction, 2:239, 242–244
 instant photography, 2:385; 3:283
 motion photography, 3:48–49
 photogenic drawing, 3:279
 wet collodion, 2:78–79; 3:48–49, 280, 282
 Photography, 3:274–281*. *See also* Camera techniques; Cameras; Photography, Amateur; Photojournalism
 animation, 1:91
 camera, invention of, 3:275–278
 color, 2:458; 3:281
 copyright, 2:417, 420
 equipment, 1:141; 2:385, 457–458; 3:284
 graphic reproduction, 2:242–244
 history, 1:449–450; 2:80; 3:52–54, 57, 205, 278–281, 360–361, 363
 instant, 2:385; 3:283
 motion photography, 1:198; 3:48–51
 photojournalism, 3:281
 in portraiture, 3:337
 representation, pictorial and photographic, 1:315; 3:457–458
 as a research tool, 1:181, 191; 2:505–506
 special effects, 4:134
 Photography, Amateur, 2:78–79, 385; 3:278, 281–285*
 Photojournalism, 1:248; 2:456; 3:200–205, 285–292*; 4:228, 283. *See also* Magazine; News-magazine
 Photophones, 1:183; 2:97, 166; 3:51, 66, 70
 Photoplayers, 3:112
 Photoreproduction, 1:420, 422; 3:281. *See also* Graphic Reproduction
 Physics, 2:155, 472, 503; 3:129
 Pi Sheng, 1:211
 Piaget, Jean, 3:292–293*
 cognition, 1:319
 cybernetics, 1:443
 language, 1:265; 2:391; 3:35
 Piano, 2:97; 3:112
 Picasso, Pablo, 1:93, 291; 2:351; 3:348
 Piccini, Mabel, 2:481
 Pickford, Mary, 1:255; 2:259, 286, 287; 3:62; 4:340
Picnic at Hanging Rock (film), 3:75
 Pictographs
 clay tokens, 1:298, 299, 301
 cuneiform, 1:438, 440 (fig.)
 Egyptian hieroglyphs, 2:89
 Indus script, 2:313
 pre-Columbian, 1:51, 52, 59
 writing, 1:44; 2:73; 4:327, 328, 332
 Pictorial representation. *See* Representation, Pictorial and Photographic
 Picture telephone, 2:328
 Piero della Francesca, 3:337
 Pike, Kenneth, 4:99
 Pilgrimage. *See also* Crusades, The
 Islam, 2:352, 363
 Middle Ages, 3:18
 religion, 3:442; 4:141
 Roman Empire, 3:480
 South Asia, ancient, 4:121, 126
 tourism, 4:249
Pilovaya Dama (film), 3:62
 Pimple, 3:61
 Ping-Pong diplomacy, 4:163
 Pinillas, Rojas, 3:194
 Pinker, Stephen, 2:391
Pinocchio (film), 1:92; 2:41
 Pinochet, Augusto, 2:482
 Pinpin, Tomás, 3:189
 Pinter, Harold
 The Birthday Party (play), 2:60
 The Caretaker (play), 2:60
 The Homecoming (play), 1:341
Pioneer (newspaper), 3:188
Pioneer 10, 1:253 (fig.)
 Piracy, of media material, 1:411–416, 417–418, 420; 3:99
 Pirandello, Luigi
 Six Characters in Search of an Author (play), 2:58
 Piranesi, Giambattista, 1:289
The Pirate (film), 3:143
The Pit and the Pendulum (film), 2:293
 Pitch, 3:132–139, 249, 250
 Pitt, William (the Elder), 3:395
 Pitt, William (the Younger), 2:140; 3:395
 Pitts, Walter H., 1:444
 Pius V (pope), 1:246
 Plagiarism, 1:158, 159, 160, 404, 411–416; 3:369; 4:404
The Plainsman (film), 4:315
 Planarity, 4:298–299
 Planography, 2:242
 Plantagenet, Geoffrey (count of Anjou), 2:274
 Plantin, Christophe, 3:398
 Plateau, Joseph, 3:52
The Platform Sutra, 3:440
 Plato, 3:293–294*
 aesthetics, 1:27
 Allegory of the Cave, 3:408
 Apology, 3:293
 architecture, 1:98
 censorship, 1:250
 classification, 1:292
 Cratylus, 2:434; 4:47, 74, 294, 296
 Gorgias, 2:182; 3:293, 294, 462
 grammar, 2:235
 interpretation, 2:343, 345, 346, 348
 law and communication, 2:409
 Laws, 3:293, 294
 library history, 2:423
 Lysis, 2:182
 maieutic communication, 1:356
 meaning, 3:3
 Meno, 1:356
 music, 3:108–109, 129, 130
 Parmenides, 3:293
 Phaedo, 3:294
 Phaedrus, 1:356; 2:269; 3:462
 poetics, 3:300
 poetry, 3:302
 prose, 3:379
 Protagoras, 3:293
 representation, pictorial and photographic, 3:454
 Republic, 1:109, 110, 270; 2:444, 445, 447; 3:293; 4:192, 274
 The Sophist, 2:434
 structuralism, 4:185
 Symposium, 3:293
 theater, 4:239
 Timaeus, 3:293
 Platonism, 2:291, 294, 445
 Plautus, Titus Maccius, 1:340; 2:52; 3:116
 Play, 3:294–296*
 Bateson, Gregory, 3:294
 drama, performance, 2:65
 festivals, 2:161
 humor, 2:297, 298
 interpretation, 2:345
 Piaget, Jean, 3:292
 sports, 4:165, 166
 touch, 4:249
 Playfair, William, 2:253
The Pleasure Garden (film), 2:284
 Plebiscite, 3:296–298*. *See also* Election; Political Communication—History
 Plekhanov, G. V.
 Art and Social Life (book), 2:478
 Pliny (the Elder), 1:289; 2:125; 4:30
 Historia naturalis (encyclopedia), 2:101
 Pliny (the Younger), 2:423
 Plotinus, 2:444; 4:192
The Plow That Broke the Plains (film), 2:47
 Plutarch, 2:281
 Life of Nicias (book), 2:268
 Parallel Lives (book), 1:188, 189
 Poe, Edgar Allan, 2:169, 292, 293; 4:21
 “Murders in the Rue Morgue” (story), 3:154
 The Purloined Letter, 4:167

- Poetics, 1:27; 3:298–301*; 4:48. *See also* Literary Criticism
- Poetry, 3:301–304*. *See also* Ethno-poetics; Oral Poetry
 classicism, 1:289
 East Asia, ancient, 2:73, 74–75
 elegiac poem, 1:188
 as genre, 2:216; 3:378–380; 4:259
 haiku, 2:75
 Islam, classical and medieval eras, 2:353, 360
 literary criticism, 1:27; 2:444–445; 3:299, 301
 oral culture, 3:227
 realism, 3:437
 Renaissance, 2:149
 romanticism, 3:484–488
 symbolism, 4:192–193
- Poggioli, Renato, 2:216
The Theory of the Avant-Garde (book), 1:163
- Poiesis, 3:298–301
- Point Four Program (U.S.), 2:9
- Poland, 1:155, 249; 2:278; 3:78–79, 297
- Polanski, Roman, 1:169; 2:292
- Polanyi, Michael, 1:250; 3:34
- Polarizers, 2:385
- Polaroid Corp., 2:385; 3:283
- Political campaigns. *See* Campaigns, political
- Political communication. *See also* Political Symbols
 advertising, 1:14, 19–20, 23, 353; 2:39, 108
 Africa, 1:39, 40; 3:186–187
 broadcasting, 3:311, 316
 caricature, 1:236–238, 347
 development communication, 2:20–21
 functional analysis, 2:203–205, 299–300
 government-media relations, 2:226–230; 3:195
 international organizations, 2:335
 Latin America, 2:407
 law and communication, 2:408–411
 lobbying, 2:452–453
 mass communications research, 1:42–43, 175–176; 2:488, 495; 3:223, 387
 minority media, 3:32
 oratory, 2:194; 3:235
 pamphlet, 3:244–246
 posters, 3:349
 pressure groups, 3:350–352
 secrecy, 4:36–37
 terrorism, 4:231–232
- Political Communication—Broadcast Debates, 2:96, 193, 194; 3:318–319*
- Political Communication—History, 2:436–437; 3:304–313*, 323, 329–330
- Political Communication—Impact of
 New Media, 2:1–3, 95; 3:313–318*
- Political parties. *See also* Campaigns, political
 elections, 2:95
 monopoly, 3:44
 party voting, 2:94–95
 political communication, 3:307–308, 309–310, 315
 pressure groups, 3:350
 role of the press, 1:39; 2:229; 3:197
- Political Register* (newspaper), 3:308
- Political Socialization, 3:319–321*
 development communication, 2:20
 education, 2:82
 elections, 2:96
 functional analysis, 2:205, 299–300
 mass media effects, 1:273; 2:494; 4:163, 164, 165
- Political Symbols, 3:321–324*. *See also* Political communication
 communications research, 1:370–371, 404
 law and communication, 2:410
 propaganda, 3:377
 representations of, 1:238; 2:274–278; 3:336; 4:171, 297
 terrorism, 4:231
- Political violence. *See* Crowd Behavior; Demonstration; Revolution; Terrorism
- Politicization, 1:156; 2:442–443, 495; 3:314–315, 324–326*, 350–352. *See also* Mass Media Effects; Political communication; Political Socialization
- Politiken* (newspaper), 3:192
- Poll, 3:326–330*. *See also* Opinion Measurement
 academic polling, 3:328
 advocacy, 3:328
 bandwagon effects, 1:176
 communications research, 1:234, 373
 elections, 2:95
 exit, 1:176; 3:328
 origins, 3:327–328
 political communication, 3:314
 preelection, 3:329
 private, 3:328
 propaganda, 3:376
 public opinion, 2:209–210; 3:389, 488
 use of, by special interest groups, 3:328–329
- Pollux, Julius, 4:107
- Polo, Marco, 3:330–331*, 341; 4:84
The Book of Marvels (book), 2:125, 126
Il milione (book), 3:331
The Travels of Marco Polo (book), 3:331
- Polybius, 2:272
Histories (book), 2:281
- Polygram (company), 4:120
- Polygraph, 1:461
- Polyphony, 1:289; 2:115; 3:110–111, 130, 131, 135
- Polysemy, 1:131; 4:62–63, 75
- Polyvision, 1:281
- Pontecorvo, Gillo, 3:167
- Pool, Ithiel de Sola, 3:314
- Poor Richard's Almanack*, 2:466
- Popé, 3:394
- Pope, Alexander, 1:289; 2:416, 444
- Popov, Aleksandr, 3:417
- Popper, Karl, 3:294
- Popular culture. *See also individual genres*
 art, 1:111, 116, 120; 4:252–253
 citizens band radio, 1:285, 286
 code, 1:315
 communications research, 1:373
 culture, 1:435, 436
 drama, performance, 2:64
 entertainment, 2:102–104
 literary canon, 2:443
 literature, popular, 2:447–452
 Lowenthal, Leo, 2:455
 Marxist theories, 2:482–483
 music performance, 3:114
 oral culture, 3:226
 serials, 4:50–54
 spectacle, 4:142, 143
 taste cultures, 4:197–199
 video, 4:284–287
- Popular literature. *See* Literature, Popular
- Popular music. *See* Music, Popular
- Popular Unity coalition (Chile), 3:325
- Popular Unity government (Chile), 2:481
- Popular-education movements, 2:83–84
- Population growth, 2:13, 15
- Porat, Marc, 1:381
- Pornography, 3:331–334*
 art, 1:119
 censorship, 1:248
 media ethics, 2:108
 popular literature, 2:450
 sexism, 2:214; 4:56
 video, 4:287
 violence, 4:290, 292
- Porta, Giambattista della
Magia Naturalis (book), 3:276
- Portapak, 1:285; 4:283, 284
- Porter, Edwin S., 2:171; 3:58; 4:134, 315
- Porter, William Sidney, 2:168
- Portraiture, 3:334–341*. *See also* Caricature
 art, 1:116, 128
 iconography, 1:326, 330; 2:276, 304; 3:473; 4:171
 photography, 3:279
 photojournalism, 3:288
- Portugal, 1:334; 2:125–127, 400; 4:86, 245
- Positional notation, 1:59–60; 3:211

- Positivism, 2:283, 479
 Post (newspaper), 3:187
 Postal, Paul, 4:77
 Postal, telegraph and telephone ad-
 ministrations. *See* PTTs
 Postal Service, 3:341–346*
 history, 3:341–344
 organization, 3:345–346
 penny post, 3:345
 stamps, 4:171–173
 transportation, 3:344–345
 Universal Postal Union, 2:332, 333
 Poster, 3:86, 346–350*; 4:262, 263
 Postman, Leo, 3:489, 490
 Postmodernism, 1:163–166; 4:268.
 See also Modernism
 Poststructuralism, 1:29, 163, 165;
 2:175, 310, 446; 4:185. *See also*
 Structuralism
 Posture
 animal signals, 1:66, 70, 84, 85;
 2:118, 120
 body movement, 1:198–202, 313;
 3:338
 Pott, August, 2:434
 Poulsen, Valdemar, 4:114
 Pound, Ezra, 3:437
 Power, Tyrone, 4:316
 Power. *See also* Social control
 censorship, 1:247, 250–252
 communications research, 2:309–
 310, 320, 491; 3:237–238
 economic, 2:20, 213–214
 education, 2:83–84, 439
 Marxist theories, 2:308, 477, 480,
 482
 oratory, 3:235
 pornography, 3:332, 333
 social, 1:461; 2:189–190, 192–
 193, 201–202; 3:431
 Power, political, 2:213; 3:304–312,
 315
 colonization, 1:331, 334–335,
 338–339
 elections, 2:95–96
 Lasswell, Harold D., 2:404
 media control, 3:313, 315, 316–
 317
 political symbols, 3:321–324;
 4:163–165
 pressure groups, 3:350–352
 revolution, 3:461
 terrorism, 4:230–232
 Power and the Land (film), 2:364
 Powers, Marla, 2:190
 Powers, William T., 1:443; 2:190
 PR Newswire, 3:199
 Praesidenten (film), 3:62
 Pragmatics
 artificial intelligence, 1:137
 communication philosophies, 1:356
 linguistics, 1:175; 2:432
 meaning, 3:2, 9, 46–47; 4:43, 45
 Pragmatism, 3:488; 4:47–48, 74–75.
 See also Dewey, John; James,
 William; Mead, George Herbert;
- Morris, Charles; Peirce,
 Charles S.
 Prague Linguistic Circle, 2:310, 369,
 434; 3:272, 299, 300; 4:10, 48
 Pratt, Hugo
 “Carto Maltese” (comic strip),
 1:351
 Pravda (newspaper), 1:238; 3:180,
 192, 199, 200
 Preaching. *See* Homiletics
 Prebisch, Raul, 2:13
 Preece, Sir William, 2:472
 Pregnancy, 1:200; 2:212
 Prelocutionary acts, 1:355
 Premack, David, 1:321
 La prensa (Buenos Aires newspaper),
 1:367; 3:183, 194
 La prensa (Nicaraguan newspaper),
 3:195
 Press, freedom. *See* Freedom of the
 press
 Press, licensing. *See* Licensing, press
 Press Research Center (Poland),
 1:364
 Pressure Group, 1:156, 251; 2:453;
 3:325, 350–352*; 4:236, 294
 Prestel, 2:329; 4:289
 Price, Vincent, 2:293
 “The Price Is Right” (TV series),
 3:416–417
 Priestley, Joseph, 4:272
 Prigogine, Ilya, 1:444
 Primacy effects of messages, 3:268
 Primary (film), 1:276, 277; 2:50
 Primary groups, 1:371, 410; 3:38
 Primates, 1:200; 2:147, 386; 4:102
 Prime Time Access Rule (U.S.), 2:233
 Priming theories, 4:39–40
 Princeton University, 1:360
 Office of Public Opinion Research,
 1:233
 Office of Radio Research, 2:411
 Print-Audience Measurement, 2:466;
 3:353–354*. *See also* Rating
 Systems: Radio and Television
 Printer’s Ink (magazine), 1:19
 Printing. *See also* Typography
 censorship, 1:246–249; 3:24–25;
 4:339
 literacy, 2:438, 440
 music, 3:137, 220
 newsletters, 3:177–178
 offset, 2:198, 239; 3:184, 357,
 364, 365; 4:285
 public opinion, 3:387
 relief, 2:240; 3:359–360
 religion, 2:459–460; 3:441
 Renaissance, 3:448–450
 techniques, 2:239
 Printing—Cultural Impact of Printing,
 2:320, 463; 3:366–370*
 Printing—History of Printing, 3:354–
 366*
 advertising, 1:14–15, 17
 books, 1:211–217; 3:402
 Caxton, William, 1:244–245
- copyright, 1:413–416
 East Asia, ancient, 2:74
 electronic publishing, 3:365–366
 graphic reproduction, 2:240
 Gutenberg, Johannes, 2:263–264
 invention of, 2:447; 3:354–356
 library history, 2:424
 Mergenthaler, Ottmar, 3:5
 Middle Ages, 3:13, 21
 newspaper history, 3:183–184
 political communication, 1:283;
 3:304–312
 printing surface, 3:359–363
 Priscian, 2:235, 396
 “The Prisoner” (TV series), 4:168
 Prisoner’s Dilemma, 4:305–306
 Privacy, 3:370–372*. *See also* Se-
 crecy
 computer impact, 1:387–388
 deception, 1:461
 information services, 4:288, 289
 interactive media, 2:329; 3:314
 international organizations, 2:332,
 333
 media ethics, 2:107
 Muzak, 3:154
 oral culture, 3:228
 photojournalism, 3:289
 Privacy Act of 1974 (U.S.), 1:387;
 3:371
 The Private Life of Henry VIII (film),
 3:70
 Private Radio Bureau, 1:286
 Privatization of business, 1:399
 Probability theory, 2:314, 315, 319
 Procter and Gamble, 4:91
 Producers’ Releasing Corp., 2:287
 Production Code Administration,
 2:287–288
 Profession, 3:372–374*
 communications, study of, 1:358–
 368
 computers and the work force,
 1:381
 librarians, 2:430–431
 lobbyists, 2:453
 media ethics, 2:106–110; 4:231–
 232
 media professions, 1:138–142;
 2:489; 3:324; 4:231–232
 professionalization, models of,
 3:373
 public relations, 3:392
 scientists, 1:295
 self-regulation, 3:372
 Progymnasmata, 1:288
 Project Zero. *See* Harvard University,
 Project Zero
 Projective tests, 1:405; 3:80
 Promotion. *See* Advertising; Public
 Relations
 Propaganda, 3:374–378*
 advertising, 1:20
 agitprop, 3:310, 374
 black, 2:40
 censorship, 1:249

- Propaganda (*cont.*)
 channels and techniques, 3:244–246, 376–377
 countering propaganda, 3:377–378
 disinformation, 1:40
 in films, 1:93, 153; 2:41, 46, 258; 3:62, 72
 history, 3:374–375
 maps, 1:242
 Marxist theories, 2:480
 mass communications research, 1:234, 371, 405; 2:309, 404, 488; 3:6
 media ethics, 2:107–108
 political symbols, 1:238; 3:323; 4:173
 psychoanalysis, 3:385
 public opinion, 3:390, 489
 radio, 3:421, 423, 424, 439
 rhetoric, 3:463–464
 terrorism, 4:230–232
 war, 1:238, 370–371, 373; 2:222–223
- Prophecy, 2:282, 290
 Prophets, 4:25, 26
 Propp, Vladimir, 2:184–185; 3:162, 298, 299
Morphology of the Folktale (book), 4:54
- Prose, 1:275; 2:167–169; 3:8, 378–380*; 4:257–259
- Prosody, 3:254, 255; 4:102, 155
 Prosser, Dean William, 2:419
 Prostitution, 3:32
 Protagoras of Abdera, 2:193
 Protazanov, Yakov, 3:62
 Protestant ethic, 2:11, 308; 3:460; 4:142, 165, 310
 Protestant Reformation. *See* Reformation
- Proto-Indo-European language, 3:272
 Proverb, 2:179; 3:227, 234, 380–383*; 4:155
- Proxemics, 1:200, 202, 313; 2:325; 3:383–384*; 4:49. *See also* Interpersonal Distance
- Pseudepigrapha, 4:26
Psycho (film), 2:284; 3:74
 Psychoacoustics, 4:101, 102
 Psychoanalysis, 3:384–386*
 clinical setting, 3:384–385
 communication philosophies, 1:357; 2:310
 feminist theories, 2:159
 film, 1:168; 2:175
 folktales, 2:185–186
 Freud, Sigmund, 2:202–203
 identification, 3:385; 4:178
 interpretation, 2:347; 4:193
 Jung, Carl, 2:376
 Lasswell, Harold D., 2:404
 and literature, 1:162, 189; 2:446
 Oedipus complex, 3:385
 psychiatry, 2:336
 psychoanalytic theory, 3:384
 sexuality, 2:202; 3:332, 334
- Sullivan, Harry Stack, 4:188
 therapy, 4:287
- Psychographics, 1:402; 3:81
 Psycholinguistics, 2:391, 431; 3:239–240
- Psychology
 animal, 2:120
 associationist, 2:445
 behaviorist, 1:316; 3:334; 4:8
 child, 3:292
 clinical, 1:319, 320
 cognitive, 1:316, 319–320; 2:175; 3:9; 4:200
 developmental, 1:265, 319
 experimental, 1:423; 4:290–292
 functional, 2:370
 Gestalt, 1:316, 322–323; 2:173; 3:250; 4:104
 in industry, 1:18, 19
 interactionist, 2:336, 337
 Luria, Aleksandr, 2:458–459
 sports, 4:165–167
 transactional, 1:234
 Vygotsky, Lev, 4:306
- Psychology, social
 attitudes, 1:147–152
 Cantril, Hadley, 1:234
 cognitive consistency theories, 1:322–326
 Cooley, Charles Horton, 1:410–411
 group communication, 1:371; 2:260–261, 263
 Hovland, Carl, 1:371; 2:294–295; 3:463
 Hyman, Herbert H., 2:299–300
 interpersonal communication, 2:326, 336–338
 Lewin, Kurt, 1:371; 2:418–419
 mass media effects, 2:494; 3:332; 4:88
 Mead, George Herbert, 3:503–504
 models of communication, 3:38
 Osgood, Charles, 3:239–240
 social cognitive theory, 4:92–96
 Psychotherapy, 2:326; 3:384, 385; 4:277–278
- Ptolemy, Claudius, 2:469
Geography (book), 1:240, 242; 2:125
 Ptolemy I, 2:358, 423; 4:333
 Ptolemy II, 2:423
 PTTs, 1:224, 399; 4:174–176, 205, 207–208, 210, 212
- Public access. *See* Citizen Access
 Public Broadcasting Service (PBS), 2:114; 4:221, 226, 285, 286
- Public interest, 2:107; 3:315–316; 4:35–36
- Public Opinion, 3:386–391*. *See also* Opinion Leader; Opinion Measurement
 agenda-setting, 1:43
 attitudes, 1:147
 bandwagon effects, 1:175–176
 Cantril, Hadley, 1:233–234
- censorship, 1:248, 249
 communications research, 1:369; 2:309, 436–437; 3:247
 crowd behavior, 1:422; 4:197
 disinformation, 1:41
 formation of, 3:387–389
 functional analysis, 2:205, 299–300
 Gallup, George, 2:209–210
 influence of press on, 3:193
 libel, 2:419–422
 lobbying, 2:452–453
 manipulation of, 3:390
 mass observation, 2:498, 499
 New International Information Order, 3:173
 political communication, 3:244, 314–315
 political symbols, 1:236, 238; 3:323
 pressure groups, 3:350–352
 radio, 3:424
 Roper, Elmo, 3:488
Public Opinion Quarterly (journal), 2:405; 3:489
- Public Relations, 3:391–392*
 advertising, 1:13, 22
 Hollywood, 4:180–183
 lobbying, 2:452–453
 political communication, 3:309–312
 polls, 3:328
 propaganda, 3:375
 public opinion, 3:389
- Public Speaking, 1:275; 3:392–396*, 475; 4:150. *See also* Forensics; Homiletics; Oratory
- Public Occurrences, Both Foreign and Domestic* (newspaper), 3:180
- Publics. *See* Audience; Audience research
- Publishing. *See also* Book; Printing
 biography, 1:189
 censorship, 1:246–249
 desktop, 2:100
 encyclopedias, 2:101, 102
 literary canon, 2:443
 mass market, 3:406
 music, 3:137
 popular literature, 2:198, 200; 3:482; 4:170
 textbooks, 4:235
 travel guides, 1:173–174
- Publishing—History of Publishing, 3:396–402*. *See also* Newspaper: History
 Bennett, James Gordon, 1:185–186
 books, 1:209–217; 2:355
 Caxton, William, 1:244–245
 copyright, 1:412–420
 early history, 3:397–400
 eighteenth century, 3:400
 Gutenberg, Johannes, 2:263–264
 Hearst, William Randolph, 2:267–268

Luce, Henry, 2:456–457
 nineteenth century, 3:400–402
 Northcliffe, Alfred, 3:210–211
 Ochs, Adolph S., 3:217
 popular literature, 2:447
 Pulitzer, Joseph, 3:406–407
 Scripps, E. W., 4:23–24
 travel guides, 1:173–174
 twentieth century, 3:402
 typography, 4:261–263
 Zenger, John Peter, 4:339–340
 Publishing—Publishing Industry,
 3:402–406*. *See also* Book;
 Electronic Publishing; Magazine;
 Newsmagazine
 Publix Theaters Corp., 4:340
Publizistik, 1:362
 Puccini, Giacomo, 4:246
 Pudovkin, V. I., 1:168; 2:172, 173,
 259, 364; 3:64, 67, 72
 Pulitzer, Joseph, 3:406–407*
 comics, 1:345
 government-media relations, 2:227
 newspaper history, 1:182, 359;
 2:267; 3:181, 286
Punch (magazine), 1:236; 4:216
 Punch and Judy, 3:407, 409–410;
 4:107
 Punchinello, 3:116
 Punjab University (India), 1:365
 Puns, 2:229; 4:154
Punsch (magazine), 1:237
 Puppetry, 1:91, 94; 3:126, 407–
 412*; 4:107, 122
 Puranas, 3:441
 Purdah, 4:55
 Puritanism, 2:167; 3:394, 435
 Pushkin, Aleksandr, 2:170, 417
Pushkin (film), 2:92
 Push-Pin Studios, 3:349
 Putnam, Hilary, 3:3
 Puzo, Mario
The Godfather (book), 2:452
 Pwan-Kang, 3:393
 Pyle, Ernie, 3:407
 Pynchon, Thomas, 2:168; 3:437
Pyotr Pervyi (film), 3:72

Q

Qian, Sima, 2:75
 Qin Shihuang Di. *See* Shihuang Di
 QL (company), 2:100
 Quakers, 2:210, 231; 3:442, 460
 Qualisign, 4:63, 75
 Quality of life index, 2:14
 Quantel, 4:285
 Quantum theory, 4:305
Quarterly Journal of Speech, 1:359
 Quartz crystals, 1:303–304
Les quatre cents coup (film), 3:174
 QUBE system, 1:223
Que viva Mexico! (film), 2:92
 Queen, Ellery, 3:155
Queen Elizabeth (film), 4:340

The Queen of Spades (film), 3:62
The Queen's Messenger (play), 4:218
 Questionnaires, 1:402, 403; 2:309;
 3:224–225
Quick (magazine), 3:179
 Quine, W. V., 4:260
 Quino. *See* Lavado, Joaquín
 Quintilian, 1:289; 2:218; 3:8, 394,
 462; 4:186
Institutio oratoria, 1:5; 3:267
 Quipus, 1:51, 52; 3:212, 343
 Quiz Show, 3:415–417*; 4:157, 224
Quo Vadis? (film), 3:61
 Quota Act of 1927 (Great Britain),
 3:58
 Qur'an
 homiletics, 2:290
 Islamic world, 2:353, 361, 363
 literacy, 1:38; 2:441
 scripture, 3:440, 443; 4:25, 26, 27

R

Rabelais, François, 1:174, 342; 4:12
Rabid (film), 2:293
 Rachel. *See* Félix, Éliisa
 Racine, Jean, 1:179; 2:478; 3:117;
 4:237, 256, 257
Britannicus (play), 2:55
Mithridate (play), 2:55
Phèdre (play), 2:55; 4:256
Racing Symphony (film), 2:46
 Racism
 colonization, 1:339; 2:210
 media issues, 1:252; 3:324–325
 political symbols, 3:323
 slave trade, African, 4:85–86
 Radar, 3:11; 4:219
 RADAR (rating system), 3:426
 Radcliffe, Ann, 2:452
The Mysteries of Udolpho (book),
 3:481
 Radcliffe-Brown, A. R., 2:324
Radical Software (magazine), 1:285;
 4:284
 Radics, Katalin, 2:477
 Radio, 3:417–422*
 advertising, 1:10, 19, 353; 3:418,
 420, 421; 4:156
 Africa, 1:40, 42
 audience research, 1:372–374;
 2:411
 Australia, 1:156–158
 citizen access, 1:283; 3:30, 31–32
 citizens band radio, 1:285–287
 communications, study of, 1:361
 development communication,
 2:18–19, 21–22
 documentary, 2:50
 drama, 3:243; 4:50, 51, 53–54,
 90–91, 309–311
 espionage, 1:428, 429; 2:105
 frequency modulation, 1:110–111;
 3:420
 government regulation, 2:232, 233
 history, 1:110–111, 458–459;
 2:80, 160–161, 472; 4:4
 interactive radio instruction, 2:122,
 123–124
 international organizations, 2:332,
 334
 Islamic world, 2:361, 362, 363
 Latin America, 2:406, 407
 mass communications research,
 1:234, 372, 373; 2:488
 microelectronics, 3:12
 minorities in the media, 3:29
 monopoly, 3:45, 46
 music, 3:99, 153; 4:104, 120
 political communication, 2:94;
 3:318–319, 324
 programming, 3:419–420, 421;
 4:156, 157
 propaganda, 3:311, 375, 376
 quiz shows, 3:415
 rating systems, 2:412, 413; 3:426,
 427
 religious broadcasting, 3:444–447
 role of, in liberation movements,
 2:480
 rural forums, 1:155
 sound effects, 4:109, 111
 spectrum, 4:144–147
 syndication, 4:194
 talk shows, 3:421
 telecommunications networks,
 4:201
 television history, 4:217–219
 Radio, International, 3:422–425*
 Africa, 1:40, 368
 Islamic world, 2:362
 monopoly, 3:46
 propaganda, 3:375, 439
 spectrum, 4:144–147
 Radio Act of 1927 (U.S.), 3:420
 Radio and Television Culture Re-
 search Institute, 1:366
 Radio astronomy, 1:252, 253
 Radio Corp. of America (RCA)
 color TV system, 4:219
 history, 2:472; 3:418, 420; 4:283
 patent issues, 1:110–111; 2:156,
 161
 Sarnoff, David, 4:4–5
 sound recording, 3:66, 68, 70;
 4:114, 119, 120
 Zworykin, Vladimir K., 4:341, 342
 Radio-Keith-Orpheum. *See* RKO
 Radiotelevisione Italiana (RAI),
 2:228, 234; 4:157, 222–223
 Radway, Janice, 2:160
Radyanska Ukraina (newspaper),
 3:200
 Raemaekers, Louis, 1:238
 Raga, 3:103, 141, 152
 Ragtime, 3:121
 RAI. *See* Radiotelevisione Italiana
 Railroads, 1:335; 3:344. *See also*
 Transportation
 Raindance Corp., 4:284
 Raizman, Yuli, 3:72

- Raja Harishchandra* (film), 3:158, 270
- Rajasthani *Kathputli*, 4:107
- Raleigh, Sir Walter, 2:283
- Rama, 2:62; 3:158; 4:123
- Ramayana (epic)
- dance, 1:452
 - drama, 2:53; 3:124, 125
 - fiction, 2:167
 - film, 3:64–65, 158
 - puppetry, 3:409
 - religion, 3:441
 - South Asia, ancient, 4:122, 123
- Rambler* (newspaper), 3:181
- Ramlila (cycle play), 2:62–63
- Ramses II, 1:411
- Ramus, Petrus, 3:8, 267, 462
- Ran* (film), 2:381
- Rand Daily Mail* (newspaper), 3:187
- Ranke, Leopold von, 2:283
- Ransom, John Crowe, 3:299
- The New Criticism* (book), 3:465
- Rapaport, David, 3:385–386
- Rape, 3:333, 334; 4:291, 292
- Raphael, 3:86, 449
- Rappaport, Roy A., 1:445
- Rashomon* (film), 2:381, 382; 3:76
- Rask, Rasmus, 2:434; 3:272
- Ratdolt, Erhard, 4:261
- Rating Systems: Radio and Television, 3:425–429*. *See also* Print-Audience Measurement
- film, 2:288
 - history, 3:426
 - international practices, 3:427–429
 - leisure, 2:412–413
 - mass communications research, 2:411, 488, 490
 - people meters, 3:429
 - procedures, 3:426–427
 - radio, 3:421
 - sponsor, 4:157, 158
 - television, 4:229–230
 - violence, 4:293
- Rationalism, 2:29, 283, 445, 477; 3:484; 4:277
- Der Rattenfänger von Hameln* (film), 3:62
- Ravel, Maurice, 4:103
- The Raven* (film), 2:293
- Ravenstein, Ernst, 3:23
- Rawlinson, Henry, 1:442
- Rawski, Evelyn, 2:73
- Ray, Man, 1:168
- Ray, Nicholas, 2:174
- Ray, Satyajit, 3:78, 79, 167, 452
- Raymond, Alex
- "Flash Gordon" (comic strip), 1:347
- Raymond, Henry, 1:185; 3:181
- La razón* (newspaper), 3:194
- RCA. *See* Radio Corp. of America
- Reactance theory, 1:149
- Reader-response theory. *See* Reading Theory
- Reader's Digest* (magazine), 2:467
- Reading, 3:429–433*
- authorship, 1:159, 160
 - children, use of media, 1:267, 268, 270, 271; 2:85, 154
 - development, 3:430–432
 - literacy, 2:437–441; 3:429–430
 - popular literature, 2:427, 447–452
 - printing, cultural impact, 3:366
 - textbooks, 4:234, 235
- Reading Theory, 1:29, 160; 2:349–350, 447; 3:433–434*, 437; 4:184, 187. *See also* Authorship; Literary Criticism
- Reagan, Ronald, 2:232; 3:319
- Realism, 3:434–438*. *See also* Naturalism
- acting, 1:3, 5
 - child art, 1:259, 260
 - drama, 2:57–58
 - expressionism, 2:129
 - film, 1:276; 2:174; 3:69
 - literature, 2:168, 169, 349, 350, 445; 3:301
 - mural, 3:87
 - romanticism, 3:488
 - sound effects, 4:108, 110–111
 - tragedy, 4:255, 256
 - visual image, 4:295
- Rear Window* (film), 2:284; 3:74
- Rebecca* (film), 2:284; 3:483
- Rebus, 1:60, 61, 439; 2:89, 313; 4:326, 329
- Recency effects, 3:268
- Reception theory, 2:345; 3:433
- Recitation, 1:297; 2:441; 4:200
- Reconciler* (newspaper), 2:380; 3:187
- Recordkeeping. *See also* Archives
- clay tokens, 1:298–299
 - cuneiform, 1:438, 441–442
 - diary, 2:24
 - East Asia, ancient, 2:73
 - Egyptian hieroglyphs, 2:87
 - Hellenic world, 2:272–273
 - heraldry, 2:274
 - historiography, 2:280, 281
 - library history, 2:423
 - literacy, 2:441
 - Middle Ages, 3:16–17, 19
 - Roman Empire, 3:473, 475
 - writing, 4:324
- Records. *See* Phonograph; Sound recording
- Recycling, 1:132–133
- Red Beard* (film), 2:382
- Red Cloud, 3:394
- Red Jacket, 3:394
- Red River* (film), 4:36
- Red Star* (newspaper), 3:200
- Redfield, Robert, 2:178, 179, 180
- Redundancy, 2:315, 317–318, 389; 4:61, 185–186
- Reference groups, 1:176; 2:299–300
- Referendum, 2:94; 3:297
- Referents, 1:63–65; 2:154, 435; 4:48, 74
- Reflexes, 2:118; 4:247
- Reflexivity, 2:504; 3:266
- Reform movements, 2:1, 2, 256; 3:308; 4:276
- Reformation
- Counter-Reformation, 2:127
 - Crusades, 1:427
 - education, 4:12–13, 272
 - literacy, 2:396, 439
 - Luther, Martin, 2:459–460
 - printing, 1:213–214, 215, 246; 2:291; 3:224, 441
 - public speaking, 3:394
 - symbolism, 4:192
- Regen* (film), 2:364; 3:65
- Reggae, 3:98
- Regina Co., 3:112
- La règle du jeu* (film), 3:71, 452
- Regnault, Félix-Louis, 2:110
- Regression, 1:152; 3:385
- Reich, Phillip Erasmus, 3:400
- Reich, Wilhelm, 2:203
- Reichenbach, Hans, 1:355
- Reid, Whitelaw, 1:359; 3:5
- Reik, Theodor
- Listening with the Third Ear* (book), 2:404
- Reimer, Everett, 2:83
- Reinforcement, 2:119, 121; 4:200
- Reinhard, Kurt, 3:147
- Reinhardt, Max, 2:129
- Reiniger, Lotte, 1:92
- Reisz, Karel, 3:75
- Reith, John, 1:156; 3:419, 438–439*, 445
- Rejewski, Marian, 1:429
- Rejlander, Oscar, 3:48
- Religion, 3:439–444*. *See also* Homiletics; Missionaries; Religious Broadcasting; Scripture; and *specific religions and religious figures*
- Americas, pre-Columbian, 1:52
 - art, 1:113, 114, 121–123; 3:82–86, 442–443
 - dissemination of ideas, 1:213–214; 3:441–442
 - Durkheim, Émile, 2:67
 - festivals, 2:161–162
 - ideology, 1:437; 2:308, 393; 3:440–441
 - interpretation, 2:345
 - James, William, 2:370
 - literacy, 2:438, 439, 440
 - masks, 2:483, 484
 - Middle Ages, 2:230; 3:20
 - music, 3:109, 122, 124, 128, 130
 - printing, 1:210–211; 3:367
 - psychoanalysis, 3:386
 - public speaking, 3:394–395
 - ritual, 3:442, 467, 471–472
 - Roman Empire, 3:480
 - schools, 4:12, 13, 14
 - sexism, 4:55
 - South Asia, ancient, 4:123–124, 126–128
 - Tokugawa era, 4:245

- utopias, 4:276
 Weber, Max, 4:309–310
 Religious Broadcasting, 2:81, 291;
 3:395, 424, 442, 444–447*
 Rembrandt, 3:434, 435
 Rémi, Georges. *See* Hergé
 Remington Rand Corp., 1:376
 Renaissance, 3:447–452*
 architecture, 1:98; 2:4
 art, 1:112, 114, 126, 142; 3:85–
 86, 275–277; 4:261–262, 295
 books, 1:213, 413–414; 3:369
 classicism, 1:288–289
 clocks, 1:303, 305
 drama, 2:54; 4:108, 237, 238,
 239, 241
 education, 4:12–13, 272
 exploration, 2:125
 forensics, 2:193; 3:8, 267
 heraldry, 2:276
 historiography, 2:282
 humanism, 1:355; 3:447–448
 letters, 2:415–416
 linguistics, 2:235, 434
 literature, 1:159, 161, 188; 2:215,
 444–445, 447; 3:301
 music, 3:110–111, 130, 132, 133,
 135
 poetry, 2:149; 3:302, 303
 politics, 1:429; 3:451
 realism, 3:437
 religion, 3:441
 sculpture, 4:33
 symbolism, 4:192
Les rendezvous d'Anna (film), 1:282
 Renner, Karl
 *The Institutions of Private Law
 and Their Social Functions*
 (book), 2:478
Rennsymphonie (film), 2:46
 Renoir, Jean, 1:361; 2:174; 3:70,
 164, 452–453*
 My Life and My Films (book),
 3:452
Le répas de bébé (film), 3:58
 Reporters. *See* Journalism
 Representamen, 3:248; 4:74–75
 Representation, Pictorial and Photo-
 graphic, 3:453–458*
 aesthetics, 1:27, 28
 art, 1:113, 116; 3:85, 334–341
 denotation theory, 3:456, 457
 photography, 3:275–278
 resemblance theory, 3:454–455
 substitution theory, 3:455–456
 visual image, 4:83, 294–304
 visual perception, 3:255–262
 Repression, psychological, 2:202,
 203, 376; 3:384, 385
 Republic Pictures, 2:287
Requiem dla 500,000 (film), 2:49
Rescued by Rover (film), 3:58
The Rescuers (film), 1:95
 Research methods
 anthropology, 2:110, 505–506
 consumer research, 1:401–403
 content analysis, 1:403–407
 evaluation research, 2:123
 mass communications research,
 2:481–482, 489, 494
 proxemics, 3:383
 Resemblance theory, 1:292; 3:454–
 455; 4:295, 297
 Resnais, Alain, 1:169; 2:49; 3:174
 Resnick, Daniel P., 3:432, 441
 Resnick, Lauren B., 3:432, 441
 Respighi, Ottorino
 Pines of Rome (music), 4:112
 The Return of Frank James (film),
 4:315
 Reuter, Paul Julius, 3:176, 177;
 4:211
 Reuters, 3:44, 170; 4:228
Le reveil du sénégalais (newspaper),
 3:187
Review (magazine), 3:178
 Revolution, 3:458–461*
 calendars, 1:230
 censorship, 2:231, 232
 Cultural Revolution, 3:326
 culture, 1:436
 political communication, 2:95;
 3:244, 307
 political symbols, 3:323
Revolution (newspaper), 2:159
 Reyes Matta, Fernando, 2:17
 Reynolds, Sir Joshua, 2:445; 3:339,
 454
 Rhenish fan, 2:400
 Rhetoric, 3:461–465*. *See also* Fo-
 rensics; Oratory; Public Speaking
 acting, 1:5
 censorship, 1:250
 classicism, 1:287–289
 communication, philosophies of,
 1:354–355
 communications, study of, 1:360
 early modern trends, 3:462–463
 early theory and practice, 1:109–
 110, 275; 3:294, 461–462
 historiography, 2:282
 homiletics, 2:291
 literature, 1:161; 2:215, 444; 3:8,
 300, 379–380; 4:186
 multidisciplinary approaches,
 3:463–464
 music, 3:111, 129
 persuasion, 3:267, 377–378, 387
 political symbols, 3:322
 speech, 4:150, 154
 Rhodes, Cecil John, 1:335
Rhodesian Herald (newspaper), 3:187
 Rhythm, 1:231; 2:115; 3:102, 250,
 301, 303
 Rhythm and blues, 4:120
Rhythmus 21 (film), 3:65
Rhythmus 23 (film), 3:65
 Rice, Stuart, 2:412
 Richard I (king), 1:426
 Richard of Wallingford, 1:302
 Richards, I. A., 2:446; 3:8, 299, 433,
 465*; 4:321
Basic English and Its Uses (book),
 3:465
*Design for Escape: World Educa-
 tion through Modern Media*
 (book), 3:465
Foundations of Aesthetics (book),
 3:465
The Meaning of Meaning (book),
 3:46, 463, 465; 4:47–48
The Philosophy of Rhetoric (book),
 3:463
Practical Criticism (book), 3:465
Principles of Literary Criticism
 (book), 3:465
 Richards, William D., 3:168
 Richardson, Samuel, 3:435
 Clarissa Harlowe (book), 2:167,
 416; 3:481
 Pamela (book), 2:167, 416, 449;
 3:481
 Richardson, Tony, 3:75
 Richter, Hans, 1:168; 2:46; 3:65
 Richtofen, Ferdinand von, 4:84
 Ricoeur, Paul, 2:343, 348; 3:298
 Riddle, 2:299, 448; 3:227, 465–
 467*; 4:154–155
 Rideout, Walter, 4:235
 Riefenstahl, Leni, 1:280; 2:47–48,
 50, 114; 3:71
 Riffaterre, Michael, 2:350
Rig Veda, 2:311
 Rigadin, 3:61
 Riis, Jacob
 How the Other Half Lives (book),
 3:286
 Riley, John W., 3:38, 39
 Riley, Mathilda White, 3:38, 39
 Rilke, Rainer Maria, 1:103; 4:193
 Rinehart, Mary Roberts, 3:155
 Ringelbergh, J. S. van
 *Lucubrationes, vel potius Absolu-
 tissima Kyklopaideia*, 2:101
Rio Bravo (film), 4:316
 Riots, 2:1; 3:305–307
Riso amaro (film), 3:167
 Ritson, Joseph, 4:54
 Ritual, 3:467–473*
 acting, 1:3
 Americas, pre-Columbian, 1:53,
 57, 59, 60
 art, funerary, 1:121–123
 artifact, 1:133, 134
 body decoration, 1:52, 191, 194–
 196; 2:139
 cybernetics, 1:445
 dance, 1:52, 451, 452
 drama, 2:53, 63; 4:238, 253
 Durkheim, Émile, 2:67
 East Asia, ancient, 2:73, 74
 faith healing, 4:248
 festivals, 1:340; 2:161–162, 163
 food, 2:188
 homiletics, 2:290, 291
 language, 4:155
 masks, 2:483–487
 in narrative, 4:51

- Ritual (*cont.*)
 oral culture, 3:228
 oral poetry, 3:233
 performance, 3:266, 467–472
 play, 3:295
 psychoanalysis, 3:386
 purity, 2:188, 214
 religion, 1:201; 3:442; 4:137, 139
 rites of passage, 1:53
- Ritualization, in animal behavior,
 1:68, 86–87; 2:118, 120
- Rius. *See* Del Rio, Eduardo
The River (film), 2:47; 3:452
- Rivera, Diego, 3:87
- Rivers, William L.
*Responsibility in Mass Commu-
 nication* (book), 4:17
- Rivette, Jacques, 3:174
- Rizzoli, 3:405
- RKO, 2:287, 293; 3:142; 4:181,
 220, 312
- Robbe-Grillet, Alain, 2:168; 3:174
The Robe (film), 3:74
- Robert, Henry M.
Robert's Rules of Order (book),
 2:194
- Robert of Arbrissel, 3:20
- Roberts, John, 4:165
- Roberts, Oral, 3:442, 446
- Robertson, Étienne Gaspard, 3:53
- Robertson, Pat, 3:446
- Robespierre, 4:276
- Robida, 4:216
- Robinson, Claude, 3:328
- Robinson, James H., 2:283
- Robotics, 1:136, 255, 378, 394, 395,
 397
- Rocha, Glauber, 3:73
- Rochberg, George, 2:351
- Rochemont, Louis de, 3:205
- Rock and roll, 1:140, 270; 3:98, 99,
 100, 122; 4:120
- Rodchenko, Aleksandr, 3:347, 349
- Rodgers, Richard
Oklahoma! (musical), 3:121
- Rodin, Auguste, 3:49; 4:30
- Roe, Keith, 4:196
- Roederer, Pierre-Louis, 3:244
- Rogers, Everett M., 2:14, 34; 3:41
- Rogers, Ginger, 3:142
- Rogers, Rosemary, 3:483
- Rogers, Roy, 4:315
- Rohde, Georg, 2:269
- Rohmer, Eric, 2:284; 3:174
- Rohrlich, P. E., 2:330–331
- Rokeach, Milton, 1:433, 434
- Role models, 2:84, 151–153; 4:178,
 183
- Role playing, 4:96
- Rolling Stones, 1:277
- Rolls Series (books), 2:283
- Roma, città aperta* (film), 3:164, 167
- Roman Catholic church. *See* Catholic
 church
- Roman Empire, 3:473–481*
 art, 1:96–97, 123; 3:84, 336
 cartography, 1:242
 censorship, 2:230
 coins, 1:326–327
 Diaspora, 2:26–27
 education, 1:288, 412
 exploration, 1:334; 2:125
 Hellenic world, 2:268, 273
 historiography, 2:281
 Julian calendar, 1:226
 library history, 2:423
 plebiscites, 3:296
 postal service, 3:341
 rhetoric, 2:291; 3:267, 387, 394,
 462
 theater, 3:116; 4:237 (fig.), 239
 tourism, 3:479–480; 4:247
 writing, 1:210, 412; 2:415, 437;
 3:179, 379, 475–477
- Roman Republic, 1:275; 2:281;
 3:473
- Romance, The, 1:188; 2:160, 182,
 198–200, 448; 3:226, 481–484*
- Romance languages, 3:14–16
- Romania, 3:297
- Romanticism, 3:484–488*
 aesthetics, 1:27–28, 29, 163, 164
 art, 1:112–113
 autobiography, 1:162; 2:416
 classicism, 1:289, 291
 drama, 2:56; 4:257
 hermeneutics, 2:343
 literature, 2:349, 350, 445; 3:299,
 300, 433; 4:51
 opera, 3:219
 poetry, 3:302, 303
 romantic nationalism, 2:177, 178,
 180–181, 183
 symbolism, 3:8; 4:192–193
- Romberg, Sigmund, 3:142
- Rome, Open City* (film), 3:164, 167
- Romero, George, 2:293
- Ronger, Florimond, 3:118
- Roosevelt, Franklin D., 2:37, 495;
 3:419, 420; 4:219
 New Deal programs, 2:47; 3:87
 polls, 1:233; 2:210; 3:327, 489
 public speaking, 3:396
- Roosevelt, Theodore, 1:91; 2:403,
 436; 3:396
- Ropars, Marie-Claire, 2:175
- Rope* (film), 1:282; 2:284
- Roper, Elmo, 2:210; 3:327, 488–
 489*
- Roper, William, 1:188
- Roper Polls, 4:230
- Rorschach Test, 3:80
- Rorty, Richard, 1:357
- Rosaldo, Michelle, 2:213
- Rose, Ernestine, 3:395
- Rose, Thomas, 3:48
- Rose France* (film), 3:63
- Rose-Marie* (operetta), 3:120
- Rosemary's Baby* (film), 2:294
- Rosenberg, Bernard, 1:436; 4:198
- Rosenberg, Harold, 1:163
- Rosengren, Karl-Erik, 3:42; 4:198
- Rosenmeyer, T. G., 2:216
- Rosenthal, Robert, 4:97
- Rosetta stone, 2:89, 90
- Rosher, Charles, 1:280, 282
- Rosing, Boris, 4:341
- Roslow, Sydney, 3:426
- Rosnow, Ralph, 3:489
- Ross, Edward A., 3:389
- Rossellini, Roberto, 2:174; 3:73,
 164–165, 167
- Rossi-Landi, Ferruccio
Linguistics and Economics (book),
 2:476–477
- Rossini, Gioacchino Antonio, 2:56;
 3:220
- Rostow, Walt, 2:14
The Stages of Economic Growth
 (book), 2:10
- Rotha, Paul, 2:47, 174, 258
- Rothenberg, Jerome, 2:116
- Rothman, David, 1:250
- Rotogravure, 3:286
- Rouch, Jean, 1:276, 277; 2:50, 111,
 174; 4:281
- Rousseau, Jean-Jacques
 child art, 1:258
Confessions (book), 1:162
 education, 1:153; 2:29; 4:14
Émile, ou traité de l'éducation
 (book), 2:167, 416
Julie, ou la nouvelle Héloïse
 (book), 2:167, 416
 language, 2:434; 3:8
 music, 3:129, 130, 218 (fig.)
- Rowell, George P., 1:17
- Rowlandson, Thomas, 1:236
The Tour of Dr. Syntax, 1:344
- Rowson, Susanna Haswell
Charlotte Temple (book), 3:481
 "Roy Rogers" (TV series), 4:316
- Royal Court Report* (newsletter),
 3:189
- Royal Gazette and Sierra Leone Ad-
 vertiser* (newspaper), 3:186
- Royalties, 1:411–416, 421; 3:397,
 400; 4:121
- Royce, Josiah, 2:503–504; 3:247
- RTS, 1:155
- Rubel, Ira W., 3:365
- Rubens, Peter Paul, 1:235; 2:195
- Rubicam, Raymond, 1:19
- Rubin, Gayle, 2:213
- Rude pravo* (newspaper), 3:192
- Ruesch, Jurgen, 3:209
*Communication: The Social Matrix
 of Psychiatry* (book), 1:181
- Ruka* (film), 1:94
- The Rules of the Game* (film), 3:71,
 452
- Rumor, 1:40; 2:498; 3:377, 489–
 490*; 4:312. *See also* Gossip
- Rural Life* (newspaper), 3:200
- Ruskin, John, 2:5; 3:437, 454
- Russ, Joanna, 4:22
- Russell, Bertrand, 1:181, 355; 2:404;
 3:3; 4:44–45, 318, 320, 321

- Russia, 2:417; 3:22, 309, 410, 412; 4:118, 272. *See also* Union of Soviet Socialist Republics; and *entries under Soviet*
- Russia Federation* (newspaper), 3:200
- Russian civil war, 3:199
- Russian formalism. *See also* Formalism
- film theory, 2:173–174, 175
- intertextuality, 2:349
- Jakobson, Roman, 2:369
- literary criticism, 2:446
- narrative, 3:162
- poetics, 3:299, 300
- poetry, 3:304
- semiotics, 4:48–49
- Russian Revolution, 1:330; 2:232, 437; 3:199, 458, 460, 461
- Russolo, Luigi, 4:109
- Ruttman, Walther, 1:92, 168; 2:46
- Rycroft, Charles F., 3:385
- Ryerson Polytechnical Institute (Canada), 1:362
- Rymer, J. M.
Varney the Vanpyre (book), 2:450
- Rynmann, Johann, 3:398
- S**
- Saarinen, Aline, 2:196
- Saatchi and Saatchi (advertising agency), 1:12
- Sabellico, Antonio
Decade of Venetian Affairs (book), 1:413
- Sachs, Curt, 3:146–147
- Sacks, Harvey, 1:408; 2:326
- Sackville, Thomas
Gorboduc (play), 4:255
- Sacy, Antoine-Isaac Silvestre de, 2:89
- Sadat, Anwar as-, 3:196, 445
- Sade, Marquis de, 1:179
- Sa'di, 3:382
- Sadomasochism, 3:332, 333
- Saerchinger, César, 3:438
- Safe Streets Act of 1968 (U.S.), 3:370
- Şafi od-Din, 3:110
- Sagan, Leontine, 3:71
- SAGE air-defense system, 1:383
- Said, Edward, 4:251
- St. John, Henry. *See* Bolingbroke, Lord
- St. Louis Post-Dispatch* (newspaper), 3:407
- Saint-Denis, Michel
Theatre: The Rediscovery of Style (book), 1:3
- Saint-Léon, Arthur
La sténochorégraphie (book), 1:208
- Saint-Simon, Claude-Henri de, 4:277
- Sakoku* (national seclusion), 4:244–246
- Sala, Oskar, 2:97
- Saladin, 1:424
- Salcher, P., 3:51
- “Sale of the Century” (TV series), 3:416
- Sales, mail-order. *See* Mail-order catalogs
- Sales Management* (journal), 4:180
- Salesman* (film), 1:277
- Salinas, José-Luis
“The Cisco Kid” (comic strip), 1:351
- Salisbury Sunday Mail* (newspaper), 3:187
- Sallust, 2:281
- Salomon, Erich, 3:288
- Salomon, Gavriel, 1:154; 2:85
- Salomon, Ludwig
Geschichte des deutschen Zeitungswesen (book), 1:370
- Salsa, 3:98
- Salsbury, Nate, 3:120
- Saludos amigos* (film), 2:41
- Samisen, 3:133
- Samizdat, 1:249; 3:45
- Samoa, 1:154, 263; 2:18, 86, 505
- Sampling, 1:406; 2:209–210; 3:222–226, 327, 329, 489
- Samuelson, Paul
Economics (book), 4:235
- Samurai, 1:143
- Samurai films, 2:472–475; 4:316
- San Francisco Examiner* (newspaper), 2:267; 3:181
- San Kuo—The Romance of the Three Kingdoms* (book), 4:170
- Sand, George, 2:25; 3:412
- Sandall, Roger, 2:112
- Sanday, Peggy, 4:55
- Sanders, Thomas, 4:212
- Sandin, Dan, 4:285
- Sanger, Margaret, 3:334
- Sanghyang (theater genre), 2:62, 66
- Sanhedrin, 2:375
- Sanjinés, Jorge, 3:73
- Sanjuro* (film), 2:382, 473
- Šankara, 4:126
- Sanshiro sugata* (film), 2:381, 382
- Sanskrit
drama, 1:4; 2:62; 4:238
- language, 2:235; 3:271, 440; 4:123–124
- writing, 3:108
- Santayana, George, 2:436
- Santoro, Eduardo, 2:481
- Santos (newspaper organization), 3:194
- Sao Tome and Principe, 3:429
- Sapir, Edward, 4:3–4*
Boas, Franz, 1:190
- interaction, nonlinguistic elements in, 2:326, 381, 383
- Language* (book), 4:3
- linguistics, 2:236, 434; 3:273; 4:46
- Sapir-Whorf hypothesis, 4:3, 78, 260, 317
- Sarnoff, David, 1:110; 2:156; 3:420; 4:4–5*, 218, 283, 341, 342
- Sarto, Andrea del, 2:195
- Sarton, George, 3:6, 369
- Sartre, Jean-Paul, 1:179; 2:29, 174
- Såsom i en spegel* (film), 1:187
- Sassanian Empire, 1:327, 329
- Satellite, 4:5–9*. *See also* Direct broadcast satellites
- Africa, 1:41
- Australia, 1:156–158
- communications satellites, 4:5, 7–9
- computers, 1:384, 399
- fiber optics, 2:166
- future technology, 4:7–9
- international organizations, 2:109, 333, 334, 335
- Islamic world, 2:363
- Latin America, 2:407, 408
- observation satellites, 1:244; 4:5–7
- radio, 3:376, 422, 425
- regulation, 2:233; 4:9, 294
- religious broadcasting, 3:446
- spectrum, 4:146, 147
- syndication, 4:194
- telecommunications networks, 4:201, 203, 204
- television, 1:153, 223–224; 2:86–87; 4:194, 227, 228, 230
- transmission of news, 3:198, 365
- Satellite master-antenna television (SMATV), 1:224
- Satellite Video Exchange Network (Canada), 4:284
- Sathu, M. S., 3:78
- Satire, 1:234–240, 340–341; 2:168, 215, 216; 3:301
- Saturday Evening Post* (magazine), 2:467
- Saturday Night and Sunday Morning* (film), 3:75
- Satyagraha*, 2:210
- Saudi Arabia, 3:196
- Saussure, Ferdinand de, 4:9–10*
Cours de linguistique générale (book), 2:446; 4:9, 48
- interpretation, 1:159; 2:345
- language, 1:175; 2:369, 390; 4:73, 330
- linguistics, 2:178, 236, 434; 3:272; 4:53, 193, 194
- Mémoire sur le système primitif des voyelles dans les langues indo-européennes* (book), 4:9
- poetics, 3:298, 299, 300
- semiotics, 4:48–49
- sign systems, 4:63–64, 78
- structuralism, 2:175, 310; 4:183–184
- Savage, Richard, 1:189
- Savostiuk, Oleg, 3:349
- Sayers, Dorothy, 3:155
- Scala, Cangrande della, 2:444
- Scalatron, 3:141
- Scalich, Paul
Encyclopaediae, seu Orbis Disciplinarum, tam Sacrarum quam Profanarum Epistemon, 2:101

- Scarification, 1:52, 191–197; 2:139
Scenes from a Marriage (TV series and film), 1:187
 Schaeffer, Pierre, 2:98
 Schaeffner, André, 3:147
 Schafer, R. Murray
 The Tuning of the World (book), 4:106
 Schäffle, Albert, 1:369
 Schechner, Richard, 3:266
 Schefer, Jean-Louis, 2:175
 Schefflen, Albert E., 2:326, 381
 Schegloff, Emanuel, 1:408; 2:326
 Schelling, Friedrich, 4:192
 System des transcendentalen Idealismus (book), 2:445
 Scherbius, Arthur, 1:429
 Schieffelin, Bambi, 1:263
 Schiller, Friedrich von, 4:237
 The Robbers (play), 2:56
 William Tell (play), 2:56
 Schizophrenia, 4:106
 Schizophrenia, 1:181, 199–200; 2:339; 4:188
Schlager (music), 3:99
 Schlegel, August Wilhelm von, 1:159; 4:192
 Schleicher, August, 2:434; 3:272
 Schleiermacher, Friedrich, 1:28–29, 356; 2:343, 344
 Schlemmer, Oskar, 3:347
 Schlöndorff, Volker, 3:76
 Schmandt-Besserat, Denise, 4:323
 Schmidt, C., 2:478
 Schmidt, Joost, 3:347
 Schneider, Ira, 4:285
 Schoedsack, Ernest B., 2:110
 Schoenberg, Arnold, 1:119; 3:132, 250
 Schöffler, Peter, 2:264; 3:450
 Scholarly journals, 2:463, 464, 466
 Scholasticism, 3:447
 Scholem, Gershom, 1:184
 School, 4:10–17*. *See also* Audio-visual Education; Education; Educational Television
 ancient Greece and Rome, 4:12
 ancient Near East, 1:442
 children, 1:268, 270; 2:154
 classroom, 1:297–298
 computer impact, 1:388–391
 literacy, 2:439
 Middle Ages, 1:413; 4:12
 modern industrial society, 4:14–15
 Renaissance and Reformation, 4:12–13
 teaching, 4:199–201
 textbook, 4:234–236
 Third World, 2:18; 4:15–16
 Schopenhauer, Arthur, 3:130
 Schorm, Evald, 3:79
 Schramm, Wilbur, 1:268, 271; 2:14; 3:37–38; 4:17–18*
 Four Theories of the Press (book), 2:227; 4:17
 Mass Media and National Development (book), 4:17
 Responsibility in Mass Communication (book), 4:17
 Television in the Lives of Our Children (book), 4:17
 Schreck, Max, 2:292
 Schubert, Franz, 3:103, 219
 Schuller, Robert, 3:442
 Schultz, George P., 3:172
 Schulz, Charles
 “Peanuts” (comic strip), 1:347, 349 (fig.)
 Schum, Gerry, 4:285
 Schumann, Robert, 3:131, 219; 4:106
 Schutz, Alfred, 2:337; 4:18–19*
 Der sinnhafte Aufbau der sozialen Welt (book), 4:18
 Schwartz, Zachary, 1:93
 Schwartzman, Helen, 3:294, 295
 Schweitzer, Albert, 3:172
 Science
 emergence of, 1:295
 history, 2:283, 357–358, 445
 impact of printing, 1:212, 214; 3:448
 Peirce, Charles S., 3:249
 philosophy of, 1:250
 university, 4:272
 Science Fiction, 1:95, 252; 2:294, 452; 4:19–23*
Scientific American (magazine), 4:217
 Scientific inquiry, 1:444–445, 446; 2:501; 3:298–300, 434; 4:192, 193, 277
 Scientific method, 1:294–295; 2:148, 151; 4:46
 Scientism, 2:479
Scipione l’Africano (film), 3:72
 Scollon, Ron, 3:379
 Scotland, 3:308
 National Library of Scotland, 2:424
 Scott, Randolph, 4:316
 Scott, Sir Walter, 2:168, 450; 3:488
 Scott, Walter Dill, 1:18
 Psychology of Advertising (book), 1:361
Scott Foresman Curriculum Foundations Series (books), 4:235
Screen (journal), 2:175
 Screen Actors Guild, 1:353
 Scribes
 authorship, 1:158, 411–413
 education of, 1:442, 443; 4:11
 Egyptian hieroglyphs, 2:89, 92; 4:333
 Hellenic world, 2:268, 269
 Middle Ages, 2:439; 3:16
 printing, 3:356, 366–369; 4:261
 Roman Empire, 3:476, 477
 Scribner, Sylvia, 2:438; 3:430
 Scripps, E. W., 3:407; 4:23–24*
 Scripps League of Newspapers, 4:23
 Scripps Publishing Co., 4:24
 Scripps-Howard newspaper chain, 3:407; 4:23, 24
 Scriptoria, 1:413; 2:438
 Scripture, 4:24–27*. *See also* Bible; Homiletics; Qur’an; Religion; Torah
 Bhagavad Gita, 2:210; 3:158
 impact of printing, 1:214, 215
 interpretation, 2:343, 386; 4:26–27
 literary criticism, 2:67, 444
 The Sculptor’s Nightmare (film), 1:91
 Sculpture, 4:27–34*
 museums, 3:94–95
 religious art, 1:128; 3:442–443
 Renaissance, 3:448
 visual image, 4:296, 297
Seal Island (film), 2:42
 Seals, 2:275, 278, 311, 313 (fig.); 4:332
 “Search for Tomorrow” (TV series), 4:91
 Searle, John R., 1:355
 Speech Acts (book), 4:44
 Sears, David, 4:37, 39
 Sears Roebuck and Co., 1:17; 2:38
 Seastrom, Victor. *See* Sjöström, Victor
 Sebeak, Thomas A., 4:49
 SECAM, 4:176
 Sechey, Albert
 Cours de linguistique générale (book), 4:9
 Secodip, 3:427
Il secolo d’Italia (newspaper), 2:229
 Secor, George, 3:141
 Secrecy, 1:246–249; 2:332; 3:305, 309, 311–312; 4:34–37*, 229.
 See also Cryptology; Government Regulation; Privacy
The Secret of NIMH (film), 1:95
 Secularization, 2:282, 283, 291–292, 361; 3:96, 367
 “See It Now” (TV series), 4:230
 Seeburg Co., 3:112
 Seeger, Charles, 3:102, 114, 133, 137; 4:102
 Seeing Essential English (SEE I), 4:71
 Segal, Erich
 Love Story (book), 2:452
 Segal, George, 4:33, 34
 Segre, Cesare, 4:49
 Segregation, 1:339; 3:24, 323; 4:87
 Seiler, James, 3:426
 Seitz, John F., 1:279
 Selden, John
 Table Talk (book), 1:188
 Seldon, George, 3:281
 Selective Reception, 4:37–40*
 mass communications research, 2:489, 492
 models of communication, 3:36
 selective exposure, 1:268–269; 2:96; 3:268; 4:37–39

- selective perception, 3:489–490;
4:39–40
- Self, concept of, 1:410–411; 2:336,
337, 338, 345, 376, 504
- Self-perception theory, 1:148
- Selig Co., 2:287; 4:180
- Selskaya zhizn* (newspaper), 3:200
- Selznick, David, 2:284
- Se-Ma-Four studio, 1:94
- Semantic Differential, 1:149; 2:330;
3:239–240; 4:40–43*
- Semantics, 4:43–46*
artificial intelligence, 1:136, 137
communication, philosophies of,
1:355–356
feminist theories, 2:158
grammar, 2:235, 237
information theory, 2:314–316,
317, 319
language, 2:388; 3:300
linguistics, 2:432, 434, 435
meaning, 3:2, 3, 4
meaning in music, 4:103
metaphor, 3:9
Morris, Charles, 3:46–47
semiotics, 4:49
sign system, 4:73–74
- Semantics, General, 4:46*
- Sembène, Ousmane, 3:79
- Seme*, 4:63, 76
- Semiconductors, 1:376, 384; 3:11, 12
- Semiosis, 3:46–47; 4:47, 48, 64, 74–
75
- Semiotica* (journal), 4:49
- Semiotics, 4:46–50*. *See also* Mean-
ing; Sign; Sign System
aesthetics, 1:27, 28; 2:175; 4:54
architecture, 1:100–101
avant-garde, 1:164
Barthes, Roland, 1:179–180
Egyptian hieroglyphs, 2:91–92
fields of study, 4:46–47
iconography, 2:6, 303, 306
interpretation, 2:310, 343, 348
linguistics, 2:431, 432; 4:48–49
Luria, Aleksandr, 2:458, 459
metaphor, 3:7
Morris, Charles, 3:46–47
poetics, 3:298, 299, 300
semantics, 4:43
sign language, 4:73
structuralism, 1:134–135; 4:183
symbolic development, 1:265;
3:292–293; 4:193
- Semitic
language, 1:43–46, 439, 441, 442
writing system, 1:44–45, 441
- Sen, Mrinal, 3:78
- Sen noci svatojánské* (film), 1:94
- Seneca, Lucius Annaeus, 1:289;
2:415; 3:117
Agamemnon (play), 2:53
Medea (play), 2:53
Tenue Tragedies, 4:255
- Senefelder, Aloys, 3:360
- Senegal, 2:18; 3:187, 430
- Sennett, Mack, 1:255; 3:61
- Sentences, 2:235, 236–237, 388;
4:320, 43–46, 74, 76
- Senza pietà* (film), 3:167
- Sephardim, 2:375
- Septimius Severus (emperor), 1:327;
3:473
- Serial, 4:50–54*
communications research, 1:373;
2:309, 310
film, 3:62; 4:315
popular literature, 2:450
soap operas, 4:90–92
television history, 4:221
- Servais, Raoul, 1:95
- Servetus, Michael, 4:272
- Servomechanism, 1:443
- “Sesame Street” (TV series), 1:272;
2:87
- Sessions, Roger, 3:35
- SETI. *See* CETI
- Seton, Anya, 3:482
- Sevareid, Eric, 3:419
- Seven Days in May* (film), 1:282
- The Seven Samurai* (film), 2:381,
382, 473; 3:76
- The Seventh Seal* (film), 1:186
- Sévigné, Marie de, 2:416
- Seward, William, 2:255
- Sex in media, 4:289, 291–292, 293
- Sex/gender roles. *See also* Gender;
Men; Women
advertising, 2:85
body decoration, 1:193–195
children, media effects, 1:273
clothing, 3:460, 461
facial expression, 2:145
feminist theories, 2:157–160
food, 2:189, 192–193
humor, 2:298–299
masks, 2:484
pornography, 3:331–334
sexism, 4:55
social skills, 4:57–59, 97
storytelling, 2:185
touch, 4:247, 248, 249
- Sexism. *See also* Feminist Theories of
Communication; Gender
language, 2:402, 431; 4:57–58
nonverbal behavior, 4:58–59
pornography, 3:333–334
- Sexism—Overview, 4:54–57*
- Sexism—Sexism in Interpersonal
Communication, 4:57–59*
- Sexual selection, in animals, 2:118,
121
- Sexual violence, 2:108; 3:332, 333
- Sexuality
control of female sexuality, 1:193;
2:212, 213, 214; 3:332, 333;
4:55–56
theories of, 2:186, 201–202;
3:384–385
touch, 4:249
- “The Shadow” (radio series), 3:420;
4:311
- Shadow of a Doubt* (film), 2:284
- Shadow Warrior* (film), 2:382
- Shadows of Forgotten Ancestors*
(film), 3:78
- Shaftesbury, Earl of, 2:454
- Shagai, Soviet!* (film), 4:281
- Shahn, Ben, 3:87, 90
- Shakespeare, William
Antony and Cleopatra (play),
4:256
drama, 1:291, 341; 2:62; 3:26,
117; 4:237, 241
fiction, 2:170
Hamlet (play), 1:341; 2:54; 4:256
Henry IV (play), 3:389
King Lear (play), 2:54, 187; 4:256
literary canon, 2:441, 442
Macbeth (play), 2:54; 3:263; 4:256
The Merchant of Venice (play),
2:170
The Merry Wives of Windsor
(play), 1:342
Othello (play), 2:54; 4:256, 312
The Taming of the Shrew (play),
2:187
The Tempest (play), 2:486; 4:19
The Winter's Tale (play), 1:341
- Shall We Dance* (film), 3:142
- Shamans, 2:62; 3:115, 130; 4:248
- Shamberg, Michael
Guerrilla Television, 4:285
- Shamir, E., 4:77
- Shamshi-Adad (king), 3:387
- Shamshiev, Bolotbek, 3:78
- Shane* (film), 4:316
- Shang texts, 4:324–326, 328, 331
- Shanghai studio, 1:95
- Shankar, Uday, 3:125
- Shannon, Claude, 4:59–61*
*Communication Theory of Secrecy
Systems* (book), 4:60
information theory, 2:316–317;
3:239
“A Mathematical Theory of Com-
munication” (monograph),
1:444; 4:59
*The Mathematical Theory of Com-
munication* (book), 2:314, 316–
319; 4:59–61
- Shannon-Weaver mathematical the-
ory of communication, 1:258;
3:37; 4:59–61, 309, 319
- Shannon-Wiener formula, 2:316;
4:59, 61
- Sharon, Ariel, 2:421
- Shaw, Artie, 4:119
- Shaw, Donald, 1:42
- Shaw, George Bernard, 3:221; 4:242
Heartbreak House (play), 2:58
Man and Superman (play), 2:58
Pygmalion (play), 2:58
Saint Joan (play), 2:58
Shakes versus Shav (play), 3:412

- Shaw, Joseph, 3:156
 Shaw, Marvin, 2:260
 Sheatsley, Paul B.
 "Some Reasons Why Information Campaigns Fail," 2:300
 Sheen, Fulton John, 3:395, 445
The Sheik (film), 3:65
 Sheldon, W. H., 2:169
 Shelley, Mary
 Frankenstein (book), 2:294, 416; 4:19
 Shelley, Percy Bysshe
 Adonais (poem), 1:188
 The Cenci (play), 2:56
 Shelton, Gilbert, 1:349
 Shengelaya, Georgi, 3:78
 Shepitko, Larissa, 3:78
 Sheridan, Richard, 3:395
 The Rivals (play), 4:154
 The School for Scandal (play), 2:56
 Sherif, Muzafer, 1:234
Shestayaya chast mira (film), 2:45; 4:281
 Shibusutani, Tamotsu, 3:489
Shichinin no samurai (film), 2:381, 382; 3:76
 Shih-t'ao, 1:112
 Shihuang Di, 4:61–62*
 Shils, Edward A., 1:371, 436; 4:198
 Shimabara Rebellion, 4:245
 Shimpa (theater genre), 2:60
 Shindo, Kaneto, 3:76
 Shintoism, 2:280; 4:238
Shipyards (film), 2:47
 Shirato, Sampei, 1:351
 Shirer, William L., 3:419
Shoah (film), 1:278
 Shochiku film company, 3:72
 Shockley, William, 1:376; 2:420; 3:11
 Shoemaker, Floyd F., 2:34; 3:41
 Shorin, A. F., 3:72
 Shortwave transmission, 1:285–287; 3:419, 421, 423, 446
 Shotoku (empress), 1:211
 Shōzan, Sakuma, 1:143
Shri 420 (film), 3:145
 Shub, Esfir, 2:45
 Shuker, Gregory, 1:276
 Shuster, Joe
 Superman (comic book), 1:347
 Sickle, Noel
 "Scorchy Smith" (comic strip), 1:347
 Sickman, Laurence, 2:196
 Sidney, Sir Philip, 4:256
 Apology for Poetry (book), 2:445
 Arcadia (book), 2:448
 Siebert, Fred S., 1:249
 Four Theories of the Press (book), 2:226; 4:17
 Siebold, Philipp Franz von, 4:246
 Siegel, Jerry
 Superman (comic book), 1:347
 Sierra Leone, 3:430, 432
Sierra Leone Daily Mail (newspaper), 1:39; 3:186
 Sieyès, Emmanuel-Joseph, 3:244
 Sightseeing, 4:141, 247–251
 Sigismund, 2:27
 Sign, 4:62–65*
 artifacts, as signs, 1:130–133
 code, 1:312
 cuneiform, 1:438–443
 Egyptian hieroglyphs, 2:87, 91–92
 Indus script, 2:313
 Jakobson, Roman, 2:369
 linguistics, 2:431, 434
 literary criticism, 2:446
 meaning, 3:7
 metaphor, 3:7
 Morris, Charles, 3:46–47
 Osgood, Charles, 3:239
 Peirce, Charles S., 3:248–249
 ritual, 3:468, 472
 Saussure, Ferdinand de, 4:10
 Schutz, Alfred, 4:18–19
 sign systems, 4:73–79
 structuralism, 4:183–185
 symbolism, 1:166; 4:192, 193
 use, 4:64–65
 vehicles and functions, 3:46; 4:46, 48, 63–64
 visual image, 4:296
 writing systems, 1:57, 60–62
 Sign Language—Alternate Sign Languages, 4:66–69*
 Australian Aboriginal, 4:67
 gesture, 2:217
 monastic, 4:67–68
 North American Indian, 4:66
 occupational, 4:69
 performance, 4:68–69
 Sign Language—Manual Language Codes, 4:69–71*
 Sign Language—Overview, 4:65–66*
 Sign Language—Primary Sign Languages, 4:72–73*
 Sign languages
 American Sign Language, 1:321
 animal cognition, 1:321
 body movement notation, 1:203–204
 gesture, 2:217, 222; 3:106
 North American Indians, 1:50
 Sign System, 4:73–80*
 alphabet, 1:43–46
 architecture, 1:100–101
 artifacts, 1:130–134
 authorship, 1:159
 classification of signs, 4:75
 code, 4:75–76, 78–79
 cognition, 1:320
 gestures, 1:151
 grammar, 4:76–77, 79
 graphics, 2:245, 247–253
 heraldry, 2:277
 ideology, 2:310
 literary criticism, 2:446
 mode, 3:33
 natural language, 4:78
 North American Indians, 1:50
 performance, 3:262
 poetics, 3:299
 ritual, 3:467–472
 Saussure, Ferdinand de, 4:9–10
 Schutz, Alfred, 4:18–19
 semiotics, 4:49
 sign as system, 4:73–75
 sign languages, alternate, 4:66–69
 structuralism, 4:183–185
 symbolism, 4:193
 universal languages, 4:77–78
 writing, 1:49–50; 4:321
 Sign vehicle, 3:46; 4:46, 48, 63–64
 Signage, 1:14; 2:274–279; 3:86; 4:80–83*
 Signal processing, 1:253–255; 3:11, 13; 4:201–202, 208
 Signals, animal. *See* Animal signals
 Signified, 2:369; 3:300, 468, 472; 4:10, 48, 63–64, 76
 Signifier, 2:369; 4:10, 48, 63–64, 76
 Signing Exact English (SEE II), 4:71
The Silence (film), 1:186
 Silicon chips, 3:12, 13
 Silk Road, 2:77; 3:330–331; 4:84–85*. *See also* East Asia, Ancient
 "Silly Symphony" (animated films), 1:92
 Simenon, Georges, 3:155
 Simmel, Georg, 1:128; 2:326; 3:167, 247; 4:85*
 The Metropolis and Mental Life (book), 4:85
 Simon Fraser University, 1:362
 "Simplemente María" (TV series), 4:90
Simplicissimus (journal), 1:237
 Singapore, 3:188, 189, 190
 Singapore News and Publications, Ltd., 3:190
 Singer, Isaac Bashevis, 2:375
 Singer, Milton, 3:114, 264
Singin' in the Rain (film), 3:144
 Sinsign, 4:63, 75
 Siqueiros, David, 3:87
Sir Arne's Treasure (film), 3:62
 Sita, 2:62; 3:158; 4:123
 Sitar, 3:152
 Sitting Bull, 3:394
 Situation comedies, 4:51–53
 "\$64,000 Question" (TV series), 3:415
 Sjöström, Victor, 3:62
Det sjunde inseglet (film), 1:186
Du skal aere din hustru (film), 3:62
 Skills training
 development communication, 2:10, 14, 18, 22
 education, 1:153–154; 2:80–84
 evaluation research, 2:124
 social skills, 4:96–98
 speech, 4:153–154
 Skinner, B. F., 2:152

- Walden Two* (book), 4:21
 Sklandanowsky, Max, 3:52
 Sky Channel, 1:224
 Slaby, Adolphus, 3:417
 Slander, 2:419, 420
 Slang, 4:155
 Slasher films, 2:108; 4:292, 294
 Slave Trade, African, 1:32; 4:85–87*
 Slavery, 1:16; 3:31
 Sleeper Effect, 3:269; 4:88*
Sleeping Beauty (film), 1:93; 2:41
Slendro, 3:140–141
 Slips of the Tongue, 2:299; 3:384; 4:88–89*, 155
 Slobin, Dan I., 2:391, 392
 Slogans, 1:11, 354; 3:323, 460
 Small, Albion W., 2:203
 Small business, 1:11
 Small-group interaction. *See* Interaction, small-group
 Smell, 2:321–323, 325, 340; 4:89–90*. *See also* Animal Communication; Animal Signals—Chemical Signals
Smiles of a Summer Night (film), 1:186
 Smiling, 2:143–148, 297, 327, 342, 343
The Smiling Madame Beudet (film), 3:63
 Smith, Adam, 2:434
 The Wealth of Nations (book), 1:212; 3:237
 Smith, David, 4:33
 Smith, G. A., 3:58
 Smith, Joseph, 4:25
 Smith, Kate, 2:411; 3:6
 Smith, Michael, 4:198
 Smith, Ralph Lee, 3:316
 Smith, Sydney
 “The Gumps” (comic strip), 1:346, 347
 Smith, W. Eugene, 3:288
 Smith, William, 2:18; 4:339
 Smoke signals, 1:51
 Smollett, Tobias, 3:435
 The Expedition of Humphry Clinker (book), 2:416
Smultronstället (film), 1:186
 Smythe, Reginald
 “Andy Capp” (comic strip), 1:351
 Snow, Catherine, 1:264
 Snow, Michael, 1:169
Snow White and the Seven Dwarfs (film), 1:92, 93 (fig.); 2:41
 Snyder, Gary, 2:116
 Snyder, Ruth, 3:287
 Soap Opera, 4:90–92*
 communications research, 1:373
 romances, 3:483
 serials, 4:50, 53
 sponsors, 4:157
 Soccer, 4:137, 159, 161
 Social anthropology, 1:437
 Social change
 in art, 3:87–91
 critical studies, 2:495
 development communication, 2:9–12, 13, 15–16, 19–20; 3:41
 diffusion, 2:32
 functional analysis, 2:203–206
 revolution, 3:458
 utopias, 4:276
 Social class
 education, 2:84
 fiction, 2:200
 ideology, 2:308, 475–476
 language ideology, 2:394, 395
 language varieties, 2:401–402
 literary canon, 2:442, 443
 Marxist theories, 2:476–479
 taste cultures, 4:197–199
 Social Cognitive Theory, 4:92–96*.
 See also Mass Media Effects
 children, media effects, 1:154, 271–272
 diffusion, 2:32–33
 family, 2:151–152
 interpersonal communication, 2:337
 mass communications research, 2:491
 modeling, 4:94–95
 observational learning, 4:93–94
 socialization, 2:494; 4:199
 sports, 4:166
 violence, 4:291, 292
 Social constructivism, 1:250
 Social control
 censorship, 1:249–250
 code, 1:312
 demonstrations, 2:2
 development communication, 2:20
 folklore, 2:178
 ideology, 2:238, 239, 309, 310
 interpersonal distance, 2:341
 legal systems, 2:408–411
 literacy, 2:438–439
 mass communications research, 2:320, 488; 3:7
 organizational communication, 3:237–238
 public opinion, 3:389, 390
 South Asia, ancient, 4:125
 Social facilitation, 4:94, 165, 166
 Social identity, 1:193, 195–196, 305–311; 2:490
 Social interaction. *See also* Interaction, Face-to-Face; Interpersonal Communication; Spatial Organization
 bargaining, 1:176
 clothing, 1:306, 310
 folklore, 2:180
 Goffman, Erving, 2:224
 gossip, 2:225–226
 humor, 2:298, 299
 Marxist theories, 2:476
 Mead, George Herbert, 2:504
 media effects on, 1:166
 nonverbal communication, 2:131–134, 143–148, 218, 340–343; 3:383; 4:89–90
 performance, 3:266
 speaking, ethnography of, 4:132
 Social learning theory. *See* Social Cognitive Theory
 Social norms, 1:151; 2:83, 109; 3:7, 331–334, 389
 Social psychology. *See* Psychology, social
 Social realism, 2:174; 3:73, 75, 89, 164, 165, 167
 Social Science Research Council, 3:327, 489; 4:317
 Social Skills, 1:408–410; 4:94, 95, 96–98*, 153–154. *See also* Interpersonal Communication; Nonverbal Communication
 Social status, 1:313; 2:187–193, 213–214, 491; 3:372–374; 4:198
 social-gestural mode, 3:33, 35
 Socialist realism, 2:57; 3:72, 78, 461
 Socialization
 education, 2:80–84; 4:10–17
 family, 2:151–152
 functional analysis, 2:205
 gender, 2:211–214
 interpersonal communication, 2:336
 language acquisition, 2:392–393
 linguistics, 2:431, 435
 mass media effects, 1:274, 434; 2:494
 sports, 4:165, 166
 Société d'Éditions Cinématographiques, 3:248
 Société Financière de Radio Diffusion, 3:424
 Société Générale des Films, 3:248
 Society. *See also* Information society
 artist and society, 1:138–142
 ideal societies, 4:274–278
 intellectuals' role in, 2:238–239
 Marxist approaches, 2:476–483
 theories of, 1:410–411; 2:10, 22–23
 Society for Cinema Studies, 1:359
 Society for the Anthropology of Visual Communication, 2:111
 Society of Friends, 3:442
 Sociobiology, 2:121–122
 Sociofugal space, 4:130
 Sociolinguistics, 2:325, 389, 401–402, 432; 3:273; 4:132
 Sociology
 Cooley, Charles Horton, 1:410–411; 3:386–387
 culture, 1:436
 deception, 1:459–460
 Durkheim, Émile, 2:66–68
 folklore, 2:179
 Goffman, Erving, 2:223–224

- Sociology (*cont.*)
 Hyman, Herbert H., 2:299–300
 ideology, 2:308, 309
 Lazarsfeld, Paul F., 2:411–412
 mass communications research, 2:487–492
 Merton, Robert K., 3:6–7
 models of communication, 3:38–39
 Park, Robert, 3:246–247, 389–390
 public opinion, 3:389–390
 rural, 2:31
 Schutz, Alfred, 4:18
 stars, 4:178–179
 Tarde, Jean-Gabriel de, 4:197
 taste cultures, 4:197–199
 Weber, Max, 4:309–310
 Sociology of knowledge, 2:308, 309
 Sociometry, 3:168
 Sociopetal space, 4:130
 Socrates, 1:109, 188, 356; 2:269; 3:293; 4:294, 296
 Socratic method, 3:293–294
 Sofia studio, 1:94
 Software, 1:384, 422, 389, 390
 Sokolov, Nikolai, 1:238
 Solanas, Fernando, 3:73
 Solás, Humberto, 3:73
La solidaridad (newspaper), 3:189
 Solomon Islands, 3:130, 141
 Soltow, Lee, 2:439
 Somavía, Juan, 2:15–16
Sommarnattens leende (film), 1:186
 Sommer, Robert, 2:340; 4:130
 Sondheim, Stephen, 3:161
A Little Night Music (musical), 3:122
Sunday in the Park with George (musical), 3:122
Sweeney Todd (musical), 3:122
 Song, 4:98–101*. *See also* Cantometrics; *and entries under* Music
 music history, 3:106
 oral culture, 3:227; 4:54
 performance, 4:100–101
 poetry, 3:231, 303
 theater, 2:62; 3:116–122; 4:255
 Song, animal. *See* Animal Song
Song of Ceylon (film), 2:47, 258
Song of the Rivers (film), 2:366
Song of the South (film), 2:41
 “Songs of Praise” (TV series), 3:445
 Sonier, Keith, 4:285
 Sons of Liberty, 3:460
 Sontag, Susan, 3:274, 275
 Sony Corp., 4:283, 284
 Sophistic communication, 1:354
 Sophists, 2:444; 4:461, 462
 Sophocles, 4:254
Oedipus Rex (play), 2:52, 187
 Sorbonne, 2:424
 Sorel, Georges, 1:183
 Sorokin, Pitirim A., 3:6
Social and Cultural Dynamics (book), 1:433
The Sorrow and the Pity (film), 1:278
 Soul music, 3:98, 141
 Sound, 3:249–250; 4:98–99, 101–107*
 Sound Effects, 2:98–99, 172; 3:420; 4:103, 107–112*
The Sound of Music (film), 3:144
 Sound recording
 Bell, Alexander Graham, 1:183
 contrapuntal sound, 3:67
 copyright, 1:418, 420, 422
 De Forest, Lee, 1:458–459
 digital, 4:117
 Edison, Thomas Alva, 2:79
 ethnopoetics, 2:116
 long-playing disc, 4:113–114
 magnetic, 2:50; 3:421; 4:114–115, 117
 mechanical, 4:112–114
 microelectronics, 3:13
 multiple-channel, 3:66–68
 music, 2:115; 3:98–101, 137, 153–154, 221; 4:104
 optical, 4:117
 oral history, 3:229
 postsynchronization, 3:67–68
 sound effects, 4:107, 109
 stereophonic sound, 3:74, 422
 synchronous sound, 1:92; 3:67, 72; 4:117
 Sound Recording—History, 4:112–117*
 Sound Recording—Industry, 4:117–121*
 Soundscape, 4:106, 108
 Soundtrack, 1:92; 2:172; 3:67–68; 4:117
 The Source (company), 2:100
 Source
 attitudes, 1:147–148
 characteristics, 1:322–326; 2:330; 3:267–268; 4:88
 credibility, 3:489, 490
 models of communication, 3:36–44
La souriante Madame Beudet (film), 3:63
 Sousa, John Philip, 4:118
 South Africa, Republic of, 1:248; 2:410, 422; 3:24, 45, 323; 4:223
 South African Associated Newspapers, 3:187
 South Asia, Ancient, 1:146; 2:280–281; 3:122–128; 4:121–129*
 South Pacific Telecommunications Development Programme, 1:158
 Southam (newspaper organization), 3:197
The Southeast Nuba (film), 2:114
The Southerner (film), 3:452
Sovetskaya kultura (newspaper), 3:200
Sovetskaya Latvia (newspaper), 3:200
Sovetskaya Litva (newspaper), 3:200
Sovetskaya Rossia (newspaper), 3:200
Sovetskie ingrushi (film), 1:92
 Soviet film
 documentary, 2:43, 45–46
 Eisenstein, Sergei, 2:92–93
 film editing, 2:172
 silent film, 3:62, 64
 sound film, 3:72, 78
 theory, 2:173–174
 Vertov, Dziga, 4:281–282
 Soviet linguistics, 2:476
 Soviet psychology, 1:265
Soviet Toys (film), 1:92
 Soviet Union. *See* Union of Soviet Socialist Republics
 Soyinka, Wole
The Lion and the Jewel (play), 2:60–61
The Trials of Brother Jero (play), 2:60–61
 “The Space between Words” (TV series), 1:278
 Spain
 art nouveau, 3:346
 caricature, 1:236
 copyright, 1:417
 exploration, 2:125–127
 film, 1:217–218
 migration, 4:22
 missionaries, 4:245
 newspapers, 3:192
 stamps, 4:172, 173
 theater, 4:241
 university, 4:271–272
 zarzuela, 3:119
The Spanish Earth (film), 2:48, 366
 Spanish International Network (SIN), 3:29
 Spanish language, 2:400, 402
 sign language, 4:72
 Spanish-American War, 2:267; 3:286, 407
Spare Time (film), 2:497
Sparrows (film), 1:280
 Spatial Organization, 1:99; 2:340; 3:84, 275; 4:27–29, 49, 129–131*. *See also* Proxemics
 Speaking, Ethnography of, 2:234–238, 324–325, 431, 435; 3:380–383; 4:131–133*. *See also* Language; Language Varieties; Oratory
 Special Effects, 1:95, 279; 2:84; 3:63; 4:133–137*, 285, 286. *See also* Film Editing
 Special-interest groups, 2:452–453; 3:46, 315, 325, 328–329. *See also* Pressure Group
 Spectacle, 4:137–144*
 drama, 2:54; 3:117; 4:241, 255
 festivals, 2:161, 162
 mass culture, 4:142–143
 Roman Empire, 3:473
 sports, 4:159
 tourist attractions, 4:141–142, 314

- Spectator* (newspaper), 2:464; 3:181
 Spectrum, 4:144–147*
 citizen access, 1:283
 citizens band radio, 1:285–287
 computer impact on military, 1:384
 frequency allocations, 3:171; 4:145, 147
 government regulation, 2:234
 policy development, 4:144, 146
 radio, 1:110; 3:418, 420, 422, 425
 television, 4:219
 Speech, 4:147–151*. *See also* Conversation; Language Acquisition; Speaking, Ethnography of animal cognition, 1:321
 children, communicative development, 1:263; 2:151–153, 154
 code, 1:313
 cognitive processes, 4:88–89, 154–155
 compared to song, 4:98–100
 functions, 4:150
 human-animal communication, 2:295–296
 interaction, face-to-face, 2:325
 linguistics, 2:431
 nonverbal communication, 2:143, 217–222; 3:210
 oral culture, 3:226
 oratory, 3:234–236
 poetry, 3:303
 recognition systems, 1:136, 137
 regulative functions, 2:458–459
 research, 4:150–151
 sex differences in, 4:58
 social context, 4:186
 surrogates, 1:49–50; 3:146, 150–151; 4:103
 writing, 1:160; 4:329–330
 Speech act theory, 1:137, 355, 409; 3:1, 3, 9
 Speech and Language Disorders, 1:263–264; 2:431, 459; 4:106, 150, 151–152*
 Speech Anxiety, 1:405; 4:153–154*
 Speech communication, 1:360
 Speech Communication Assn., 1:359–360
 Speech communities, 2:385–390, 394; 4:9–10, 131–133
 Speech Play, 2:323–325; 4:154–155*
 Speech sounds. *See* Phonology
 Speier, Hans, 3:387
 Spencer, Herbert, 4:165, 197
 Spender, Dale, 2:157, 158
 Spengler, Oswald, 2:283
 Sperber, Dan, 1:267; 4:260
 Sphärophon, 2:97
Spider Man (comic book), 1:349
Der Spiegel (magazine), 3:179
 Spiegelman, Art, 1:349
 Maus (book), 1:350
 Spillane, Mickey, 2:447; 3:156; 4:170
Spione (film), 4:167
 Spiral of silence, 1:251; 3:389
 Spirituals, 4:87
 Spitz, René, 1:267
 Spofford, Ainsworth Rand, 2:426
 Sponsor, 4:155–158*. *See also* Advertising—Advertising Economics; Commercials
 advertising, 1:19; 2:404
 mass communications research, 2:489
 radio, 3:418, 421
 religious broadcasting, 3:444, 445
 soap operas, 4:90–92
 television, 4:221, 224, 229
 Spooner, William A., 4:154
 Spoonerisms, 2:299; 4:88, 154
 Sports, 1:201; 2:50, 340, 465; 4:108, 247, 249, 283. *See also* Play
Sports Illustrated (magazine), 2:456; 4:137
 Sports—Psychology of Sports, 4:162, 165–167*
 Sports—Sports and Society, 4:137, 139, 158–161*
 Sports—Sports and the Media, 4:161–165*
 endorsements, 1:353–354; 4:163
 Olympic Games, 4:163–165
 sponsor, 4:158
 television, 4:158, 219
 Spotted Tail, 3:394
 Sprat, Thomas, 3:380
 Sputnik, 1:384
 Spy Fiction—History, 4:167–170*
 Spy Fiction—Themes, 4:170–171*
 SRI International, 3:82
 Sri Lanka, 3:99–100, 125; 4:172, 173
 Sruti, 3:141, 148
 Staatliches Filmarchiv der DDR, 1:108
Stachka (film), 2:92; 3:64
Stagecoach (film), 4:315
 Stalin, Joseph, 1:168, 405; 2:45, 476; 3:72, 78
 Stalinism, 4:48
 Stallone, Sylvester, 2:474
 Stamps, 1:330; 2:39, 279; 3:345; 4:171–173*
Standard (newspaper), 3:188
 Standards, 4:173–176*
 citizens band radio, 1:287
 computer impact on commerce, 1:392
 international organizations, 2:332, 333
 library trends, 2:429
 newspapers, 3:198
 radio, 3:420
 spectrum, 4:144, 145
 telecommunications policy, 4:207
 videotex, 4:289
 Stanford, Leland, 3:48
 Stanford University, 1:359–360, 384; 4:17
 Stanford-Binet Intelligence Tests, 2:85
 Stangor, Charles, 1:152
 Stanhope, Earl, 3:363
 Stanislavsky, Konstantin, 1:5, 6; 2:62, 66
 Stanton, Elizabeth Cady, 2:159; 3:395
 Stanton, Frank, 1:372; 2:411
 Communications Research: 1948–1949 (book), 2:309
Star (newspaper), 3:187
 Star Chamber. *See* Great Britain, Court of the Star Chamber
 “Star Trek” (TV series), 4:23
Star Wars (film), 1:95; 4:136, 286
Staroie i novoie (film), 2:92
 Stars
 biographies of, 1:189
 film, 3:61–62, 65, 68
 Hollywood, 2:285, 286, 289; 4:340
 opera, 3:220–221
 television, 1:353; 4:92, 220
 Stars—Star System, 4:180–183*
 Stars—The Star Phenomenon, 4:176–180*
 “Starsky and Hutch” (TV series), 3:157
Stationarii, 1:413
 Stationers Co., 1:246, 415–416; 2:231; 3:24, 398
 Statistical Research, Inc., 3:426
 Statistics, 1:406, 434, 435, 444; 2:314, 316–319; 4:40
 Status markers
 body decoration, 1:195, 197
 clothing, 1:310
 food, 2:188, 193
 interaction, face-to-face, 2:327
 masks, 2:485, 486
 portraiture, 3:339–340
 touch, 4:248, 249
 Statute of Anne (Great Britain), 1:415–417
Steamboat Willie (film), 1:92; 2:41; 3:69
 Steele, Sir Richard, 3:178, 181
 Steffens, Lincoln, 2:436
 Steganography, 1:428; 2:104
 Steiner, George, 1:436
 The Death of Tragedy (book), 4:257
 Steiner, Ralph, 2:47
 Stenberg, Georgij, 3:347
 Stenberg, Vladimir, 3:347
 Stendhal, 1:162; 2:26
 Stephen, Leslie, 1:116
 Stephen, Sir James Fitzjames, 2:410
 Stephens, Anne S.
 Malaeska, the Indian Wife of the White Hunter (book), 2:451
 Stereopsis, 1:136
 Stereopticon, 1:153
 Stereotypes
 demonstrations, 2:2
 about language, 2:393–395

- Stereotypes (*cont.*)
 media effects, 1:272–273; 3:269
 media ethics, 2:106, 107
 minorities in the media, 1:432;
 3:28, 30, 321
 sex role, 1:432; 2:159, 214; 3:321;
 4:56, 57–59
- Sterling, Edward, 3:181
- Stern, Daniel, 1:264
- Stern, Louis William, 4:232
- Stern, Theodore, 4:103
- Sternberg, Josef von, 3:70–71
- Sterne, Laurence, 2:168
- Stevenson, Adlai, 1:376
- Stevenson, Robert Louis
Dr. Jekyll and Mr. Hyde (book),
 2:294
- Stewart, James, 4:316
- Stewart, Mary, 3:482
- Stiller, Maurice, 3:62
- Stimulus-response theory, 3:40; 4:48,
 63
- Stock, Brian, 2:437
- Stockhausen, Karlheinz, 2:99; 4:284
- Stoetzel, Jean, 3:390
- Stoics, 2:343; 4:74
- Stoker, Bram, 2:293
Dracula (book), 2:450
- Stoklossa, Paul, 1:370
- Stone, I. F., 3:199
- Stone, Irving, 1:189
- Stone, Lucy, 3:395
- Stony Brook* (magazine), 2:116
- Stop, Thief!* (film), 3:59
- Stoppard, Tom
*Rosencrantz and Guildenstern Are
 Dead* (play), 1:341; 2:54
- Storck, Henri, 2:364; 3:65
- The Story of Louis Pasteur* (film),
 3:69
- The Story of the Andes* (film), 4:134
- The Story of Vernon and Irene Castle*
 (film), 3:142
- Storytelling
 East Asia, ancient, 2:75
 entertainment, 2:102, 103, 450
 ethnopoetics, 2:116
 fiction, 1:188; 2:167, 168; 3:379
 folktales, 2:182–183, 185, 186
 narrative, 3:162–164
 oral culture, 3:227–228
 serials, 4:50–54
 sound effects, 4:107
 television, 1:430
- Stowe, Harriet Beecher
Uncle Tom's Cabin (book), 2:443,
 451
- Strabo, 2:26
- Strachey, Lytton
Queen Victoria (book), 1:189
- La Strada* (film), 3:67
- Straits Times Press (newspaper orga-
 nization), 3:190
- Strand* (magazine), 2:467
- Straparola, Gianfrancesco
Piacevoli notti (book), 2:183
- Strategic Computing Initiative (U.S.),
 1:385
- Strategy, in interaction, 1:176; 2:327
- Strathern, Andrew, 1:194
- Strathern, Marilyn, 1:194
- Stratton, Charles, 1:178
- Straub, Jean-Marie, 2:175
- Strauss, Johann
Die Fledermaus (operetta), 3:119
- Stravinsky, Igor, 1:291
Oedipus Rex (oratorio), 3:412
Petrushka (ballet), 3:412
Le sacre du printemps (ballet),
 1:119
- Strawson, P. F., 4:45
- Streisand, Barbra, 4:179
- Strike* (film), 2:92; 3:64
- Strindberg, August, 4:242, 257
A Dream Play (play), 2:58
The Father (play), 2:58
Ghost Sonata (play), 2:58
Miss Julie (play), 2:58
To Damascus (play), 2:58
- Stroboscopic movement, 3:259
- Stroboskop, 3:52
- Stroheim, Erich von, 3:65
- Stromberg-Carlson, 1:111
- Strong, Edward K., 3:80
- Strong, Henry A., 3:281
- Strube, Sidney, 1:239
- Structural anthropology. *See* Anthro-
 pology, structural
- Structuralism, 4:183–185*
 aesthetics, 1:27, 28, 29
 artifacts, 1:130, 134–135
 culture, 1:438
 film theory, 2:175
 folktales, 2:184–185
 Foucault, Michel, 2:201, 202
 gender, 2:212
 iconography, 2:305
 ideology, 2:310
 interpretation, 2:343, 348
 intertextuality, 2:349
 Lévi-Strauss, Claude, 2:417–418
 literary criticism, 2:169, 446
 Marxist theories, 2:481
 mass communications research,
 2:488
 oral culture, 3:227
 phonology, 3:272–273
 poetics, 3:299–300
 realism, 3:437
 Saussure, Ferdinand de, 4:9–10
 semiotics, 4:48–49
 symbolism theories, 4:193
 Vygotsky, Lev, 4:306
- Structuralist linguistics. *See* Linguis-
 tics, structuralist
- Struss, Karl, 1:282
- The Student Prince* (operetta), 3:120
- Der Student von Prag* (film), 2:292
- Sturm, Johannes, 4:12
- Sturm und Drang movement, 2:56–
 57
- Style, in language, 2:401, 402
- Style, Literary, 4:185–188*
 art, 1:117
 classicism, 1:287–291
 content analysis, 1:405, 407
 interpretation, 2:348
 linguistics, 2:432
 metaphor, 3:8
 poetics, 3:298
 translation, literary, 4:259
- Stylistics, 3:462; 4:187
- Stylus, 1:298; 4:331, 332, 336
- Suárez, Orlando, 3:89
- Subjectivist theory, 2:445–446
- Subliminal perception, 4:40
- Substitution (in language), 3:7–10;
 4:88–89
- Substitution theory, 3:454–457
- Succesos felices* (newsletter), 3:189
- Suchman, Edward A., 1:374
- Šūdraka
Mrcchakatikā (play), 2:53
- Sue, Eugène, 2:450
Les mystères de Paris (book),
 3:154
- Suetonius, 1:188; 2:281
The Lives of the Caesars (book),
 2:169
- Sugarman, Susan, 1:264
- Suicides, 2:67; 4:292
- Sullivan, Anne, 2:379
- Sullivan, Arthur
H.M.S. Pinafore (operetta), 3:119
The Mikado (operetta), 3:119
The Pirates of Penzance (operetta),
 3:119
- Sullivan, Harry Stack, 2:336; 3:385;
 4:3, 188*
*The Fusion of Psychiatry and So-
 cial Science* (book), 4:188
*The Interpersonal Theory of Psy-
 chiatry* (book), 4:188
- Sullivan, L. B., 2:421
- Sullivan, Pat, 1:92
- Sumerian
 language, 1:438, 439, 441, 442
 writing, 1:44, 298, 299, 301;
 2:313; 4:323–324, 327, 329,
 330
- Sumerian-Babylonian number system,
 3:213
- Sumner, William Graham, 2:179;
 3:396
- Sun* (newspaper), 3:182
- Sunday, Billy, 3:395
- Sunday Daily Mirror of Accra* (news-
 paper), 3:186
- Sunday Dispatch* (newspaper), 3:211
- Sunday Express* (newspaper), 1:182
- Sunday News* (newspaper), 3:187
- Sunday Post* (newspaper), 3:188
- Sunday Telegraph* (newspaper),
 3:181
- Sunday Times* (British newspaper),
 3:181
- Sunday Times* (Nigerian newspaper),
 3:186

- Sunday Times* (South African newspaper), 3:187
- Sunrise* (film), 1:282
- Sunshine Act of 1976 (U.S.), 4:36
- Sun-tzu
- The Art of War* (book), 2:104
- Supalla, Ted, 4:73
- Superego, 3:385
- Superimposition, 1:279; 2:249
- Superposition, 3:258
- Suppé, Franz von
- Boccaccio* (operetta), 3:119
- Fatinitza* (operetta), 3:119
- Die schöne Galatea* (operetta), 3:119
- Supplantation theory, 2:85
- Superficiality, 4:297–298, 300
- Surgeon General's Scientific Advisory Committee on Television and Social Behavior, 4:290
- Television and Growing Up: The Impact of Televised Violence* (book), 2:310
- Surrealism, 1:163–164, 168, 217–218; 2:57–58; 3:437
- Surveillance, 1:249–252, 387; 2:205, 405; 3:11, 371; 4:285
- Survey research
- agenda-setting, 1:43
- audience measurement, 3:353–354, 426
- elections, 2:94
- evaluation research, 2:123
- ideology, 2:309
- mass communications research, 1:372–373, 431, 434; 2:300, 411, 489
- methods, 1:234; 3:376
- opinion measurement, 3:222–226, 386–390
- violence, 4:290, 292
- Suspense fiction. *See* Mystery and Detective Fiction
- Sutherland, Graham, 3:339
- Sutter's Gold* (film), 2:92
- Sutton, Valerie
- Sutton Movement Shorthand* (book), 1:208
- Sutton-Smith, Brian, 4:165
- Suyama, Keiichi, 1:238
- Svensk Filmindustri, 1:186
- Svilova, Elizaveta, 2:45; 4:281
- Swahili language, 1:32
- Swan Lake* (ballet), 1:454
- Sweden
- cultural indicators research in, 1:434
- film, 1:186–187; 3:62, 73
- freedom of information laws, 1:247; 4:36
- interactive media, 2:330
- plebiscites, 3:297
- telephone, 4:212
- television, 1:8; 4:289
- "The Sweeney" (TV series), 3:157
- "Sweeps" periods, 3:427
- Sweet, Blanche, 2:259
- Swift, Jonathan
- Gulliver's Travels* (book), 4:21
- A Modest Proposal* (pamphlet), 3:245
- Swinerton, James
- "Little Jimmy" (comic strip), 1:345
- Switching systems, computer, 1:379, 380
- Switzerland, 3:112; 4:208
- Symbol systems. *See* Alphabet; Art; Body Movement Notation; Cantometrics; Choreometrics; Kinetics; Language; Mode; Music Theories—Notations and Literacy; Number; Symbolic Logic; Writing
- Symbolic interactionism, 2:214, 503–504; 4:92–96
- Symbolic Logic, 4:188–191*
- applications to communication, 4:190–191
- Aristotle, 1:109–110
- common and implicit knowledge, 4:191
- cybernetics, 1:444
- forensics, 2:193
- mathematics, 2:500, 502
- sign systems, 4:77
- Symbolic modeling. *See* Social Cognitive Theory
- Symbolism, 4:192–194*. *See also* Metaphor; Poetics
- art, 1:98–99; 2:303–307; 4:294–298
- Burke, Kenneth, 1:219
- critical theory, 4:193–194
- Durkheim, Émile, 2:66–67
- folktales, 2:185–186
- food, 2:187–188
- Freud, Sigmund, 2:203
- ideology, 2:310; 4:192–193
- mime, 3:26, 28
- mode, 3:35
- music, 2:115; 3:102
- political symbols, 3:323–324, 461
- psychoanalysis, 3:384
- religion, 3:442, 443
- rhetoric, 3:464
- Sapir, Edward, 4:3
- sign, 4:62, 63
- sound symbolism, 4:111–112
- symbolic acts, 1:218; 3:322, 463
- Symbolization, development of. *See* Children—Development of Symbolization
- Symbols
- distinguished from icons, 2:303
- gender, 2:211, 214
- pictorial representation, 3:456–457
- political, 3:321–324
- ritual, 3:468, 471, 472
- semiotics, 4:47, 49
- sign, 4:62–63, 74
- signage, 4:80–81, 83
- sound, 4:101, 102
- speech, 4:148, 149
- Syme, Florence, 4:252
- Synchronous analysis, 2:184, 236, 433, 434, 435; 4:10
- Synclavier, 2:99
- Syndication, 4:194*
- newspapers, 1:345; 3:198; 4:23–24
- religious broadcasting, 3:444–445
- television, 4:224, 226, 228, 230
- Synecdoche, 3:10; 4:154
- Synge, J. M.
- Playboy of the Western World* (play), 2:59
- Syntactics, 3:46–47
- Syntax, 1:137; 2:235, 325, 327, 432, 434, 435; 4:185, 186
- Synthesizers, 2:99; 4:109–110, 285
- Sypher, Wylie, 3:437
- Syria, 1:299, 424; 3:196
- System Development Corp., 1:456
- Systems theory. *See* Cybernetics
- Szabó, István, 3:79
- Szilard, Leo, 4:59
- T
- Tabla, 3:153
- Tablature, 3:110, 133, 135
- Taboos, 2:188; 3:331–332, 440; 4:89, 90
- Tabulating Machine Co., 1:375
- Tacitus, 1:188; 2:281; 3:393
- Tager, P. G., 3:72
- Tagore, Rabindranath, 3:126
- Chandalika* (play), 2:60
- Visarjan* (play), 2:60
- Taguchi, Besaku, 1:238
- Tainter, Charles Sumner, 4:113
- Takeda, Izumo
- Chusingura* (play), 2:54
- Talbot, William Henry Fox, 3:51, 274, 277, 279, 360
- The Pencil of Nature* (book), 3:277
- Tales of Hoffmann* (film), 3:62
- Taliaferro, Mabel, 4:181
- Talmadge, Norma, 3:68
- Talmud, 2:26, 373; 4:25, 333
- Talmud, Babylonian, 3:382
- Tamayo, Rufino, 3:89
- Tanaka, Yasumasa, 4:41, 43
- Al-Tanbih* (newspaper), 3:195
- Tandem Computer Co., 1:378
- Tanganyika Standard* (newspaper), 3:187
- Tannenbaum, Percy, 1:323; 4:43, 291
- Tanner, Nancy, 2:212
- Tanzania, 2:20
- Tape recording. *See* Audio tape recording
- Tapum, The History of Weapons* (film), 1:94
- Tarazi, Philip, 3:195

- Tarde, Jean-Gabriel de, 1:369;
4:197*
The Laws of Imitation (book),
4:197
L'opinion et la foule (book),
1:422–423
- Target audience, 1:402, 403; 2:123;
3:223
- Targets* (film), 2:294
- Tarhe, 3:394
- Tarkovsky, Andrei, 1:169; 3:78
- Tarn, Nathaniel, 2:116
- Tarski, Alfred, 3:3
- Tass, 3:44, 200; 4:229
- Taste Cultures, 4:197–199*. *See also*
Culture; Mass culture; Popular
culture; *and entries under Audi-
ence*
art, 1:162; 2:8
communications research, 1:374
drama, performance, 2:64
high culture, 1:315, 435, 436;
3:226; 4:50–51
and media content, 2:102, 229,
448–452
models of communication, 3:43
- TAT. *See* Thematic Apperception
Tests
- Tate, Allen, 3:300
- Tatler* (magazine), 2:464; 3:178
- Taxonomies, 1:292–295
- Taylor, F. W., 1:18
- Taylor, Robert S., 2:430
- Teaching, 4:199–201*. *See also* Edu-
cation; School
audiovisual education, 1:153–155
classicism, 1:288–289
classroom, 1:297
computer impact on education,
1:389–390
development communication, 2:16
distance education, 2:19
East Asia, ancient, 2:71
educational television, 2:86
evaluation research, 2:123–124
homiletics, 2:291
oral culture, 3:227, 228
reading, 3:430
rhetoric, 3:461–462
university, 4:271–274
- Technology, effects of
Africa, 1:40–42
computers, 1:379, 380–400
copyright, 1:420–422
culture, 1:436, 437
development communication,
2:14–15
diplomacy, 2:37
fiber optics, 2:166
graphic reproduction, 2:239, 242,
243–244
Hollywood, 2:289–290
Innis, Harold, 2:320
interactive media, 2:328–330
library trends, 2:428–430
McLuhan, Marshall, 2:463
Marxist theories, 3:479
mass media effects, 2:492–497
media ethics, 2:108
microelectronics, 3:11–13
New International Information Or-
der, 3:172
photography, 3:274, 281, 284–285
political communication, 3:313–
317
printing, 3:354–370
publishing, 2:100; 3:400, 402
satellites, 4:5–9
sound recording, 4:121
telecommunications, 4:201–202,
204, 205–208
telegraphy, 4:209–211
telephone, 4:212–216
television history, 4:227
video, 4:282–287
videotex, 4:287–289
- Technology transfer, 1:338; 2:19, 20,
36
- Tedlock, Dennis, 2:116
- Tehrani, Majid, 2:109
- Telecommunications Networks,
4:201–204*. *See also* Computer
networks
Africa, 1:41–42
Cherry, Colin, 1:258
citizens band radio, 1:285–287
computers, 1:378–379, 380–381,
382, 398–399
international organizations, 2:332–
333, 334–335
in libraries, 2:428–429
microelectronics, 3:11–13
monopoly, 3:44
New International Information Or-
der, 3:171
political communication, 3:314–
317
postal service, 3:346
public policy issues, 4:203–204
satellites, 4:7
standards, 4:174, 176
telephone, 4:212–216
- Telecommunications Policy, 4:205–
208*
Australia, 1:156–158
cable television, 1:223
citizens band radio, 1:285–287
early monopolies, 4:205–206
fiber optics, 2:166–167
government regulation, 2:233–234
international implications, 4:207–
208
international organizations, 2:332
Latin America, 2:405–408
political communication, 3:314–
317
privacy, 3:370–371
spectrum, 4:144–145, 146
standards, 4:173–176
telecommunications networks,
4:203
telephone, 4:212–216
videotex, 4:289
- Teleconferencing, 1:157, 396; 3:314,
315
- Télédiffusion de France, 2:228
- Telefunken, 4:119, 176
- El telégrafo mercantil* (newspaper),
3:193
- Telegraph Act (Great Britain), 4:211
- Telegraphy, 4:208–212*
Bell, Alexander Graham, 1:183
cryptology, 1:429
diplomacy, 2:37
Edison, Thomas Alva, 2:79
espionage, 2:105
international organizations, 2:332;
4:145
invention and diffusion, 4:208–209
Morse, Samuel F. B., 3:47–48
news agencies, 3:176
radio, 2:472; 3:417
telephone, 4:212
transportation, 1:304
- Telekolleg, 1:155
- Telemac, 1:155
- Telemarketing, 2:38–39
- Telenovelas*, 2:406; 4:90
- Telephone, 4:212–216*
Africa, 1:41–42
Bell, Alexander Graham, 1:183
competition, 4:215–216
computers, 1:379, 380
early twentieth century, 3:417;
4:213–214
Edison, Thomas Alva, 2:79
government regulation, 2:233, 234;
3:420
interactive media, 2:328–329
international organizations, 2:332
microelectronics, 3:12
monopoly, 3:45; 4:202–203
picture telephones, 2:328
political communication, 3:311,
314
telecommunications networks,
1:157; 4:201–203
wire tapping, 3:370, 371
- Telesistema Mexicano, 4:222
- Télétel, 2:100; 4:289
- Teletext, 1:296; 2:328–329; 4:288
- Televangelism. *See* Religious Broad-
casting
- Televisa, 2:405, 408
- Television. *See also* Cable Television;
Educational Television; Tele-
vision News; Television pro-
gramming; Television viewing
broadcast debates, 3:318–319
code, 1:314
communications, study of, 1:361,
363, 366
entertainment, 2:102–104
Latin America, 2:406
McLuhan, Marshall, 2:463
mass communications research,
1:268–270, 272, 434; 2:84–87,
487–497; 3:39–40

- minorities in the media, 3:28–30
 minority media, 3:31–32
 monopoly, 3:45–46
 political communication, 3:313, 314, 316
 political socialization, 3:320–321
 reception, 1:110–111
 Sarnoff, David, 4:4–5
 sound, 4:104, 111
 standards, 4:176
 syndication, 4:194
 violence, 1:404, 405–406; 3:321; 4:289–294
 Television Academy, 1:155
 Television advertising, 1:8, 10, 11, 14, 20–21, 351–354
 cable television, 1:224
 children, media effects, 1:272–273
 sex-role stereotyping, 2:214
 sponsor, 4:157–158, 163
 television history, 4:219, 221–224
 video, 4:283
 violence, 4:292
Television and Growing Up: The Impact of Televised Violence (book), 2:310
 Television College, 1:155; 2:87
 Television editing. *See* Film Editing
 Television Gallery, 4:285
 Television history. *See also* Television programming
 Africa, 1:40, 42
 Australasia, 1:156
 cable television, 1:223–225
 citizen access, 1:283
 color, 4:176, 219
 diffusion, 1:271
 documentary, 2:49
 Farnsworth, Philo, 2:156
 film industry, 2:289; 3:74–75
 government regulation, 2:233; 4:222–224
 Islamic world, 2:363
 Paley, William, 3:243
 religious broadcasting, 3:444, 445, 446
 standards, 4:176
 Zworykin, Vladimir K., 4:341–342
 Television History—Early Period, 4:216–221*
 Television History—Global Development, 4:221–224*
 government regulation, 2:233; 4:222–224
 public and commercial systems, 4:221–223
 Television History—World Market Struggles, 4:224–227*
 Television News, 4:228–230*
 archives, 2:429
 demonstrations, 2:2–3
 documentary, 2:49, 51
 elections, 2:94
 fact and fiction, 2:149–150
 functional analysis, 2:204
 ideology, 2:310
 libel, 2:419, 420, 421
 mass media effects, 2:497
 minorities in the media, 3:29
 newsreels, 3:200–205
 opinion leaders, 3:222
 politicization, 3:324
 propaganda, 3:376
 terrorism, 4:231–232
 video, 4:283
 Television Program Export Assn., 4:225
 Television programming. *See also* Television advertising; Television News
 cable television, 1:223–224
 citizen access, 1:284
 documentary, 2:49–51
 entertainment, 2:102–104
 international markets, 2:14, 406–407; 3:171, 317; 4:224–227
 mass media effects, 1:431; 2:496
 miniseries, 2:452; 4:53, 90
 minorities in the media, 1:252, 431
 mystery and detective fiction, 3:156
 pressure groups, 3:351–352
 quiz shows, 3:415–417
 religious broadcasting, 3:444–447
 serials, 4:51–53
 sex-role stereotyping, 1:252; 2:214
 soap operas, 4:90–92
 sports, 4:162–163
 spy fiction, 4:168
 television history, 4:220–221, 223–224
 video, 4:283
 violence, 2:108–109; 4:289, 293
 westerns, 4:292
 Television ratings. *See* Rating Systems: Radio and Television
 Television viewing
 children, media effects, 1:270–274
 cognitive consistency theories, 1:325
 cultivation analysis, 1:430–433
 educational television, 2:85
 gender, 2:214
 leisure, 2:412–415
 persuasion, 3:268–269
 selective reception, 4:38–39
 sex role stereotypes, 2:214
 socialization, 2:494, 496
 video, 4:286–287
 violence, 4:289–294
 Telewissen video group, 4:286
 Telex, 4:208
 Telharmonium, 2:97
 Telidon, 2:100; 4:289
 Templars, 1:427
 Tempo, 3:102, 114, 250
The Ten Commandments (film), 3:65
Ten Days That Shook the World (film), 2:92
 Tendency films, 3:73
Teni zabytykh predkov (film), 3:78
 Tennyson, Alfred, 3:437
The Tenth Symphony (film), 3:62
 Terence, 1:340; 2:52; 3:116
 Terkel, Studs, 3:230
Terra em transe (film), 3:73
La terra trema (film), 3:165
 Territoriality, 1:65–67, 76, 79–80, 81, 89–90; 2:118; 4:89
 Terrorism, 2:13, 310; 3:323; 4:230–232*
 Tertullian, 3:394; 4:238, 239
 Teshigahara, Hiroshi, 3:76
 Testimony, 4:232–234*. *See also* Evidence; Law
 conversation, 1:409
 credibility, 4:234
 eyewitness, 4:232–233
 lobbying, 2:453
 Middle Ages, 3:17, 19–20
 psychological studies, 4:233–234
 rumors, 3:490
The Texas Chainsaw Massacre (film), 2:293
 Textbook, 1:9, 250, 252, 361; 3:400, 404; 4:234–236*
 Tezuka, Osamu, 1:351
 Thackeray, William Makepeace, 1:141; 2:168; 4:50
 Vanity Fair (book), 2:350
 Thailand, 1:154, 155; 2:122; 4:172, 173
 Thales of Miletus, 1:97; 2:500
That Obscure Object of Desire (film), 1:218
 Thatcher, Margaret, 2:229, 232
 Thayer, Lee, 3:236
 Theater, 4:236–244*. *See also* Acting; Drama; Music Theater—Asian Traditions; Music Theater—Western Traditions; Performance
 experimental, 2:66; 4:243
 expressionism, 2:128, 129
 film, 2:173; 3:68
 history, 4:237–239, 241–244
 music history, 3:110, 219–222
 puppetry, 3:407
 realism, 3:434–435
 sound effects, 4:107–108
 stars, 4:177–178, 181
 Thematic Apperception Tests (TAT), 1:373; 3:80
 Theology, 2:290, 459–460; 3:448, 462
 Theophilus
 De Diversis Artibus (encyclopedia), 2:101
 Theophrastus, 1:109
 Characters (book), 2:169, 171
 Theremin, Leon, 2:97
They Died with Their Boots On (film), 4:316
 Third World
 broadcasting, 2:86–87; 3:424, 425, 446; 4:223
 censorship, 1:248
 communications education, 1:365–367

- Third World (*cont.*)
 copyright, 1:419–420
 development communication, 2:13, 14–15
 foreign debt, 2:12–13
 Marxist theories, 2:479–483
 mass culture, 1:437
 minorities in the media, 3:29–30
 minority media, 3:32
 New International Information Order, 3:169, 171, 177; 4:145–146, 147, 230
 plebiscites, 3:298
 tourism, 4:253
The Thirty-nine Steps (film), 2:284
 “This Is the Life” (TV series), 3:445
 Thom, René, 1:444
 Thomas, George
 Calculus and Analytic Geometry (book), 4:235
 Thomas, Norman A., 3:396
 Thomas Aquinas, Saint, 1:27, 110; 2:444
 Thomas of Erfurt, 4:47
 Thompson, Hunter S., 2:169
 Thompson, James W., 2:447
 Thompson, Srith, 2:183
 The Types of the Folktale (book), 2:182
 J. Walter Thompson Agency, 1:17
 Thompson Foundation, 1:366
 Thoms, William John, 2:177
 Thomson, Joseph J., 2:80
 Thomson, Virgil, 2:47
 Thomson (newspaper organization), 3:197
 Thöny, Eduard, 1:237
 Thoreau, Henry David, 2:210
 Thorndike, Edward L., 3:430
 Thorndike, Robert L., 2:85
 Thoroughbass, 3:114
Thou Shalt Honor Thy Wife (film), 3:62
 Thrale, Hester, 2:371
 Thrax, Dionysius, 2:235
The Three Little Pigs (film), 2:41; 3:69
Three Songs of Lenin (film), 4:282
 Three-dimensionality, 3:255–262
 “3–2–1 Contact” (TV series), 1:273
 Thrillers, 2:284–285; 3:156; 4:167–171
Throne of Blood (film), 3:76
Through a Glass Darkly (film), 1:187
 Thucydides, 2:269, 272, 281; 3:379, 394
 Thulin, Ingrid, 1:187
 Thurn and Taxis, 3:344
 Tiberius, 4:84
 Tiberius, Cotton, 4:75
 Tibet, 3:133, 136
 Tieck, Ludwig, 2:292
El tiempo (newspaper), 3:194–195
 T’ien Han
 Hsieh yaohuan (play), 2:60
 Tiepolo, Giovanni Battista, 3:346
Tiesa (newspaper), 3:200
Tih Minh (film), 3:62
 Timbre, 2:115; 3:133; 4:104
 Time, Inc., 1:223; 2:456, 467; 3:205, 405
Time (magazine), 2:421, 455–456, 467; 3:178
 Time base corrector, 4:286
 Timekeeping. *See* Calendar; Clock
 Time-Life Books, 2:39, 456–457
The Times (London newspaper), 3:182, 191, 211, 308, 364
Times of India (newspaper), 3:183
 Times Publishing (Singapore), 3:190
Tin sang (newspaper), 3:190
 Tinbergen, Niko, 1:66, 68, 86; 2:118–121
 Tinctures, 2:275
 Tipps, Steve, 3:295
 Tipton, Leonard, 3:42
 Tisias, 3:461
 Tisse, Eduard, 2:92
 Titian, 3:449
Titicut Follies (film), 1:277
Tlalocan, 4:299, 300, 303
To Live in Peace (film), 3:167
 Tobis-Klangfilm, 3:70
 Toch, Hans, 1:423
 Tocqueville, Alexis de, 1:369; 2:107
Today (newspaper), 3:182
 Todorov, Tzvetan, 1:192; 2:216; 3:300; 4:49
 Toeplitz, Jerzy, 3:75
 Toffler, Alvin, 1:381
 The Third Wave (book), 4:278
 Togo, 1:155
 Toho film company, 3:72
 Tojuro, Sakato, 1:3
 Tokugawa, Musei, 1:186
 Tokugawa Era: Seclusion Policy, 2:97, 281; 3:161; 4:244–246*
Tokyo monogatari (film), 3:240
Tokyo Olympiad (film), 1:280; 2:50
Tokyo Puck (magazine), 1:238
 Tokyo Rose, 3:421, 423
Tokyo Story (film), 3:240
 Toland, Gregg, 1:279, 280; 4:312
 Tolstoy, Leo, 2:83, 168, 170, 210
 What Is Art? (book), 1:27
 Tom Thumb. *See* Stratton, Charles
 Tomashevski, Boris, 3:298
 Tomaszewski, Henryk, 3:26
 Tompkins, Phillip K., 3:236
 Tonality, 3:135, 250
Tongnip sinmun (newspaper), 3:189
 Tönnies, Ferdinand, 2:179; 3:386, 389
Top Hat (film), 3:142
 Top Value Television (TVTV), 4:284, 285
Topaz (film), 4:168
 Töpffer, Rodolphe
 Histoires en estampes (book), 1:344
 Toporov, A. N., 3:300
 Torah, 2:373; 3:440; 4:25
Torment (film), 1:186
Torn Curtain (film), 4:168
Toronto Globe and Mail (newspaper), 3:198
 Touch, 4:246–249*
 code, 1:313
 friendly, 4:313
 human-animal communication, 2:295–296
 interpersonal distance, 2:340–343; 3:383
 sexual, 4:249
 social interaction, 2:325; 4:59, 247–248
 task-oriented, 4:248
Touch of Evil (film), 4:313
 Toulmin, Stephen, 1:295
 The Uses of Argument (book), 2:194; 3:463
 Toulouse-Lautrec, Henri de, 3:346–347; 4:263
 Tour et Tassis, Roger de, 3:344
 Tourism, 4:249–253*
 art, 1:132; 4:251–252
 history and development, 1:173–174; 3:479–480; 4:141–142, 249
 intercultural communication, 2:331
 Toynebee, Arnold, 2:283
 Trade
 Africa, 1:31–32, 38
 Americas, pre-Columbian, 1:52, 55
 East Asia, 1:334; 2:77
 international, 1:338, 398–399; 2:13, 20; 3:317; 4:174
 Middle Ages, 1:329, 427; 3:17–19
 Middle Eastern, 1:219, 334; 2:27
 Renaissance, 3:450
 Roman Empire, 3:480
 Silk Road, 4:84
 South Asia, ancient, 4:123, 128
 Tokugawa era, 4:245, 246
 Trade associations, 1:251; 3:391
 Trademarks, 1:14, 18; 2:279
 Tradition, 2:177–179, 181–187, 280–282, 320, 344–345, 347; 4:309–310. *See also* Oral Culture
 Tragedy, 2:13, 14–15; 4:253–257*.
 See also Drama; Performance; Theater
 classicism, 1:289, 291
 Greek, 1:27, 110; 2:215; 3:116, 219; 4:253–255
 poetics, 3:299, 454, 455
 realism, 4:257
 Trager, George L., 2:381
 Trajan (emperor), 1:327; 3:473, 475, 477, 478
The Tramp (film), 1:255
 Trans World Radio, 3:446
 Transactional psychology. *See* Psychology, transactional
 Transamerica Corp., 2:290
 Transborder data flow, 1:398–399; 3:171, 371

- Transference, 2:203; 3:385
 Transistors, 1:376; 3:11, 12, 46, 421
 Translation
 Bible, 2:26; 3:441
 copyright, 1:418, 419
 Islam, 2:356–358
 linguistics, 2:432
 machine, 2:236; 4:260
 manual language codes, 4:71
 problems, 2:311, 313, 330
 Translation, Literary, 4:257–259*
 Translation, Theories of, 4:259–261*
 Transnational corporations. *See* Multinational corporations
 Transportation. *See also* Navigation; Railroads
 Africa, 1:31–32
 colonization, 1:335
 Middle Ages, 3:17–18
 postal service, 3:341–343
 regulation of, 2:332, 333
 roads, 1:51, 55–56, 146; 2:76–77; 3:477–479; 4:62, 84–85
 Tokugawa era, 4:245
 Transportation Data Coordinating Committee, 1:392
 Trautonium, 2:97
 Trautwein, Frederick, 2:97
 Travel, 1:173–174; 2:27, 76–77, 182, 273, 352; 3:477–480. *See also* Tourism; Trade
Treasure Island (film), 2:42
 Treaty of Versailles, 3:297
 Trenaman, J. S. M., 1:42
 Tressler, J. C., 4:235
 Trevarthen, Colwyn, 1:264
 Trevelyan, George
 History of England (book), 4:235
Tri pesni o Leninye (film), 4:282
 Triandis, Harry, 2:331; 4:43
 Triangle Shirtwaist Co., 3:325
 Triangles (musical instruments), 3:112
 Tribune Co., 3:197
 Triergon system, 4:117
 Trinidad, 3:99; 4:141, 142
A Trip to the Moon (film), 3:58
Tristana (film), 1:218
 Trithemius, Johannes
 Polygraphia (book), 2:105
Triumph des Willens (film), 2:48, 223; 3:71
 Trnka, Jiří, 1:94
 Trollope, Anthony, 1:418
Tron (film), 1:95 (fig.); 4:136
 Tropes, 2:54, 444, 447; 3:10, 116, 300; 4:154–155. *See also* Metaphor
 Trubetzkoy, N. S., 2:369, 434
Trud (newspaper), 3:192, 200
 Trudeau, Gary
 “Doodlesbury” (comic strip), 1:347
 Trudgill, Peter, 2:401
True Heart Susie (film), 2:259
 Truffaut, François, 3:75, 174, 452
 Truman, Harry S., 2:9; 3:327, 489; 4:219
 Truman Doctrine (U.S.), 2:9
 Truth. *See* Fact and Fiction
Trybuna ludu (newspaper), 3:192
 Ts'ai Lun, 1:211; 4:334
 Tscherny, George, 3:349
 Tschichold, Jan, 4:265
Tsinya (newspaper), 3:200
Tumbleweeds (film), 4:315
 Tuning systems. *See* Music Theories—Tuning Systems
 Tunisia, 1:339; 3:196
 Tunstall, Jeremy, 2:488
 Turgot, Anne-Robert-Jacques, 1:334
 Turin, Victor, 2:45
 Turing, Alan M., 1:444
 “Turkana Conversations” (film series), 2:112
 Turkey, 1:424; 2:409; 3:110, 133, 137; 4:172, 173
Turksib (film), 2:45
 Turn taking, in interaction, 1:313, 408–409; 2:133, 153, 218, 327
 Turner, Frederick Jackson, 4:314
 Turner, Terrence, 1:193
 Turner, Victor
 From Ritual to Theatre (book), 1:3
 mass media effects, 2:496
 performance, 2:65; 3:266, 294
 play, 3:294
 symbolic manipulation, 1:134; 2:164; 4:139, 141
 TV Globo, 2:405, 408
TV Guide (magazine), 2:465; 4:293
 TVTV. *See* Top Value Television
 Twain, Mark. *See* Clemens, Samuel
 Twentieth Century-Fox, 1:224; 2:287; 4:221
 “21” (TV series), 3:415
20,000 Leagues under the Sea (film), 2:42
Twilight's Last Gleaming (film), 1:281
2001 (film), 4:136, 137
 Two-step flow, 1:410, 423; 2:96, 412; 3:40–41; 4:95
 Tydings, Millard, 2:41
 Tylor, E. B., 2:217
 Primitive Culture (book), 1:437
 Typefaces. *See* Typography
 Typesetting, 3:5, 357; 4:263, 268
 Typewriters, 3:357, 359
 Typography, 4:261–268*
 influence of modern art, 4:263, 265–266
 McLuhan, Marshall, 2:463
 printing, 1:217; 2:263–264; 3:354–366, 367, 369
 signage, 4:81
 typesetting advances, 3:5; 4:266, 268
Tystnaden (film), 1:186
 Tzolkin, 1:57, 59–60
- ## U
- UCC. *See* Universal Copyright Convention
 Uderzo, Albert
 “*Astérix*” (comic strip), 1:350
 Uexküll, Jacob von, 2:118
 Uganda, 4:172, 173
Uganda Argus (newspaper), 3:187
 Ugarit, 3:106–107
 Ugaritic language, 1:441, 442–443; 3:106–107
 Uldall, H. J., 2:434
 Ullman, Liv, 1:187
 Ulmer, Edgar, 2:293
Gli ultimi giorni de Pompei (film), 3:61
 Ultraphone Co., 4:119
Umarete wa mita keredo (film), 3:64
 U-matic cassette, 4:283
Umtali Post (newspaper), 3:187
 Unconscious, 2:202, 203, 376, 417; 3:384
 UNDA, 3:446
 Underground press, 1:249; 2:227; 3:45, 196, 199, 397
 UNESCO
 Africa, 1:41
 archives, 1:106, 108
 Asia, 1:145
 communications, study of, 1:362, 365, 367–368
 copyright, 1:418
 culture, 1:437
 Declaration on the Mass Media, 3:171
 development communication, 2:15, 18
 ethnographic film, 2:111
 intercultural communication, 2:331
 International Music Council, 3:154
 international organizations, 1:398; 2:334
 Latin America, 2:405
 literacy, 2:438, 441
 New International Information Order, 3:170–172
 spectrum, 4:146, 147
 telecommunications networks, 4:204
 television history, 4:225
 Unidas, 2:100
 Union of Journalists (Czechoslovakia), 1:364
 Union of National Radio and Television Organizations, 1:41–42
 Union of Soviet Socialist Republics (USSR). *See also* Russia; and *entries under* Soviet
 agitprop, 3:310, 374
 calendar, 1:230
 caricature, 1:238
 censorship, 1:248–249, 251; 2:232; 3:325
 coins, 1:330
 colonization, 1:335, 338

- Union of Soviet Socialist Republics (*cont.*)
 communications education, 1:363
 disinformation, 2:40
 Factory of the Eccentric Actor (FEX), 2:173
 Lenin State Library, 2:424
 magazines, 2:464, 466, 467
 media monopoly, 3:32, 44–45
 newspapers, 3:180, 182, 199–200
 political communication, 3:309–310
 sound recording, 4:119–120, 121
 Sovkino, 3:72
 Soyuzkino, 3:72
 Soyuzmultfilm, 1:92–93
 State Film School (VGIK), 2:173; 3:72
 State Institute of Journalism, 1:363
 television, 4:223
 women's status, 4:55
 Union of Soviet Writers, 3:192
L'unità (newspaper), 2:229
 United Artists, 1:255; 2:259, 287, 288, 290
 United Church of Christ, 1:284
 United Fruit Co., 3:417, 418; 4:4, 218
 United Gold Coast Convention (UGCC), 3:209
 United Nations (UN)
 Committee on Peaceful Uses of Outer Space, 4:9
 development communication, 1:365; 2:9, 12, 13
 Development Support Communication Service, 1:366
 Food and Agriculture Organization, 1:331; 2:13
 General Assembly, 2:13; 4:227
 international organizations, 1:398; 2:333–335
 New International Information Order, 3:169
 radio, international, 3:425
 spectrum, 4:145, 146
 stamps, 4:172, 173
 suspension of plebiscites, 3:298
 United Nations Educational, Scientific and Cultural Organization. *See* UNESCO
 United Press International (UPI), 3:44, 170, 177, 288; 4:24, 228
 United Productions of America (UPA), 1:93–94
 United States
 Academy for Educational Development, 2:122
 advertising, 1:12; 2:16–17
 Advertising Research Foundation, 3:354
 Agency for International Development (USAID), 2:122
 animation, 1:91–95
 Armed Forces Radio and Television, 3:415
 Army, 1:371, 383, 384; 2:294; 4:340
 art, 3:346; 3:87–89, 90, 346
 Articles of Confederation, 1:417
 cable television, 1:223–224
 Catholic Conference, 3:445
 censorship, 1:247, 251–252
 Civil War, 1:185; 3:323, 395
 colonization, 1:335, 338, 339
 communications, study of, 1:358–361
 computers, 1:380–383, 388–391, 396
 Constitution, 1:283, 417; 2:232, 420, 421, 452; 3:370, 395
 copyright, 1:417–419
 Department of Commerce, 3:418, 420; 4:156
 Department of Defense, 1:382, 383–384, 385; 2:227
 Department of Justice, 4:203
 film industry, 2:285–290; 3:58–62, 65–66, 73–75; 4:340–341
 Film Service, 2:47
 government censorship, 1:247
 government-media relations, 2:226–229; 3:311–312
 House of Representatives Committee on Interstate and Foreign Commerce, 4:289
 House of Representatives Un-American Activities Committee (HUAC), 2:288; 4:167
 Information Agency (USIA), 2:228
 Library of Congress, 1:108; 2:424, 429
 magazines, 2:464–466, 467–468
 media monopoly, 3:45–46, 170–171
 music, popular, 3:99
 National Archives, 1:106; 3:205
 National Bureau of Standards, 4:176
 National Data Protection Agency, 3:371
 National Library of Medicine, 1:456; 2:428
 National Science Foundation (NSF), 4:234
 National Security Agency (NSA), 1:384, 387; 2:105–106
 Navy, 1:383, 384, 458; 2:472; 3:418; 4:4
 New Deal projects, 2:47, 233; 3:87, 230; 4:311, 312
 newspapers, 3:180–181, 182, 183–184, 199
 Office of Information and Regulatory Affairs, 1:387
 Office of Management and Budget (OMB), 1:387
 Office of Telecommunications Policy, 1:223
 Office of War Information, 1:233; 4:91
 Patent Office, 2:156
 printing, 3:357, 361, 364, 365
 public speaking, 3:395–396
 radio, 3:418–421
 slavery, 1:339; 4:86
 sound recording, 4:115–117, 118–120
 stamps, 4:172, 173
 State Department, 4:146
 Supreme Court, 1:247; 2:421; 3:325
 telecommunications, 3:316; 4:205, 207, 208–209
 telephone, 4:212–216
 television, 4:221, 224–227, 283–287
 theater, 4:243–244
 university, 4:272, 273
 War Department, 3:420
 War Production Board, 3:153
 Weather Bureau, 2:160
 withdrawal from UNESCO, 3:172
 UNIVAC-I, 1:376, 386
 Universal Copyright Convention (UCC), 1:419–420
 Universal News (newsreel), 3:202, 205
 Universal Pictures, 2:287, 293; 3:69, 142; 4:221
 Universal Postal Union, 2:332, 333, 334
 Universal Product Code (UPC), 1:392
 Universal Stock Printer, 2:79
 Universal Studios, 1:252
 Universality, 1:292; 2:143, 220, 222, 237–238, 339
 Universidad Femenina de México, 1:367
 Universidad Nacional Autónoma de México, 1:367
 Université de Montréal, 1:362
 Université de Sorbonne, 1:362
 Institute for Filmology, 1:363
 Université du Québec à Montréal, 1:362
 University, 4:271–274*
 computer impact, 1:381
 distance education, 2:19, 87
 East Asia, ancient, 2:71
 library history, 2:424
 Middle Ages, 1:413; 3:343
 publishing, 3:397, 398
 Renaissance, 3:447
 theater, 4:244
 University of Algiers, Institute of Political and Communication Sciences, 1:367
 University of Baghdad, 1:367
 University of Benghazi, 1:368
 University of Birmingham, Centre for Contemporary Cultural Studies, 1:362, 364
 University of Bordeaux, 1:362
 University of Brazil, 1:367

- University of California at Los Angeles, 1:384; 3:205
 University of Cambridge. *See* Cambridge, University of
 University of Dakar, Centre d'Études des Sciences et Techniques de l'Information, 1:368
 University of France, 4:272
 University of Ghana, Institute of Communication, 1:368
 University of Hawaii, 1:157
 University of Illinois, 1:359, 360
 Institute for Communication Research, 4:17
 University of Iowa, 1:359, 360
 University of Lagos, Institute of Mass Communication, 1:368
 University of Leeds, 1:362
 University of Leicester, 1:362
 University of Leningrad, 1:363
 University of Ljubljana, 1:364
 University of London, 4:273
 University of Michigan, Survey Research Center, 3:328
 University of Minnesota, 1:360
 University of Missouri, 1:359, 361
 University of Moscow, Faculty of Journalism, 1:363
 University of Oxford. *See* Oxford, University of
 University of Paris, 1:247; 2:230; 4:271
 University of Pennsylvania
 Annenberg School of Communications, 1:360
 Cultural Indicators group, 1:434; 4:292
 ENIAC computer, 3:11, 376, 383
 Wharton School of Business, 1:359
 University of Potchefstroom, 1:367
 University of Riyadh, 1:368
 University of Salamanca, 4:272
 University of São Paulo, School of Communications and Arts, 1:367
 University of South Carolina, 3:205
 University of Southern California, 1:359, 361
 University of Strasbourg, International Center for Advanced Training in Journalism, 1:362
 University of the South Pacific, 1:157
 University of Tokyo, Institute of Journalism, 1:365–366
 University of Toronto, McLuhan Centre for Culture and Technology, 1:362
 University of Tunis, Institut de Presse et des Sciences de l'Information, 1:367
 University of Vienna, Institut für Publizistik, 1:362
 University of Wales, Centre for Journalism Studies at University College, Cardiff, 1:362
 University of Western Ontario in London, 1:362
 University of Wisconsin, 1:359, 360, 361
 Untersteiner, Mario
The Sophists (book), 3:463
Untouchable Girl (film), 3:73
 UPA. *See* United Productions of America
 Upanishads, 4:25
 UPI. *See* United Press International
 "Upstairs, Downstairs" (TV series), 4:53
 Urban II (pope), 1:424; 3:394
 Urban VIII (pope), 1:141
 Urbanization, 1:422; 2:11, 12
 Uris, Leon
Topaz (book), 4:168
 Uruk, 1:299, 438; 4:323
U.S. News and World Report (magazine), 3:179
USA Today (newspaper), 3:180, 197
 Uses and gratifications
 mass media effects, 1:434; 2:490, 494, 496
 models of communication, 3:41–42
 research, 2:411–412; 4:38
 Ushiyama, Junichi, 2:114
 Ussachevsky, Vladimir, 2:99
 USSR. *See* Union of Soviet Socialist Republics
 Utopias, 3:293, 460; 4:21, 274–278*
- V**
- Vachek, Josef, 4:330
 Vacuum tubes, 1:376, 384, 458; 2:156; 3:11, 418, 421
 Vadim, Roger, 3:174
The Vagabond (film), 3:145
 Vail, Alfred, 3:48
 Vail, Theodore N., 3:391
 Valentino, Rudolph, 3:65
 Valéry, Paul, 4:193
 Validity, 1:406, 407; 2:501; 3:223
 Valmiki, 4:123
 Values and Life-styles (VALS) program, 3:82
Les vampires (film), 3:62
Vampyr (film), 2:292
 Van Dam, Rip, 4:339
 Van Dine, S. S., 3:155
 Van Dongen, Helen, 2:364
 Van Dyck, Anthony, 1:235
 Van Dyke, Willard, 2:47
 Van Schooneveld, C. H., 2:369
 Vanbrugh, John
The Relapse (play), 2:55
 Vanderbeek, Stan, 1:169
Vanity Fair (magazine), 2:436
 Varda, Agnes, 3:174
 Varela, Francisco G., 1:445
 Varèse, Edgard, 2:99; 3:132
 Varis, Tapio, 3:171
 Varro, Marcus Terentius, 2:281
 Vasan, S. S., 3:145
 Vasari, Giorgio
Lives (book), 1:188
 Vasiliev, Georgi, 2:92
 Vasiliev, Sergei, 2:92
 Vasulka, Steina, 4:285
 Vasulka, Woody, 4:285
 Vatsyayana
 Kama Sutra, 2:137
 Vaudeville
 film, 3:53, 142; 4:108
 stars, 4:178, 180
 theater, 3:118, 120; 4:242
 Vaughn, Olwen, 1:108
The Vault of Horror (comic book), 1:349
 VEB DEFA studio, 1:94
 Veblen, Thorstein, 2:8, 320
Vecherny Leningrad (newspaper), 3:200
Vechernyaya Moskva (newspaper), 3:200
 Vectograph, 2:385
 Vedas, 2:280; 3:122, 227, 440; 4:26, 123
 Vega, Lope de
Fuenteovejuna (play), 2:54
 Velázquez, Diego, 2:351
 Velde, Henri van de, 4:263
 Vellum, 1:209–211; 4:333
 Venezuela, 2:125, 406, 407, 408, 481
 Venn, John, 4:77
 Ventriloquism, 4:107
 Verdi, Giuseppe, 3:219
 Vermeer, Jan, 2:195, 304; 3:434
 Vernam, Gilbert S., 1:429
 Verne, Jules
Around the World in Eighty Days (book), 1:335
20,000 Leagues under the Sea (book), 4:20
 Verner, Karl, 2:235
 Vernon, P. E., 1:198
 Verón, Eliseo, 2:481
Vertigo (film), 2:284; 3:74
 Vertov, Dziga, 1:276; 3:72; 4:281–282*
 documentary, 2:43, 45–46, 50
 film editing, 2:172
 film theory, 1:168; 2:173
 Very large scale integration (VLSI), 1:385
 Vesalius, Andreas
De Humani Corporis Fabrica (book), 3:450
 Vespasian (emperor), 3:473, 477
 Vespucci, Amerigo, 2:125
Vesyolye rebyata (film), 3:72
 Vico, Giambattista, 2:446; 3:8; 4:331
The New Science (book), 3:463
 Victor Talking Machine Co., 4:4, 118, 119

- Victoria (queen), 1:189, 335; 2:139; 3:345; 4:171
- Victorian era, 2:450; 3:433, 482; 4:50, 81
- Video, 4:282–287*
 archives, 1:109; 2:429
 avant-garde film, 1:170; 4:284–285
 citizen access, 1:157–158, 284–285
 copyright, 1:420, 422
 development communication, 2:407, 408
 distinguished from film, 3:258–259
 documentary, 2:51
 games, 4:287
 guerrilla television, 4:285–286
 home video, 4:286–287
 music videos, 2:108; 4:121, 285, 289
 as a research method, 3:383
 special effects, 4:134, 136, 137
 technology, 2:84–85; 4:282–287
 television, 4:92, 225, 227
 television news, 4:228, 230, 283
- Video Free America, 4:284
- Video Popular, 1:285
- Videocassette recorders (VCRs), 1:41, 224; 2:233; 3:316, 429; 4:294
- Videodiscs, 1:391
- Videofreex, 4:284
- Videotex, 1:296, 390; 2:100, 166, 328; 3:315; 4:287–289*
- Vidicon tube, 4:283
- Vidocq, François-Eugène, 3:154
- Vidor, King, 2:259; 3:67; 4:316
- “La vie telle qu’elle est” (film series), 3:61
- Vienna Circle, 4:320, 321
- Vienna Congress, 2:332
- Vieta, Franciscus, 3:213
- Vietnam. *See* Asia, Twentieth Century
- Vietnam War, 1:384; 2:336, 421; 4:230
- Vigo, Jean, 3:70
- Vilstrup, Li, 1:95
- Vincent, George E., 2:203
- Vincent of Beauvais
Mirror of the World (book), 2:282
Speculum Maius (encyclopedia), 2:101
- Viola, Bill, 4:285
- Violence, 4:289–294*
 broadcasting regulation, 4:293–294
 comics, 1:349
 communications research, 1:371, 431, 432, 434
 demonstrations, 2:1–3
 martial arts films, 2:473
 Marxist theories, 2:477
 mass media effects, 1:270–274; 2:494; 3:321
 media ethics, 2:108–109
 sports, 4:160, 166
 television, 1:404, 405–406; 2:310; 4:289–294
 and women, 2:158; 3:332, 333
- Violence, political. *See* Terrorism
- Violence and the Media: A Staff Report to the National Commission on the Causes and Prevention of Violence* (book), 2:310
- Virgil, 2:215, 235, 444
Aeneid, 4:31
- The Virgin Spring* (film), 1:186
- The Virginian* (film), 4:315
- Viridiana* (film), 1:218
- Virolleaud, Charles, 1:443
- Visconti, Luchino, 1:361; 3:73, 165
- Viskningar och rop* (film), 1:187
- Visnews, 4:228–229
- Vistavision, 2:289
- Visual anthropology. *See* Anthropology, visual
- Visual Image, 4:294–305*. *See also* Iconography
 Americas, pre-Columbian, 1:52
 architecture, 1:97–98
 art, 1:112, 114; 3:82; 4:27–34, 298
 cinematography, 1:279–283
 graphics, 2:245–255
 mode, 3:35
 perception, still and moving pictures, 3:255–262
 photography, 3:274–275
 representation, pictorial and photographic, 3:453–458
 virtual plane, 4:301, 303–304
- Vitagraph Co., 2:287; 3:59, 202
- Vitaphone, 3:66; 4:114
- Vitascope, 2:80
- Vitruvius, 1:96, 114
De architectura, 1:289
- Vivarelli, Carlo, 4:265–266
- Vivere in pace* (film), 3:167
- Vives, Juan Luis, 4:12
- Vocalion Co., 4:118
- Vodička, Felix, 3:299
- Vogel, Lucien, 3:288
- Vogt, Hans, 4:117
- Voice of America, 3:375, 376, 423, 424, 425
- “The Voice of Prophecy” (radio series), 3:444
- Voice recognition systems, 1:396
- Voice stress analyzer, 1:461
- Voigtlander, 3:283
- Voina i mir* (film), 3:78
- Voiture, Vincent, 2:416
- Volland, Sophie, 2:29
- Volleyball, 4:159, 161
- Vološinov, V. N., 1:174
- Voltaire, 1:6, 189; 2:231; 3:244
Candide (book), 2:371; 4:276
Lettres philosophiques (book), 2:416
- Von Foerster, Heinz, 1:445, 446
- Von Frisch, Karl, 1:67, 68; 2:120
- Von Inghen, Marsilius, 4:271
- Von Neumann, John, 1:376, 444, 445; 4:61, 305–306*
Mathematical Foundations of Quantum Mechanics (book), 4:305
Theory of Games and Economic Behavior (book), 4:305
- Von Stampfer, Simon Ritter, 3:52
- Von Sydow, Max, 1:186–187
- Vostell, Wolf, 4:284
- Voting behavior
 bandwagon effects, 1:176
 communications research, 1:325, 372–373; 2:309, 412
 elections, 2:93–96
 issue voting, 2:94–95
 political communication, 3:305, 314, 318, 319
 polls, 3:326–330
Le voyage dans la lune (film), 3:58
- VTR: *St. Jacques* (film), 4:286
- Vukotić, Dušan, 1:94
- Vu/Text, 2:100
- Vygotsky, Lev, 1:265; 2:458; 3:430; 4:306*, 321
- Vyshnegradsky, Ivan, 3:141
- W**
- Wachmann, Abraham, 1:204
- Wagner, Richard, 3:131, 220
Der Ring des Nibelungen (operas), 3:220
Parsifal (opera), 3:221
Die Walküre (opera), 2:92
- Wagon Master* (film), 4:316
- “Wagon Train” (TV series), 4:316
- Wajda, Andrzej, 3:79
- Waldo, Peter, 3:20
- Walker, Alice, 2:158
- Walker, Mort
 “Beetle Bailey” (comic strip), 1:347
- Walker, William H., 3:281
- Walkie-talkies, 3:11
- Wall Street Journal*, 3:180, 198
- Wallace, Alfred Russel, 1:455
- Wallace, Anthony F. C., 3:295, 471
- Wallace, David L., 4:187
- Wallas, Graham, 2:436
- Walsh, Raoul, 4:316
- Walsingham, Sir Francis, 2:105
- Walter, John, 3:181, 364
- Walters, Charles, 3:143
- Walton, Izaak, 1:188
- Walton, Kendall, 3:275
- Ein Walzertraum* (operetta), 3:119
- Want ads. *See* Classified Advertising
- Al-Waqa’i el-Masriyah* (newspaper), 3:195
- War. *See also* Weaponry
 censorship, 1:248
 diplomacy, 1:405; 2:36
 disinformation, 2:40–41
 electronic warfare, 1:385
 government censorship, 1:248

- Marxist theories, 2:480
 news coverage, 1:185, 369; 2:267–268; 3:184, 407
 propaganda, 3:375, 377
 radio, 3:418, 420–421, 422–423
War and Peace (film), 3:78
 “The War of the Worlds” (radio broadcast), 1:372; 2:411; 3:420, 490; 4:111, 312
 Warburg, Aby, 2:304
 Ward, Mrs. Humphry
 Robert Elsmere (book), 2:450–451
 Warhol, Andy, 1:169; 4:284
 Warnecke, William J., 3:287
 Warner, Jack, 4:220
 Warner, W. Lloyd, 1:373; 2:224; 4:197
 Warner-Amex Cable Communications, 1:223
 Warner Brothers, 1:93; 2:287, 290, 474; 3:142; 4:120, 180, 181
Warner-Pathé News (newsreel), 3:202
 Warren, Austin
 Theory of Literature (book), 3:300
 Warren, Samuel D., 3:370
Warrendale (film), 1:278
 Wartofsky, Marx, 3:255
Warui yatsu hodo yoko nemuru (film), 2:382
 Washington, Booker T., 3:247, 395
Washington, D.C., Evening Star (newspaper), 3:197
 Washington, George, 2:228; 3:395
 Washington and Lee University, 1:359
 Washington Post Syndicate, 2:436
Al-Watan Arabi (newspaper), 3:196
 Watergate, 3:390; 4:36
Watering the Gardener (film), 3:58
 Watson, James
 A Dictionary of Communications and Media Studies, 2:40
 Watson, John B., 1:18; 3:80, 463
 Watt, Harry, 2:47, 258
 Watt, Ian
 The Rise of the Novel (book), 3:435
 Watterson, Henry, 1:359
 Watzlawick, Paul, 1:446
Waxworks (film), 2:293
 “The Way” (film series), 3:445
Way Down East (film), 1:122; 2:259
Way of the Dragon (film), 2:474
 Wayne, John, 4:179, 315, 316
 Weaponry, 1:143, 384, 385; 3:451; 4:4, 5, 318, 342
 Weather monitoring, 1:244; 4:6
 Weaver, Richard M.
 The Ethics of Rhetoric (book), 3:463
 Weaver, Warren, 1:258; 3:37, 209; 4:260, 309*
 The Mathematical Theory of Communication (book), 2:314; 4:59, 307
 Shannon-Weaver mathematical theory of communication, 1:258; 4:59–61, 309, 319
 Webber, Andrew Lloyd
 Cats (musical), 3:122
 Webb-Pomerene Export Trade Act (U.S.), 4:225
 Weber, Max, 1:362, 370; 3:96, 135; 4:198, 309–310*
 The Protestant Ethic and the Spirit of Capitalism (book), 2:308; 4:310
 The Rational and Social Foundations of Music (book), 2:114
 Webern, Anton, 1:119
 Webster, Daniel, 3:395
 Webster, Noah, 4:310–311*
 An American Dictionary of the English Language, 2:398; 4:311
 American Spelling Book, 4:234
 “Blue-Backed Speller,” 4:311
 Compendious Dictionary of the English Language, 4:311
 A Grammatical Institute of the English Language, 4:311
Webster’s Collegiate Dictionary, 3:271
Webster’s Third New International Dictionary, 2:398
The Wedding Camels (film), 2:112
The Wedding Circle (film), 3:65
The Wedding March (film), 3:65
 Wedgewood, Thomas, 3:278
 Wedgwood, Josiah, 2:4, 6; 4:272
 Weed, Thurlow, 2:255
Weekly News from Italy, Germany, Hungary, Spaine and France (newspaper), 3:180
Weekly Dispatch (newspaper), 3:211
 Wegener, Paul, 2:292; 3:62
 Wei Tan, 1:211
 Weidmann Co., 3:400
 Weine, Robert, 2:292
 Weiner, Annette, 1:135
 Weingart, Wolfgang, 4:286
 Weinreich, Uriel, 2:238
 Weir, Peter, 3:75
 Weiss, Peter, 1:342
 Wellek, René
 Theory of Literature (book), 3:300
 Wellerisms, 3:382; 4:154
 Welles, Orson, 4:311–313*
 cinematography, 1:279, 282; 4:312
 Everybody’s Shakespeare (book), 4:311
 film, 1:169; 2:174; 3:70, 164
 “*The War of the Worlds*” (radio broadcast), 1:372; 2:411; 3:420, 490; 4:111, 312
 Wellman, William, 4:316
 Wells, Darius, 4:262
 Wells, H. G., 1:372; 3:490; 4:312
 The Invisible Man (book), 4:21
 The Island of Doctor Moreau (book), 4:21
 The Shape of Things to Come (book), 4:21
 The Time Machine (book), 4:22
 The War of the Worlds (book), 3:420
Die Welt (newspaper), 3:191
 Welte Co., 3:112
 Wenders, Wim, 3:76
The Werewolf of London (film), 2:293
 Werner, Heinz, 1:265
 Wertheimer, Max, 3:256
 Wertmüller, Lina, 3:73
 West, Candace, 4:58
West African Pilot (newspaper), 3:187–188
 West Publishing Co., 3:456
 West Romance dialects, 2:400
 Western, The, 2:286, 289, 451, 473; 3:61; 4:50, 220, 313–316*
 Western Electric, 1:458; 3:66, 70, 418; 4:113, 202, 212, 215
 Western Union, 1:183; 4:211, 212
Westfront 1918 (film), 3:68
 Westin, Alan, 1:387
 Westinghouse Co., 1:111, 458; 3:418; 4:4, 156, 218
 Westlaw, 1:456
 Westley, Bruce, 3:38
Westliche Post (newspaper), 3:407
 Westmoreland, William, 2:421
 Weston, Edward, 3:274
 Weyden, Rogier van der, 3:449
 Whale, James, 2:292; 4:19
 Whales, 1:71, 75, 80, 90
Whaley-Eaton Letter (newsletter), 3:178
 Wharton, Edith, 2:169
Whatever Happened to Baby Jane? (film), 2:294
 “What’s My Line?” (TV series), 3:415
 Wheatstone, Sir Charles, 4:208
 “Wheel of Fortune” (TV series), 3:417
 Wheelwright, George, 2:385
 Whistler, James, 3:341
 Whistling, 1:49; 4:103, 106, 107
 White, Abraham, 1:458
 White, Charles, 3:89
 White, David Manning, 3:43
 White, Pearl, 3:62
White Zombie (film), 2:293
 Whitefield, George, 3:394
 Whitehead, Alfred North, 4:321
 Whitehead, Harriet, 2:214
 Whitfield, William H., 3:161
 Whitman, Charles, 2:118
 Whitman, Walt, 1:119; 2:47
 Whitney, James, 1:169
 Whitney, John, 1:95, 169
 Whitney, William, 2:434
 Whorf, Benjamin Lee, 1:293; 2:236, 433; 3:383; 4:46, 260, 316–317*

- Whorf, Benjamin Lee (*cont.*)
Language, Thought, and Reality (book), 4:317
 Sapir-Whorf hypothesis, 4:3, 78, 260, 317
- Why We Fight* (film series), 2:48, 294
- Whyte, Martin King, 2:213
- Wiene, Robert, 3:62–63
- Wiener, Norbert, 1:258, 397; 2:314, 316; 3:209; 4:318–320*
Cybernetics (book), 1:443, 445; 4:318
God and Golem, Inc. (book), 4:319
The Human Use of Human Beings (book), 4:319
 Shannon-Wiener formula, 2:316; 4:59, 61
- A Wife among Wives* (film), 2:112
- Wigmore, John H., 4:233
- Wigner, Eugene, 2:502
- Wijewardene, D. R., 3:189
- Wilberforce, William, 3:395
- Wilcox, Delos F., 1:370
- Wilcox, Thomas, 4:238
- Wild Strawberries* (film), 1:186
- Wilde, Oscar, 2:446
The Importance of Being Earnest (play), 1:341
- Wilder, Thornton
Our Town (play), 2:62
- Wilensky, Harold, 4:198
- Wilhelm II (kaiser), 3:201
- Wilkins, John, 4:275
An Essay towards a Real Character and a Philosophical Language, 4:77
- Wilkins, William, 1:289
- Willard, Frank
 “Moon Mullins” (comic strip), 1:346
- William of Conches, 2:434
- William of Ockham, 2:434; 4:47
- Williams, Patricia A., 1:271
- Williams, Raymond
Culture and Society (book), 1:438
- Williams, Tennessee, 4:257
The Glass Menagerie (play), 2:59
A Streetcar Named Desire (play), 2:59
- Williams, Walter W., 1:359
- Williams, Wenmouth, 1:43
- Williamson, James, 3:58–59
- Wilson, Arthur M., 2:29
- Wilson, Augusta Evans
St. Elmo (book), 2:451–452; 3:482
- Wilson, Brent, 1:259
- Wilson, Edward O., 1:67; 2:121
- Wilson, Elmo, 3:328
- Wilson, Marjorie, 1:259
- Wilson, Robert
Einstein on the Beach (play), 2:60, 61
- Wilson, S. Clay, 1:349
- Wilson, Woodrow, 1:144; 2:203, 436; 3:297, 396
- Wimpfeling, Jacob, 4:12
- Wimsatt, William K., 3:298, 300; 4:193
- Winans, James A.
Public Speaking (book), 3:463
- Winckelmann, Johann, 1:289; 3:94
- Winnicott, Donald W., 1:267
- Winnipeg Tribune* (newspaper), 3:197
- Winsor, Kathleen
Forever Amber (book), 3:481
- Winstanley, Gerrard, 3:460
- Winter, James, 1:43
- Winter Light* (film), 1:187
- Winthrop, John
Journal, 4:311
- Wipe Cycle* (video), 4:285
- WIPO. *See* World Intellectual Property Organization
- Wire Photo, 4:228
- Wire services, 2:227; 3:288; 4:211, 228. *See also* News Agencies
- Wireless Telegraph and Signal Co., 2:472
- Wiredtapping, 1:428; 3:370
- Wisdom literature, 1:442; 3:380, 382
- Wiseman, Frederick, 1:277; 2:169
- Wisner, George W., 1:457
- Wister, Owen
The Virginian (book), 4:315
- Witchcraft through the Ages* (film), 3:62
- Without Pity* (film), 3:167
- Wittgenstein, Ludwig, 1:250, 293, 355, 357; 2:345; 4:184, 320–321*
Philosophical Investigations (book), 4:45, 320
Tractatus Logico-Philosophicus (book), 4:320
- Wittig, Monique, 2:157, 158
- Witzel, Josef, 3:349
- Wolf, Dennie, 1:265
- Wolf, Hugo, 3:220
- Wolfenstein, Martha, 1:373
- Wolff, Bernhard, 3:176
- The Wolfman* (film), 2:293
- Wollen, Peter, 2:175
- Women. *See also* Men; Sex/gender roles
 authorship, 2:416
 body decoration, 1:193, 195; 2:137, 139–140
 body movement, 1:200, 201
 computers, 1:391
 feminist theories, 2:157–160
 fiction, 2:198, 200, 449; 3:481–484
 food, 2:189, 192–193
 gender, 2:211–214
 media portrayal, 1:187, 273, 431; 2:85, 214; 3:332; 4:179, 291–292
 olfactory research, 4:90
 political activity, 1:145; 3:395
 pornography, 3:332, 333
 portraiture, 3:335, 338–340
 sexism, 4:54–59
 sign language, 4:67
 soap operas, 1:373; 4:90–92
 social skills, 4:57–59, 97
 sports, 4:159
 as storytellers, 2:185
 violence against, 2:108; 3:332, 333; 4:291–292
- Woodiwiss, Kathleen, 3:483
- Woodruff, Hale, 3:89
- Woods, James
Foundations of Aesthetics (book), 3:465
- Woolbert, Charles H., 3:463
- Woolf, Virginia, 2:26, 168, 170
- Word play. *See* Speech Play
- Word processing, 1:378–379, 390, 395, 396; 3:365
- Wordsworth, William, 2:56; 4:51
Lyrical Ballads (book), 2:445
- Work force, 1:381, 394–398
- Workers Film group, 2:47
- Workplace automation. *See* Computer: Impact—Impact on the Work Force
- World* (newspaper), 3:187
- World Administrative Radio Conference (WARC), 2:109, 334; 3:425; 4:146
- World Assn. for Christian Communication, 2:335; 3:446
- World Assn. for Public Opinion Research, 3:330
- World Bank, 2:9, 13, 335; 4:146
- World Cup, 4:137, 159, 161
- World economy, 1:12, 398–399; 2:12–17
- World Federation of the Deaf, 4:69
- World Health Organization (WHO), 1:398
- World Intellectual Property Organization (WIPO), 1:419; 2:334
- World Jewish Congress, 2:28
- World Meteorological Organization, 4:5
- World Patent Index, 2:428
- World Radio Missionary Fellowship, 3:446
- World Soundscape Project, 4:106
- World War I
 Asia, twentieth century, 1:143–144
 espionage, 1:429; 2:105
 film, 2:286; 3:61–62
 propaganda, 3:376
 radio, 3:418
- World War II
 advertising, 1:20
 censorship, 1:248
 disinformation, 2:40–41
 espionage, 1:429; 2:105

film, 1:93; 2:48–49
 propaganda, 1:40, 371; 3:376
 telecommunications, 3:420–421;
 4:219
 “Worlds Apart” (TV series), 2:113–
 114
 Worldwide Military Command and
 Control System, 1:384
 Worldwide Television News, 4:228
 Worth, Sol, 2:111
 Wren, Christopher, 1:187
 Wrestling, 2:340; 4:162, 219
 Wright, Basil, 2:47, 258
 Wright, Charles R., 2:204, 205
 Wright, Harold Bell, 4:315
 Wright, Herbert, 4:129
 Writing, 4:321–331*. *See also* Al-
 phabet; Clay Tokens; Egyptian
 Hieroglyphs; Indus Script; Writ-
 ing Materials
 Americas, pre-Columbian, 1:49–
 50, 56–63; 4:326
 authorship, 1:159–160
 Byblos, 1:219–220
 Chinese writing, 4:324–326
 code, 1:314, 429
 copyright, 1:411–413
 cuneiform, 1:438–443; 4:323–324
 cursive, 1:46; 2:87, 89; 4:328–329
 folklore, 2:180, 182
 Hellenic world, 2:268–270, 272
 Islam, classical and medieval eras,
 2:353, 355
 Judaism, 3:373, 375
 language, 2:385; 4:329–330
 linguistics, 2:432
 oral vs. written language, 2:437–
 441; 3:16, 226–229, 430;
 4:329–330
 origins, 1:209–210; 4:321–323
 phoneticism, 4:326–329
 sign system, 2:179–180; 4:75, 78
 style, 4:186
 symbol systems, 1:208; 3:107
 Writing Materials, 4:331–336*
 bark paper, 1:62; 4:335–336
 books, 1:209–211
 clay tablets, 3:206, 207; 4:332
 cuneiform, 1:438, 441
 durability, 4:324, 325
 East Asia, 2:73–74
 Egypt, 4:332–333
 Hellenic world, 2:268
 Islam, 2:351
 leather and parchment, 1:441;
 3:243; 4:333
 paper, 1:107; 3:355–356; 4:334–
 335
 papyrus, 1:219, 441; 3:475; 4:324,
 332–333
 pens, 3:475; 4:333–334
 rush brushes, 4:333
 stylus, 1:298; 4:331, 332, 336

wax writing boards, 3:206, 207
 Wundt, Wilhelm, 2:179, 217
 Wuorinen, Charles, 2:99
 Wurlitzer Co., 3:112
 Wuttke, Heinrich
*Die deutschen Zeitschriften und die
 Entstehung der öffentlichen
 Meinung* (book), 1:370
 “Wyatt Earp” (TV series), 4:220
 Wycherley, William, 1:340–341
The Country Wife (play), 2:55
 Wycliffe, John, 3:20, 441
 Wyman, Jeffries, 3:248
 WYSIWYG work stations, 2:100

X

Xala (film), 3:79
 Xenophon, 1:188, 198; 2:270
 Xerography, 3:357, 361–365
 Xerxes, 2:104
 Xinhua (news agency), 1:366
 Xun Zi, 1:400
 Xylophones, 3:112

Y

Yamamoto, Isoroku, 1:429
 Yanase, Masamu, 1:238
 Yankelovich Monitor, 3:82
 Yaquis, 2:64
 Yeats, W. B., 4:193
 Yellow journalism, 1:345, 369;
 2:267–268; 3:182, 286, 370
Yellow Submarine (film), 1:95
 Yiddish language, 2:375
Yojimbo (film), 2:382, 473; 3:76
Yomiuri shimbun (newspaper),
 1:238; 3:183, 190
 “You Bet Your Life” (TV series),
 3:415
 Young, Chic
 “Blondie” (comic strip), 1:347
 Young, Thomas, 2:89
 Young and Rubicam, 1:19; 2:209
The Young and the Damned (film),
 1:218
 Young Communist League, 3:192,
 200
Young India (periodical), 2:210
The Young One (film), 1:218
 “Young Widder Brown” (radio se-
 ries), 4:91
 “Your Hit Parade” (radio series),
 4:157
 “Your Show of Shows” (TV series),
 4:220
Youth (magazine), 3:211
Yue chi, 3:107
 Yugoslavia, 3:79, 298; 4:92

Z

Zagreb Animation studio, 1:94–95
 Zaire, 3:227
 Zampa, Luigi, 3:167
 Zamyatin, Yevgeny
We (book), 4:21, 278
 Zangī (Turkish governor), 1:424
 Zanussi, Krzysztof, 3:79
 Zapotec writing, 1:57
 Zarzuela, 3:119
 Zedler, Johann Heinrich
Universal Lexicon, 2:101
 Zeiss-Ikon, 3:283
Zeitungswissenschaft, 1:362
Zemlya (film), 3:64
Zemlya zhazhdyot (film), 3:72
 Zemp, Hugo, 3:141
 Zenger, John Peter, 1:16; 2:231–
 232; 3:181; 4:339–340*
 Zenith (company), 1:111
 Zenodotus, 2:423
 Zero, invention of, 1:59; 3:211,
 213–214
Zéro de conduit (film), 3:71
 Zero-sum game, 4:305
 ZGRASS computer graphics system,
 4:285
 Zhalakevichius, Vitautas, 3:78
 Zhu Xi, 1:400
 Zihlman, Adrienne, 2:212
 Zik. *See* Azikiwe, Nnamdi
 Zillmann, Dolf, 4:38, 291
 Zimbabwe, 1:154–155
 Zimmerman, Donald, 4:58
 Zimmermann telegram, 1:429;
 2:105
 Zionism, 2:28, 374
 Zoetrope, 3:51, 52
 Zola, Émile, 1:119; 2:168
La bête humaine (book), 3:452
The Experimental Novel (book),
 2:445
Nana (book), 3:452
Thérèse Raquin (book), 2:92;
 4:257
 Zoopraxiscope, 3:51
 Zoosemiotics. *See* Animal Commu-
 nication
 Zorn, Friedrich Albert
Grammatik der Tanzkunst (book),
 1:208
 “Zorro” (TV series), 2:42
 Zuccalmaglio, A. N. F. von, 3:135
 Zukor, Adolph, 4:340–341*
 Zulański, Andrzej, 3:79
 Zuni language, 2:116–117
Zvenigora (film), 3:64
 Zwerin, Charlotte, 1:277
 Zwingli, Huldrych, 2:460; 3:394
 Zworykin, Vladimir K., 2:156; 4:4,
 218, 341–342*
 Zydeco, 3:98

